Literacy with ICT Across the Curriculum


GUIDE TO INFUSION

2012

Northwest Territories Education, Culture and Employment

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LITERACY WITH INFORMATION AND COMMUNICATION TECHNOLOGY

2012-2013

LwICT

Learning about and choosing ICT to critically, creatively, and ethically use, produce, and communicate meaning.

During 2012-2013, *LwICT* will consist of components that are initiated and implemented by (ECE), and components that can be collaboratively developed and conducted with participation and support from Boards (Cooperative).

INFUSION GUIDE
Rationale for ICT; skill expectations by divisions; ICTs across the curriculum; assessment tools (ECE)

EXEMPLAR LESSONS
150 ICT-supported lessons by NWT teachers, on CD, on ECE website and linked in social bookmarks (ECE)

WEB-CONFERENCING
Meet online for monthly demonstrations of ICT-supported learning at mutually beneficial times (Cooperative)

OUTCOMES POSTER
ICT skills/attitudes/examples on a continuum of cognitive/affective learning and developmental stages (ECE)

SOCIAL BOOKMARKS
Web resources/ICTs for learning at www.delicious.com/nwtcurriculumlinks/ (ECE)

TUTORIALS
Short screen recording tutorials on DVDs that support *LwICT* skills (ECE)

A 2012-2013 INQUIRY
An ICT-supported, transdisciplinary, culture-based project for all NWT schools (Cooperative)

WHERE TEACHERS GATHER
In-person presentations to large teacher gatherings–showing practical components of digital literacy (Cooperative)

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Northwest Territories Education, Culture and Employment

Literacy with Information, Communication Technology

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GRADES
K-12

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Literacy with Information and Communication Technology

Part 1: Understanding Literacy with ICT

GRADES
K-12

Culture-Based Education and ICT

We the Dene believe:
- That education is holistic and must be founded upon the Dene worldview.
- That children are born with integrity, holding the land, and must be valued and respected for their worth in order to become the unique people they are meant to be.
- That the drum is to be the center of Dene existence; representing the self, in unity with the people, the land and the spirit. For one to grasp the drum is to be in tune with one's self, neighbours and the land as a means to keep the people together. The voice of the drum is used with integrity to speak the language of our Ancestors as we reinforce our way of life.
- That the drum dance is a powerful spiritual expression of self knowledge, interdependence and survival as a group; that the tipi is the representation of the holistic education of children on their journey to becoming capable adults. This is achieved through spiral learning where children are repeatedly exposed to the Dene teachings through the guidance of the Elders and the support of the community.
- That in order to survive, humankind must maintain a respectful and harmonious relationship with one's self, others, the spiritual world and the land (adapted from The Common, 2002).

Inuuqatigiit has articulated what is important to Inuvialuit and Inuinnait to study, enhance, enrich and preserve. Some of the key elements from Inuuqatigiit that all curricula can support are:
- Local histories of the Inuvialuit and Inuinnait.
- Traditional knowledge.
- Inuvialuit and Inuinnait values and beliefs from their worldview.
- Stories and ways of storytelling.
- Sewing and hunting techniques.
- Land activities and knowledge of the environment.
- Childrearing; Names and Naming.
- Elders; Family relationships; Kinship.
- Leadership; Relationship with people and the land (adapted from The Common).

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Dene, Metis and Inuvialuit people of the NWT have expressed the desire to be comfortable in two worlds: the world of their traditional cultures and heritages, and in the world of Western and European cultures. *Dene Kede* refers to this dual strength as being "strong like two people" (*Dene Kede*, Grade 8 Module: "Strong Like Two People", p. 2-80); *Inuuqatigiit* says, "Education should teach them about the best of both worlds..." (*Inuuqatigiit*, 3). A world dominated by access to vast fields of information and multiple mediums of communication has the potential to enhance relationships with others, help construct personal identity, and assist collaboration in new communities. Conversely, ICT devices can dominate personal time reducing the art of face to face communication and intergenerational learning, placing at risk the view that all natural existence is an integrated whole. The need for the world to survive change and make sustainable decisions is illustrated in *Dene Kede*, "We are beginning to understand that [traditional teachings] have a timeless quality which can be applied to any situation, any place, any people" (*Dene Kede*, 1993 p. xxiv). In order for future NWT citizens to be inclusive and enhanced by traditional teachings, a renewed emphasis must be made on the principles or rules that are core to *Dene Kede* and *Inuuqatigiit*: respect for the land, the spiritual world, others, and ourselves (*Dene Kede*, p. xxv; *Inuuqatigiit*, p. 8). Living in a technological society means among many things, using tools to enhance relationships, gain greater access to language learning resources and historical data, and creating primary data, communications, and local approaches to learning and knowing. *Literacy with ICT* is intended to play a part in the development of a "capable person" (*Dene Kede*, 1993, p. xiv), knowing when to act and with what tools (WNCP - projects, 2011). This curriculum seeks to achieve "maximum learning" that is both "relevant and meaningful to [students] and is "based on their individual strengths and needs." (*Inuuqatigiit*, 5).
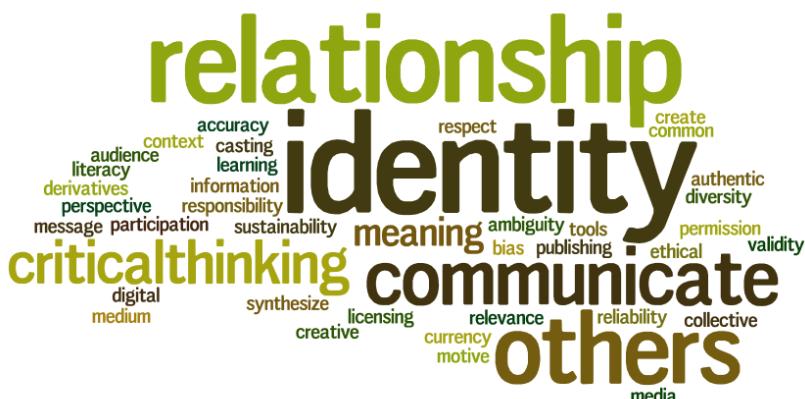
Cultural Change and Pedagogy

The last one hundred years of information growth has brought profound changes to society. Technologies have been developed and applied to bring incredible improvements to most aspects of society particularly in transportation, communication, health care, and overall availability of information.

Education is changing as well, but at a slower pace. The teacher's task is a difficult one because the life experiences that shape a teacher's approach to learning and pedagogy steadily moves toward irrelevancy in the students' world. Daniel Pink claims that educators must be aware that they may be preparing students for the teacher's past (Pink, 2009) - not the student's future. The clever task of identifying and adapting perennial skills and knowledge to new ambiguous contexts is the teacher's responsibility - knowing what strategies to bring forward and which ones to leave behind. This kind of dynamic literacy with learning "new meanings" is the task of the NWT teacher. Teachers are called upon to use their personal and professional experiences and training to model 21st Century values. This suggests teachers must learn from their own teaching contexts - from the world of their students. Both *Dene Kede* and *Inuuqatigiit* emphasize the measure of a competent person as being capable of surviving. Implied in this is surviving cultural change--a call for the strength of "two people", or two cultures. The act of teaching must model *how* one survives in many worlds. Students and teachers must learn from each other for present survival. According to Marc Prensky, a "partnership" is required between students and teachers (Prensky, 2010).

What has changed is the knowledge base, which has grown, and the tools for communicating and sharing what students are learning as they cultivate these skills in a new world. These tools have given students new forms to convey their ideas, changing the immediacy and range of input that is possible... the fact that we assimilate immediate time-and-space communications requires new skills for processing and sorting that information. (Jacobs, 2010, p27)

A partnership such as this requires students and teachers to learn together. As early as 1954, Hanna Arendt stated the need for a kind of constant evolving of pedagogy when she said "and education too is where we decide whether we love our children enough not to expel them from our world and leave them to their own devices, nor to strike from their hands their chance of undertaking something new, something unforeseen by us, but to prepare them in advance for the task of renewing a common world" (Arendt). Rapidly changing technology results in rapid change in culture - even rapid change in what would be considered "common." Schools are places where the youth live within the change - without always knowing what conditions preceded these changes. The challenge for educators is to develop pedagogies that are forward-looking and developing of 21st Century citizens while respecting the "legacy of the past" (Prensky, 9). Educators have an opportunity to model a new kind of learning that as Prensky says involves "adults and young people taking on new and different roles" rather than merely focusing on changing tools (10).

Information and Communication Technologies and Culture

How then will changing technologies impact the cultures of our students and learning? In education, information and communication technology (ICT) can be an agent for both cultural preservation and cultural change. Students can investigate, synthesize and reveal to a real and even world-wide audience the possibilities and liabilities that they find in their contexts and beyond.

The ways in which ICTs access, display, and broadcast interactions and learning within relationships, change the perennial practice of face to face communications with only people one knows. In cultures where writing for fictional audiences is difficult, ICT can bring real responses from real communities interested in the student's work - even face to face through screens. In effect, ICT has made it easier to have many relationships from a distance with those we may never meet in person. This kind of "pervasive proximity" that comes with "ubiquitous connectivity" (Federman, 2008) brings new ideas and ways of being into the remotest locations - affecting values and choices. Ultimately, culture is impacted and changed. These uses of ICT outside the school are being brought into school cultures.

Important skills and knowledge can be gained from [engagement with new digital media], but there are also risks. However, young people may only rarely consider the learning opportunities, risks, and the related question for what it means to be an ethical, socially responsible "citizen" on the Internet (GoodPlay Project, 2011)

Identity and the Other

This kind of access to the "other person" holds incredible possibilities - as well as serious pitfalls. The ability to affect awareness, learning, and change is within the realm of K-12 schools. How students develop their online cultural identity and relationships to others, and how they speak to "the other" must be carefully taught. This kind of care might seem unreasonably formal in a world of instant messaging. However, education's role is to not only teach about the futility of trying to retract copiable and pasteable text and images online. Education is also to teach about "open audience" contexts requiring students to maintain a respectful stance toward the multiple perspectives and responses that an audience brings to one's message. For example, our perspectives expressed in public wikis, tweets, and blogs can be read by anyone on the planet. We can teach our students to avoid needless provocation.

Young people are increasingly being called "screenagers" (Scherer, 2011). From a social development perspective, the ample time students are spending online at home is making them challenged in building face to face relationships that involve non-verbal language cues, eye contact and tone of voice (Small and Vorgan, 2008). Again, schools play a significant role in teaching about these important 21st Century competencies: contexts, meaning-making, effective communicating with diverse audiences, and building respectful and working relationships.

Competencies for the 21st Century

In Western and Northern Canada, increasing attention is being paid to competencies for 21st Century citizenship. The NWT has begun work imagining the kind of qualities that all curricular learning outcomes should reflect.

While much work has yet to be done, the competencies alluded to in this section (Figure 1), reflect a preliminary synthesis of current thought in the field. More details are shown in Table 1.

Information and Openness

Until the last decade, the process of editing and publishing information has been well defined. It was managed by a few and cast broadly to many passive recipients first through public speaking, then through books, radio, and TV (Federman). It depended upon someone else's creativity, research, and synthesis that we all received and accepted (Weinberger, 2009). Now, in a Web 2.0 world of collaboration, collective intelligence, user participation and recommendation, and on demand publishing, the common citizen is the creator and casts meaning to a worldwide audience (Berger, Trexler, 2010, Federman).

Figure 1

The world of the internet is influencing Canadian society towards more openness; institutions are becoming more accountable to citizens. This is reflected in the federal government's development of "proactive disclosure" and the opening of public portals for information searching (Davies, 2010). To balance this openness, the government legislates the protection of citizens with the Office of Privacy Commissioner (Government of Canada, 2000). Generally, the public is gaining greater access to institutions, information, and public services. The internet has paved the way for much of this openness and democratizing of knowledge.

Although each form of literacy corresponds to the arrival of a new media form, newer literacies do not displace or undermine older ones. To be a fully literate individual in a media-saturated world places greater and greater learning demands on each new generation (von Hamel, 2011)

This openness is juxtaposing diverse peoples, attitudes, perspectives, and values. The individual has the potential to work, shop, create, access services, learn from home, and send and receive messages from another continent during the length of a television commercial. The individual controls who he or she pays attention to, whether it be only people who agree with them or people who counter their ideas. Social and economic constructs such as "boss", "employee", "expert", "publisher", "copyright", "learner" and others are being reexamined, redefined, and negotiated. That which is constant appears to be rapid change in an information rich society. Even the very nature of the Internet is open to debate: is it a publishing medium or a place of conversations? What is conversation--an exchange of mutual reinforcing ideas, or an exchange of opposing ideas (Weinberger)?

With more ways "to be", there are less controls impinged and fewer gates kept. The common person now has more responsibility to gain the perennial skills of metacognition and critical thinking that a small specialized class of "broadcast-

ers" of information through the media used to solely display (Federman). The common person must acquire the tools to recognize "horizons of significance" accepting that all things are not of equal value (Taylor, 1996) and respond to the relative value of information for their own context. This involves attending to the significant, ignoring the irrelevant and using criteria to make the judgment. This is a starting point for schools and the development of critical minds.
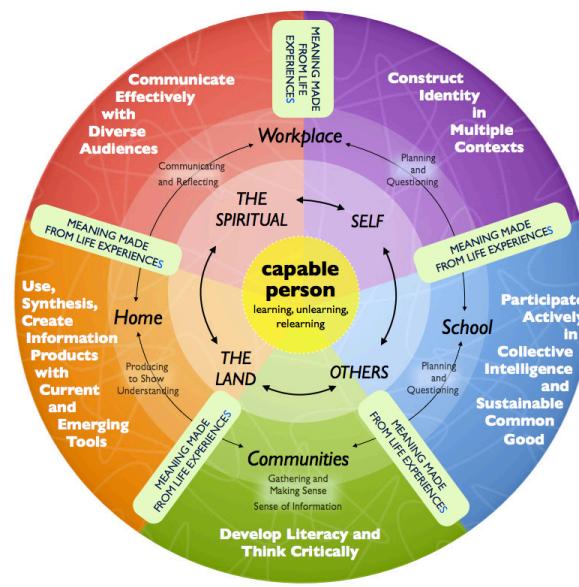
Media themselves are not inherently good or bad: they are technologies that can be used in multiple ways (Kolucki, 2011)

Credibility and Democratized Knowledge

This kind of information democracy is testing attitudes toward information. Perhaps now we realize we may have been "living under an artificial sense of simplicity" (Weinberger) when we trustingly thought that all there was to know about a topic could be confidently found in the work of one credentialed author. Now with many authors and "editors" and much more information, questions about currency, credibility, reliability, and perspective must be raised. The very nature of what

Table 1: Competencies of a 21st Century Citizen

Competency	Tags and Defining Characteristics
Construct Identity in Multiple Contexts **Overview**: The 21st Century citizen -is mindful of one's personal needs and present surroundings that promotes emotional, physical and spiritual well-being. -communicates and builds relationships. -establishes a balance between online and offline lifestyles. -understand ones' knowledge, skills, attitudes, values, in comparison and contrast with the diverse contexts of others. -develops the dynamic ability to act on this understanding by learning, unlearning, and relearning in a lifelong development of identity and meaning making.	**Construct Identity:** -metacognition, reflection -sense of self (emotional, physical, spiritual well-being and resilience), -mindful awareness (the relaxation response) -development of personal potential and ethical consciousness -coherence of all facets of identity, online and offline -recognition of the right to privacy, -awareness of personal affinities and memberships **Multiple Contexts:** -cultural, social, global, political, economic, and environmental understanding
Participate Actively in Collective Intelligence and Sustainable Common Good **Overview**: The 21st Century citizen -develops the affective and communication-rich ability to form and flourish in groups constructed of individuals with multiple-perspectives who care deeply about a topic and are empathetically responsive to each other's perspectives. -develops the ability to focus deeply and sustain thought using tools when and where appropriate. -develops the ability to participate in open discussion where certainty and ambiguity are inherent. -develops the ability to persist in constructing coherent positions from which to launch actions that bring about the greatest common good to all stakeholders and impacted contexts.	**Participate Actively:** -confidence, motivation, ethical and respectful relationships, -development of skills such as recognizing feelings in others, learning to listen, empathy, letting others know how you feel; effective management of multiple tasks; development of depth while attending to multiple tasks; valuing and managing ambiguity **Collective Intelligences:** -collaboration, teamwork -posing questions from multiple perspectives -pooling knowledge -advocating for ideas, causes, and actions -bridging ingenuity gaps -reflecting on processes -intentional and measured risk-taking **Sustainable Common Good** -mutual dependence -delay of gratification for long-term collective well-being

Competency	Tags and Defining Characteristics
Develop Literacy and Think Critically **Overview**: The 21st Century citizen -develops the ability to access and recognize contextual meaning in language, symbols, and texts. -flourishes in the selection, use, and creation of meaning for diverse audiences. -develops the ability to recognize and act on the difference between authentic voice and commercial interests. -develops the ability to recognize and evaluate authority, perspective, and relevance of meaning. -develops the ability to understand the difference between personal preferences, and developing and applying required qualities or criteria before making a selection or judgment.	**Develop Literacy:** -acquiring, creating, connecting, critiquing and communicating meaning in a variety of communities, belief systems, and environments -recognition of difference between authentic voice and commercial interests -attention to accuracy, bias, credibility, currency, equity, motive, perspective, relevance, reliability, validity; **Think Critically:** -criterial thinking -generation of criteria -reasoned judgments
Use, Synthesize, and Create Information Products Ethically with Current and Emerging Tools **Overview**: The 21st Century citizen -develops the ability to place one's use of information products in ethical relationship to the author's intended uses and licensing requirements. -develops the ability to develop deeper understanding of a field before expanding, repurposing, or connecting information in the field to other fields. -develops the ability to create and release primary data according to a variety of self-selected licensing agreements. -develops the ability to manipulate digital tools while using and creating information products.	**Use of Information Products:** -ethical considerations of authorship and ownership, licensing, permitted and intended use of information products **Synthesize, and Create Information Products:** -learning with depth within several disciplines -making connections between disciplines -repurposing information, transferring knowledge to new contexts -understanding of copyright and recognition of the various creative commons licenses **Current and Emerging Tools:** -digital literacy: familiarity with the use of operating systems, applications, and peripherals; and creation, manipulation and transfer of digital data
Communicate Effectively with Diverse Audiences **Overview**: The 21st Century citizen -develops the ability to recognize and understand the contexts of the intended online or offline audience when constructing the meaning to be conveyed and the medium that will cast that meaning. -develops the ability to anticipate, welcome, and respectfully respond to diverse feedback.	**Communicate Effectively:** -critical selection and use of language, symbols, and texts -contextual casting of meaning through the appropriate media -recognition of the nuances of communicating through static, stand-alone, asynchronous information products and, dynamic, live synchronous communications **Diverse Audiences:** -readiness for and acceptance of diverse audiences and responses

information is cannot be left as a question for academics. While in this Web 2.0 world, we place "radical trust" (Berger, Trexler, p. 5) on mass contribution, recommendation, editing, and ownership of content among people who care deeply about a subject, we must develop skills to check how trustworthy, authoritative, and relevant this information is. We have to accept that among all the collective intelligence and user-generated knowledge, there must still be an everpresent counsciousness of hype and unearned celebrity (Gardner, 2008). Beside all those free applications that make participation, work, and learning easier often runs a parallel commercial interest that suggests people still want to make a living. Google's free video hosting site, YouTube is a good example of blending user developed primary data with commercial advertising.

Digital Lifestyle

The constant exposure to the digital devices used in this information democracy is changing the human brain and causing a "brain gap" (Small, p. 23) between Digital Natives and Digital Immigrants. With the many hours being spent with personal digital devices each day, portions of the brain that control social interactions are not being developed as they once were. The neural pathways that develop the skill of face to face communication and reading of non-verbal cues must be attended to in other ways and balances are required between these electronic devices and actual human contact. While digital devices are making life easier, strengthening certain so-called "multitasking skills" (some call this "continous state of partial attention" (Small, p. 18), and perhaps developing better peripheral vision, our use of them may be accenting conflicts between generational approaches to learning and information. Digital immigrants (those born before the Internet) have years of experience in detecting deep patterns in information and draw on "templates" of meaning-making strategies--but are weaker in managing several tasks at the same time (Small, p. 42, 120). Digital Natives (those born after the Internet) do well with quick-paced, dynamic, and local context information settings but are weaker in big-pattern, multi-discipline development that requires sustained attention.

... in addition to "computer literacy" - an old pursuit wherein we teach novices how to use computing technology in a purely operational sense - we need to be conveying the much more complex skill of "information literacy" to the very young: how to reason about the swirl of perspectives you find when you consume information online, how to understand and harness the computational forces that shape this information, how to reason about the subtle consequences of your own actions on the Internet (J. Kleinberg in Brockman, 2011).

Inspite of the fact that young people demonstrate a facility with online tools, many lack the skills they need to use those tools effectively for learning. There is also a propensity on the part of students to take what they find online as "given" (Steeves, 2012).

Adaptability of both groups is vital in this kind of technological environment. Alvin Toffler states in *Rethinking the Future* that "the illiterate of the 21st Century will not be those who cannot read and write, but those who cannot learn, unlearn, and relearn" (Gibson, 1998).

A Capable Person in the 21st Century

Gaining a sense of balance between skills, knowledge, and attitudes; digital information and "digital wisdom" (Sprenger, 2010); autonomous learning and socially interconnected learning; and online and offline lifestyle (Small, p. 144-148) are all implied in a capable citizen. Being *able* to survive in the NWT takes special significance with the decline of traditional language, knowledge, and culture, their recovery, and relationship to a digital economy.

Table 1 (p. 18, 19) contains a list of preliminary NWT competencies of a capable 21st Century, NWT person.

Purpose

The purpose of this resource is to help teachers, school leaders, and curriculum developers understand the role of information and communication technology (ICT) in classroom learning, teaching, and assessment. This resource is an adaption of Manitoba's 2006 document, *A Continuum Model for Literacy with ICT Across the Curriculum* (Literacy with ICT).

A Brief History of ICT Curriculum in the NWT

Education, Culture and Employment made the preparation of an infused ICT curriculum a priority. What follows is a brief timeline of how ICT became a priority for ECE:

- In 1985, the GNWT produced a guide that focused on introducing students to computers. The GNWT did not consider this document a formal curriculum, rather information to allow educators to use computers as tools to assist in instruction.

- In 1998, the GNWT partnered with Yellowknife District #1 and Yellowknife Catholic School boards to produce the Technology Curriculum Project. This project's purpose was to provide information to teachers about applications, and mastery levels in curriculum-referenced student activities; to train teachers toward these purposes; and to create a training bank of materials to be shared with educators across the North.

- ECE created an advisory group to consider the adoption of another jurisdiction's ICT curriculum. Alberta's ICT curriculum was seen to be the best match. Also many Alberta courses were already used in NWT schools. No formal adoption of Alberta's curriculum was made since other initiatives took priority at that time.

- An NWT ICT committee (NWTICT) was formed in 2005 on the recommendation of superintendents of Divisional Education Councils (DECs) / District Education Authorities (DEAs) to pursue ICT implementation in the various regions, as well as to encourage ECE to adopt and implement an ICT curriculum for the NWT.

- In December 2008, an ICT Infusion Support Plan written by NWTICT was officially submitted to the Department through the NWT Superintendents Association (NWTSA).

- An ECE response to the Infusion Plan addressed three central issues. The need for:

  1. an NWT-wide curriculum.

  2. teacher support for implementation of such an ICT curriculum.

  3. ongoing general support of ECE" for this curriculum.

- In February and March 2009, Manitoba Education's *Literacy with ICT Across the Curriculum*: *a Continuum Model* was the curriculum recommended by both the NWTICT and ECE advisories for both educational and practical reasons.
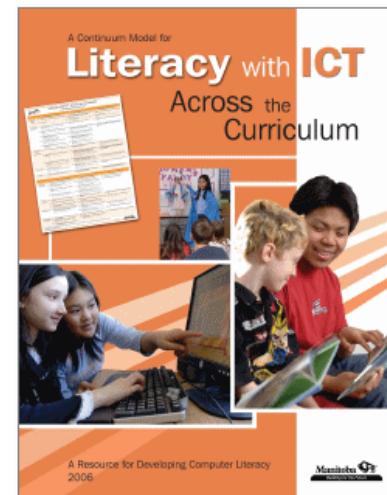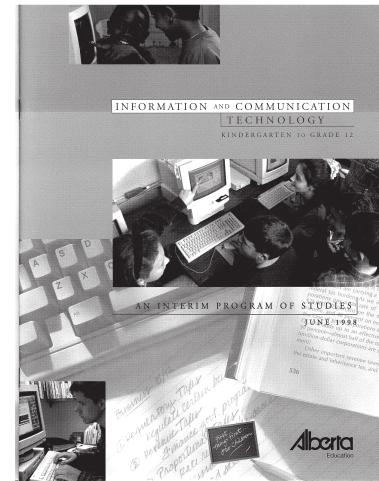
- In April 1, 2010, ECE hired a full time ICT coordinator.

- ECE began the adaptation of Manitoba's *Literacy with ICT Across the Curriculum (LwICT): a Continuum Model* for an NWT context to reflect current academic and pedagogical thought about what it means for students in the 21st Century to be critical, creative, ethical and responsible users, producers, and communicators of information.

- In the 2010-2011 school year, ECE tested the ICT curriculum with three piloting schools. The purpose of the pilot was to determine what effect a modest FTE allocation for ICT mentorship could have on a staff and to determine how reasonable the "scope and sequence" of user expectations were at the various grade levels. These findings provided guidance for the preparation of a large Territorial pilot during the 2011-2012 school year.

- In 2011-2012, the large territorial pilot involved 67 volunteer technology mentors (TMs), 1 or 2 in each school. These individuals tested the Infusion Guide's assessment tools, created digital work with online applications for uploading to a private label wiki, and created 150 K-12, ICT-supported lessons. Each TM attended four web-conferences hosted by ECE to discuss progress and challenges with LwICT infusion. TMs also supported staff ICT growth with short staff meeting presentations.

Technology as a Foundational Skill

To prepare students to become citizens of the global community, the Government of the Northwest Territories Department of Education Culture and Employment has identified in the document, *Towards Literacy: A Strategy Framework – 2008-2018,* use of technology as one of the multiple literacies to be developed in the NWT.

The GNWT recognizes that the nature of information and learning is changing. Many leading educational theorists propose skill sets that young people need to successfully move into adult roles in society. Garner, James, and Weigel in "Learning: Peering Backward and Looking Forward in the Digital Era" (2009, p. 7), summarize these thought leaders this way:

> In these frameworks, the traditional "three R's" remain but are supplemented by a broader focus on metacognitive skills and an acknowledgment that individuals live in a complex world defined in part by existing but fluid frames of meaning (Geertz 1993). Most would agree that a well-educated individual should be able to:
> - successfully participate in a global economy where money, culture, ideas, and people circulate rapidly.
> - to synthesize and utilize vast rivers of information obtained through a variety of channels (textual, visual, multimediated).
> - to engage with this information across a variety of disciplines.
> - to be comfortable negotiating a range of social connections, including interacting with diverse populations.
> - serve as an engaged and responsible member of one's profession and one's communities.

Information Communication Technologies skills play an important part in developing young people's competencies with money, information, social connections, and civic and professional engagement. The foundational nature of digital literacy is expressed in the following sections.

Literacy with Information, Communication Technology: What Is It?

Literacy is an all encompassing ability to detect, interpret, create, and communicate meaning in a complex world; we see this reflected in Table 1, "Develop Literacy and Think Critically", an NWT adaption of Alberta's current definition of literacy. Alberta defines literacy as "the ability to access and recognize contextual meaning in language, symbols, and texts; and flourish in the selection, use, and creation of meaning for diverse audiences" (Government of Alberta). The NWT takes the view that digital literacy is more than competence in an operational sense but includes these broader areas of connecting and contributing to online, diverse communities in a safe and responsible manner (Premier's Technology Council, 2010).

Digital literacy, then, is not about technical proficiency, but about developing the critical thinking skills that are central to lifelong learning and citizenship (Steeves).

Literacy with ICT Across the Curriculum describes how students use ICT to enhance and extend their learning. It includes the following components:
  • A definition of literacy with ICT.
  • A skill continuum over four divisions (K-3, 4-6, 7-9, 10-12) illustrating how
    students extend their critical and creative thinking and communication with ICT in a responsible and ethical
    manner, and with increasing technical skill.
  • Teacher assessment tools for each division.
  • Four divisional "easy-speak" snapshots of the K-12 skill continuum for students.
  • Four divisional teacher preparation guidelines relative to the student easy-speak snapshots.
  • NWT online exemplars for each divisional level.
  • Professional learning for teachers in regional, divisional, or interest groups through web conferencing.

Note: In this resource, the term "Literacy with ICT Across the Curriculum" (also referred to simply as "Literacy with ICT" or "LwICT") is italicized when referring specifically to the initiative. When referring generally to the concept of literacy with ICT and its application across the curriculum, no capitalization or italics are used.

What is information and communication technology (ICT)?

Information and communication technologies include computers, laptops, tablets, digital cameras, video cameras, digital microscopes, scanners, cell phones, electronic games, digital audio devices, global positioning systems, electronic whiteboards, the Internet, et cetera. ICTs in the classroom will continue to evolve as new technologies emerge over time. As Prensky points out to teachers, the tools are the "nouns" in this discipline that continue to change; what is key is the more static "verbs", the skills of *understanding, critiquing, creating, communicating, collaborating* for which we use tools to practice and learn (2010).

Critical and Creative Thinking (choosing and using ICT, critically and creatively across the curriculum)

Ethics and Responsibility (choosing and using ICT, responsibly and ethically across the curriculum)

ICT Literacy (demonstrating ICT skills such as accessing and communicating, input/output, tools and text, vocabulary)
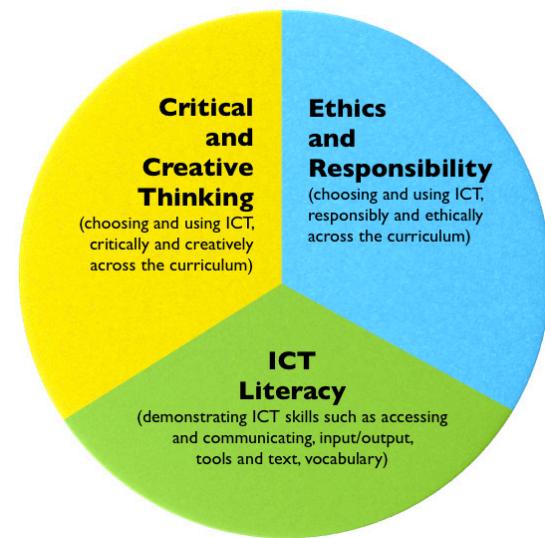
Figure 2

What is literacy with ICT?
Literacy with ICT means learning about and choosing ICT to critically, creatively, and ethically use, produce, and communicate meaning. Literacy with ICT contains ICT

literacy. Figure 2 shows the relationship between "ICT literacy" (i.e., demonstrating ICT skill use) and "literacy with ICT" (i.e., demonstrating critical thinking and choice making while using ICT). ICT literacy is a critical component of literacy with ICT, but it is not sufficient in itself.

How do students develop their literacy with ICT?

Literate students choose and use ICT, responsibly and ethically, to support their critical and creative thinking about textual, numerical, visual, and aural information as citizens of the global community. Digital literacy is learned along with other competencies (see Figure 1, p. 16) and is specifically developed through a process of inquiry across the curriculum as students

- plan and question
- gather and make sense
- produce to show understanding
- communicate and reflect on their learning

How do students develop ICT literacy?

ICT literacy involves acquiring the supporting skills that are needed for students to develop their literacy with ICT. These supporting skills (see page 42) are most effectively developed within curricular contexts rather than on their own.

What is a developmental learning continuum?

A developmental learning continuum is an assessment tool for learning based on teacher observations. It describes what teachers see and hear students doing, as they demonstrate their literacy. Many teachers use continuums for assessing learning in reading, writing, and numeracy.

What is the *Developmental Continuum for Literacy with ICT Across the Curriculum*?

The *Developmental Continuum for Literacy with ICT* paints a picture of how students develop their critical, creative, responsible and ethical thinking during the components of ICT supported inquiry. The Developmental Continuum poster (Figure 3) provides a list of standards or expectations, and examples at each divisional level with each inquiry component.

Why develop a continuum?

- Since *LwICT* is not taught as a separate discipline, the *Developmental Continuum for Literacy with ICT* is congruent with and infused with existing concepts of inquiry across the curriculum (see Figure 8, p. 28).
- Since the focus is on what students can do, learners of any age are able to find themselves on the continuum, from novices to experts, from pre-K students to Senior Years students and beyond.
- Since continuums are focused on the student, the *Developmental Continuum for Literacy with ICT* provides a vehicle for students to self-assess and set goals for their learning. The "Student Self-Assessment: *LwICT* Snapshots" (Figure 4, Part 2) provide an 'easyspeak' version of the continuum for students at each of the four divisional levels and are contained in Part 2 of this document.

Figure 3

Figure 4

Which models informed the creation of the *Developmental Continuum for Literacy with ICT*?
- Bloom's cognitive taxonomy and Krathwhol's affective taxonomy.
- Inquiry Model (scientific inquiry/problem-solving/managing information, etc.).
- Pearson and Gallagher's model of explicit instruction, which portrays the gradual release of responsibility from teacher to student.

Why were these models used?
- Teachers have prior knowledge of, and experience with, the models and the taxonomies.
- Research in the last 25 years has shown that the most effective way to infuse ICT is to focus on pedagogy rather than on technology.
- The purpose of *Literacy with ICT Across the Curriculum* is to move from ICT as "supplementary" to the curriculum toward an "infused" use of ICT across the curriculum.

> *"...technology can enhance learning when the focus is on pedagogy and the student's needs."*
> *(Steeves, 2012)*

A supplementary relationship separates ICT and curriculum in space, time, and personnel — separate computer labs, computer classes, and computer teachers. A complementary relationship begins to connect ICT with curriculum in various ways. An integrated relationship allows the classroom teacher to bring ICT into the classroom so it is available at teachable moments. An infused relationship allows the transparent application of ICT, wherever and whenever appropriate, to enhance critical and creative thinking (see Figure 5).

What are the roles of those involved in implementing *Literacy with ICT Across the Curriculum* and how will these roles be supported?

Supplementary

ICT is used separately from curriculum outcomes

eg. Grade 6:"Let's learn how to use a spreadsheet!" You will need to know this when you get a job."
eg. "Here is a great app that takes the place of a level-- how could you use this in daily life?"

Complementary

ICT is used occasionally as a tool perceived to be better than the conventional tool/resource

eg. "Let's use atlas.com in the computer lab since we don't have a hard copy atlas for every student"
eg. "We are going to the computer lab. I want you to spend 30 minutes in Wikipedia getting a big picture view of one of these communities"

Integrated

ICT is brought into the classroom and used at teachable moments

eg. "This new interactive whiteboard will make it easy for us to quickly show this website to the whole class."
eg. "Jason wants to show Emily Carr style of painting with a piece he did on the iPad using Brushes."

Infused

ICT is used for all stages of instruction and inquiry.

eg. "The mindmap you make with XMind at the start will be developed each day in our "class lab" as you learn more information, questions, or create new hypotheses."
eg. "Use audacity throughout this unit to edit your group audio math journals you made with iPod voice memos, add some music and narration and present to the class."

Figure 5

Role: K–12 students will develop their literacy with ICT.

- Students are provided reflection time early in the school year to consider their use and familiarity with digital information and communication. The divisional "Snapshots", for example, will provide students and teachers a baseline profile of student familiarity with digital learning and guide resulting work plans and approaches toward greater engagement and differentiation of ICT-supported learning.
- During the three years within a division, students are encouraged to move from left to right in the continuum from a novice level, "Beginning to Learn", toward an expert level, "Learning and Teaching" (see Figure 4, p. 23 and Part 2 of this document).
- Students are encouraged to take part in ICT-supported inquiry within and between NWT schools and participate in NWT wide projects (see p. 166).

Role: K–12 teachers will provide learning opportunities for their students to develop literacy with ICT across the curriculum.

- Choosing a comfortable learning curve, teachers take an approach to ICT-supported learning environments that most interests them and their students. Teachers will continue (or begin) to model ICT as a natural way of planning, gathering, showing, and communicating meaning. Part 3 of this document provides ICT-supported learning ideas for each grade.
- Teachers engage in professional development that strengthens ICT-supported learning (eg. DVD tutorials--see Figure 6, and web-conferences--see Part 6 - p. 161).
- Schools make technology purchases that complement the skills demonstrated in the continuum.

Role: Parents will be provided with evidence of their child's literacy with ICT so they can further support their children.

- Parents could have access to the student's baseline competencies in September/October (Figure 4 and Part 2 of this document). Parents support is sought in advancing student digital literacy.
- Parents are given the links/or pdf's of the Manitoba booklet explaining what *LwICT* means to a parent audience (Education, Citizenship and Youth, 2008). This could be done one section at a time over a number of weeks, or all at once (see Figure 7 and p. 165).
- Parents are made aware of the NWT-licensed resources from MediaSmarts (formerly known as the Media Awareness Network) that teach students about digital and media literacy (see p. 162-164).

Figure 6

Role: Schools determine the best way to report to parents about the development of their child's literacy with ICT.

- Schools can make the results of baseline instruments available for parents during open houses and parent teacher conferences.
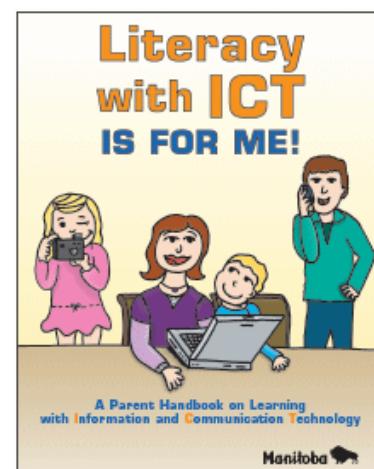
Figure 7

Role: School board authorities support their teachers and students in developing literacy with ICT.

- District authorities can recruit volunteer school-based technology mentors (TMs).
- District authorities can support technology mentors to vision, introduce, monitor, and model and troubleshoot ICT-supported learning.
- District authorities can make known/offer to all teachers in their regions, the opportunities that are available via webinars, web-conferencing opportunities, media tutorials, and NWT-licensed resources.

Supporting Principles

The Developmental Continuum for Literacy with ICT is a matrix of descriptors that portray how students demonstrate their literacy with ICT. The following concepts, processes, and methodologies are embedded in the continuum and have become supporting principles for the implementation of Literacy with ICT Across the Curriculum:

- Inquiry
- Constructivist learning
- Higher-level critical and creative thinking
- Reaching deeper understanding
- Gradual release of responsibility
- Digital citizenship
- Multiple literacies for the 21st century

Inquiry

Students in our classrooms were born after the Internet. Many of them are native to participating in virtual communities where recreation and learning blur. Increasingly students are connected and engaged in making choices over their learning pursuits. But is this participatory learning culture one they find at schools? "…[O]ur schools—how we teach, where we teach, who we teach, who teaches, who administers, and who services—have changed mostly around the edges" (Davidson and Goldberg, 2009, p. 8).

Most research literature supports a kind of pedagogy that make students active participants in their learning where they are able to understand and retain more complex material and apply and transfer their learning into new contexts. "Not surprisingly, research shows that today's digital students learn more when engaged in meaningful, relevant, and intellectually stimulating schoolwork and that the use of technology can increase the frequency for this type of learning" (Berger and Trexler, p. 11).

Inquiry is a powerful methodology that engages students in pursuing personal, active, and authentic learning in depth. It is a preoccupation with producing knowledge rather than acquiring knowledge (Jacobs, 2010, p. 223). It is a learning method based on the "power of questions" and "the power of designing solutions to problems called design-based learning, or just design" (Trilling and Fadel, 2009, p. 24). This technique is not to be confused with mere busyness of a student-centered project. In order to qualify as an inquiry, projects must grow and develop understanding and skill within a discipline, with an "apprentice feel" to the process (Wilhelm, 2007, p. 13).

Inquiry is indigenous to K-12's core disciplines. For example, inquiry is embedded in English language arts as "inquiry-based" learning, in mathematics as "problem solving" in the context of data analysis, in science as "scientific inquiry" and the design process, and in social studies as "skills." As they engage in inquiry, students develop questions to guide their learning, research sources of information, synthesize new ideas, and share evidence of their

understanding, while reflecting on their learning. Furthermore, inquiry processes enable students to learn how to learn, and to become self-directed learners.

Figure 8 (p. 28) shows how the various disciplines approaching inquiry are congruent with one another and with the "Inquiry Components" outlined in the Cognitive and Affective Domains of the *Developmental Continuum for Literacy with ICT*.

Constructivist Learning

Learning theories, taxonomies, and instructional models have been articulated to explain cognitive development and to outline the needs of diverse learners. For example, constructivist learning theorists Piaget, Vygotsky, and Bruner explained learning as an interactive developmental process. Krathwohl, Bloom, and Masia developed a taxonomy that categorizes cognitive and affective learning into six levels of understanding: knowledge, comprehension, application, analysis, synthesis, and evaluation. Johnson and Johnson outlined a model for cooperative learning. These theories, taxonomies, and models were synthesized by Marzano and incorporated into a framework for constructivist teaching and learning.

Constructivist learning theorists view learning as a highly interactive process, where students construct personal meaning from new information and ideas that are presented in socially supportive contexts.

> "In a constructivist classroom, the teacher searches for students' understanding of concepts, and then structures opportunities for students to refine or revise these understandings by posing contradictions, presenting new information, asking questions, encouraging research, and/or engaging students in inquiries designed to challenge current concepts" (Brooks and Brooks, 1999, p. ix).

"A fundamental shift is required from valuing right answers as the purpose for learning, to knowing how to behave when we don't know the answers—knowing what to do when confronted with those paradoxical, dichotomous, enigmatic, confusing, ambiguous, discrepant, and sometimes overwhelming situations that plagues our lives" (Jacobs, p. 223).

Learning depends on making connections between new information and previous experiences stored in long-term memory. To be meaningful, learning must be integrated with what is already known, and then applied in new situations. The complexity of understandings that students construct depends on the stage of cognitive development they have reached. Conversely, as students mature, their understandings evolve and deepen as they move through stages of cognitive development.

Heidi Hayes Jacobs in *Curriculum 21,* emphasizes this highly interactive process when she writes about the mind shifts required for new 21st Century pedagogies, one that moves from "transmitting meaning to constructing meaning":

> Meaning is not a spectator sport. Knowledge is a constructive process rather than a finding. It is not the content that is stored in memory, but the activity of constructing it that gets stored. Humans don't get ideas; they make ideas. German philosopher Martin Heidegger put it well when he said, "Learning is an engagement of the mind that changes the mind'" (224).

Understanding is much more than remembering new information. For understanding to develop, knowledge must be

Inquiry Across the Curriculum

Typical Inquiry Components	ELA Inquiry Process	MATH Problem-Solving	SCIENCE	SOCIAL STUDIES
Plan and Question	GO#1: Access and explore prior knowledge and experiences of self and others	Understands a given or a formulated question, task, or situation that introduces and applies mathematical ideas Develops a plan	Initiating Researching Planning/Hypothesizing Implementing a Plan	Select appropriate goals Formulate essential questions for research Plan alternatives for final project ideas
Gather and Make Sense	GO#2: Comprehend and respond personally and critically to oral, print, and other media texts, through a process	Carries out a plan • collects data, if applicable, and evaluates the collection process • analyzes data or given information	Observing, Measuring, Recording	Gather/Select information from oral, visual, print, or electronic sources Revise ideas and opinions/Interpret information and ideas from multiple perspectives Sort/Categorize/Organize and record information using visual organizers/Documenting Sources
Produce to Show Understanding	GO#3: Plan and focus an inquiry on research and interpret and analyze information, through a process GO#4: Clarify and enhance oral, written, and visual forms of communication through a process	Displays solution process or data. Interprets data, if applicable. Finds multiple strategies and develops personal strategies	Analyzing and Interpreting	Select and use appropriate tools and technologies to accomplish tasks Present information and ideas orally, visually, concretely, or electronically
Communicate	GO#5: Celebrate and build community with in the home, school, workplace, and wider community	Communicates conclusion/solution	Concluding and applying solutions	A conversation that communicates learning
Reflect		Applies solutions to daily life and/or makes predictions based on data	Modify the plan for non-solutions and retest	Revise ideas and opinions through interaction with other learners
Ethics and Responsibility		Describes the effect of bias, use of language, ethics, cost, time and timing, privacy, and cultural sensitivity if collecting data to answer a question	Demonstrating Scientific and Technological Attitudes	
Collaboration	Encourage, Support, and Work with Others			Cooperate/Collaborate with others
Motivation and Confidence				
Social Implications		Analyzes society's use of data, solution, representation	Reflecting on Science and Technology	

Figure 8: Literacy with ICT and Inquiry Processes Across the Curriculum

internalized, transformed, and applied in new contexts. Students develop deeper understanding when they restructure and reorganize new information by deliberately applying a variety of reasoning skills. Over-riding these skills is critical thinking, which involves the use of specific criteria and evidence to make reasoned judgements. Brooks and Brooks (1999) examine this issue of understanding, when they reflect on the work of Katz (1985) and Gardner:

> … [a] discrepancy [exists] between perceived and actual success as the difference between learning and performance. In discussing this difference, Katz (1985) stresses that emphasis on performance usually results in little recall of concepts over time, while emphasis on learning generates long-term understanding. Students educated in a setting that stresses performance learn that technique, rules, and memory matter more than context, authencity, and wholeness. Therefore, rather than seeking deep understanding, these students seek short-term strategies for accomplishing tasks or passing tests (p. 8).

The call for deep understanding, relevance, and context is underscored in the work of Berger and Trexler (2010), when a learner is faced with making sense of new information. "Then the really hard part comes, the need to do something with the information, other than copying and pasting it—the need to analyze and synthesize the information so that it makes sense, and so that they understand the relevance of the information to their questions and make new meaning (p. 95).

At the most sophisticated level, understanding means synthesizing information and ideas by combining higher-level, critical, and creative thinking processes. Students demonstrate their understanding by inventing, designing, and/or creating original products.

Marzano's framework (1992) for teaching and learning is particularly relevant to the *Developmental Continuum for Literacy with ICT* because it explains five dimensions of understanding and attitude:

1. developing positive attitudes and perceptions
2. acquiring knowledge and skills
3. extending and refining knowledge
4. using knowledge meaningfully
5. developing productive habits of mind

"It matters what tools are available to a culture, but it matters more what that culture chooses to do with those tools"
(Jenkins et al., 2009, p. 8).

Dimensions two, three, and four are represented across three stages of thinking in the Cognitive Domain portion of the continuum. Dimensions one and five are represented in the Affective Domain portion of the continuum.

Higher-Level Critical and Creative Thinking

In the process of constructing understanding, students acquire and store facts, data, details, procedures, formulas, algorithms, and definitions in long-term memory. Then, they compare, classify, recognize patterns, induce/inquire, deduce, formulate opinions, persuade, or argue pro/con to extend their understanding. Deeper learning occurs when students apply higher-level critical and creative thinking to invent, discover, design, and create.

Critical thinking is convergent. It involves using criteria and evidence to assess the worth or validity of information and to make reasoned judgements. These judgements include distinguishing fact from opinion and interpretation, evaluating information and ideas, identifying perspective and bias, and considering the consequences of decisions and

actions. In the *Developmental Continuum for Literacy with ICT*, the Inquiry Component, "Plan and Question" and "Gather and Make Sense" tend to require critical thinking.

Creative thinking is divergent. Creative thinking generates ideas and possibilities and explores diverse approaches, often by questioning accepted principles. In the *Developmental Continuum for Literacy with ICT*, the Inquiry Com-

Levels of Thinking and Awareness

Creates
Evaluates
Values

invent
discover
design
create

Critical Thinking. I understand the field and see ingenuity gaps and ambiguities that challenge my thinking. I am ready to take purposeful action. I create or make selections or judgements using a list of preferred qualities known as criteria.

Analyzes
Applies
Believes

compare
classify
recognize patterns
induce
deduce
formulate opinions
persuade
argue pro/con

Metacognition. I think about my thinking and actions as I become aware of other similar, and different, ways of being, doing, and thinking; I learn to do what I do better and think with greater clarity.

Remembers
Understands
Becomes Aware

recall and retell
facts
details
data
rules
procedures
formulas
algorithms
definitions

Doing. I think as I have always thought; do as I have always done--without thinking about my thinking or other ways of being.

Critical Thinking involves applying criteria to judge the accuracy, relevance, credibility, fairness, and bias of information.
Creative Thinking involves exploring diverse approaches and possibilities, and generating ideas.

Figure 9: Levels of Thinking and Awareness

ponent, "Produce to Show Understanding" and "Communicate" tend to require creative thinking. The goal of *Literacy with ICT Across the Curriculum* is for students to demonstrate increased levels of both critical and creative thinking, supported by ICT.

Both critical and creative thinking increase in complexity as students move across the levels of thinking in Bloom's Taxonomy (see Figure 9). When constructing understanding at the remembering and understanding levels, students acquire information or discrete details and facts, then recall the information, or restate it in their own words. They may retrieve procedures, data, and formulas in order to apply the information at higher thinking levels.

As students mature in their ability to think, and as teachers gradually release responsibility to them, they are able

to demonstrate behaviours in the analysis and application levels of Bloom's taxonomy. When students apply their knowledge of methods or theories in new situations, they demonstrate their ability to use the information they have acquired. They may analyze a situation to determine the parts of the whole, or look for patterns to understand the relationship between the parts. When students apply their knowledge within a real life situation, this demonstration of learning is considered authentic. When applying and analyzing information, students begin to formulate opinions, make deductions, and prepare pro/con arguments.

At the creating and evaluation levels of thinking, students generate new ideas and form new patterns or ways of thinking as they extend their learning. This is the process of discovery and invention associated with divergent or creative thinking. Students also use criteria to critique new products or processes as they converge toward finding solutions and demonstrating their ability to think critically. Among other things, students distinguish fact from opinion, identify forms of bias, and consider the implications of decisions.

Using an example from the Gathering and Making Sense component of inquiry, a student at the *remembering and understanding stage* can find and retrieve teacher-directed sources through a guided process. At *the application and analysis level,* the student can refine a search using Boolean logic with the internet and other devices and methods that generate sub-categories from a variety of sources. *At the evaluating and creating levels*, a student not only selects resources and new information for themselves, but with a growing expertise and deeper background knowledge is able to explore and assess other more complex and specialized information placing these new sources in appropriate contexts, evaluating relevance, explaining the extent of the connections, always with a critical eye to bias and perspective.

Reaching Deeper Understanding

Learners can develop their literacy with ICT in more meaningful ways when they apply and extend their critical and creative thinking across the curriculum. In other words, when an ICT and the context of its use becomes so effective during a component of inquiry and the same depth of understanding is difficult to achieve without it, then the ICT is identified as a relevant tool across the curriculum; the ICT (or a class of ICTs) becomes a tool for depth and a tool for learning for a lifetime.

To develop literacy with ICT, students need to learn how to decide whether or not to use ICT, which ICT to use, and when and how to use ICT to help meet their learning goals. Teachers also need to use their professional judgment to ask if and how ICT can help their students grasp essential concepts and construct personal understandings in language arts, mathematics, science, social studies, and other subject areas.

While literacy with ICT is important, a more fundamental educational goal is to strive for deeper understanding based on some central questions:
- What does deep understanding look like?
- What is worth learning and understanding in depth?
- How can students reach deeper understanding?
- How will teachers and students know when students have reached deeper understanding?

Learning for deeper understanding is not dependent on, but can be enhanced and extended with, the use of technology (since depth of thought was certainly achieved before today's complex and ubiquitous technologies)   For example, the use of ICT can
- Extend students' access to worldwide educational resources and primary sources.

- Deepen students' understandings by making abstract concepts visible.
- Assist students in organizing, analyzing, and transforming information as they think critically to construct personal knowledge.
- Extend students' means and dimensions of creative expression.
- Promote students' collaborative and reflective learning.
- Motivate students to synthesize their knowledge into unique multidimensional products.
- Enable students to communicate with authentic audiences to show understanding.
- Allow students to transfer their knowledge to unfamiliar contexts.
- Ehance students' engagement with learning.
- Facilitate the generation of and sharing of primary data.

Guided by the *Developmental Continuum for Literacy with ICT*, students and teachers together negotiate when and how to use ICT to help them reach deeper understanding.

Marshall McLuhan's, "medium is the message" is playing itself out through the Web 2.0 world. With the highly popular and engaging Web 2.0 tools, there is a growing familiarity and dependence on these tools. According to Dede (Bellenca and Brandt, 2010), preferences for collaborative tools has led to more production of them by collaborative online communities that value creativity and sharing of collective knowledge. Use of these mediums are challenging conventional definitions of an expert and expertise - even knowledge is being reframed as that which is generated by a collective of people who care deeply about a field of study and each other's authentic experiences in that field. New digital literacies have been described by Leu and his colleagues (2007) by Dede (Bellenca and Brandt):

"The most interesting trend in the development of the Internet is not how it is changing people's ways of thinking but how it is adapting to the way people think" (Steven Pinker in Brockman, 2010).

First, emerging tools, applications, media, and environments require novel skills, strategies, and dispositions for their effective use. Second, new literacies are central to full economic, civic, and personal participation in a globalized society. Third, new literacies constantly evolve as their defining ICTs are continuously renewed through innovation. Fourth, new literacies are multiple, multi-model and multifaceted.

While there are frameworks of new digital literacies that emphasis proficiency with the tool, Dede (Bellenca and Brandt) points to a set of proficiencies that emphasize the types of intellectual activity performed by a person using ICTs, their learning strengths and preferences:
- Fluency in multiple media: valuing each medium for the types of communication, activities, experiences, and expressions it empowers.
- Active learning: collectively seeking, sieving, and synthesizing experiences rather than individually locating and absorbing information from some single best source.
- Expression through non-linear, associational webs of representations: authoring a simulation or a webpage to express understanding as an alternative to writing a paper (see Figure 10)
- Codesign by teachers and students: personalizing learning experiences to individual needs and preferences.

While the *Developmental Continuum for Literacy with ICT* reminds us the tools must always be in the employ of deep understanding, the line between deep understanding and the tool itself as a "source of understanding" is blurred at times.

Gradual Release of Responsibility

This type of instruction is about modeling to students the kinds of skills and behaviors you are wanting them to achieve rather than merely telling them about the skills. Laura Benson in Harvey and Goudvis (2007), illustrates this modeling of skills towards independent action with the act of teaching a novice to ride a bicycle.

At first the facilitator watches the approach a novice takes toward the bicycle to determine the extent of familiarity with it. In *Literacy with ICT*, this parallels the watching of a novice using an ICT--as an act of assessment. Next in the illustration, the the teacher actually rides the

Figure 10: Virtual Museum inquiry about NWT Communities. This ICT is a "non-linear representation."

bike—paralleling the teacher's demonstration of the use of the ICT, perhaps explaining in a "think aloud style" (Harvey and Goudvis) how the tool is being used and why each step in the process is taken. The third step in this analogy has the child riding with training wheels - paralleling the kind of guided practice and support inherit in small groups or pairs working with an ICT. Finally, the child independently rides down the street without training wheels, applying the broad principles of cycling to new terrain. This final stage represents the last part of a continuum where ICT users can independently and confidently use the ICT for greater productivity and for communication of clear and compelling ideas they have constructed.

Teachers provide scaffolding to help students develop higher-level critical and creative thinking and deeper understanding. As they support their learners, teachers believe that all students want to learn, and they provide a learning environment in which all students can gradually take on responsibility for their own learning (Manitoba Education, Citizenship and Youth, 2003).

Teachers enable this learning environment by:
- Becoming facilitators of learning.
- Providing real choices that accommodate a range of learning styles, recognizing that curricular outcomes can be met in a variety of ways.
- Inviting students to choose what they will do to demonstrate their learning, and to identify the steps they will take to accomplish the task.
- Emphasizing intrinsic motivation rather than external rewards.

Gradual Release of Responsibility Model: Pearson and Gallagher's "Gradual Release of Responsibility" Model of Explicit Instruction (1983) adapted from Fischer and Grey (2009)

Figure 11: Model of Explicit Instruction

Teachers help students move across the *Developmental Continuum for Literacy with ICT* by following Pearson and Gallagher's "Gradual Release of Responsibility" Model of Explicit Instruction (see Figure 11).

- **Modelling**: Teachers model learning behaviours such as building criteria, self-assessment, seeking feedback, making adjustments, goal setting, and reflection.
- **Sharing**: Teachers share exemplars of quality work and teach students to identify quality samples of their own work.
- **Guiding**: Students and teachers assume joint responsibility through guided practice.
- **Independent**: Students practice, demonstrate, and apply learning behaviours that help them become self-directed learners.

Digital Citizenship

The concept of digital citizenship relates to the responsible, ethical, and safe use of ICT by students as members of society and citizens of the global community. The following quotes illustrate what some thinkers are saying about the affective and social components of ICT.

Howard Gardner in *Five Minds for the Future* (2008) identifies the respectful mind and the ethical mind as two of the five minds to be developed in the 21st Century. "Thus, society should infuse ethics into the sinews of all important institutions in which the child is involved. An important step will have been taken toward an ethical career and citizenship" (Bellanca and Brandt, p. 23)

Sprenger speaks of Daniel Pink's underscoring the development of appropriate relationships with others when he talks of adding to "'high-concept' skills (the ability to detect patterns, connect unrelated ideas, and create something new),

… 'high-touch' skills (the ability to empathize, to read faces and gestures, to find joy in oneself, and extract it in others) (2010, p. 15).

The International Society for Technology in Education (ISTE) has identified standards for students, teachers, and administrators called the National Educational Technology Standards (NETS). Standard 5 for Students addresses social responsibility and ethical issues related to digital citizenship:
- Advocate and practice safe, legal, and responsible use of information and technology.
- Exhibit a positive attitude toward using technology that supports collaboration, learning, and productivity.
- Demonstrate personal responsibility for lifelong learning.
- Exhibit leadership for digital citizenship.

The Affective Domain of the *Developmental Continuum for Literacy with ICT* contains four Learning Components that encompass digital citizenship:
- Ethics and responsibility
- Social implications
- Collaboration
- Motivation and confidence

Multiple Literacies for the 21st Century

In the 21st century, the Internet instantly makes available vast amounts and types of information. Most of this information is not filtered by traditional "gatekeepers" such as textbook publishers, librarians, and teachers. Because of this students need to extend their literacy skills to include the following:

- Identifying appropriate inquiry questions.
- Navigating multiple information networks to locate relevant information (print, images, data, video, music, talk, etc.).
- Applying critical thinking skills to evaluate information sources and content.
- Synthesizing information and ideas from multiple sources and networks.
- Crediting and referencing sources of information and intellectual property.
- Communicating new understandings to others, both face to face and over distance.

New literacies build upon the foundational literacies we have always taught in schools to prepare students for the effective use of books, paper, and pencils. However, the new literacies go beyond these foundational literacies to include new reading, writing, viewing, and communication skills required by the many new ICTs that continue to appear in our lives
(Leu et al. 496).

The Conference Board of Canada has compiled a list of essential skills for lifelong learning in the 21st Century. They include broad literacy skills that will be required as today's students graduate and enter the workforce. These same skills are also embedded in the continuum:

- Managing Data: identifying what needs to be measured or calculated, estimating and verifying, and observing and recording primary data using appropriate technology.
- Managing Information: locating, collecting, assessing, analyzing, and applying knowledge from various disciplines and electronic sources.
- Communicating Ideas: reading a variety of media formats, writing and speaking clearly, and communicating using a range of technologies (Conference Board of Canada).

According to their 2008 declaration, CMEC's (the Canadian Council of Ministers of Education) will be using the Learn Canada 2020 document to enhance Canada's educational systems, learning opportunities, and overall education outcomes (CMEC, 2008). CMEC's 98th meeting in September 2010, provided further opportunity for ministers to focus on four priority areas of the Learn Canada 2010 framework. One focus, on international education, discusses the global movement to integrate 21st Century competencies into public education. OECD and other global economic and social think tanks have identified 21st Century competencies such as creativity, innovation, collaboration, and digital competency as skills people will need in the knowledge economy (Bailey, 2010).

Also the International Reading Association stated their position on New Literacies and the 21st Century by saying the foundational skills of reading, writing, and communication are being redefined by ICTs. "These ICTs will continue to change in the years ahead, requiring continuously new literacies to successfully exploit their potential." Their position requires students to be literate not only with traditional texts and modes of communication of the 20th Century, but also with a kind of literacy that is broad, contemporary, and responsive to changes in technology and the impacts those changes have on "successful civic participation in a global environment" (IRA, 2009).

Reading the Developmental Continuum for Literacy with ICT

The *Developmental Continuum for Literacy with ICT* is divided into two parts: the Cognitive Domain and the Affective Domain. Both parts follow the same three stages along the horizontal axis (Remembers-Understands, Analyzes-Applies, Creates-Evaluates). Along the vertical axis, there are four Inquiry Components in the Cognitive Domain and four Inquiry Components in the Affective Domain.

<u>**Horizontal Axis**</u>: Cognitive and Affective Domains: Three Levels of Thinking and Attitude

The horizontal axis of the Cognitive Domain is composed of a developmental sequence of three levels of thinking (Figure 12) that follow Bloom's taxonomy and Pearson and Gallagher's "Gradual Release of Responsibility" Model of Explicit Instruction. For the NWT, language has been used to make these levels of thinking more accessible to all learners K-12 and beyond (Figures 13, 14).

Figure 12: Three levels of Thinking

Level 1: Remembers-Understands Becomes Aware	Level 2: Analyzes-Applies Believes	Level 3: Creates-Evaluates Values

Figure 13: Three levels of Thinking

BEGINNING TO LEARN I am just beginning; I like to have lots of help	**LEARNING AS I GO** I am remembering from before; I still need help sometimes	**LEARNING AND TEACHING** I have lots of practice; I can help others

Level 1:

Cognitive Domain: Knows — Comprehends — Becomes Aware ("Beginning to Learn")

The descriptors listed in the first stage, Knows – Comprehends – Becomes Aware, describe skills and knowledge about which learners already have some prior understanding, or that they acquire as the result of direct instruction

| **STUDENT SELF-ASSESSMENT: 7-9 *LwICT* SNAPSHOT** | Name _____ |

Possible Ways to Use this Snapshot: check circles describing you; circle words describing your strengths; circle words about new things to learn

BEGINNING TO LEARN I am just beginning; I like to have lots of help	**LEARNING AS I GO** I am remembering from before; I still need help sometimes	**LEARNING AND TEACHING** I have lots of practice; I can help others

PUTTING MY IDEAS ON THE COMPUTER OR TABLET (PLANNING AND QUESTIONING)

I **know** information about the topic. I **type or show** it using a computer or tablet. NOTES:	Sometimes with the teacher, I make **changes** to the electronic assignment given me. I sometimes **add** new questions (eg. "how" and "why" type) about the topic using a computer or tablet. NOTES:	I **type or show** my ideas right in the teacher's electronic assignment, or in another program. I **create** criteria with the teacher for the inquiry. I "**open-up**" my topic by typing in my hunches, guesses, predictions, new questions, etc. NOTES:

DECIDING ABOUT INFORMATION ON THE COMPUTER OR TABLET (GATHERING AND MAKING SENSE)

I **ask** if the information I am using is **real** or **true**. I **use** online bibliography-makers to show where my information came from. I **take** pictures to show my understanding of topics. NOTES:	I **ask** if the information I am using is **real** or **true** or has been changed. I **find** out who the author/creator of the information is and search that name using a search engine. I **use** an online bibliography maker. I **group** information into categories with tools like mind mapping software. I **collect** my own data to better show my learning (take or draw digital pictures, plot data, record sound and video) NOTES	I **decide** to narrow or broaden my topic by using search engine features such as "related searches", "related questions", "word clouds", etc. I **judge** if information is useful, makes sense, is correct, and can be trusted. I electronically **group** my information. I **look** for what permissions the author/creator gives me in the text/picture/music's license, as well as **creating** my own pictures, sounds, music, videos I **use** online bibliography makers to give credit to the author/creator. NOTES:

SHOWING MY LEARNING ON A COMPUTER OR TABLET (PRODUCING TO SHOW UNDERSTANDING)

I **use** a recommended program that will help me get the work done the way I want to do it. I **use** my first work done as my final copy. NOTES:	With assistance, I **choose** a program/app that will make my work clear (graphs, drawings, pictures, music, video). I **use** my beginning plan to **change** my work (or change the program I am using) to make it better to look at and listen to. NOTES:	I **choose** a program/application for my work thinking about what is best for my audience. I **show** the importance of my work and how it is connected to other knowledge. I **judge** how well my work measures up to my student-teacher-made plan and make changes if I need to. I **ask** for suggestions from friends, teachers, and parents about how to make my work more understandable and convincing. NOTES:

Figure 14: Inquiry Components Across the Developmental Levels of Thinking (eg. Division 3 - Grade 7-9)

and teacher modelling. Level 1 in the Cognitive Domain involves acquiring knowledge, and beginning to develop structured thinking about that knowledge. There are two basic types of knowledge: declarative knowledge—learning about concepts such as community, honesty, or the rules of a game; and procedural knowledge—learning the steps or procedures in a process such as shooting baskets, performing long division, or following the steps to capture an image and insert it into a text document.

Affective Domain: Knows — Comprehends — Becomes Aware ("Beginning to Learn")

The first level in the Affective Domain involves developing awareness of issues related to using ICT under conditions that require external control.

Level 2:

Cognitive Domain: Analyzes — Applies — Believes ("Learning as I Go")

The descriptors in the second stage, Analyzes – Applies – Believes, describe the thinking skills and knowledge learners apply, with teacher support, to new learning and experiences. Level 2 in the Cognitive Domain involves restructuring knowledge by applying higher-level thinking, including comparison, classification, recognizing patterns, inductive reasoning, deductive reasoning, formulating opinions, persuasion, and arguing pro and con. Then it involves applying the results to extend and deepen understanding.

Affective Domain: Analyzes — Applies — Believes ("Learning as I Go")

The second level in the Affective Domain involves developing, analyzing, and applying intrinsic beliefs about the issues related to using ICT.

Level 3:

Cognitive Domain: Creates — Evaluates — Values ("Learning and Teaching")

While the first two levels follow Bloom's and other current thought on these initial levels of intellectual behavior, level three involves a kind of thinking that is under study. The order and kind of intellectual thought involved in evaluating, sythesizing, and creating have been questioned since the mid 1990's by Bloom's student Lorin Anderson (Bloom, n.d.) to the more recent articulations of Gardner and Pink. Much of the discussion is about the extent that synthesizing is a creative act and in what order synthesizing and creativity follow each other. According to Gardner, little is confidently known about the order that these levels of intellectual activity take.

In the *LwICT* continuum, "synthesizes" has been replaced with "creates" for the sake of consistent language even though arguments are being made for its current importance and predicted premium value in the future (Bellanca, 2010). The ability to create transformations and innovations of existing knowledge and synthesis—"to think outside of the box" (or 'no –box' (Jacobs, 2010)—is being viewed as a 21st Century skill within the *Partnership for 21st Century Skills Framework for 21st Century Learning* (Bellanca and Brandt). The importance of synthesis is reflected in the list of competencies (the orange component of the schematic shown earlier in Figure 2).

Affective Domain: Creates – Evaluates – Values ("Learning and Teaching")

The third level of the Affective Domain describes more complex thinking behaviours, such as creating, synthesizing, and evaluation, in which learners engage to create products and representations with increasing independence. Stage 3 in the Cognitive Domain involves evaluating and critiquing knowledge with at least a "rough and ready mastery" of the discipline(s) in question, synthesizing by selecting crucial information from the copious amounts available and in turn arraying that information in ways that makes sense to self and others (Gardner). This kind of thinking sometimes creates by "going beyond existing knowledge and syntheses to pose (create) new questions, offer new solutions, fashion works that stretch existing genres or configure new ones" and "builds on one or more established disciplines and requires and informed 'field' to make judgments of quality and acceptability" (Gardner) from transforming, and evaluating knowledge. Learners employ the higher-level critical and creative thinking skills, which they have begun to develop in the previous stages, to complete and evaluate authentic learning tasks employing ICT. Learners produce more complex representations by combining and transforming the understandings they construct in Stages 1 and 2, through asking essential questions, solving problems, and creating original representations that express ideas, feelings, and understandings for specific audiences.

Affective Domain: Synthesizes — Evaluates — Values
The third stage in the Affective Domain involves adhering to an internal value system that controls personal behaviour related to using ICT.

Vertical Axis –Cognitive and Affective Domains: – Eight Inquiry Components (Figures 15, 16, 17)

INQUIRY COMPONENTS
PLANNING and QUESTIONING
GATHERING and MAKING SENSE
PRODUCING TO SHOW UNDERSTANDING
COMMUNICATE and REFLECT

Figure 15: Inquiry Components

The Cognitive Domain consists of four Inquiry Components along the Vertical Axis:
  • Plan and question
  • Gather and make sense
  • Produce to show understanding
  • Communicate and reflect

The Affective Domain consists of four Inquiry Components along the Vertical Axis:
  • Responsibility and ethics
  • Social implications
  • Collaboration
  • Motivation and confidence

Cognitive Domain

Inquiry Component: **Plan and Question**
The first inquiry component in the Cognitive Domain, Plan and Question, describes learners who, in:
  • Stage 1, follow given step-by-step plans and ask topic-related questions in
        preparation for gathering information to engage in inquiry.
  • Stage 2, modify given plans and pose essential questions in preparation for
        gathering information to engage in inquiry.
  • Stage 3, develop their own original plans and ask probing questions in preparation
        for gathering information to engage in inquiry.

LITERACY WITH INFORMATION AND COMMUNICATION TECHNOLOGY ACROSS THE CURRICULUM (*LwICT*)

(A Developmental Continuum)

"Learning about and choosing ICT to critically, creatively, and ethically use, produce, and communicate meaning"

COGNITIVE DOMAIN

INQUIRY COMPONENT	Remembering-Understanding		Applying-Analyzing	Evaluating-Creating
	K-3	4-6	7-9	10-12
Planning and Questioning	-**Recalls and/or records** prior-knowledge/experiences -**States** preferences for new learning and criteria required -**Follows** an electronic plan[1]	-**Recalls and/or records** prior-knowledge/experiences -**Raises** new topic related questions -**Follows** an electronic plan that reflects co-created task criteria[1]	-**Constructs** questions, hunches, educated guesses, predictions, hypotheses -**Determines** new information needs -**Adapts** the electronic plan to reflect co-created task criteria[1]	-**Evaluates** the inquiry questions -**Constructs** new inquiry questions for the present and/or future -**Designs** new electronic plans that reflect co-created task criteria[1]
EXAMPLES: ([1] word processed rubrics, electronic storyboards, outlines, timelines, graphic organizers, science experiment reports…)				
Gathering and Making Sense	-**Finds/collects** information from given media sources[1] -**Questions** if information is real[2], useful, or is an advertisement -**Records** sources: types and authors -**Records** information and notes into categories with given ICT[3] -**Collects/creates** primary data[13] using ICT[4]	-**Finds/collects** information from given media sources[5] -**Identifies** sub-topics by using search engines that offer "related searches/ questions" and word "clouds" -**Questions** if information is real[2], useful, or is an advertisement -**Records** sources[6] using ICT[11] -**Selects** an ICT to record notes and categorize information[7] -**Collects/creates** primary data[13] using ICT[4]	-**Determines** the author/sponsor/currency of information by using online tools[8] and ICT -**Analyzes** sub-topics/themes with ICT -**Uses** criteria to evaluate appropriateness of information for audience and learning needs -**Analyzes** information's purpose, depth, perspective, and truth[9] or if it has been manipulated[10] -**Categorizes** and records notes with electronic tools[7] -**Collects/creates** primary data[13] using ICT[4] -**Records** sources[6] using ICT[11]	-**Evaluates** the purpose, motive, perspective, bias, depth and accuracy of the information[9] -**Adjusts** inquiry techniques as new information is incorporated with prior knowledge -**Collects/creates** primary data[13] using ICT[4] -**Assesses** potential and appropriateness of broader sharing/use of collected primary data for local audiences, specific online communities, global audiences -**Assesses** possible connections between personal work and known knowledge gaps[12]
EXAMPLES: ([1] within applications, CD-ROMs,…) ([2] falsified digital images, banners, and/or pop-up advertisements…) ([3] tables, graphic organizers, spreadsheets, slides…) ([4] digital cameras, audio recorders, microscopes, email, video cameras, archived original artifacts, online surveys, Global Positioning System [GPS], probeware…) ([5] licensed and sharing sites on the Internet…) ([6] titles, authors, publication dates, URLs, standard bibliographic formats…) ([7] tables, graphic organizers, spreadsheets, outlines, prioritized email, geographic information system layers, slides…) ([8] domain information searchers…) ([9] accuracy, credibility, validity, reliability, objectivity, fairness, relevance…) ([10] bogus websites, bogus email, spam, graphs showing selected data, manipulated images…) ([11] online bibliography makers) ([12] databases, online collective intelligence such as blogs, microblogs, wikis and forums, uploading images to photo sharing sites, editing Wikipedia with supervision…) ([13] digital still photos, video, audio, data in tables, etc.)				
Produce to Show Understanding	-**Uses** given ICT[1] to show learning by creating texts, graphs, pictures, and sounds -**Revises** and edits work until co-created criteria is met	-**Selects** with guidance suitable applications[2] and digital devices[3] to show learning with text, graphs, pictures, sounds, and multimedia to a particular audience -**Revises**[4] and edits electronic work for greater clarity and visual appeal according to the co-created task criteria	-**Selects** suitable applications and digital devices[5] to analyze data/information and best communicate to a particular audience the connections made, conclusions reached, problems solved, and solutions suggested[8] -**Revises**[4] and edits the message/ findings of the inquiry for greater clarity and visual appeal according to co-created criteria, feedback, and personal preference	-**Designs** and creates non-sequential representations[6], simulations[7] and models that best convey the findings, meanings, solutions, and syntheses of the inquiry -**Self-assesses**[4] ICT representations according to co-created criteria for enhanced meaning and artistry, audience and context appropriateness[8], and focus on message without exaggerated use of ICT features[9]
EXAMPLES: ([1] hyperlinked text in word processed documents and mind maps…) ([2] mindmapping, word processing, graphing, and presentation software…) ([3] interactive whiteboards, digital projectors, portable and smart devices…) ([4] by creating and/or critically revising text, images, and/or sound to enhance electronic work; by revising audio/video clips or effects; by adjusting the pace, kinds and amounts transitions in multimedia presentations; by adding animation to web pages…) ([5] graphing software, virtual manipulatives, animation, simulation software, simulation websites, spreadsheets, geographic information systems, probeware…) ([6] hyperlinked web pages, slides, emails, layered graphic organizers, multiple-sheet spreadsheets, virtual realities, relational databases…) ([7] spreadsheet modelling of a real situation, animation of an abstract concept or process, computer-aided design of a real object…) ([8] portray genuine life circumstances, cultural authenticity, accurately reflecting the personal perspective of those represented…) ([9] transitions, builds, animations, audio…)				
Communicating and Reflecting	-**Shares**, displays, and discusses electronic work[1] with a face to face audience -**Participates** in guided conversations about using ICT to assist learning	-**Communicates** learning[2] with a face to face audience or audience from a distance using electronic communication devices[3] -**Discusses** and receives feedback about ICT choices[4] and future ICT options in guided conversations -**Discusses** captured primary data[7]	-**Communicates** learning[2] and data[3] created with a face to face audience or audience from a distance using electronic tools[3] -**Asks** for and shares specific and constructive feedback related to the task criteria and the use of ICT to communicate the inquiry's findings -**Reflects** on ICT as a learning tool[8]	-**Adjusts** communication processes[3] and products[2] based on self-evaluation[8] and feedback from a local and global audience -**Self-evaluates** and monitors ICT's influence over the intended meaning[5] -**Plans** future use of ICT during learning -**Shares**[6] collected/created primary data as appropriate for audience and purpose
EXAMPLES: ([1] text, images, sound, concept maps…) ([2] mindmaps, multimedia presentations, email, tables, spreadsheets, graphs, video, animation, web pages, wikis, blogs…) ([3] email, electronic whiteboards, web pages, threaded discussions, teleconferences, web conferences, videoconferences, chats, instant messages, camera phones, wikis, blogs, podcasts, online whiteboards…) ([4] preferred ICT, familiar ICT from regular use, required ICT, available ICT…) ([5] hearing only vs. hearing and seeing a speaker; text without images; images without much text; audience attention divided between medium and message; asynchronous vs. synchronous communications …) ([6] assemblies, school's Web site, photo sharing sites, Wikipedia,…) ([7] digital still photos, video, audio, data in graphs, etc.) ([8] audience understanding, time spent with ICT versus time spent with subject matter, etc.)				

AFFECTIVE DOMAIN

INQUIRY COMPONENT	Remembering-Understanding		Applying-Analysing	Evaluating-Creating
	K-3	4-6	7-9	10-12
Ethics and Responsibility	-**Respects** certain beliefs, rules, and guidelines[1] about using ICT -**Recognizes** the need to acknowledge authorship/ownership and the kind of permission[2] given to users by authors of intellectual property[3]	-**Applies** beliefs, rules, and guidelines that are created and held for fair, healthy, responsible[4], safe use of ICT[5] -**Explains** consequences for unsafe and unfair use[6] of ICT with special attention to online disrespect -**Identifies** possible health issues associated with using ICT[7] -**Recognizes** the need to acknowledge authorship and licensed use[8] of intellectual property[3]	-**Explains** consequences for unsafe and unfair use of ICT[6] with special attention to online disrespect -**Applies** school division's acceptable-use policy -**Applies** safety guidelines when communicating electronically -**Recognizes** the need to acknowledge authorship and licensed use[8] of intellectual property[3]	-**Evaluates** effects of personal ICT behaviour on others -**Weighs** personal benefits and risks of using ICT -**Recognizes** the need to acknowledge authorship and licensed use[8] of intellectual property -**Assesses** use of licenses[8] to share personal/group primary data online with a general awareness of the provisions offered by Canadian copyright law[9]
EXAMPLES: ([1] guidelines for Internet safety, security of user names and passwords, responsible use of email…) ([2] completely free, free but author's name is required, free but make no changes, free but no selling…) ([3] text, images, data, music, video…) ([4] respects others' privacy, protects personal information, follows security procedures, respects intellectual property and credits sources, uses licensed software, discourages cyberbullying, collects and analyzes data ethically…) ([5] email, web pages, threaded discussions, videoconferences, chats, instant messages, camera phones, wikis, blogs, podcasts, online whiteboards…) ([6] cyberbullying, promotion of prejudice and hatred, copyright violations, plagiarism, wilful destruction/manipulation of data, hacking, propagation of viruses, spamming, software piracy, consumer fraud, identity theft…) ([7] ergonomic factors, inactivity, carpal tunnel syndrome, repetitive stress injury, eye strain, addictive/obsessive behaviour…) ([8] All Rights Reserved, Some Rights Reserved, Creative Commons licenses…) ([9] Fair Dealing, Canadian Copyright Act, Sec. 29)				
Social Implications	-**Identifies** uses of ICT at home, school, and the community -**Knows** about and chooses appropriate times and places to use ICT	-**Understands** the use of ICT for recreation, communication, education, collaboration, sales, health care, etc. -**Chooses** times and places to use ICT and explains choices -**Understands** how ICT influences relationships at school[1]	-**Analyzes** current trends in ICTs and predicts effects of emerging technologies -**Analyzes** how personal career choices will require various ICT competencies -**Analyzes** the advantages and disadvantages of ICT use in society[2] and ICTs' creation of social and work behaviours[3]	-**Evaluates** current trends in ICT[3] and weighs future advantages and opportunities against disadvantages and risks they have for society[4] -**Makes** reasoned judgments about society's right to information versus the right to individual privacy
EXAMPLES: ([1] creating media that can be broadcasted and enjoyed by the school community; strengthening of relationships through extended communication after school; practice of skills and sharing information; impacting of community members through the spreading of misinformation and inappropriate media…) ([2] lack of access, consequences of unethical use, ease of manipulating data, ease of communicating information; ease of duplication and repurposing of information, addictive/obsessive behaviour…) ([3] expressing and broadcasting private thought, personal preference and opinion; contributing to collective knowledge; sharing user experiences with commercial products and services; accessing worldwide marketplaces; participating in online communities of like-minded people; self-publishing…) ([4] outsourcing jobs, reputation damage, access to data…)				
Collaboration	-**Works** with others to complete a teacher–directed task using ICT[1] -**Helps** others with ICT knowledge and procedures	-**Collaborates** with others in various self-directed learning contexts to pose questions, share knowledge, suggest solutions, welcome individual expertise -**Collaborates**[2] from a distance using tools[3] such as email or wikis -**Distinguishes** between public/private[5]	-**Collaborates**[2] in various contexts[1] to pose questions, share and pool expertise, bridge ingenuity gaps, determine risks… -**Collaborates**[2] from a distance using email, wikis, blogs, conferencing technologies, and other social media -**Determines** public/private boundaries[5]	-**Leads** and motivates group members in collaborative learning[4] -**Weighs** the benefits and challenges of learning with ICT -**Judges** benefits and risks of making group-created work available for online sharing[5]
EXAMPLES: ([1] listens actively to a partner, collaborates in creating ICT products, participates in team webquests…) ([2] assumes assigned group roles, sets group goals, suggests tools, solves group productivity issues…) ([3] email, web pages, threaded discussions, videoconferences, chats, instant messages, camera phones, wikis, blogs, podcasts, online whiteboards…) ([4] motivates and values team members and their contributions; arranges and maintains tools; manages group conflict; builds consensus…) ([5] self-determine privacy levels of one's images/expressions; nature/quality/acceptability/consensus of subject's representation; commercial potential of data…)				
Metacognition, Motivation, Confidence	-**Demonstrates** motivation and confident when using ICT alone and with others -**Recognizes** ICT problems and seeks assistance	-**Recognizes** ICT problems and asks for help from peers and teachers -**Attempts** to solve ICT problems with previous or new solutions	-**Investigates** ICT problems and applies strategies to solve them[1] -**Perseveres** by remaining open-minded, precise and accurate as possible until a solution is found	-**Synthesizes** knowledge and information[1] for unique problems that require multiple approaches
EXAMPLES: ([1] consults peers, teachers, help menus, online supports, telephone helplines…)				

Figure 16: Three levels of Thinking, Four Divisions, Eight Inquiry Components

Inquiry Component: **Gather and Make Sense**
The second inquiry component in the Cognitive Domain, Gather and Make Sense, describes learners who, in
- Stage 1, find and collect information from given electronic and media sources; cite
  sources of information; record data and make notes; as well as collect primary
  data using digital devices.
- Stage 2, search for information from multiple electronic and media sources; evaluateinformati on for relevan
  cy, accuracy, currency, and validity; organize and categorizeinformation using ICT; and collect pri
  mary data using digital devices.
- Stage 3, assess all types of media and their sources, for relevancy, bias, motive, perspective, and context;
  incorporate new information with prior knowledge; and collect primary data using digital devices.

Inquiry Component: **Produce to Show Understanding**
The third inquiry component in the Cognitive Domain, Produce to Show Understanding, describes learners who, in
- Stage 1, compose text, record sound, sketch images, graph data and/or create video based on class discussion
  and teacher modelling.
- Stage 2, compose and edit electronic work according to established criteria.
- Stage 3, create and refine non-sequential representations of their understanding, such as hyperlinked web
  pages, layered graphic organizers, branching multimedia presentations, multiple sheet spreadsheets,
  virtual realities, and relational databases.

Inquiry Component: **Communicate and Reflect**
The fourth inquiry component in the Cognitive Domain, Communicate, describes learners who, in
- Stage 1, share and display information and ideas from their electronic work with face-to-face audiences and
  participate in guided conversations to think about using ICT to extend their learning.
- Stage 2, discuss information, ideas, and/or electronic work using electronic communication devices and
  invite and share constructive feedback, related to established criteria, on their use of ICT to extend
  their learning.
- Stage 3, adjust their communication based on self-evaluation and audience feedback and self-monitor their
  learning goals and reflect on the value of using ICT to extend their
  learning and their critical and creative thinking.

<div align="center">Affective Domain</div>

Inquiry Component: **Ethics and Responsibility**
The first Attitude of Learning in the Affective Domain, Responsibility and Ethics,
refers to knowing about, demonstrating beliefs about, and valuing policies, guidelines,
and behaviours for using ICT ethically, responsibly, and safely, including protection of
privacy and of intellectual property. Learners are expected to demonstrate ethical and
responsible behaviour at all times when using ICT.

Inquiry Component: **Social Implications**
The second Attitude of Learning in the Affective Domain, Social Implications, refers
to awareness of, beliefs about, and values concerning the uses of ICT in society, the
societal consequences of ethical and unethical use of ICT, and the benefits and risks to
communities and societies of developing and using ICT.

INQUIRY COMPONENTS
ETHICS and RESPONSIBILITY
SOCIAL IMPLICATIONS
COLLABORATION
MOTIVATION and CONFIDENCE

Figure 17: Inquiry Components

Inquiry Component: **Collaboration**
The third Attitude of Learning in the Affective Domain, Social Implications, refers to students learning how to work in face-to-face groups, how to work together over distance in cyber groups, and how to lead collaborative groups while developing literacy with ICT.

Inquiry Component: **Motivation and Confidence**
The fourth Attitude of Learning in the Affective Domain, Motivation and Confidence, refers to students' interest, persistence, and engagement in using ICT to learn, and in solving unique problems related to the use of ICT.

Supporting Skills

The Supporting Skills are ICT skills that support student inquiry as shown in the developmental stages of cognitive and affective development. The skills are displayed in the most likely division of their introduction or practiced use and are shown in Part 2 of this document.

The Supporting Skills are divided into four categories:

- **Access and Communication Skills**, such as transferring and saving data within and between applications using toolbar icons, menu options, hyperlinks, and/or keyboard shortcuts

- **Input/Output Skills**, such as capturing and manipulating data using digital audio recording devices, cameras, video recorders, microscopes, geographical positioning systems, and/or probeware

- **Tools and Text Skills**, such as editing and formatting data using spell-check, dictionary, thesaurus, grammar-check, and/or track changes

- **Vocabulary Skills**, such as recalling and using ICT vocabulary in context

Students should acquire and apply supporting skills in context, based on their need for that skill to accomplish a specific learning task. The supporting skills are intended to connect with checklists of skills outlined by school divisions based on their existing infrastructure and on students access to specific hardware and software configurations.

Examples include:

Access and Communication Skills (17 in total):
- logs on and off ICT devices
- opens applications and files
- saves files
- prints files
- navigates within applications
- navigates between applications

Input/Output Skills (4 in total):
- manipulates input devices
- recognizes and presses keys on the keyboard
- captures digital data

Tools and Text Skills (10 in total)
- moves text and images
- draws images using electronic tools
- inserts and edits text, data, images, sound, video, and/or formulas

Vocabulary (2 in total)
- recalls ICT vocabulary in context
- uses ICT vocabulary in context

Assessing, Evaluating, and Reporting on Student Progress

Meaningful assessment informs instruction by providing information about student learning to the learner, the teacher, and the parent. Assessment occurs in authentic contexts that allow students to show evidence of learning as they make progress and create performances or products. The ultimate goal of assessment is to develop self-directed learners who regularly monitor and assess their own progress.

Assessment is an integral part of learning because it provides the ongoing feedback necessary for effective learning and teaching. This ongoing process, beginning with pre-teaching diagnostic assessment, provides evidence of students acquiring knowledge as well as applying their knowledge and skills in authentic inquiry. Assessment requires a variety of data-gathering methods, including observations, interviews, interim as well as end products, performances, and collections of student work. Assessment is a spiralling process that involves both learners and teachers (Bruner, 1973).

Thus, authentic assessment begins with pre-assessment and with learners knowing and helping to develop the criteria on which they will be assessed. It continues as students apply established criteria to the real world performances/products they have created. In the most sophisticated learning context, students develop assessment criteria and apply them independently to representations of their understandings, as components of overall assessment for/as/of learning.

The *Developmental Continuum for Literacy with ICT* functions as both a planning tool and as assessment for/as/of learning. By observing learners as they engage in inquiry using ICT, teachers determine which behaviours students have demonstrated and those they are still working towards. This information helps teachers plan for instruction as it indicates the nature of the learning contexts that will further develop student literacy with ICT (assessment "for" learning). There are three components in assessing student literacy with ICT: observations, portfolios, and conversations (see Figure 18 on next page).

ASSESSMENT

Observations
Throughout the school year, in curricular context, teachers use the inquiry process to focus their instruction on one or more of the inquiry components in the continuum (see Figure 16, p. 40). They focus their observations of student learning on their targeted cognitive or affective inquiry components to determine which descriptors most accurately describe the learning of a particular student. Then, they involve students in the assessment by collaborating with them in the creation of a profile using the student-friendly version (Snapshot) of the continuum (see Figure 14. p. 37, and Part 2 of this document) or the more detailed divisional standards intended for teacher use (also Part 2 of this document). This profile helps teachers and students set goals for further learning (assessment "as" and "for" learning).

Portfolios
As they learn, students use portfolios to accumulate evidence of their literacy with ICT. These portfolios may be process or product portfolios, or a combination of the two. They may be paper-based or electronic. First, students
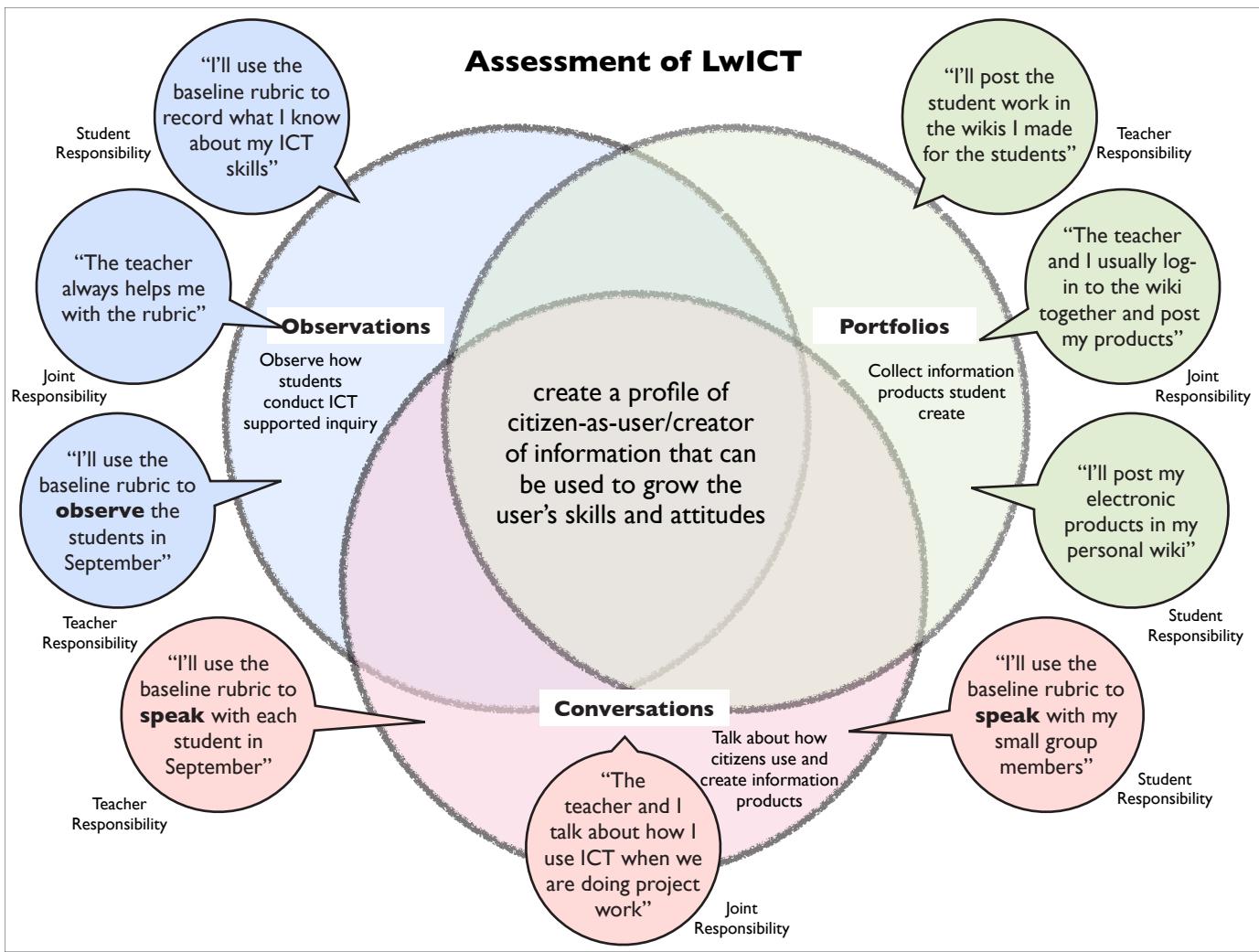
Figure 18: Three Kinds of Assessment

and teachers decide on the type of portfolio they will create to demonstrate evidence of their learning; then, they engage in an ongoing process of collection, selection, reflection, evaluation, and celebration. Artifacts selected for a portfolio may contain text, audio, video, data, and graphics, and each artifact is accompanied by a self-reflection (assessment "as" and "for" learning) about what it illustrates about the student's learning. Once again, schools will encourage the use of such tools as wikis (simple websites) as places for individual students to develop a portfolio of their learning. Files of various formats can be uploaded by students to their wikis over many years.

Conversations

Assessing student literacy with ICT involves conversations about learning destinations, criteria, descriptive feedback, and goal setting. These conversations may be self-reflective (assessment "as" and "for" learning), shared between peers, shared between teacher and student, or they may be three-way student-led conferences involving parents. This last type of conversation is an integral part of reporting to parents about their child's literacy with ICT (assessment "of" learning).

EVALUATION

Evaluation Tools

Two tools are provided for evaluation and will work for pre-testing and post-testing. Part 2 of this document includes "Continuum for Teacher Assessement of Student *LwICT* Skill" (Figure 19), and "Student Self-Assessment: [division] LwICT Snapshot" (Figure 14, p. 37). Each of these tools express a continuum of development, or brief descriptions of a cognitive, affective, and technical literacy using ICT: "Beginning to Learn", "Learning as I Go", and "Learning and Teaching." The goal is to move students throughout the divisional years toward the "Learning and Teaching" stage where they confidently show peers how to conduct critical, creative, and ethical inquiry. It is anticipated that some students at the K-3 level, for example, will be accomplishing outcomes at the 4-6 level. This illustrates the nature of a continuum based on what students *can do*.

Curricular Context

Many descriptors on the continuum are connected to specific curricular outcomes (see Figure 8, p.

CONTINUUM for TEACHER ASSESSMENT of STUDENT *LwICT* SKILL   Name: _____

LITERACY WITH INFORMATION, COMMUNICATION AND TECHNOLOGY (*LwICT*) ONGOING ASSESSMENT CONTINUUM: **SENIOR HIGH (10-12) ACROSS THE CURRICULUM**		
BEGINNING TO LEARN I am just beginning; I like to have lots of help	**LEARNING AS I GO** I am remembering from before; I still need help sometimes	**LEARNING AND TEACHING** I have lots of practice; I can help others

INQUIRY COMPONENT SKILL LEVEL (each Inquiry Component is fully realized at the "Learning and Teaching" level)

INQUIRY COMPONENT. *PLANNING AND QUESTIONING* (see poster for "EXAMPLES") Evaluates the inquiry questions; Constructs new inquiry questions for the present and/or future; Designs new electronic plans that reflect co-created task criteria		
-knows information about the topic the teacher has given electronically and has experiences and personal preferences to share in the electronic assignment	-broadens or narrows the topic by constructing questions, hunches, educated guesses, predictions, and hypotheses -sometimes adapts the language, scope, or nature of the task to match personal information needs during the inquiry	-identifies spaces or unanswered questions within the assigned inquiry topic, question, or problem -creates new questions and electronic plans that reflect co-created criteria to address the gaps in creativity, knowledge, and skill -assesses why these new questions are essential
○	○	○

INQUIRY COMPONENT. *GATHERING AND MAKING SENSE* (see poster for "EXAMPLES") Evaluates the purpose, motive, perspective, bias, depth and accuracy of the information; Adjusts inquiry techniques as new information is incorporated with prior knowledge; Collects/creates primary data using ICT; Assesses potential and appropriateness of broader sharing/use of collected/created primary data for specific online communities and/or global audiences; Assesses possible connections between personal work and known knowledge gaps		
-uses ICT to narrow information search of multiple electronic and media sources -analyzes whether information has been manipulated (is it real or fake) -takes electronic notes -cites authors, titles, dates, URLs in standard bibliography format using an ICT	-narrows or broadens search using ICT -categorizes the information using an ICT -uses criteria to analyze information for its *relevancy*, *context*, *validity* (logical, real-world), *accuracy*, *authorship*, *currency* (general acceptance and use of the source), *credibility* (trustworthiness), and *reliability* (dependableness for future use)	-applies criteria to determine the value of the information being found - evaluates the purpose, motive, perspective, bias, depth and accuracy of the information -judges whether topic needs narrowing and/or adjustment as new information is incorporated with prior knowledge -evaluates the extent the findings/conclusions solve systemic problems, fills gaps in creativity, knowledge, and skill, and even determines courses of action when available knowledge is incomplete; -evaluates whether any broader uses of captured primary data are appropriate for specific communities and/or global audiences
○	○	○

INQUIRY COMPONENT. *PRODUCING TO SHOW UNDERSTANDING* (see poster for "EXAMPLES") Designs and creates non-sequential representations, simulations and models that best convey the findings, meanings, solutions, and syntheses of the inquiry; Self-assesses ICT representations according to co-created criteria for enhanced meaning and artistry, audience and context appropriateness, and focus on message without exaggerated use of ICT features		
-revises information product for organization and clarity, enhanced content and artistry according to given criteria and personal preferences -is willing to make a few changes to work to make it easier to understand	-uses multimedia to create information product and revises work to go beyond initially provided criteria--to make the topic and its purpose more clear and artistic for the audience -makes sure the message is accurate and conclusions are balanced and defensible -makes sure the features of the ICT do not take the audience's attention away from the message	-uses non-sequential representations with hyperlinks, layered graphics, multiple spreadsheets, simulations, or virtual realities that will engage a particular audience -judges digital work and messaging according to co-created criteria for clarity and artistry and the extent solutions, explanations, and proposals for action are convincing with a minimum of electronic words and effective images -assesses whether the message is the focus—not the features of the ICT (eg. not overusing transitions, builds, special effects, etc.)
○	○	○

Figure 19: Continuum for Teacher Assessement of Student *LwICT* Skill

28). This means that students and teachers can address and assess curricular outcomes and continuum descriptors at the same time so that literacy with ICT becomes infused with curricular outcomes across the curriculum. As curricular outcomes are grouped into learning sequences, so too are the continuum descriptors. Together, they become learning experiences designed to assist students and teachers in using the continuum as a planning tool for learning, teaching, and assessing. Sample learning experiences can be found on the ECE website and also on Manitoba's website (http://bit.ly/NaY69D). Also ICTs are sampled by grade in Part 3 of this document.

Summary: Assessing, Evaluating and Reporting

Evaluation and reporting are directly connected to assessment of literacy with ICT. While *assessing* means systematically gathering evidence of student learning over time, and *evaluating* means interpreting the assessment information using professional judgement, *reporting* means synthesizing and communicating student progress and achievement to all concerned.

Assessment of literacy with ICT occurs in curricular context through observations, conversations, and portfolios. **Evaluation** of literacy with ICT is based on the targets in the continuum snapshots, the development of the individual student profile, and the access to ICT infrastructure.
Reporting on literacy with ICT consists of informing parents about their child's competency in three areas:
- demonstrating critical thinking with ICT to plan and gather information
- demonstrating creative thinking with ICT to produce and communicate information
- demonstrating responsibility and ethics with ICT

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Literacy with Information and Communication Technology

Part 2: ASSESSMENT TOOLS

The following three types of tools shown in Part 2 are each further divided by grade divisions K-3, 4-6, 7-9, 10-12:

- Continuum for Teacher Assessment of Student *LwICT* Skills by Division
- Student Self-Assessment: *LwICT* Divisional Snapshots
- Teacher Preparation for *LwICT* : Divisional Snapshots

These tools are found on the CD that accompanies this paper version of the Infusion Guide. They will also be available in PDF format at the GNWT Education, Culture and Employment website in 2012-2013.

CONTINUUM for TEACHER ASSESSMENT of STUDENT *LwICT* SKILL   Name: _____

LITERACY WITH INFORMATION, COMMUNICATION AND TECHNOLOGY (*LwICT*) ONGOING ASSESSMENT CONTINUUM - **EARLY ELEMENTARY (K-3) ACROSS THE CURRICULUM**

BEGINNING TO LEARN I am just beginning; I like to have lots of help (approximately Gr. K-1)	**LEARNING AS I GO** I am remembering from before; I still need help sometimes (approximately Gr. 2)	**LEARNING AND TEACHING** I have lots of practice; I can help others (approximately Gr. 3)

INQUIRY COMPONENT SKILL LEVEL (each Inquiry Component is fully realized at the "Learning and Teaching" level)

INQUIRY COMPONENT. *PLANNING AND QUESTIONING*   (see poster for "EXAMPLES")
Recalls and/or records prior-knowledge/experiences; States preferences for new learning and criteria required; Follows an electronic plan

-knows information about the topic and watches as someone records it electronically for them ◯	-knows information about topic and shares it using typed words and electronic images -knows what new information he/she wants to learn and states it ◯	-knows information about the topic teacher has assigned and shares it using typed words and electronic images -states own preferences for work goals (co-created criteria in a rubric) and applications to be used -can accurately help others ◯

INQUIRY COMPONENT. *GATHERING AND MAKING SENSE* (see poster for "EXAMPLES")
Finds/collects information from given media sources; Questions if information is real, useful, or is an advertisement; Records sources: authors and titles; Records information and notes into categories with given ICT; Collects/creates primary data using ICT

-can find information from electronic and media sources with lots of help -needs someone to type the findings ◯	-takes notes from text and picture information collected; places it into groups using an ICT -attends to source, author/creator of information by recording titles, URLs, and names ◯	- before notes are taken, asks if information is real and useful or if it is just "made up" or an advertisement -attends to source, author/creator of information by recording titles, URLs, and names -collects/creates primary data with simple devices such as digital cameras ◯

INQUIRY COMPONENT. *PRODUCING TO SHOW UNDERSTANDING* (see poster for "EXAMPLES")
Uses given ICT to show learning by creating texts, graphs, pictures, and sounds; Revises and edits work until co-created criteria

-shows preference for type of final product (eg. book, slideshow, hyperlinked story…) -watches someone build it ◯	-uses given ICT to create a product to show learning using text, graphs, and pictures ◯	-selects an ICT and makes a product using words, graphs, pictures, and sound -revises and edits electronic work according to work goals (co-created criteria in a rubric) ◯

INQUIRY COMPONENT. *COMMUNICATING AND REFLECTING* (see poster for "EXAMPLES")
Shares, displays, discusses electronic work with a face to face audience; Participates in guided conversations about using ICT to assist learning

-learns to share electronic work by watching how others share ◯	-shares digital work with another -explains the plan that was used when asks for it in a conversation setting ◯	-shares electronic work in guided conversations -explains ICT choices and what other ICTs might be used another time and why ◯

INQUIRY COMPONENT. *ETHICS and RESPONSIBILITY* (see poster for "EXAMPLES")
-Respects certain beliefs, rules, and guidelines about using ICT; Recognizes the need to acknowledge authorship and the kind of permission given by authors of intellectual property

-respects the school's ICT equipment and the working space of other ICT users -understands what an author or creator of information is ◯	-uses ICT carefully -respects the working space of other ICT users -knows that credit must be given to the owner of the information used ◯	-respects the school's ICT equipment and the working space of other ICT users -follows the rules about username and password privacy -shows others how to find the author/creator of the information being used ◯

INQUIRY COMPONENT. *SOCIAL IMPLICATIONS*   (see poster for "EXAMPLES")
Identifies uses of ICT at home, school, and the community; Knows about and chooses appropriate times and places to use ICT

-can tell how ICT is used at home ◯	-tells how ICT is used at home/school -aware of times and places ICT should not be used ◯	-can tell about how ICT is used at home, school, and the community -can tell about the right times and places to use ICT ◯

INQUIRY COMPONENT. *COLLABORATION* (see poster for "EXAMPLES")

<u>Works</u> with others to complete a teacher–directed task using ICT; <u>Helps</u> others with ICT knowledge and procedures

-watches others use ICT to complete a teacher-led task	-requires help from others to complete a teacher-led task with ICT	-cooperates with and sometimes leads others to complete a teacher-led task using ICT
○	○	○

INQUIRY COMPONENT. *META-COGNITION: MOTIVATION AND CONFIDENCE* (see poster for "EXAMPLES")

<u>Demonstrates</u> motivation and confident when using ICT alone and with others; <u>Recognizes</u> ICT problems and seeks assistance

-is motivated to use ICT regardless of skill	-is motivated, confident, and able to use ICT alone and with others when it is appropriate to do so	-is motivated, confident, and able to use ICT alone and with others at the right times and in the right places -recognizes ICT problems; asks for help from peers and teachers
○	○	○

TECHNICAL SKILL LEVEL (each skill is fully realized at the "Learning and Teaching" level)

Understands and presses the keys on the keyboard (examples: using one finger, using both hands, hunting and pecking, using correct hand position while watching the screen, demonstrating speed and accuracy...) (2. Input/Output)		
○	○	○

Logs on and off of ICT devices (1. Access and Communication)		
○	○	○

Opens applications and files (examples: PC: using Start Menu, My Computer, desktop icons etc.; APPLE: using the Finder Window, Dock, etc.) (2. Access and Communication)		
○	○	○

Saves files (examples: follow a specific file path to a network, hard drive, flash memory device, CD-ROM, DVD,...) (3. Access and Communication)		
○	○	○

Prints files (examples: selecting print options such as page range, number of copies, paper tray, fit to page, ...) (4. Access and Communication)		
○	○	○

Navigates within an application (examples: using icons, menus, keyboard shortcuts, ...) (5. Access and Communication)		
○	○	○

Browses multimedia (examples: CD-ROMs, DVDs, flash memory devices, ...) (7. Access and Communication)		
○	○	○

Navigates within a website (8. Access and Communication)		
○	○	○

Searches the internet using teacher selected search engines and keywords (10. Access and Communication)		
○	○	○

Manipulates input devices (examples: mouse buttons, keyboards, styluses, trackballs, touch screens, electronic whiteboards, adaptive devices...) (1.Input/Output)		
○	○	○

Selects and uses peripherals to find, record, manipulate, save, print and/or display information (examples: microphones, digital cameras, video cameras, electronic whiteboards, digital microscopes, joysticks, touch screens, flash memory devices, data projectors, TVs, printers...) (4. Input/Output)		
○	○	○

Inserts hyperlinks into electronic work that show electronic sources (6. Tools and Text)		
○	○	○

Captures digital data (examples: with microphones, digital audio-recording devices, digital cameras, video cameras, GPS, probeware...) (3. Input/Output)		
○	○	○

Manages electronic files and folders (13. Access and Communication)		
○	○	○

CONTINUUM for TEACHER ASSESSMENT of STUDENT *LwICT* SKILL   Name: _____

LITERACY WITH INFORMATION, COMMUNICATION AND TECHNOLOGY (*LwICT*) ONGOING ASSESSMENT CONTINUUM: **MIDDLE ELEMENTARY (4-6) ACROSS THE CURRICULUM**		
BEGINNING TO LEARN I am just beginning; I like to have lots of help (approximately Gr. 4)	**LEARNING AS I GO** I am remembering from before; I still need help sometimes (approximately Gr. 5)	**LEARNING AND TEACHING** I have lots of practice; I can help others (approximately Gr. 6)

INQUIRY COMPONENT SKILL LEVEL (each Inquiry Component is fully realized at the "Learning and Teaching" level)

INQUIRY COMPONENT. *PLANNING AND QUESTIONING* (see poster for "EXAMPLES") Recalls and/or records prior-knowledge/experiences; Raises new topic related questions; Follows an electronic plan that reflects co-created task criteria		
-knows information about the topic the teacher has given electronically and shares it using typed words and electronic images ○	-knows information about the topic the teacher has given electronically and shares it using typed words and electronic images -follows an electronic plan provided by the teacher that reflects student input ○	-follows the teacher's electronic study plan and sometimes collaborates on changes to the ideas, language, and format -raises new "how" and "why" questions about the topic -creates by typing and illustrating ideas and questions electronically ○

INQUIRY COMPONENT. *GATHERING AND MAKING SENSE* (see poster for "EXAMPLES") Finds/collects information from given media sources; Identifies sub-topics by using search engines that offer "related searches/questions" and "word clouds"; Questions if information is real, useful, or is an advertisement; Records sources using ICT; Selects an ICT to record notes and categorize information; Collects/creates primary data using ICT		
-takes notes from the text and picture information the teacher gives -records titles and authors ○	-before taking notes, asks if the information is real, useful, or is an advertisement -records titles and authors using online bibliography makers -collects primary data related to topic with audio and video devices -uses an ICT to record notes and categorize information ○	-discovers the subtopics of the inquiry using ICTs that show related searches and questions and word clouds; decides whether to narrow or broaden the inquiry question -checks information for accuracy and usefulness -uses ICT to record notes and categorize information; records titles and authors using online bibliography makers -collects primary data with audio and video devices that help the student and audience understand the topic better ○

INQUIRY COMPONENT. *PRODUCING TO SHOW UNDERSTANDING* (see poster for "EXAMPLES") Selects with guidance suitable applications and digital devices to show learning through text, graphs, pictures, sounds, and multimedia to a particular audience; Revises and edits electronic work for greater clarity and visual appeal according to the co-created task criteria		
-begins work using an application the teacher provides using text and images -is satisfied with draft work as being the final work ○	-selects with help a suitable application that will best show the desired graphs, pictures, and sounds to be used -applies the criteria in the plan as the digital work is built -is willing to make a few changes to make the work easier to understand ○	-selects a suitable application (increasing with independence) to show learning through use of various media -revises ideas and edits notes by changing the way text, graphs, pictures, sounds, and multimedia applications are used--according to the inquiry's co-created criteria--so they become more clear to an audience and pleasant to look at and listen to ○

INQUIRY COMPONENT. *COMMUNICATING AND REFLECTING* (see poster for "EXAMPLES") Communicates learning with a face to face audience or an audience from a distance using electronic communication devices; Discusses and receives feedback about ICT choices and future ICT options in guided conversations; Discusses captured primary data		
-shares learning with another person -explains the plan used when the teacher asks for sharing in a conversation setting ○	-uses ICT to share learning with a face to face audience -explains in guided conversations why a particular ICT was chosen and what other ICTs might be used another time -invites others for constructive feedback ○	-shares work using ICT with a face to face audience or an audience from a distance -asks others to give constructive feedback on work and the criteria used for the inquiry -offers feedback to others -discusses ICT choices and future options for communicating learning ○

BEGINNING TO LEARN	LEARNING AS I GO	LEARNING AND TEACHING
I am just beginning; I like to have lots of help (approximately Gr. 4)	I am remembering from before; I still need help sometimes (approximately Gr. 5)	I have lots of practice; I can help others (approximately Gr. 6)

INQUIRY COMPONENT. *ETHICS and RESPONSIBILITY* (see poster for "EXAMPLES")
Applies beliefs, rules, and guidelines that are created and held for fair, healthy, responsible, safe use of ICT; Explains consequences for unsafe and unfair use of ICT with special attention to online disrespect; Identifies possible health issues associated with using ICT; Recognizes the need to acknowledge authorship and licensed use of intellectual property

| -respects the school's ICT equipment and the ICT working space of others -understands the need for rules about internet safety such as username and password privacy -knows that credit must be given to the authors of the words and pictures used | -respects the school's ICT equipment and the ICT working space of others -understands the need for rules about internet safety such as username and password privacy and use of respectful words and ideas -knows that permission is required to use the words, pictures, sounds, and videos of others, and give credit to the authors/creators | -respects the school's ICT equipment and acceptable-use policy -applies the rules about internet safety (username and password privacy) -understands healthy uses of ICT (eg. learning, sharing ideas, building relationships…) and unhealthy uses (eg. cyberbullying, hatred, hurting reputations…) -learns from the copyright license what permissions the author gives for the use of his/her words, pictures, sounds, and videos -gives credit to the authors/creators of the work used |
| ◯ | ◯ | ◯ |

INQUIRY COMPONENT. *SOCIAL IMPLICATIONS* (see poster for "EXAMPLES")
Understands the use of ICT for recreation, communication, education, collaboration, sales, health care, etc.; Chooses appropriate times and places to use ICT; Understands how ICT influences relationships at school

| -can tell about how ICT is used at home and school | -can tell about how ICT is used at home, school, and the community for recreation, communication, and education -can tell about the right times and places to use ICT | -can tell about how ICT is used at home, school, and the community for recreation, communication, education, sales, and health care -chooses the appropriate times and places to use wireless games and/or communication devices -can tell about how cyberbullying away from school (or in school) can affect the class and school community |
| ◯ | ◯ | ◯ |

INQUIRY COMPONENT. *COLLABORATION* (see poster for "EXAMPLES")
Collaborates with others in various self-directed learning contexts to pose questions, share knowledge, suggest solutions, and welcome individual expertise; Collaborates from a distance using tools such as email or wikis; Distinguishes between public/private

| -watches others use ICT to complete a teacher-led task and sometimes assists | -collaborates with others in group roles to accomplish self-directed learning with ICT in various settings | -collaborates with others in group roles to accomplish self-directed learning with ICT in various settings -poses questions, shares knowledge, suggests solutions, and welcomes individual expertise -sometimes collaborates from a distance using tools such as email or wikis |
| ◯ | ◯ | ◯ |

INQUIRY COMPONENT. *META-COGNITION: MOTIVATION AND CONFIDENCE* (see poster for "EXAMPLES")
Recognizes ICT problems and asks for help from peers and teachers; Attempts to solve ICT problems with previous or new solutions

| -is motivated and confident to use ICT with others | -is motivated and confident to use ICT with others and alone -recognizes problems and asks for help from peers and teachers | -is motivated and confident when using ICT alone and with others -recognizes problems and asks for help from peers and teachers -attempts to solve ICT problems with previous or new solutions |
| ◯ | ◯ | ◯ |

CONTINUUMS FOR TEACHER ASSESSMENT OF LwICT SKILL

TECHNICAL SKILL LEVEL (each skill is fully realized at the "Learning and Teaching" level)

BEGINNING TO LEARN I am just beginning; I like to have lots of help (approximately Gr. 4)	**LEARNING AS I GO** I am remembering from before; I still need help sometimes (approximately Gr. 5)	**LEARNING AND TEACHING** I have lots of practice; I can help others (approximately Gr. 6)
Understands and presses the keys on the keyboard (examples: using one finger, using both hands, hunting and pecking, using correct hand position while watching the screen, demonstrating speed and accuracy...) (2. Input/Output)		
○	○	○
Logs on and off of ICT devices (1. Access and Communication)		
○	○	○
Opens applications and files (examples: PC: using Start Menu, My Computer, desktop icons etc.; APPLE: using the Finder Window, Dock, etc.) (2. Access and Communication)		
○	○	○
Saves files (examples: follow a specific file path to a network, hard drive, flash memory device, CD-ROM, DVD,...) (3. Access and Communication)		
○	○	○
Prints files (examples: selecting print options such as page range, number of copies, paper tray, fit to page, ...) (4. Access and Communication)		
○	○	○
Navigates within an application (examples: using icons, menus, keyboard shortcuts, ...) (5. Access and Communication)		
○	○	○
Browses multimedia (examples: CD-ROMs, DVDs, flash memory devices, ...) (7. Access and Communication)		
○	○	○
Navigates within a website (8. Access and Communication)		
○	○	○
Searches the internet using teacher selected search engines and keywords (10. Access and Communication)		
○	○	○
Sends and responds to text messages and electronic files using rules of etiquette (eg. not typing in all capital letters, filling in subject line...) (11. Access and Communication)		
○	○	○
Manipulates input devices (examples: mouse buttons, keyboards, styluses, trackballs, touch screens, electronic whiteboards, adaptive devices...) (1.Input/Output)		
○	○	○
Selects and uses peripherals to find, record, manipulate, save, print and/or display information (examples: microphones, digital cameras, video cameras, electronic whiteboards, digital microscopes, joysticks, touch screens, flash memory devices, data projectors, TVs, printers...) (4. Input/Output)		
○	○	○
Inserts hyperlinks into electronic work that show electronic sources (6. Tools and Text)		
○	○	○
Captures digital data (examples: with microphones, digital audio-recording devices, digital cameras, video cameras, GPS, probeware...) (3. Input/Output)		
○	○	○
Manages electronic files and folders (13. Access and Communication)		
○	○	○

CONTINUUM for TEACHER ASSESSMENT of STUDENT *LwICT* SKILL   Name: _____

LITERACY WITH INFORMATION, COMMUNICATION AND TECHNOLOGY (*LwICT*) ONGOING ASSESSMENT CONTINUUM: **JUNIOR HIGH (7-9) ACROSS THE CURRICULUM**

BEGINNING TO LEARN I am just beginning; I like to have lots of help (approximately Gr. 7)	**LEARNING AS I GO** I am remembering from before; I still need help sometimes (approximately Gr. 8)	**LEARNING AND TEACHING** I have lots of practice; I can help others (approximately Gr. 9)

INQUIRY COMPONENT SKILL LEVEL (each Inquiry Component is fully realized at the "Learning and Teaching" level)

INQUIRY COMPONENT. *PLANNING AND QUESTIONING* (see poster for "EXAMPLES")
Constructs questions, hunches, educated guesses, predictions, hypotheses; Determines new information needs; Adapts the electronic plan to reflect co-created task criteria

-knows information about the topic -shares knowledge by using typed words and electronic images ◯	-follows the language and format of the electronic assignment but sometimes changes it in collaboration with the teacher -asks new questions about the topic -types and illustrates ideas and questions electronically ◯	-digitally asks questions, pursues hunches, makes educated guesses and predictions, and hypothesizes about the topic -sometimes changes the language, scope, or nature of task criteria to match personal, or group information needs -judges when a gap in personal or existing information needs filling ◯

INQUIRY COMPONENT. *GATHERING AND MAKING SENSE* (see poster for "EXAMPLES")
Determines the author/sponsor/currency of information by using online tools; Analyzes sub-topics/themes with ICT; Uses criteria to evaluate appropriateness of information for audience and learning needs; Analyzes information's purpose, depth, perspective, and truth or if it has been manipulated; Categorizes and records notes with electronic tools; Collects/creates primary data using ICT; Records sources with ICT

-asks if the information is real, useful, or is an advertisement before taking notes -records titles and authors -collects primary data related to the topic with audio and video devices ◯	- uses ICT to narrow or broaden searches before recording information from multiple electronic and media sources into categories -analyzes whether information has been manipulated (is it real or fake?) -determines who the author/sponsor of the information/website is and conducts a search on that name -takes notes and cite authors, titles, dates, URLs in standard bibliography format using online bibliography makers -collects or creates relevant primary data ◯	-uses ICT to narrow or broaden my search of electronic sources to understand sub-topics and/or broader themes -uses criteria to analyze the information for its relevancy, context, validity (logical, real-world), accuracy, authorship, currency (general acceptance and use of the source), credibility (trustworthiness), and reliability (dependableness for future use) -learns what permission is given by the author to use his/her work and give credit to him/her -creates or collects primary data using ICT ◯

INQUIRY COMPONENT. *PRODUCING TO SHOW UNDERSTANDING* (see poster for "EXAMPLES")
Selects suitable applications and digital devices to analyze data/information and best communicate to a particular audience the connections made, conclusions reached, problems solved, and solutions suggested; Revises and edits the message/findings of the inquiry for greater clarity and visual appeal according to co-created criteria, feedback, and personal preference

-uses a recommended application that best shows the graphs, pictures, and sounds to be used -lets personal preferences guide work and final product ◯	-selects an application that will best show the digital work -is willing to make a few changes to the language and format of the digital work according to the original task criteria so the work is easier to understand ◯	-judges the usefulness of devices and applications that will best convince a particular audience of the message (the analysis, conclusions, solutions of the work) -revises and edits message and media according to the original task criteria and feedback that is asked of peers, parents, and teachers ◯

BEGINNING TO LEARN I am just beginning; I like to have lots of help (approximately Gr. 7)	**LEARNING AS I GO** I am remembering from before; I still need help sometimes (approximately Gr. 8)	**LEARNING AND TEACHING** I have lots of practice; I can help others (approximately Gr. 9)
INQUIRY COMPONENT. *COMMUNICATING AND REFLECTING* (see poster for "EXAMPLES") <u>Communicates</u> learning and data created with a face to face audience or an audience from a distance using electronic tools; <u>Asks</u> for and shares specific and constructive feedback related to the task criteria and the use of ICT to communicate the inquiry's findings; <u>Reflects</u> on ICT as a learning tool		
-shares learning with another person -explains the plan used when the teacher asks to share it in a conversation setting ◯	-uses ICT to share learning with a face to face audience -explains ICT choices and considers future tools that may be used as alternatives -asks others for constructive feedback on the extent the work was based on the task criteria ◯	-shares and displays learning with a face to face audience or an audience from a distance using electronic communication devices -asks for and gives specific and constructive feedback related to the task criteria and reflects on ICT as a learning tool ◯
INQUIRY COMPONENT. *ETHICS and RESPONSIBILITY* (see poster for "EXAMPLES") <u>Explains</u> consequences of unsafe and unfair use of ICT with special attention to online disrespect; <u>Applies</u> school division's acceptable-use policy; <u>Applies</u> safety guidelines when communicating electronically; <u>Recognizes</u> the need to acknowledge authorship and licensed use of intellectual property		
-respects the school's ICT equipment and other's working space -understands the need for rules about internet safety such as username and password privacy and careful use of words and ideas ◯	-respects the school's ICT equipment and acceptable-use policy -applies the rules about internet safety (username and password privacy) -understand healthy uses of ICT (eg. sharing ideas, building relationships) and unhealthy uses (eg. cyberbullying, hatred, hurting reputations) -knows that permission must be gained and credit given when the words, pictures, sounds, and videos of others are used ◯	-can identify possible health issues associated with ICT -follows the school boards acceptable–use of ICT policy -understands healthy and unhealthy uses of ICT; and how cyberbullying impacts the classroom and school community -learns how to deal fairly with the words, pictures, sounds, and videos of others and to look for the author's intended use of the work as described in a license -gives credit to the authors of the work use ◯
INQUIRY COMPONENT. *SOCIAL IMPLICATIONS* (see poster for "EXAMPLES") <u>Analyzes</u> current trends in ICTs and predicts effects of emerging technologies; <u>Analyzes</u> how personal career choices will require various ICT competencies; <u>Analyzes</u> the advantages and disadvantages of ICT use in society and ICTs' creation of social and work behaviours		
-can tell how ICT is used at home, school, and the community for recreation, communication, and education ◯	-can tell about how technologies changed grandparents' and parents' lives -can tell about how technological changes have been helpful/ unhelpful to one's culture ◯	-analyzes current trends in ICT and predict effects of emerging technologies on people in both the developed and developing world - analyzes the advantages and disadvantages of ICT use in society -analyzes and discusses how people work, socialize, and change according to new ICT -can tell about how personal career choices will require ICT competencies ◯
INQUIRY COMPONENT. *COLLABORATION* (see poster for "EXAMPLES") <u>Collaborates</u> in various contexts to pose questions, share and pool expertise, bridge ingenuity gaps, determine risks…; <u>Collaborates</u> from a distance using email, wikis, blogs, conferencing technologies, and other social media; Determines public and private boundaries		
-collaborates with others in assigned group roles to accomplish teacher-directed and/or self-directed learning with ICT in various settings ◯	-collaborates with others in various group roles to set goals and accomplish self-directed learning with ICT in various settings ◯	-sometimes collaborates with others from a distance to pose questions, share and pool expertise, bridge ingenuity gaps, and determine risks using email, wikis, blogs, conferencing technologies, and other social media ◯

BEGINNING TO LEARN I am just beginning; I like to have lots of help (approximately Gr. 7)	**LEARNING AS I GO** I am remembering from before; I still need help sometimes (approximately Gr. 8)	**LEARNING AND TEACHING** I have lots of practice; I can help others (approximately Gr. 9)
INQUIRY COMPONENT. *META-COGNITION: MOTIVATION AND CONFIDENCE* (see poster for "EXAMPLES") -<u>Investigates</u> ICT problems and applies strategies to solve them; <u>Perseveres</u> by remaining open-minded, precise and accurate as possible until a solution is found		
-is motivated and confident to use ICT with others -lets other people solve personal computer problems	-is motivated and confident when using ICT alone and with others -recognizes problems and asks for help from peers and teachers -attempts to solve ICT problems with previous or new solutions	-investigates ICT problems seeking help from peers, teachers, and help menus -persists by applying previous learned and/or new strategies for problems that require multiple approaches -remains open-minded, precise and accurate as possible until a solution is found
○	○	○

TECHNICAL SKILL LEVEL (each skill is fully realized at the "Learning and Teaching" level)

Understands and can press the keys on the keyboard (examples: using one finger, using both hands, hunting and pecking, using correct hand position while watching the screen, demonstrating speed and accuracy...) (2. Input/Output)		
○	○	○
Can log on and off of ICT devices (1. Access and Communication)		
○	○	○
Can open applications and files (examples: PC: using Start Menu, My Computer, desktop icons APPLE: using the Finder Window, Dock) (2. Access and Communication)		
○	○	○
Can save files (examples: follow a specific file path to a network, hard drive, flash memory device, CD-ROM, DVD,...) (3. Access and Communication)		
○	○	○
Can print files (examples: selecting print options such as page range, number of copies, paper tray, fit to page, ...) (4. Access and Communication)		
○	○	○
Can navigate within an application (examples: using icons, menus, keyboard shortcuts, ...) (5. Access and Communication)		
○	○	○
Can navigate between applications (6. Access and Communication)		
○	○	○
Can browse the internet (9. Access and Communication)		
○	○	○
Can choose and use search engines using own keywords (15. Access and Communication)		
○	○	○
Can refine searches using Boolean logic (16. Access and Communication)		
○	○	○
Can investigate the currency and/or authorship of electronic sources such as websites, email, CD-ROMs, syndications, blogs, wikis, podcasts, and broadcast media (examples: checking date last modified, analyzing the meta-web information of a URL...) (17. Access and Communication)		
○	○	○

BEGINNING TO LEARN I am just beginning; I like to have lots of help (approximately Gr. 7)	**LEARNING AS I GO** I am remembering from before; I still need help sometimes (approximately Gr. 8)	**LEARNING AND TEACHING** I have lots of practice; I can help others (approximately Gr. 9)
Can insert hyperlinks into my electronic work that show my electronic sources (6. Tools and Text)		
○	○	○
Can moves data between applications (14. Access and Communication)		
○	○	○
I can select and use peripherals to find, record, manipulate, save, print and/or display information (examples: microphones, digital cameras, video cameras, electronic whiteboards, digital microscopes, joysticks, touch screens, flash memory devices, data projectors, TVs, printers...) (4. Input/Output)		
○	○	○
Draws images using electronic tools (2. Tools and Texts)		
○	○	○
Can analyze the intended use of images/video, and edits images/video using photo/video-editing software (examples: adjusting the cropping, resolution, compression, number of colours, file size...) (9. Tools and Text)		
○	○	○
Can construct graphic organizers, tables, spreadsheets, databases, multimedia presentations and/or web pages (10. Tools and Text)		
○	○	○
Can send and receive text messages and electronic files using rules of etiquette (examples" not typing in all capital letters, filling in subject line...) (11. Access and Communication)		
○	○	○

CONTINUUMS FOR TEACHER ASSESSMENT OF LwICT SKILL

CONTINUUM for TEACHER ASSESSMENT of STUDENT *LwICT* SKILL   Name: _____

LITERACY WITH INFORMATION, COMMUNICATION AND TECHNOLOGY (*LwICT*)
ONGOING ASSESSMENT CONTINUUM:
SENIOR HIGH (10-12) ACROSS THE CURRICULUM

BEGINNING TO LEARN I am just beginning; I like to have lots of help	**LEARNING AS I GO** I am remembering from before; I still need help sometimes	**LEARNING AND TEACHING** I have lots of practice; I can help others

INQUIRY COMPONENT SKILL LEVEL (each Inquiry Component is fully realized at the "Learning and Teaching" level)

INQUIRY COMPONENT. *PLANNING AND QUESTIONING* (see poster for "EXAMPLES")
Evaluates the inquiry questions; Constructs new inquiry questions for the present and/or future; Designs new electronic plans that reflect co-created task criteria

-knows information about the topic the teacher has given electronically and has experiences and personal preferences to share in the electronic assignment	-broadens or narrows the topic by constructing questions, hunches, educated guesses, predictions, and hypotheses -sometimes adapts the language, scope, or nature of the task to match personal information needs during the inquiry	-identifies spaces or unanswered questions within the assigned inquiry topic, question, or problem -creates new questions and electronic plans that reflect co-created criteria to address the gaps in creativity, knowledge, and skill -assesses why these new questions are essential
◯	◯	◯

INQUIRY COMPONENT. *GATHERING AND MAKING SENSE* (see poster for "EXAMPLES")
Evaluates the purpose, motive, perspective, bias, depth and accuracy of the information; Adjusts inquiry techniques as new information is incorporated with prior knowledge; Collects/creates primary data using ICT; Assesses potential and appropriateness of broader sharing/use of collected/created primary data for specific online communities and/or global audiences; Assesses possible connections between personal work and known knowledge gaps

-uses ICT to narrow information search of multiple electronic and media sources -analyzes whether information has been manipulated (is it real or fake) -takes electronic notes -cites authors, titles, dates, URLs in standard bibliography format using an ICT	-narrows or broadens search using ICT -categorizes the information using an ICT -uses criteria to analyze information for its *relevancy*, *context*, *validity* (logical, real-world), *accuracy*, *authorship*, *currency* (general acceptance and use of the source), *credibility* (trustworthiness), and *reliability* (dependableness for future use)	-applies criteria to determine the value of the information being found - evaluates the purpose, motive, perspective, bias, depth and accuracy of the information -judges whether topic needs narrowing and/or adjustment as new information is incorporated with prior knowledge -evaluates the extent the findings/conclusions solve systemic problems, fills gaps in creativity, knowledge, and skill, and even determines courses of action when available knowledge is incomplete; -evaluates whether any broader uses of captured primary data are appropriate for specific communities and/or global audiences
◯	◯	◯

INQUIRY COMPONENT. *PRODUCING TO SHOW UNDERSTANDING* (see poster for "EXAMPLES")
Designs and creates non-sequential representations, simulations and models that best convey the findings, meanings, solutions, and syntheses of the inquiry; Self-assesses ICT representations according to co-created criteria for enhanced meaning and artistry, audience and context appropriateness, and focus on message without exaggerated use of ICT features

-revises information product for organization and clarity, enhanced content and artistry according to given criteria and personal preferences -is willing to make a few changes to work to make it easier to understand	-uses multimedia to create information product and revises work to go beyond initially provided criteria--to make the topic and its purpose more clear and artistic for the audience -makes sure the message is accurate and conclusions are balanced and defensible -makes sure the features of the ICT do not take the audience's attention away from the message	-uses non-sequential representations with hyperlinks, layered graphics, multiple spreadsheets, simulations, or virtual realities that will engage a particular audience -judges digital work and messaging according to co-created criteria for clarity and artistry and the extent solutions, explanations, and proposals for action are convincing with a minimum of electronic words and effective images -assesses whether the message is the focus—not the features of the ICT (eg. not overusing transitions, builds, special effects, etc.)
◯	◯	◯

BEGINNING TO LEARN I am just beginning; I like to have lots of help	LEARNING AS I GO I am remembering from before; I still need help sometimes	LEARNING AND TEACHING I have lots of practice; I can help others

INQUIRY COMPONENT. *COMMUNICATING AND REFLECTING* (see poster for "EXAMPLES")
Adjusts communication processes and products based on self-evaluation and feedback from a local and global audience; Self-evaluates and monitors ICT's influence over the intended meaning; Plans future use of ICT during learning; Shares collected/created primary data as appropriate for audience and purpose

-uses electronic communication tools to discuss learning with another person	-uses electronic communication tools to discuss learning with a face to face audience or possibly a global audience -uses this learning and the communication process to help plan and share future electronic work	-communicates and discusses the meaning of the digital work with a face to face audience or an audience from a distance using ICT -uses the audience's responses during and after the communications to evaluate the ICT's influence over the intended meaning and make appropriate adjustments -reflects upon the value of ICT as future work and communications are planned -assesses the value and purpose of sharing collected/created primary data with a selected and/or global audience using media sharing sites and other ICT
○	○	○

INQUIRY COMPONENT. *ETHICS and RESPONSIBILITY* (see poster for "EXAMPLES")
Evaluates effects of personal ICT behaviour on others; Weighs personal benefits and risks of using ICT; Recognizes the need to acknowledge authorship and licensed use of intellectual property; Assesses use of licenses to share personal/group primary data online, and the protections offered by Canadian copyright law

-respects other's ICT equipment and working space -understands the need for rules about internet safety such as username and password privacy and careful use of words and ideas -knows that permission must be gained and credit given for the use of other's words, pictures, sounds, music, and videos	-understands possible health issues associated with ICT such (eg. inactivity, eye strain, and addictive behaviors -applies the school division's acceptable-use of ICT policy to digital work -understands healthy uses of ICT (eg. sharing ideas, building relationships) and unhealthy uses (eg. cyberbullying, hatred, hurting reputations) -gives credit for the words, ideas, pictures, sounds, and videos of others	-personally evaluates the effects, benefits and risks of each communication and interaction when using ICT to learn and share -learns how to deal fairly with the intellectual and artistic property of others by reading the author's intended use of the work described in the license
○	○	○

INQUIRY COMPONENT. *SOCIAL IMPLICATIONS* (see poster for "EXAMPLES")
Evaluates current trends in ICTs and weighs future advantages and opportunities against disadvantages and risks they have for society; Makes reasoned judgments about society's right to information versus the right to individual privacy

-can tell about some current trends of ICT use in society	-analyzes the advantages and disadvantages of ICT use in society -analyzes the trend of sharing information in a socially networked world	-studies current trends in ICT and predicts and weighs future advantages and opportunities against the potential disadvantages and risks for society of creating new ICTs -makes reasoned judgments about society's right to information versus the right to individual privacy
○	○	○

BEGINNING TO LEARN I am just beginning; I like to have lots of help	**LEARNING AS I GO** I am remembering from before; I still need help sometimes	**LEARNING AND TEACHING** I have lots of practice; I can help others

INQUIRY COMPONENT. *COLLABORATION* (see poster for "EXAMPLES")

Leads and motivates group members in collaborative learning; Weighs the benefits and challenges of learning with ICT; Judges benefits and risks of making group-created work available for online sharing

-collaborates with others in group roles to set goals and accomplish self-directed learning with ICT in various settings -sometimes collaborates from a distance using email or wikis	-collaborates with others in group roles to set goals, accomplish self-directed learning, and solve productivity issues using ICTs in various settings -sometimes collaborates from a distance using email, wikis, blogs, conferencing technologies, and other social media	-weighs the benefits of using various kinds of ICT to accomplish collaborative work -leads group collaborations using ICT by motivating members and valuing their contributions, managing group conflicts and technical difficulties, and developing consensus to be reflected in the final information product -assesses, in collaborative settings, the value, purpose, and ethics of sharing community generated primary data on media sharing sites -makes individual/group primary data available for sharing with an online community by uploading it to a media sharing site under a "some rights reserved" type copyright license -helps the group understand the extent of the "fair dealing" rights the public have to use group data placed online by using Sec. 29 of the Canadian Copyright Act
○	○	○

INQUIRY COMPONENT. *META-COGNITION: MOTIVATION AND CONFIDENCE* (see poster for "EXAMPLES")

Synthesizes knowledge and information for unique problems that require multiple approaches

-is motivated and confident to use ICT with others or alone -relies on others to solve personal ICT problems	-recognizes and investigates ICT problems by seeking help from peers, teachers, and online sources -remains open-minded, precise, and persistent in applying previously learned and/or new strategies in solving an ICT problem	-persists in applying a synthesis of previously learned and/or new strategies for common and unique ICT problems
○	○	○

STUDENT SELF-ASSESSMENT: K-3 *LwICT* SNAPSHOT (with adult assistance)   Name _____

Possible Ways to Use this Snapshot: check circles describing you; circle words describing your strengths; circle words about new things to learn

BEGINNING TO LEARN I am just beginning; I like to have lots of help	LEARNING AS I GO I am remembering from before; I still need help sometimes	LEARNING AND TEACHING I have lots of practice; I can help others
PUTTING MY IDEAS ON THE COMPUTER OR TABLET (PLANNING AND QUESTIONING)		
○ I like **watching** someone use the computer or tablet. Sometimes I **try to use** the computer or tablet by myself.	○ With help, I can **open** the teacher's assignment on my computer or tablet. I can **type** my ideas inside the assignment.	○ I can **type** my ideas right in the teacher's assignment, or in another program. I **tell** the teacher what I want my work to look like.
DECIDING ABOUT INFORMATION ON THE COMPUTER OR TABLET (GATHERING AND MAKING SENSE)		
○ With people helping me, I **find** digital information.	○ Using the computer or tablet, I **put** my information into groups. I type where I **find** information and who the author is.	○ I **ask** if the information is real and true. I **help** others find the source and author of their information. I **group** information in mind maps, tables, etc. I **take** pictures/videos to help my study.
SHOWING MY LEARNING ON A COMPUTER OR TABLET (PRODUCING TO SHOW UNDERSTANDING)		
○ I **tell** others what I like to make on the computer or tablet.	○ I **chose** how to make my ideas look good on a computer or tablet. I **make** my ideas look good with pictures, words, drawings, sounds, …	○ I **use** text, pictures, audio, video, etc. to show my learning. I **change** my work to make it better by looking at what my teacher and I first thought would make it good.
SHOWING OTHERS MY COMPUTER OR TABLET WORK (COMMUNICATING AND REFLECTING)		
○ I **watch** others show their computer or tablet work.	○ With help, I **share** my electronic work. I **explain** the choices I made.	○ I **share** and **explain** my computer or tablet work. I think and **talk** about my future computer or tablet work.
COMPUTER OR TABLET RULES (ETHICS and RESPONSIBILITY)		
○ I **learn** that computers or tablets are expensive. I **know** my friends need space when using the computer or tablet. I **learn** that people can own words and pictures.	○ I **use** ICT safely and carefully. I **am respectful** when my classmate is using the computer or tablet. I get help to **find out** who owns the words and pictures I use.	○ I am **careful** and respectful with a computer or tablet and I **respect** my classmates' computer or tablet space. I **turn** my head when my friend enters his/her private password on the computer or tablet. I **show** others how to find who owns the words and pictures they want to use.
PEOPLE AND COMPUTER OR TABLETS (SOCIAL IMPLICATIONS)		
○ I **can tell** how computers or tablets are used at home.	○ With some help, I **can tell** how computers or tablets are used at home and school. I **can tell** of a place and time when I should not use these electronics.	○ I can **tell** how computer or tablets are used at home, school, and in the community. I can **tell** about three or more times and places when I should not use electronics.
WORKING TOGETHER WITH COMPUTERS OR TABLETS (COLLABORATION)		
○ I like to **watch** others in my group complete the assignment on the computer or tablet.	○ I like **help** from my group on my parts of the computer or tablet assignment.	○ I am a good worker in my group. I sometimes **lead** the group in completing the assignment on the computer or tablet.
WHAT I DO WHEN I HAVE COMPUTER OR TABLET PROBLEMS (MOTIVATION and CONFIDENCE)		
○ I **like** trying to use the computer or tablet.	○ I **know** how to use the computer or tablet with others and sometimes try it alone.	○ I **notice** when I am having a computer or tablet problem and ask for help from friends or teachers.

BEGINNING TO LEARN	LEARNING AS I GO	LEARNING AND TEACHING
I am just beginning; I like to have lots of help	I am remembering from before I still need help sometimes	I have lots of practice; I can help others

Possible Ways to Use this Snapshot: check circles describing you; circle words describing your strengths; circle words about new things to learn

USING THE COMPUTER OR TABLET

I understand and can press the keys on keyboards or virtual keyboards.		
○	○	○
I can log on and off of computer or tablet.		
○	○	○
I can open programs and files.		
○	○	○
I can choose a certain place to save my computer or tablet files.		
○	○	○
I can print files by choosing what pages I want to print and the way my work will look on the page.		
○	○	○
I can use the menus in the programs I use.		
○	○	○
I can browse DVDs/CDs/memory sticks and other media I put into the computer or tablet.		
○	○	○
I can find the things I want when at website on the internet.		
○	○	○
I can search the internet using a search engine and keywords.		
○	○	○
I can use things connected to the computer or tablet like the mouse, keyboards, whiteboards, SD card reader…		
○	○	○
I can choose the right things to connect to the computer or tablet so I can play, show, change, save, and record information.		
○	○	○
I can put hyperlinks into my computer or tablet work to show how it is connected to the internet.		
○	○	○
I can make new information by recording sounds and taking picture using special tools.		
○	○	○
I can keep all my files in order and placed in the correct folder on the computer or tablet, portable memory stick, or server.		
○	○	○

STUDENT SELF-ASSESSMENT: 4-6 *LwICT* SNAPSHOT   Name _____

<u>Possible Ways to Use this Snapshot</u>: check circles describing you; circle words describing your strengths; circle words about new things to learn

BEGINNING TO LEARN I am just beginning; I like to have lots of help	LEARNING AS I GO I am remembering from before; I still need help sometimes	LEARNING AND TEACHING I have lots of practice; I can help others

PUTTING MY IDEAS ON THE COMPUTER OR TABLET (PLANNING AND QUESTIONING)

○ I **know** information about the topic and with lots of help, I **type or show** it using a computer or tablet.	○ I **type or show** what I know about a topic using a computer or tablet. I **follow** a study plan on the computer or tablet that I had input on.	○ I **type or show** my ideas/experiences right in the teacher's electronic assignment, or in another program. I decide with the teacher the criteria for good work. I **add** new "how" and "why" questions about the topic-using a computer or tablet.
NOTES:	NOTES:	NOTES:

DECIDING ABOUT INFORMATION ON THE COMPUTER OR TABLET (GATHERING AND MAKING SENSE)

○ With people helping me, I **take notes** from websites, books, or pictures given to me. I **type** the titles and authors.	○ I **ask** if the information I am using is **real** or true. I **type** what I know and learn into an application that helps me group my learning. I **use** online bibliography-makers to show where my information came from. I **take** pictures and record video and sounds to show my understanding of topics.	○ I **discover** subtopics by using the "related searches", "questions", "word clouds", etc. that my search engine gives. I **check** if information is true before recording and grouping it into categories using a computer or tablet I **show** where I find information by using online bibliography makers. I **take** pictures and record video and sounds that will make my topic the most clear to an audience.
NOTES:	NOTES:	NOTES:

SHOWING MY LEARNING ON A COMPUTER OR TABLET (PRODUCING TO SHOW UNDERSTANDING)

○ I like to **be told** what I will make on the computer or tablet. I **use** the computer or tablet the way the teacher tells me to. I **use** the first thing I make on the computer or tablet as my final work.	○ With some help, I **choose** a program that will help me get the work done. I "**build**" my work on the computer or tablet the way I first planned it to be. I **make** some changes to my work before I am done.	○ I **choose** my own application from the selection made available to me—to present my work. I **change** my computer or tablet work until it is as good as we (me, the teacher, group) first planned it to be. I **make sure** it looks and sounds clear for my audience.
NOTES:	NOTES:	NOTES:

SHOWING OTHERS MY COMPUTER OR TABLET WORK (COMMUNICATING AND REFLECTING)

○ I like to **share** my computer or tablet work with one other person. If the teacher asks me questions, I will **tell** how I made the work.	○ I **share** my work with a face-to-face audience. In a conversation, I **tell** how I made the work. I **ask** others for feedback.	○ I **share** my work with an audience that may be in my school—or from far away. I **explain** to the audience what my "rules" were for good work. I **explain** my technology choices to the audience using the correct words and talk about my future choices. I **ask** for feedback from others; **give** feedback to others.
NOTES:	NOTES:	NOTES:

(continued)

STUDENT SELF-ASSESSMENTS: DIVISIONAL LWICT SNAPSHOTS

Possible Ways to Use this Snapshot: check circles describing you; circle words describing your strengths; circle words about new things to learn

BEGINNING TO LEARN I am just beginning; I like to have lots of help	**LEARNING AS I GO** I am remembering from before I still need help sometimes	**LEARNING AND TEACHING** I have lots of practice; I can help others

COMPUTER OR TABLET RULES (ETHICS and RESPONSIBILITY)

I **try** to be careful and respectful with computer or tablets and my classmates' computer or tablet space. I **turn** my head when my friend enters his/her private password on the computer or tablet. I **know** that somebody owns the pictures, sounds, and music I want to use.	I **take** care of technology. I **respect** my classmate's computer or tablet space and username and password privacy. I **find out** who owns the words, pictures, sounds, video, etc. I want to use and use them only with permission.	I am **careful** and respectful with computers or tablets and other's work spaces. I **show** others how to keep usernames and passwords private—and to use technology safely/respectfully. I **show** others how to find out and give credit to the owners/creators of the words, pictures, sounds, video, etc. they want to use and the permissions that the license gives.
NOTES:	NOTES:	NOTES:

PEOPLE AND COMPUTER OR TABLETS (SOCIAL IMPLICATIONS)

I **can tell** how computer or tablets are used at home and school. I **like** to have someone explain how computer or tablets can hurt people.	I can **tell** how computer or tablets are used at home, school, and in the community. I can **tell** of a place and time when I should not use computer or tablets or electronics. I **know** that computer or tablets can hurt people.	I can **tell** how computers or tablets are used for learning, connecting, and receiving the things people want. I can **tell** about ways that cyberbullying is disrespectful and dangerous to relationships in my class or school.
NOTES:	NOTES:	NOTES:

WORKING TOGETHER ON COMPUTER OR TABLETS (COLLABORATION)

I like to **watch** others in my group complete the assignment on the computer or tablet.	I **use** computer or tablets with others. Sometimes with help, I try to use computer or tablets by myself.	I sometimes **lead** the group assignment on the computer or tablet—answering questions and taking suggestions. Sometimes, we use technology to **work** with others who are far away. I **understand** a group needs to decide how private the work is—or if it should be shared publicly.
NOTES:	NOTES:	NOTES:

WHAT I DO WHEN I HAVE COMPUTER OR TABLET PROBLEMS (MOTIVATION and CONFIDENCE)

I **like** using computer or tablets with others.	I **notice** when I am having a computer or tablet problem and ask for help from friends or teachers.	When I am having a computer or tablet problem, I **try** to solve it the way I did in the past or even try new ways.
NOTES:	NOTES:	NOTES:

TECHNICAL SKILLS

USING THE COMPUTER OR TABLET

I understand and can press the keys on keyboards or virtual keyboards.

○	○	○

(continued)

Possible Ways to Use this Snapshot: check circles describing you; circle words describing your strengths; circle words about new things to learn

BEGINNING TO LEARN I am just beginning; I like to have lots of help	**LEARNING AS I GO** I am remembering from before I still need help sometimes	**LEARNING AND TEACHING** I have lots of practice; I can help others
I can log on and off of the computer or power up or down the tablet.		
○	○	○
I can open programs and files.		
○	○	○
I can choose a certain place to save my computer or tablet files.		
○	○	○
I can print files by choosing what pages I want to print and the way my work will look on the page.		
○	○	○
I can use the menus in the programs I use.		
○	○	○
I can browse DVDs/CDs/memory sticks and other media I put into the computer or browse media choices on the tablet.		
○	○	○
I can find the things I want when at a website on the internet.		
○	○	○
I can search the internet using a search engine and keywords.		
○	○	○
I send and respond to text messages and electronic files by using certain rules such as filling in the subject line and not typing in all capital letters.		
○	○	○
I can use things connected to the computer or tablet like the mouse, keyboards, whiteboards, SD card reader…		
○	○	○
I can choose the right things to connect to the computer or tablet so I can play, show, change, save, and record information.		
○	○	○
I can put hyperlinks into my computer or tablet work to show how it is connected to the internet.		
○	○	○
I can make new information by recording sounds and taking picture using special tools.		
○	○	○
I can keep all my files in order and placed in the correct folder on the computer or tablet, portable memory stick, or server.		
○	○	○

Grade

STUDENT SELF-ASSESSMENTS: DIVISIONAL LWICT SNAPSHOTS | K-12

STUDENT SELF-ASSESSMENT: 7-9 *LwICT* SNAPSHOT   Name _____

Possible Ways to Use this Snapshot: check circles describing you; circle words describing your strengths; circle words about new things to learn

BEGINNING TO LEARN I am just beginning; I like to have lots of help	**LEARNING AS I GO** I am remembering from before; I still need help sometimes	**LEARNING AND TEACHING** I have lots of practice; I can help others

PUTTING MY IDEAS ON THE COMPUTER OR TABLET (PLANNING AND QUESTIONING)

I **know** information about the topic. I **type or show** it using a computer or tablet. NOTES:	Sometimes with the teacher, I make **changes** to the electronic assignment given me. I sometimes **add** new questions (eg. "how" and "why" type) about the topic using a computer or tablet. NOTES:	I **type or show** my ideas right in the teacher's electronic assignment, or in another program. I **create** criteria with the teacher for the inquiry. I "**open-up**" my topic by typing in my hunches, guesses, predictions, new questions, etc. NOTES:

DECIDING ABOUT INFORMATION ON THE COMPUTER OR TABLET (GATHERING AND MAKING SENSE)

I **ask** if the information I am using is **real** or **true**. I **use** online bibliography-makers to show where my information came from. I **take** pictures to show my understanding of topics. NOTES:	I **ask** if the information I am using is **real** or **true** or has been changed. I **find** out who the author/creator of the information is and search that name using a search engine. I **use** an online bibliography maker. I **group** information into categories with tools like mind mapping software. I **collect** my own data to better show my learning (take or draw digital pictures, plot data, record sound and video) NOTES	I **decide** to narrow or broaden my topic by using search engine features such as "related searches", "related questions", "word clouds", etc. I **judge** if information is useful, makes sense, is correct, and can be trusted. I electronically **group** my information. I **look** for what permissions the author/creator gives me in the text/picture/music's license, as well as **creating** my own pictures, sounds, music, videos I **use** online bibliography makers to give credit to the author/creator. NOTES:

SHOWING MY LEARNING ON A COMPUTER OR TABLET (PRODUCING TO SHOW UNDERSTANDING)

I **use** a recommended program that will help me get the work done the way I want to do it. I **use** my first work done as my final copy. NOTES:	With assistance, I **choose** a program/app that will make my work clear (graphs, drawings, pictures, music, video). I **use** my beginning plan to **change** my work (or change the program I am using) to make it better to look at and listen to. NOTES:	I **choose** a program/application for my work thinking about what is best for my audience. I **show** the importance of my work and how it is connected to other knowledge. I **judge** how well my work measures up to my student-teacher-made plan and make changes if I need to. I **ask** for suggestions from friends, teachers, and parents about how to make my work more understandable and convincing. NOTES:

(continued)

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Possible Ways to Use this Snapshot: check circles describing you; circle words describing your strengths; circle words about new things to learn
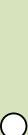
BEGINNING TO LEARN I am just beginning; I like to have lots of help	**LEARNING AS I GO** I am remembering from before I still need help sometimes	**LEARNING AND TEACHING** I have lots of practice; I can help others

SHOWING OTHERS MY COMPUTER OR TABLET WORK (COMMUNICATING AND REFLECTING)

I like to **share** my computer or tablet work with one other person. If the teacher asks me questions, I will **tell** how I made the work.	I **share** my work with a face-to-face audience. I **tell** how I made the work and why I made it the way I did. I **ask** others for feedback.	I **share** and **explain** both my work and the technology I used with an audience that may be in my school—or in another part of the NWT or world. I **ask** for and **give** certain kinds of feedback that talk about an inquiry's original plan. I **judge** the usefulness of the technology I used for more work in the future.
NOTES:	NOTES:	NOTES:

COMPUTER OR TABLET RULES (ETHICS and RESPONSIBILITY)

I **take** care of technology. I **turn** my head when my friend enters a username and password on the computer or tablet. I **respect** that somebody owns the pictures, sounds, and music I want to use.	I am **careful** and **respectful** with computer or tablets and my classmate's computer or tablet space. I **respect** my classmate's computer or tablet space and username and password privacy. I **accept** that technology can be used to help or hurt others. I **accept** that I must gain permission to use the words, pictures, sounds, video, of others. I **accept** that I must give credit to the authors and owners of online ideas, words, and creations.	I **learn** and **decide** how to take care of technology. I **judge** and **explain** the health risks that come with technology. I **decide** if any of my online work and communications will help or hurt my or someone else's reputation. I **judge** how authors/creators want me to use their work by reading their license for each piece of work. I **learn** about Creative Commons licenses where I can license my own creations for sharing. I **accept** the fairness of giving credit to the author/creator for the use of his/her words, pictures, videos, etc.
NOTES:	NOTES:	NOTES:

PEOPLE AND COMPUTER OR TABLETS (SOCIAL IMPLICATIONS)

I can **tell** how computer or tablets are used at home, school, and in the community.	I can **tell** how technology has changed my grandparents' and parents' lives. I can **tell** how technology has been helpful and hurtful to society.	I can **tell** about how new technologies are being used to work and socialize. I **predict** the good and bad ways certain new technologies will affect people in rich and poor countries. I **tell** about how personal career choices will need technology skills.
NOTES:	NOTES:	NOTES:
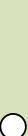
(continued)

STUDENT SELF-ASSESSMENTS: DIVISIONAL LWICT SNAPSHOTS

<u>Possible Ways to Use this Snapshot</u>: check circles describing you; circle words describing your strengths; circle words about new things to learn

BEGINNING TO LEARN I am just beginning; I like to have lots of help	LEARNING AS I GO I am remembering from before I still need help sometimes	LEARNING AND TEACHING I have lots of practice; I can help others

WORKING TOGETHER ON COMPUTERS OR TABLETS (COLLABORATION)

○ I like to be **told** and shown what to do with technology when working with others. NOTES:	○ I **work** with others to plan our learning and the technology we will use. I **accept** that different members in the group will use the technology in different ways and at different times. NOTES:	○ Using technology, I **work** with others nearby and faraway. As a group member, I help **judge** whether the group needs to raise questions, share or keep knowledge private, find a missing piece of information, or decide on the risk of communicating with certain technologies. NOTES:

WHAT I DO WHEN I HAVE COMPUTER OR TABLET PROBLEMS (MOTIVATION and CONFIDENCE)

○ I **like** using computer or tablets with others. I **like** other people to solve any computer or tablet problem I have. NOTES:	○ I **try** one way to solve a technology problem before asking for help from others. NOTES:	○ I **try** to solve computer or tablet problems by remembering how I solved the problem last time. I **keep trying** with an open mind by using "help menus" in the program, online communities, blogs, and "forums" to find solutions—as well as discussing options with peers, teachers, etc. NOTES:

<u>TECHNICAL SKILLS</u>

USING THE COMPUTER OR TABLET

I can log on and off of the computer or power up or down the tablet.		
○	○	○

I can open programs and files.		
○	○	○

I can keep all my files in order and placed in the correct folder on the computer or tablet, portable memory stick, or server.		
○	○	○

I can choose a certain place to save my computer or tablet files.		
○	○	○

I can print files by choosing what pages I want to print and the way my work will look on the page.		
○	○	○

I can use the menus, buttons, and shortcuts in the programs I use.		
○	○	○

(continued)

Possible Ways to Use this Snapshot: check circles describing you; circle words describing your strengths; circle words about new things to learn

BEGINNING TO LEARN I am just beginning; I like to have lots of help	LEARNING AS I GO I am remembering from before I still need help sometimes	LEARNING AND TEACHING I have lots of practice; I can help others
I can go back and forth between different applications.		
○	○	○
I can use internet browsers.		
○	○	○
I can search the internet using a search engine and keywords.		
○	○	○
I can use AND, OR, NOT (Boolean logic) to narrow my search.		
○	○	○
I can investigate who is behind a website, wiki, podcast, email or other media message.		
○	○	○
I can put hyperlinks into my text.		
○	○	○
I can move information/data between applications/programs.		
○	○	○
I can make new information by recording sounds, capturing video, and taking pictures using special tools.		
○	○	○
I can choose the right things to connect to the computer or tablet so I can play, show, change, save, and record information.		
○	○	○
I can draws images using electronic tools.		
○	○	○
I can edit my media for the audience that will see it.		
○	○	○
I can construct graphic organizers, tables, spreadsheets, databases, multimedia presentations and/or web pages.		
○	○	○
I send and respond to text messages and electronic files by using certain rules such as filling in the subject line and not typing in all capital letters.		
○	○	○

STUDENT SELF-ASSESSMENT: 10-12 *LwICT* SNAPSHOT   Name _____

Possible Ways to Use this Snapshot: check circles describing you; circle words describing your strengths; circle words about new things to learn

BEGINNING TO LEARN	LEARNING AS I GO	LEARNING AND TEACHING
I am just beginning; I like to have lots of help	I am remembering from before; I still need help sometimes	I have lots of practice; I can help others

PUTTING MY IDEAS ON THE COMPUTER (PLANNING AND QUESTIONING)

I **know** information about the topic. I **type or show** it using a computer. NOTES:	I **use** the electronic assignment provided. I sometimes **adapt** the electronic assignment by making the topic broader, or, more specific to what I want to learn. NOTES	I **assess** where there are gaps in knowledge in the topic being studied. I **create** and **defend** the need for new questions. I **create new** electronic plans that are based on co-created criteria (qualities that must be present in good work; qualities that are chosen in conversations with others) NOTES:

DECIDING ABOUT INFORMATION ON THE COMPUTER (GATHERING AND MAKING SENSE)

I **use** ICT to help me narrow or broaden my study. I **check** to make sure the information is real and is not just an advertisement. I **take** my notes electronically. I **use** online bibliography makers to give credit to authors/creators. NOTES:	I **use** criteria to show what good work with this topic will look like in the end. I **find** out who the author/creator of the information is using a domain finder and search that name using a search engine. I **use** an online bibliography maker. I **group** information into categories with tools like mind mapping software. I **check** if the information is real, logical, accepted by many people, trustworthy, and dependable. NOTES:	I **assess** the motive behind the information, as well as its perspective, bias, depth and accuracy. I **judge** whether to change the focus of my original topic in light of new information. I **use** an online bibliography maker to show my sources. I **assess** how my work is connected to knowledge already known or how it fills gaps in knowledge. I **determine** what could/should be done when online resources for the question are incomplete. I **capture** pictures, videos, and sounds and **judge** whether there could/should be wider uses of them beyond the specific task. NOTES:

SHOWING MY LEARNING ON A COMPUTER (PRODUCING TO SHOW UNDERSTANDING)

I **follow** the guidelines given me for the work I create. I **choose to** make a few edits and revisions to make my work more understandable. NOTES:	I **choose** a program/app that will make my work (graphs, drawings, pictures, music, video) clear. I **use** the qualities in the original plan to **change** my work (or change the program I am using) to make it better to look at and listen to. NOTES:	I **choose** a program/application for my work that easily allows me to change the order and linking of my information as I respond to the audience's needs. I **ask** for suggestions from friends, teachers, and parents about how to make my work more understandable, convincing, and artistic. I **judge** how well my work measures up to my first student-teacher-made plan and make changes to the plan--or my work if I need to. I **emphasize** the message—not the features of the ICT. NOTES:

SHOWING OTHERS MY COMPUTER WORK (COMMUNICATING AND REFLECTING)

I **share** my work with a face-to-face audience. I **tell** how I made the work and why I made it the way I did. I **ask** others for feedback. NOTES:	I **share** my work with an audience that may be in my school—or in another part of the NWT or world. I **ask** for certain kinds of feedback that talks about the things in my plan. I give others the same kind of feedback. I **judge** the usefulness of the technology I used for more work in the future. NOTES:	I **judge** whether to change the way I communicate when I notice how the local or global audience is reacting. I **judge** whether the ICT changed the meaning of my original message. I **plan** future uses of ICT. I **judge** whether it is appropriate to share original data (images, audio clips, video, etc.) online with a local or global audience. NOTES:

Possible Ways to Use this Snapshot: check circles describing you; circle words describing your strengths; circle words about new things to learn

BEGINNING TO LEARN I am just beginning; I like to have lots of help	**LEARNING AS I GO** I am remembering from before I still need help sometimes	**LEARNING AND TEACHING** I have lots of practice; I can help others

COMPUTER RULES (ETHICS and RESPONSIBILITY)

○ I am **careful** and **respectful** with computers and classmate's computer space. I **respect** my classmate's computer space and username and password privacy. I **accept** that technology can be used to help or hurt others. I **accept** that I must gain permission to use other's words, pictures, sounds, video I **accept** that I must give credit to the authors and owners of online ideas, words, and creations. NOTES:	○ I **judge** and **explain** the health risks that come with technology. I **decide** if any of my online work and communications will help or hurt my or someone else's reputation. I **judge** how authors/creators want me to use their work by reading their license for each piece of work. I **learn** about Creative Commons licenses where I can license my own creations for sharing. I **accept** the fairness of giving credit to the author/creator for the use of his/her words, pictures, videos, etc. NOTES:	○ I **evaluate** the effects of my own computer use on others. I **judge** the personal benefits and risks of using ICT for work, pleasure, and communications. I **assess** whether intellectual property (text, images, music, video, etc.) is copyrighted with "all rights reserved" or "some rights reserved" licenses (eg. "Creative Commons") and use it accordingly. I **assess** the range of sharing licenses available to me and the protection provided by Canadian copyright law before I share my own or group's intellectual property online. NOTES:

PEOPLE AND COMPUTERS (SOCIAL IMPLICATIONS)

○ I can **tell** how technology has changed my grandparents' and parents' lives. I can **tell** how technology has been helpful and hurtful to society. NOTES:	○ I can **tell** about how new technologies are being used to work and socialize. I **predict** the good and bad ways certain new technologies will affect people in rich and poor countries. I **tell** about how personal career choices will need technology skills. NOTES:	○ I **evaluate** current technology trends and weigh future advantages/opportunities against the disadvantages and risks they have for local and global societies. I **assess** my right and society's right to information--and the right to privacy. NOTES:

WORKING TOGETHER ON COMPUTERS (COLLABORATION)

○ I **work** with others to plan our learning and the technology we will use. I **accept** that different members in the group will use the technology in different ways and at different times. NOTES:	○ Using technology, I **work** with others nearby and faraway. As a group member, I help **judge** whether the group needs to raise questions, share knowledge, find a missing piece of information, or decide on the risk of communicating with certain technologies. NOTES:	○ I **lead** and motivate group members when we are working with ICT collaboratively. As a group, we **judge** whether using ICT for our work has more or less advantages than challenges. We **assess** the benefits and risks of sharing our own creative work online. NOTES:

HOW I FEEL ABOUT COMPUTERS AND PROBLEMS WITH COMPUTERS (MOTIVATION and CONFIDENCE)

○ I **try** one way to solve a technology problem before asking for help from others. NOTES:	○ I **try** to solve computer problems by remembering how I solved the problem last time. I **keep trying** by using "help menus" in the program. I **use** online communities, blogs, and "forums" to find solutions. I **keep my mind open** to other ways to solve the problem and discuss options with peers, teachers, etc. NOTES:	○ I **synthesize** or blend my technology experience with new information to solve unique problems--or meet new requirements that require several approaches. NOTES:

TEACHER PREPARATION for *LwICT*: K-3 DIVISIONAL SNAPSHOT

(LANGUAGE FROM STUDENT SELF-ASSESSMENT SNAPSHOT)

BEGINNING TO LEARN I am just beginning; I like to have lots of help	**LEARNING AS I GO** I am remembering from before; I still need help sometimes	**LEARNING AND TEACHING** I have lots of practice; I can help others

(ICT TO BE FAMILIAR WITH PLACED AT POSSIBLE FIRST OCCURANCE) (" ⟹ MEANS ONGOING USE)

PUTTING MY IDEAS ON THE COMPUTER OR TABLET OR TABLET   (PLANNING AND QUESTIONING)

○ I like **watching** someone use the computer or tablet or tablet. Sometimes I **try to use** the computer or tablet by myself. (WORD PROCESSING) ⟹	○ With help, I can **open** the teacher's assignment on my computer or tablet or tablet. I can **type** my ideas inside the assignment. (MIND MAPPING) ⟹	○ I can **type** my ideas right in the teacher's assignment, or in another program. I tell the teacher what I want my work to look like.

DECIDING ABOUT INFORMATION ON THE COMPUTER OR TABLET (GATHERING AND MAKING SENSE)

○ With people helping me, I **find** digital information. (LICENSED DATABASES, REPOSITORIES) ⟹	○ Using the computer or tablet, I **put** my information into groups. I type where I **find** information and who the author is. (INTERNET BROWSERS, SEARCH ENGINES) ⟹	○ I **ask** if the information is real and true. I **help** others find the source and author of their information. I **take** pictures/videos to help my study. (DOMAIN FINDERS; HYPERLINKING TEXT) DIGITAL CAMERAS ⟹

SHOWING MY LEARNING ON A COMPUTER OR TABLET   (PRODUCING TO SHOW UNDERSTANDING)

○ I **tell** others what I like to make on the computer or tablet.	○ I **chose** how to make my ideas look good on a computer or tablet. I **make** my ideas look good with pictures, words, drawings, sounds, … (TABLES and RUBRICS, ⟹ SHARED IMAGE/SOUND SITES)	○ I **use** text, pictures, audio, video, etc. to show my learning. I **change** my work to make it better by looking at what my teacher and I first thought would make it good.

SHOWING OTHERS MY COMPUTER OR TABLET WORK   (COMMUNICATING AND REFLECTING)

○ I **watch** others show their computer or tablet work.	○ With help, I **share** my electronic work I **explain** the choices I made. (DIGITAL PROJECTION) ⟹	○ I **share** and **explain** my computer or tablet work. I think and **talk** about my future computer or tablet work.

COMPUTER OR TABLET RULES   (ETHICS AND RESPONSIBILITY)

○ I **learn** that computers or tablets are expensive. I **know** my friends need space when using the computer or tablet. I **learn** that people can own words and pictures.	○ I **use** ICT safely and carefully. I **am respectful** when my classmate is using the computer or tablet. I get help to **find out** who owns the words and pictures I use. (DOUBLE CLICKING SHAREABLE IMAGES FOR INFORMATION) ⟹	○ I am **careful** and respectful with computer or tablets and my classmates' computer or tablet space. I **turn** my head when my friend enters his/her private password on the computer or tablet. I **show** others how to find out who owns the words and pictures they want to use

PEOPLE AND COMPUTER OR TABLETS   (SOCIAL IMPLICATIONS)

○ I **can tell** how computer or tablets are used at home.	○ With some help, I **can tell** how computer or tablets are used at home and school. I can **tell** of a place and time when I should not use electronics.	○ I can **tell** how computer or tablets are used at home, school, and in the community. I can **tell** about three or more times and places when I should not use electronics.

WORKING TOGETHER WITH COMPUTERS OR TABLETS   (COLLABORATION)

○ I like to **watch** others in my group complete the assignment on the computer or tablet.	○ I like **help** from my group on my parts of the computer or tablet assignment.	○ I am a good worker in my group and sometimes **lead** the assignment on the computer or tablet.

WHAT I DO WHEN I HAVE COMPUTER OR TABLET PROBLEMS (MOTIVATION AND CONFIDENCE)

○ I **like** trying to use the computer or tablet.	○ I **know** how to use the computer or tablet with others and sometimes try it alone.	○ I **notice** when I am having a computer or tablet problem and ask for help from friends or teachers.

BEGINNING TO LEARN I am just beginning; I like to have lots of help	LEARNING AS I GO I am remembering from before I still need help sometimes	LEARNING AND TEACHING I have lots of practice; I can help others

(GENERAL ICT SKILLS)

USING THE COMPUTER OR TABLET		
I understand and can press the keys on the keyboard.		
○	○	○
I can log on and off of computer or tablets.		
○	○	○
I can open programs and files.		
○	○	○
I can choose a certain place to save my computer or tablet files.		
○	○	○
I can print files by choosing what pages I want to print and the way my work will look on the page.		
○	○	○
I can use the menus in the programs I use.		
○	○	○
I can browse DVDs/CDs/memory sticks and other media I put into the computer or tablet.		
○	○	○
I can find the things I want when at website on the internet.		
○	○	○
I can search the internet using a search engine and keywords.		
○	○	○
I can use things connected to the computer or tablet like the mouse, keyboards, whiteboards, …		
○	○	○
I can choose the right things to connect to the computer or tablet so I can play, show, change, save, and record information.		
○	○	○
I can put hyperlinks into my computer or tablet work to show how it is connected to the internet.		
○	○	○
I can make new information by recording sounds and taking picture using special tools.		
○	○	○
I can keep all my files in order and placed in the correct folder on the computer or tablet, portable memory stick, or server.		
○	○	○

TEACHER PREPARATION: DIVISIONAL LWICT SKILLS

TEACHER PREPARATION for *LwICT*: 4-6 DIVISIONAL SNAPSHOT

(LANGUAGE FROM STUDENT SELF-ASSESSMENT SNAPSHOT)

Note: for full wording, see "Continuum for Teacher Assessment of Student"

BEGINNING TO LEARN I am just beginning; I like to have lots of help	LEARNING AS I GO I am remembering from before; I still need help sometimes	LEARNING AND TEACHING I have lots of practice; I can help others

INQUIRY COMPONENT **SKILL LEVEL** (ICT TO BE FAMILIAR WITH) ("⟹" MEANS ONGOING USE)

PUTTING MY IDEAS ON THE COMPUTER OR TABLET

I **know** information about the topic and with lots of help, I **type or show** it using a computer or tablet. WORD PROCESSING ⟹ MIND MAPPING	I **type or show** what I know about a topic using a computer or tablet. I **follow** a study plan on the computer or tablet that I had input on. TABLES, RUBRICS, GRAPHS ⟹	I **type or show** my ideas/experiences right in the teacher's electronic assignment, or in another program. I decide with the teacher the criteria for good work. I **add** new "how" and "why" questions about the topic-using a computer or tablet.

DECIDING ABOUT INFORMATION ON THE COMPUTER OR TABLET

With people helping me, I **take notes** from websites, books, or pictures given to me. I **type** the titles and authors. DATABASES, REPOSITORIES ⟹	I **ask** if the information I am using is **real** or **true**. I **type** what I know and learn into an application that helps me group my learning. I **use** online bibliography-makers to show where my information came from. I **take** pictures and record video and sounds to show my understanding of topics. DOMAIN FINDERS ONLINE BIBLIOGRAPHY-MAKERS DIGITAL CAMERAS VIDEO CAMERAS AND ⟹	I **discover** subtopics by using the "related searches", "questions", "word clouds", etc. that my search engine gives. I **check** if information is true before recording and grouping it into categories using a computer or tablet I **show** where I find information by using online bibliography makers. I **take** pictures and record video and sounds that will make my topic the most clear to an audience. INTERNET BROWSERS, SEARCH ENGINES AUDIO SOFTWARE VIDEO EDITING SOFTWARE GRAPHING APPLICATIONS ⟹

SHOWING MY LEARNING ON A COMPUTER OR TABLET

I like to **be told** what I will make on the computer or tablet. I **use** the computer or tablet the way the teacher tells me to. I **use** the first thing I make on the computer or tablet as my final work.	With some help, I **choose** a program that will help me get the work done. I "**build**" my work on the computer or tablet the way I first planned it to be. I **make** some changes to my work before I am done. HYPERLINKING TEXT CARTOONING APPLICATIONS BLOGGING APPLICATIONS ⟹	I **choose** my own application from the selection made available to me—to present my work. I **change** my computer or tablet work until it is as good as we (me, the teacher, group) first planned it to be. I **make sure** it looks and sounds clear for my audience.

SHOWING OTHERS MY COMPUTER OR TABLET WORK

I like to **share** my computer or tablet work with one other person. If the teacher asks me questions, I will **tell** how I made the work.	I **share** my work with a face-to-face audience. In a conversation, I **tell** how I made the work. I **ask** others for feedback. DIGITAL PROJECTION AUDIO AMPLIFICATION ⟹	I **share** my work with an audience that may be in my school—or from far away. I **explain** to the audience what my "rules" were for good work. I **explain** my technology choices to the audience using the correct words and talk about my future choices. I **ask** for feedback from others; **give** feedback to others. INTERNET-BASED COMMUNICATION TOOLS FOR VOICE, VIDEO AND INSTANT MESSAGING, ⟹

BEGINNING TO LEARN I am just beginning; I like to have lots of help	**LEARNING AS I GO** I am remembering from before I still need help sometimes	**LEARNING AND TEACHING** I have lots of practice; I can help others

COMPUTER OR TABLET RULES

I **try** to be careful and respectful with computers or tablets and my classmates' work space. I **turn** my head when my friend enters his/her private password on the computer or tablet. I **know** that somebody owns the pictures, sounds, and music I want to use.	I **take** care of technology. I **respect** my classmate's computer or tablet space and username and password privacy. I **find out** who owns the words, pictures, sounds, video, etc. I want to use and use them only with permission. MEDIASMARTS ⟹	I am **careful** and respectful with computers or tablets and other's work spaces. I **show** others how to keep usernames and passwords private—and to use technology safely/respectfully. I **show** others how to find out and give credit to the owners/creators of the words, pictures, sounds, video, etc. they want to use and the permissions that the license gives.

PEOPLE AND COMPUTER OR TABLETS

I **can tell** how computers or tablets are used at home and school. I **need** to have someone explain how computers or tablets can hurt people.	I can **tell** how computers or tablets are used at home, school, and in the community. I can **tell** of a place and time when I should not use computers or tablets or electronics. I **know** that computers or tablets can hurt people.	I can **tell** how computers or tablets are used for learning, connecting, and receiving the things people want. I can **tell** about ways that cyberbullying is disrespectful and dangerous to relationships in my class or school.

WORKING TOGETHER WITH COMPUTERS OR TABLETS

I like to **watch** others in my group complete the assignment on the computer or tablet.	I **use** computers or tablets with others. Sometimes with help, I try to use computers or tablets by myself.	I sometimes **lead** the group assignment on the computer or tablet—answering questions and taking suggestions. Sometimes, we use technology to **work** with others who are far away. I **understand** a group needs to decide how private the work is—or if it should be shared publicly.

HOW I FEEL ABOUT COMPUTERS OR TABLETS AND PROBLEMS WITH COMPUTER OR TABLETS

I **like** using computers or tablets with others.	I **notice** when I am having a computer or tablet problem and ask for help from friends or teachers.	When I am having a computer or tablet problem, I **try** to solve it the way I did in the past or even try new ways. HELP MENUS INSIDE APPLICATIONS ⟹ ONLINE COMMUNITY FORUMS

TECHNICAL SKILLS (GENERAL ICT SKILLS)

USING THE COMPUTER OR TABLET

I understand and can press the keys on keyboards or virtual keyboards.		
○	○	○
I can log on and off of the computer or power up or down the tablet.		
○	○	○
I can open programs and files.		
○	○	○

TEACHER PREPARATION: DIVISIONAL LWICT SKILLS

BEGINNING TO LEARN I am just beginning; I like to have lots of help	**LEARNING AS I GO** I am remembering from before I still need help sometimes	**LEARNING AND TEACHING** I have lots of practice; I can help others

I can choose a certain place to save my computer or tablet files.

○	○	○

I can print files by choosing what pages I want to print and the way my work will look on the page.

○	○	○

I can use the menus in the programs I use.

○	○	○

I can browse DVDs/CDs/memory sticks and other media I put into the computer or browse media choices on the tablet.

○	○	○

I can find the things I want when at a website on the internet.

○	○	○

I can search the internet using a search engine and keywords.

○	○	○

I send and respond to text messages and electronic files by using certain rules such as filling in the subject line and not typing in all capital letters.

○	○	○

I can use things connected to the computer or tablet like the mouse, keyboards, whiteboards, SD card reader…

○	○	○

I can choose the right things to connect to the computer or tablet so I can play, show, change, save, and record information.

○	○	○

I can put hyperlinks into my computer or tablet work to show how it is connected to the Internet.

○	○	○

I can make new information by recording sounds and taking picture using special tools.

○	○	○

I can keep all my files in order and placed in the correct folder on the computer or tablet, portable memory stick, or server.

○	○	○

TEACHER PREPARATION for *LwICT*: 7-9 DIVISIONAL SNAPSHOT

(LANGUAGE FROM STUDENT SELF-ASSESSMENT SNAPSHOT)

Note: for full wording, see "Continuum for Teacher Assessment of Student"

BEGINNING TO LEARN I am just beginning; I like to have lots of help	**LEARNING AS I GO** I am remembering from before; I still need help sometimes	**LEARNING AND TEACHING** I have lots of practice; I can help others

INQUIRY COMPONENT SKILL LEVEL (ICT TO BE FAMILIAR WITH) ("⟹" MEANS ONGOING USE)

PUTTING MY IDEAS ON THE COMPUTER OR TABLET

I **know** information about the topic. I **type or show** it using a computer or tablet. WORD PROCESSING ⟹ MIND MAPPING NOTES:	Sometimes with the teacher, I make **changes** to the electronic assignment given me. I sometimes **add** new questions (eg. "how" and "why" type) about the topic using a computer or tablet. TABLES AND GRAPHS⟹ NOTES:	I **type or show** my ideas right in the teacher's electronic assignment, or in another program. I **create** criteria with the teacher for the inquiry. I "**open-up**" my topic by typing in my hunches, guesses, predictions, new questions, etc. NOTES:

DECIDING ABOUT INFORMATION ON THE COMPUTER OR TABLET

I **ask** if the information I am using is **real** or **true**. I **use** online bibliography-makers to show where my information came from. I **take** pictures to show my understanding of topics. DATABASES, REPOSITORIES ONLINE BIBLIOGRAPHY-MAKERS ⟹ DIGITAL CAMERAS NOTES:	I **ask** if the information I am using is **real** or **true** or has been changed. I **find** out who the author/creator of the information is and search that name using a search engine. I **use** an online bibliography maker. I **group** information into categories with tools like mind mapping software. I **collect** my own data to better show my learning (take or draw digital pictures, plot data, record sound and video) DOMAIN FINDERS WORD PROCESSED TABLES AUDIO SOFTWARE ⟹ VIDEO CAMERAS AND EDITING SOFTWARE GRAPHING APPLICATIONS NOTES:	I **decide** to narrow or broaden my topic by using search engine features such as "related searches", "related questions", "word clouds", etc. I **judge** if information is useful, makes sense, is correct, and can be trusted. I electronically **group** my information. I **look** for what permissions the author/creator gives me in the text/picture/music's license, as well as **creating** my own pictures, sounds, music, videos I **use** online bibliography makers to give credit to the author/creator. INTERNET BROWSERS, SEARCH ENGINES WORD CLOUDS ⟹ CREATIVE COMMON LICENSES NOTES:

SHOWING MY LEARNING ON A COMPUTER OR TABLET

I **use** a recommended program that will help me get the work done the way I want to do it. I **use** my first work done as my final copy. NOTES:	With assistance, I **choose** a program/app that will make my work (graphs, drawings, pictures, music, video) clear. I **use** my beginning plan to **change** my work (or change the program I am using) to make it better to look at and listen to. HYPERLINKING TEXT CARTOONING APPLICATIONS ⟹ BLOGGING APPLICATIONS NOTES:	I **choose** a program/application for my work thinking about what is best for my audience. I **show** the importance of my work and how it is connected to other knowledge. I **judge** how well my work measures up to my student-teacher-made plan and make changes if I need to. I **ask** for suggestions from friends, teachers, and parents about how to make my work more understandable and convincing. NOTES:

SHOWING OTHERS MY COMPUTER WORK

I like to **share** my computer work with one other person. If the teacher asks me questions, I will **tell** how I made the work. NOTES:	I **share** my work with a face-to-face audience. I **tell** how I made the work and why I made it the way I did. I **ask** others for feedback. DIGITAL PROJECTION AUDIO AMPLIFICATION ⇨ NOTES:	I **share** my work with an audience that may be in my school—or in another part of the NWT or world. I **explain** my plan and the work that came from it, and my technology choices. I **ask** for certain kinds of feedback that talks about the things in my plan. I give others the same kind of feedback. I **judge** the usefulness of the technology I used for more work in the future. INTERNET-BASED COMMUNICATION TOOLS FOR VOICE, VIDEO AND INSTANT ⇨ MESSAGING, NOTES:

BEGINNING TO LEARN I am just beginning; I like to have lots of help	**LEARNING AS I GO** I am remembering from before I still need help sometimes	**LEARNING AND TEACHING** I have lots of practice; I can help others

COMPUTER RULES

I **take** care of technology. I **turn** my head when my friend enters a username and password on the computer. I **respect** that somebody owns the pictures, sounds, and music I want to use. NOTES:	I am **careful** and **respectful** with computers and my classmate's computer space. I **respect** my classmate's computer space and username and password privacy. I **accept** that technology can be used to help or hurt others. I **accept** that I must gain permission to use the words, pictures, sounds, video, of others. I **accept** that I must give credit to the authors and owners of online ideas, words, and creations. MEDIASMARTS NOTES: ⇨	I **learn** and **decide** how to take care of technology. I **judge** and **explain** the health risks that come with technology. I **decide** if any of my online work and communications will help or hurt my or someone else's reputation. I **judge** how authors/creators want me to use their work by reading their license for each piece of work. I **learn** about Creative Commons licenses where I can license my own creations for sharing. I **accept** the fairness of giving credit to the author/creator for the use of his/her words, pictures, videos, etc. ONLINE MEDIA SHARING AND LICENSING SITES ⇨ NOTES:

PEOPLE AND COMPUTERS

I can **tell** how computers are used at home, school, and in the community. NOTES:	I can **tell** how technology has changed my grandparents' and parents' lives. I can **tell** how technology has been helpful and hurtful to society. NOTES:	I can **tell** about how new technologies are being used to work and socialize. I **predict** the good and bad ways certain new technologies will affect people in rich and poor countries. I **tell** about how personal career choices will need technology skills. NOTES:

WORKING TOGETHER ON COMPUTERS

|		
I like to be **told** and shown what to do with technology when working with others. NOTES:	I **work** with others to plan our learning and the technology we will use. I **accept** that different members in the group will use the technology in different ways and at different times. NOTES:	Using technology, I **work** with others nearby and faraway. As a group member, I help **judge** whether the group needs to raise questions, share knowledge, find a missing piece of information, or decide on the risk of communicating with certain technologies. SOCIAL BOOKMARKING (TAGGING, ANNOTATING) APPLICATIONS ⇨ COLLABORATIVE WIKIS NOTES:

TEACHER PREPARATION: DIVISIONAL LWICT SKILLS

HOW I FEEL ABOUT COMPUTERS AND PROBLEMS WITH COMPUTERS

○ I **like** using computers with others.
I **like** other people to solve any computer problem I have.

NOTES:

○ I **try** one way to solve a technology problem before asking for help from others.

NOTES:

○ I **try** to solve computer problems by remembering how I solved the problem last time.
I **keep trying** by using "help menus" in the program.
I **use** online communities, blogs, and "forums" to find solutions.
I **keep my mind open** to other ways to solve the problem and discuss options with peers, teachers, etc.
HELP MENUS INSIDE APPLICATIONS
ONLINE COMMUNITY FORUMS ⟹

NOTES:

TECHNICAL SKILL LEVEL (GENERAL ICT SKILLS)

BEGINNING TO LEARN I am just beginning; I like to have lots of help	**LEARNING AS I GO** I am remembering from before I still need help sometimes	**LEARNING AND TEACHING** I have lots of practice; I can help others

USING THE COMPUTER OR TABLET

I can log on and off of computers and other technology.

1 2 3 4 5	1 2 3 4 5	1 2 3 4 5

I can open programs and files.

1 2 3 4 5	1 2 3 4 5	1 2 3 4 5

I can keep all my files in order and placed in the correct folder on the computer, portable memory stick, or server.

1 2 3 4 5	1 2 3 4 5	1 2 3 4 5

I can choose a certain place to save my computer or tablet files.

1 2 3 4 5	1 2 3 4 5	1 2 3 4 5

I can print files by choosing what pages I want to print and the way my work will look on the page.

1 2 3 4 5	1 2 3 4 5	1 2 3 4 5

I can use the menus, buttons, and shortcuts in the programs I use.

1 2 3 4 5	1 2 3 4 5	1 2 3 4 5

I can go back and forth between different applications.

1 2 3 4 5	1 2 3 4 5	1 2 3 4 5

I can use internet browsers.

1 2 3 4 5	1 2 3 4 5	1 2 3 4 5

I can search the internet using a search engine and keywords.

1 2 3 4 5	1 2 3 4 5	1 2 3 4 5

I can use AND, OR, NOT (Boolean logic) to narrow my search.

1 2 3 4 5	1 2 3 4 5	1 2 3 4 5

I can investigate who is behind a website, wiki, podcast, email or other media message.		
1 2 3 4 5	1 2 3 4 5	1 2 3 4 5

BEGINNING TO LEARN I am just beginning; I like to have lots of help	**LEARNING AS I GO** I am remembering from before I still need help sometimes	**LEARNING AND TEACHING** I have lots of practice; I can help others

I can put hyperlinks into my text.		
1 2 3 4 5	1 2 3 4 5	1 2 3 4 5

I can move information/data between applications/programs.		
1 2 3 4 5	1 2 3 4 5	1 2 3 4 5

I can make new information by recording sounds, capturing video, and taking pictures using special tools.		
1 2 3 4 5	1 2 3 4 5	1 2 3 4 5

I can choose the right things to connect to the computer so I can play, show, change, save, record, and print information.		
1 2 3 4 5	1 2 3 4 5	1 2 3 4 5

I can draws images using electronic tools.		
1 2 3 4 5	1 2 3 4 5	1 2 3 4 5

I can edit my media for the audience that will see it.		
1 2 3 4 5	1 2 3 4 5	1 2 3 4 5

I can construct graphic organizers, tables, spreadsheets, databases, multimedia presentations and/or web pages.		
1 2 3 4 5	1 2 3 4 5	1 2 3 4 5

I send and respond to text messages and electronic files by using certain rules such as filling in the subject line and not typing in all capital letters.		
1 2 3 4 5	1 2 3 4 5	1 2 3 4 5

TEACHER PREPARATION for *LwICT*: 10-12 DIVISIONAL SNAPSHOT

(LANGUAGE FROM STUDENT SELF-ASSESSMENT SNAPSHOT)

Note: for full wording, see "Continuum for Teacher Assessment of Student"

BEGINNING TO LEARN I am just beginning; I like to have lots of help	**LEARNING AS I GO** I am remembering from before; I still need help sometimes	**LEARNING AND TEACHING** I have lots of practice; I can help others

INQUIRY COMPONENT SKILL LEVEL (ICT TO BE FAMILIAR WITH) ("⟹" MEANS ONGOING USE)

PUTTING MY IDEAS ON THE COMPUTER

I **know** information about the topic. I **type or show** it using a computer. WORD PROCESSING MIND MAPPING ⟹ NOTES:	I **use** the electronic assignment provided. I sometimes **adapt** the electronic assignment by making the topic broader, or, more specific to what I want to learn. TABLES AND GRAPHS ⟹ NOTES:	I **assess** where there are gaps in knowledge in the topic being studied. I **create** and **defend** the need for new questions. I **create new** electronic plans that are based on co-created criteria (qualities that must be present in good work; qualities that are chosen in conversations with others) NOTES:

DECIDING ABOUT INFORMATION ON THE COMPUTER

I **use** ICT to help me narrow or broaden my study. I **check** to make sure the information is real and is not just an advertisement. I **take** my notes electronically. I **use** online bibliography makers to give credit to authors/creators. DATABASES, REPOSITORIES ONLINE BIBLIOGRAPHY-MAKERS DIGITAL CAMERAS ⟹ NOTES:	I **use** criteria to show what good work with this topic will look like in the end. I **find** out who the author/creator of the information is using a domain finder and search that name using a search engine. I **use** an online bibliography maker. I **group** information into categories with tools like mind mapping software. I **check** if the information is real, logical, accepted by many people, trustworthy, and dependable. DOMAIN FINDERS WORD PROCESSED TABLES GRAPHING APPLICATIONS ⟹ NOTES:	I **assess** the motive behind the information, as well as its perspective, bias, depth and accuracy. I **judge** whether to change the focus of my original topic in light of new information. I **judge** the practical value of the ongoing work/findings with the question. I **assess** how my work is connected to knowledge already known or how it fills gaps in knowledge. I **determine** what could/should be done when online resources for the question are incomplete. I **capture** pictures, videos, and sounds and **judge** whether there could/should be wider uses of them beyond the specific task. DIGITAL CAMERAS and PHOTO-EDITING SOFTWARE, AUDIO CAPTURING and EDITING SOFTWARE VIDEO CAMERAS AND EDITING SOFTWARE ⟹ NOTES:

SHOWING MY LEARNING ON A COMPUTER

I follow the guidelines given me for the work I create. I **choose to** make a few edits and revisions to make my work more understandable. NOTES:	I **choose** a program/app that will make my work (graphs, drawings, pictures, music, video) clear. I **use** the qualities in the original plan to **change** my work (or change the program I am using) to make it better to look at and listen to. HYPERLINKING TEXT CARTOONING APPLICATIONS BLOGGING APPLICATIONS CREATING WORD CLOUDS, NOTES:	I **choose** a program/application for my work that easily allows me to change the order and linking of my information as I predict the audience's needs. I **ask** for suggestions from friends, teachers, and parents about how to make my work more understandable, convincing, and artistic. I **judge** how well my work measures up to my first student-teacher-made plan and make changes to the plan or my work if I need to. I **emphasize** the message—not the features of the ICT. HYPERLINKED SLIDES, SOCIAL BOOKMARKING CREATIVE COMMON LICENSES ⟹ WIDGETS, EMBEDDED CODE, BARCODES NOTES:

SHOWING OTHERS MY COMPUTER WORK

I **share** my work with a face-to-face audience. I **tell** how I made the work and why I made it the way I did. I **ask** others for feedback. NOTES:	I **share** my work with an audience that may be in my school—or in another part of the NWT or world. I **ask** for certain kinds of feedback that talks about the things in my plan. I give others the same kind of feedback. I **judge** the usefulness of the technology I used for more work in the future. DIGITAL PROJECTION AUDIO AMPLIFICATION → NOTES:	I **judge** whether to change the way I communicate when I notice how the local or global audience is reacting I **judge** whether the ICT changed the meaning of my original message. I **plan** future uses of ICT. I **judge** whether it is appropriate to share original data (images, audio clips, video, etc.) online with a local or global audience. INTERNET-BASED COMMUNICATION TOOLS FOR VOICE, VIDEO AND INSTANT MESSAGING, → NOTES:

BEGINNING TO LEARN I am just beginning; I like to have lots of help	**LEARNING AS I GO** I am remembering from before I still need help sometimes	**LEARNING AND TEACHING** I have lots of practice; I can help others

COMPUTER RULES

I am **careful** and **respectful** with computers and classmate's computer space. I **respect** my classmate's computer space and username and password privacy. I **accept** that technology can be used to help or hurt others. I **accept** that I must gain permission to use other's words, pictures, sounds, video I **accept** that I must give credit to the authors and owners of online ideas, words, and creations. NOTES:	I **judge** and **explain** the health risks that come with technology. I **decide** if any of my online work and communications will help or hurt my or someone else's reputation. I **judge** how authors/creators want me to use their work by reading their license for each piece of work. I **learn** about Creative Commons licenses where I can license my own creations for sharing. I **accept** the fairness of giving credit to the author/creator for the use of his/her words, pictures, videos, etc. MEDIASMARTS → NOTES:	I **evaluate** the effects of my own computer use on others. I **judge** the personal benefits and risks of using ICT for work, pleasure, and communications I **assess** whether intellectual property (text, images, music, video, etc.) is copyrighted with "all rights reserved" or "some rights reserved" licenses (eg. "Creative Commons") and use it accordingly. I **assess** the range of sharing licenses available to me and the protection provided by Canadian copyright law before I share my own/group intellectual property online. ONLINE MEDIA SHARING AND LICENSING SITES → NOTES:

PEOPLE AND COMPUTERS

I can **tell** how technology has changed my grandparents' and parents' lives. I can **tell** how technology has been helpful and hurtful to society. NOTES:	I can **tell** about how new technologies are being used to work and socialize. I **predict** the good and bad ways certain new technologies will affect people in rich and poor countries. I **tell** about how personal career choices will need technology skills. NOTES:	I **evaluate** current technology trends and weigh future advantages/opportunities against the disadvantages and risks they have for local and global societies. I **assess** my right and society's right to information and the right to privacy. NEWS FEEDS (Twitter experts such as David Warlick at @mashabletech and Bill Ferriter at @plugusin; news apps such as "Pulse" with *Top Stories in Technology, All Things Digital* NOTES:

WORKING TOGETHER ON COMPUTERS

I **work** with others to plan our learning and the technology we will use. I **accept** that different members in the group will use the technology in different ways and at different times. NOTES:	Using technology, I **work** with others nearby and faraway. As a group member, I help **judge** whether the group needs to raise questions, share knowledge, find a missing piece of information, or decide on the risk of communicating with certain technologies. NOTES:	I **lead** and motivate group members when we are working with ICT collaboratively. We **judge** as a group whether using ICT for our work has more advantages than challenges. We **assess** the benefits and risks of sharing our own creative work online. SOCIAL BOOKMARKING APPLICATIONS (TAGGING, ANNOTATING) → COLLABORATIVE WIKIS BLOGS NOTES:

TEACHER PREPARATION: DIVISIONAL LWICT SKILLS

HOW I FEEL ABOUT COMPUTERS AND PROBLEMS WITH COMPUTERS

○ I **try** one way to solve a technology problem before asking for help from others.

NOTES:

○ I **try** to solve computer problems by remembering how I solved the problem last time.
I **keep trying** by using "help menus" in the program.
I **use** online communities, blogs, and "forums" to find solutions.
I **keep my mind open** to other ways to solve the problem and discuss options with peers, teachers, etc.

NOTES:

○ I **synthesize** or blend my technology experience with new information to solve unique problems or meet new requirements that require several approaches.

HELP MENUS INSIDE APPLICATIONS ⇒
ONLINE COMMUNITY FORUMS ⇒

NOTES:

TECHNICAL SKILL LEVEL (GENERIC ICT SKILLS)

BEGINNING TO LEARN I am just beginning; I like to have lots of help	LEARNING AS I GO I am remembering from before I still need help sometimes	LEARNING AND TEACHING I have lots of practice; I can help others

USING THE COMPUTER

I can log on and off of computers and other technology.

1 2 3 4 5	1 2 3 4 5	1 2 3 4 5

I can open programs and files.

1 2 3 4 5	1 2 3 4 5	1 2 3 4 5

I can keep all my files in order and placed in the correct folder on the computer, portable memory stick, or server.

1 2 3 4 5	1 2 3 4 5	1 2 3 4 5

I can choose a certain place to save my computer files.

1 2 3 4 5	1 2 3 4 5	1 2 3 4 5

I can print files by choosing what pages I want to print and the way my work will look on the page.

1 2 3 4 5	1 2 3 4 5	1 2 3 4 5

I can use the menus, buttons, and shortcuts in the programs I use.

1 2 3 4 5	1 2 3 4 5	1 2 3 4 5

I can go back and forth between different applications.

1 2 3 4 5	1 2 3 4 5	1 2 3 4 5

I can use Internet browsers.

1 2 3 4 5	1 2 3 4 5	1 2 3 4 5

I can search the Internet using a search engine and keywords.

1 2 3 4 5	1 2 3 4 5	1 2 3 4 5

I can use AND, OR, NOT (Boolean logic) to narrow my search.

1 2 3 4 5	1 2 3 4 5	1 2 3 4 5

TEACHER PREPARATION: DIVISIONAL LWICT SKILLS

I can investigate who is behind a website, wiki, podcast, email or other media message.

1 2 3 4 5	1 2 3 4 5	1 2 3 4 5

BEGINNING TO LEARN I am just beginning; I like to have lots of help	**LEARNING AS I GO** I am remembering from before I still need help sometimes	**LEARNING AND TEACHING** I have lots of practice; I can help others

I can put hyperlinks into my text.

1 2 3 4 5	1 2 3 4 5	1 2 3 4 5

I can move information/data between applications/programs.

1 2 3 4 5	1 2 3 4 5	1 2 3 4 5

I can make new information by recording sounds, capturing video, and taking pictures using special tools.

1 2 3 4 5	1 2 3 4 5	1 2 3 4 5

I can choose the right things to connect to the computer so I can play, show, change, save, record, and print information.

1 2 3 4 5	1 2 3 4 5	1 2 3 4 5

I can draws images using electronic tools.

1 2 3 4 5	1 2 3 4 5	1 2 3 4 5

I can edit my media for the audience that will see it.

1 2 3 4 5	1 2 3 4 5	1 2 3 4 5

I can construct graphic organizers, tables, spreadsheets, databases, multimedia presentations and/or web pages.

1 2 3 4 5	1 2 3 4 5	1 2 3 4 5

I send and respond to text messages and electronic files by using certain rules such as filling in the subject line and not typing in all capital letters.

1 2 3 4 5	1 2 3 4 5	1 2 3 4 5

The following pages display only a small sample of the kinds of information and communication technologies available for K-12 students. None of the ICTs displayed should be considered commercial endorsements but only examples of ICT categories. The grade designations of these ICTs should not be considered fixed. The hyperlinks shown throughout Part 3 are live in the electronic PDF version of the Infusion Guide to provide further exploration and linkages to other similar concepts and ICTs. Please note the following educational concepts demonstrated in Part 3's design, layout, and choice of ICTs:
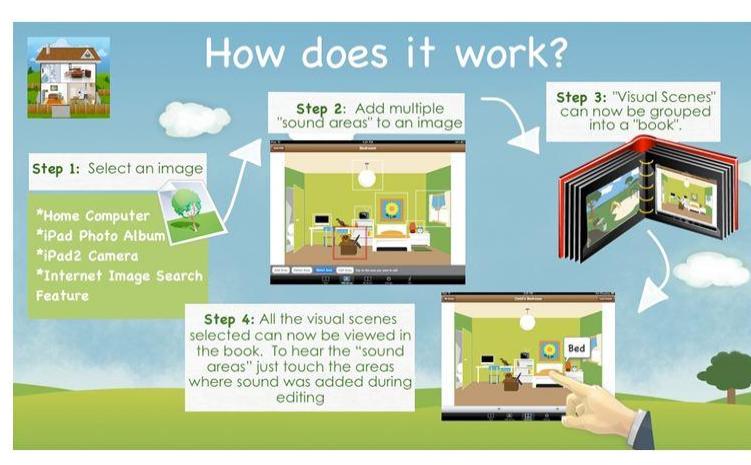
ICTs chosen for display are meant to place:
- Emphasis on applications for culture-based learning using broad primary concepts from *Dene Kede* K-6 and *Inuuqatigiit* K-12.
- Emphasis on program support and applications that accommodate diversity.
- Emphasis on the four core subjects: Social Studies, Science, Math, ELA.

Within each subject area, the reader will find:
- Linkages to NWT curriculum (eg. the reason "why" ICT is used).
- Framing of outcomes as open-ended "Essential Questions" (from an "understanding by design" perspective on curriculum design).
- The broad student learning needs that the ICT is intending to serve (eg. "Pedagogical Need").
- How ICTs can meet those pedagogical needs.
- Attention to collective knowledge and sharing that is consistent with using Wikipedia articles for overviews (eg. "Teacher Overviews").
- Awareness of categories of ICT.
- Key words or "Tag" samples for further investigation of similar technologies through use of "nwtcurriculumlinks", a social bookmarking site for NWT teachers
- Appropriate handling of intellectual property - the illustrating images (eg. "attribution" of images).

GRADE K – RELATIONSHIP WITH THE LAND + PLAY & INQUIRY		Gr. K
Curriculum	Culture-based Learning Themes: Geography and Land Use (*Dene Kede*, 27); Land (*Inuuqatigiit*, 93) Kindergarten Key Competencies: Relationship with the land: taking care of the environment/land/North; Play and Inquiry: expresses self creatively in a variety of ways Essential Question: eg. There are a lot of trees in our world. Does it matter how many we cut?	
Pedagogical Need In Context	Technology can help children experience ideas and contexts virtually when the real experience is inaccessible. Young children are tactile and enjoy multi-sensorial experiences. Tablet applications can help with this.	
ICT Support	Merge wonder, play, and love for land in an interactive iPad story.	
Pedagogical benefits of using an interactive iPad app	- child associates text with the image or object that it signifies - the storytelling pace and depth of interaction is controlled by the student's sense of touch - text is associated with sounds called "words"	
Teacher's Overview	Concept of interactive media, Concept of multimedia, Concept of "app"	
Tablet apps	The Lorax (Mac and Android); BestKidsApps	
See more at nwtcurriculumlinks	TAG samples: GrKCulture-based-learning, K-3, multimedia, app, northstar-connected	
This screenshot from the iTunes app store is used by permission of TM & © DSE.		

GRADE K – LITERACY + CREATIVITY + DIVERSITY + CONVERSATIONS		Gr. K
Curriculum	Culture-based Learning Themes: Geography and Land Use (*Dene Kede*, 27); Land (*Inuuqatigiit*, 93) Kindergarten Key Competencies: Literacy: applies literacy capacities to explore the world through inquiry and play; Creativity: expresses self creatively in a variety of ways; Diversity: embraces diversity; Conversations: participates in reciprocal conversations and communicates confidently Essential Question: eg. What are the names of the objects around me in school and at home; what are they used for?	
Pedagogical Need In Context	Technology can help children make sense of school and home environments as they pertain to people. Young children learn best through multi-sensorial experiences. Tablet applications can help with this.	
ICT Support	With assistance, students can learn to take digital photos of their diverse contexts. These images can be grouped into a displayed theme in an application and "deepened" with self-recorded audio "hotspots" of the significance of that scene.	
Pedagogical benefits of using a customizable iPad app	- see and hear school/home contexts (scenes) in digital stills - grows receptive language and conversation in a context - pre-digital presentation and expository skills - multi-ability; across curriculum	
Teacher's Overview	Concept of "app"	
iPad apps	Scene Speak, others found at (eg. BestKidsApps	
See more at nwtcurriculumlinks	TAG samples: GrKCulture-based-learning, K-5, receptive-language, visual-memory, northstar-connected	
This screenshot of Scene Speak application is used by permission of goodkarmaapplications.com.		

ICT-SUPPORTED LEARNING

GRADE K – IDENTITY + RELATIONSHIPS WITH OTHERS + CREATIVITY + CITIZENSHIP		Gr. K
Curriculum	<u>Culture-based Learning Themes</u>: Family (*Dene Kede*, 139); Family and Kinship (*Inuuqatigiit*, 39) <u>Kindergarten Key Competencies</u>: Identity: has a positive sense of identity; Relationships with Others: feels connected to others; Creativity: expresses self creatively in a variety of ways; Citizenship: contributes to community(ies) as engaged citizen <u>Essential Question</u>: eg. What is my whole name? What do I like to do? Who do I like to be with? What can I give to others?	
Pedagogical Need In Context	Young children like to share in multi-sensorial experiences. Technology can help children capture and publish their ideas and experiences. Print-on-demand companies do this well.	
ICT Support	Students learn to take digital photos of their favourite personal interests. With teachers/ volunteers assistance, students can creatively design stickers from their photos using a print-on-demand company.	
Pedagogical benefits of online sticker making	-students enjoy images and the activity of creating their own primary data -many students have interests that can be the catalyst to increased literacy -student-created images on stickers can be given to authentic audiences to strengthen/create good relations	
Teacher's Overview	[Concept of print-on-demand];	
Print-on-demands companies	Moo, Blurb, MyPublisher	
See more at [nwtcurriculumlinks]	TAG samples: GrKCulture-based-learning, K-3, publishing, authentic-audience, northstar-connected	
This screenshot from the Moo sticker page is used by permission.		

GRADE K – SELF-REGULATION + DIVERSITY		Gr. K
Curriculum	<u>Culture-based Learning Themes</u>: Geography and Land Use (*Dene Kede*, 27); Land (*Inuuqatigiit*, 93) <u>Kindergarten Key Competencies</u>: Self-regulation: self-regulates emotionally and cognitively; Diversity: embraces diversity <u>Essential Question</u>: eg. What happens next? How do you do this?	
Pedagogical Need In Context	Technology can help children make sense of school (and home) experiences (eg. school routines and expectations). Young children learn best through multi-sensorial experiences. Tablet applications can help.	
ICT Support	Students can learn to take digital photos and videos of their favourite activities. With assistance of teachers/volunteers, routines can be photographed and placed in visual order.	
Pedagogical benefits of using a customizable iPad app	- children see and hear school/home activities in digital stills and videos and use as checklists - order of visual schedules are easily changed	
Teacher's Overview	[Concept of "app"]	
iPad apps	First Then (Mac and Android), others at goodkarmaapplications.com	
See more at [nwtcurriculumlinks]	TAG samples: GrKCulture-based-learning, K-3, visual-schedules, northstar-connected	
This screenshot of First Then application is used by permission of goodkarmaapplications.com.		

GRADE 1 – CULTURE-BASED LEARNING		Gr. 1
Curriculum	*Dene Kede*: "Getting Along" (p. 177); *Inuuqatigiit*: "Family and Kinship" (p. 40) <u>Essential Question</u>: eg. How should I act around visitors (eg. elders, strangers, newcomers, etc.)?	
Pedagogical Need In Context	Kinship/friendship requires smiles and handshakes and a willingness to be respectful toward any older person. Students need to practice concepts to gain skill—the more engaging the practice—the greater the relevance.	
ICT Support	Media-rich drawing tool for tablets where students can draw, edit pictures they take, save and send. Students take pictures of themselves and visitors/elders with permission. These images can be enhanced with student designs. Themes can emerge for a class project (eg. "How we treat elders…"; "How to …").	
Pedagogical benefits of drawing applications	-students "show" their knowledge and prior experiences -images can be captured with a camera-enabled tablet and imported into the drawing app for editing -drawings can be emailed -drawings can be imported into presentation software	
Teacher's Overview	Concept of drawing	
Tablet drawing apps	Drawing Pad (Mac); Drawing Pad (Android)	
See more at nwtcurriculumlinks	TAG samples: Grade1Culture-based-learning, K-4, drawing, art, collage, Culture-based-learning	
This image is made available for sharing by author, MichaelMaggs in Wikipedia article, "Coloring Book".		

GRADE 1 – TOOLS FOR DIVERSITY		Gr. 1
Support	<u>Essential Question</u>: Is there a tool to assist students with expressive communication difficulties?	
ICT Support	Text to speech applications	
Pedagogical benefits of text-to-speech applications	-alternative communication aide for students with expressive communication difficulties -visual schedule production -organizational aide	
Teacher's Overview	Concept of technology acccommodation	
Expressive communication apps	iCommunicate (iPad)	
See more at nwtcurriculumlinks	TAG samples: inclusion, visual schedules, communication, autism, Asperger Syndrome	
This image is from iCommunicate app and is used with permission of Lisa Brandolo Johnson at Grembe Support.		

GRADE 1 – SOCIAL STUDIES		Gr. 1
Curriculum	Social Studies: Grade 1 (1.1.3 Connections to the Past) Essential Question: eg. What traditions do I like the most in my community?	
Pedagogical Need in Social Studies Grade 1	Students need to have a visual of their own and other's knowledge and experiences regarding traditions and community heroes. Students learn better with visuals.	
ICT Support	mind mapping tools (Gr1-12)	
Pedagogical benefits of mind mapping	-"show" students their knowledge and prior experiences -images can be imported into mindmap -mind maps can exported as JPEG images and placed in word processing document -mind maps can be projected and used as a presentation to the class	
Teacher's Overview	Concept of mind mapping	
Mind mapping software	XMind, Kidspiration, Inspiration, Bubbl.us, Mindmeister, Idea Sketch, iThoughtsHD	
See more at nwtcurriculumlinks	TAG samples: Grade1SocialStudies, brainstorming, mindmapping, planning-and-questioning	
This image is made available for sharing by Nicoguaro in Wikipedia article, "Mind map"		

GRADE 1 - SCIENCE		Gr. 1
Curriculum	Science: Grade 1 (Life Systems) Essential Question: eg. from Specific Learning Outcome #1 (pg. 22 in Science curriculum): Can Northern plants and animals be grouped by using our sense of smell, colour, texture, size, sound, smell?	
Pedagogical Need in Science Grade 1	Students need to use their visual and auditory senses when grouping Northern life systems. Students learn better with sensory media: audio and visuals.	
ICT Support	free shareable images; free sounds that are shareable	
Pedagogical benefits of shareable media	-students learn that media is increasingly being made by everyday individuals like themselves, teachers, and parents -students learn that shareable media is owned by the creator/artist -students learn that permission has to be given in order to use other's media and then credit given to that creator -students learn that more and more people want to share their media and they tell users what amount of sharing they are willing to do (eg. Creative Commons license)	
Teacher's Overview	concept of free shareable sounds ; concept of free shareable images ; concept of Creative Commons licenses	
Shareable audio and visual applications/ sites	freesound, morguefile, flickr, wikimedia commons, Wikipedia	
See more at nwtcurriculumlinks	TAG samples: images, photos, some-rights-reserved, shareable, gathering-making-sense, sounds, auditory-learners	
This image is a screenshot of a hit at freesound.org with the search term "wolf". Used with permission of bram delong at freesound.		

GRADE 1 – MATH		Gr. 1
Curriculum	Mathematics: Grade 1 Strand: Shape and Space (3-D Objects and 2-D Shapes) Essential Question from KT-017: eg. How can I make so many shapes from the same pieces?	
Pedagogical Need in Mathematics Grade 1	Students are asked to replicate 2-D shapes and 3-D objects. This specific outcome enables the mathematical processes of making connections, problem-solving and visualization. Students learn better with visual and auditory stimuli.	
ICT Support	Tablet application: Electronic tangram game (Gr1-12)	
Pedagogical benefits of using a game to build 2-D shapes	-student is control of own learning making game element choices -provides immediate feedback -provides a relaxing background sounds/music -supports but does not replace the experience of working with real manipulatives	
Teacher's Overview	concept of tangrams	
Tangram software	Tangrams (iPad); My First Tangrams (Android app), ABCYA.com,	
See more at nwtcurriculumlinks	TAG samples: Grade1SocialStudies, brainstorming, mindmapping, planning-and-questioning	
Screenshot of a tablet and iPod app by Brian Wurster.		

GRADE 1 – ENGLISH LANGUAGE ARTS		Gr. 1
Curriculum	English Language Arts: Grade 1 General Learning Outcome 4: (Clarify and enhance oral, written, and visual forms of communication, through a process) Essential Question: eg. What stories can I tell and illustrate and then share to an audience?	
Pedagogical Need in English Language Arts Grade 1	Students are being asked to generate and focus ideas for original texts that attend to conventions, engage an audience, and develop through an enhancing and improving process. Students learn better when their senses are engaged in a learning activity.	
ICT Support	Electronic storytelling application (Gr K-3)	
Pedagogical benefits of electronic storytelling	-create and store stories in one place -tactile sense engaged by tapping to write, edit, read, share and delete from a personal bookcase -self-directed development of the story with many element choices -makes use of primary data such as personal photos; this encourages critical thinking about how illustrations are chosen in our image rich culture	
Teacher's Overview	Concept of storytelling	
Story writing software	Story Buddy, Dragon Diction (speech to text), iCommunicate	
See more at nwtcurriculumlinks	TAG samples: digitalstorytelling, tablet-app, collecting-primary-data, Gr1	
"Boyhood of Raleigh" by John Everett Millais is in the public domain, and made available for sharing in Wikipedia article "Storytelling" by Rednblu.		

GRADE 2 – CULTURE-BASED LEARNING		Gr. 2
Curriculum	*Dene Kede*: "Family" (p. 140); *Inuuqatigiit*: "Family and Kinship" (p. 44) Essential Question: eg. Who are the people in my family and do they have special names?	
Pedagogical Need In Context	Understanding their relationships to family members, their names and special names is a significant part of a student's identity. "Seeing" these relationships as a web may be helpful for them to conceptualize "family" better.	
ICT Support	Mind mapping software	
Pedagogical benefits of mind mapping	-"show" students their knowledge and prior experiences -images can be imported into a mind map -mind maps can be exported as JPEG images and placed in word processed document -mind maps can be projected and used as a presentation to the class	
Teacher's Overview	Concept of mind mapping	
Mind mapping software	XMind, Kidspiration, Inspiration, Bubbl.us, Mindmeister, Idea Sketch, iThoughtsHD	
See more at nwtcurriculumlinks	TAG samples: Grade2Culture-based-learning, K-4, mindmapping, family, culture-based-learning	
GNWT image made using reproduced photo from Dene Kede imported into a mind map made with XMind. Mind map was exported as JPEG image and inserted into this Word document		
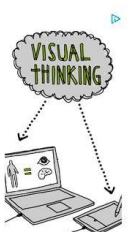
GRADE 2 – TOOLS FOR DIVERSITY		Gr. 2
Support	Essential Question: What might I use to support the teaching of functional social skills?	
ICT Support	Videos via applications	
Pedagogical benefits of video applications	-supports teaching of key social skills: requesting assistance, greetings, manners, etc.	
Teacher's Overview	Concept of social skills; Concept of People Skills	
Video applications	EverydayHD (iPad); Conversation Builder (iPad)	
See more at nwtcurriculumlinks	TAG samples: inclusion, social skills, communication, Autism, Asperger Syndrome	
This image is used with permission of Conover Company.		
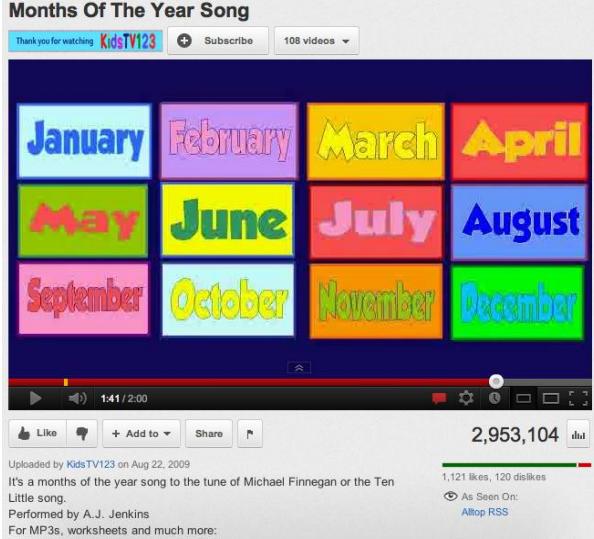
GRADE 2 – SOCIAL STUDIES		Gr. 2
Curriculum	<u>Social Studies</u>: Grade 2 (Cluster 2 Communities in Canada): Diversity of People; Features of Canadian Communities; Natural Resources; Work, Goods and Services; Diversity and Change <u>Essential Question</u>: eg. How has my community changed from the time of my parents and grandparents, and how has it stayed the same?	
Pedagogical Need in Social Studies Grade 2	Students need to see how their communities resemble and differ from others in Canada especially in the area of change and innovation over time. Students learn better when connecting to the outside world, especially in real time.	
ICT Support	iEARN (Gr1-12)	
Pedagogical benefits of connecting and collaborating within an International (and National) project-based network.	-"show" other Canadian students their knowledge and prior experiences -collaborate on a common project with students of communities with diverse populations: one community-two cultures or two communities each with a dominate culture (Aboriginal, French, etc.) -develop a sense of belonging and inclusion to a larger culture -develop a sense of empathy and a solution-based attitude for human problems	
Teacher's Overview	Concept of an education network	
ICT Support Education network	iEARN	
See more at nwtcurriculumlinks	TAG samples: Grade2SocialStudies, brainstorming, planning-and-questioning, active-citizenship, education-network	
Screenshot of the International Education and Resource Network (iEARN) homepage used with permission		

GRADE 2 - SCIENCE		Gr. 2
Curriculum	<u>Science</u>: Grade 2 (Life Systems) <u>Essential Question</u>: eg. How do animals manage the cold extremes of this planet?	
Pedagogical Need in Science Grade 2	Students need to see images and text together in presentations about animal adaptations. Students need to see the many types of animal adaptations that can be searched. Students learn better with sensory-rich texts (media). Students learn better with sub-topics displayed.	
ICT Support	Online PowerPoint Presentations; Effective browsers that search questions	
Pedagogical benefits of Powerpoint files in the study of science; effectiveness of a question-based search engine	-students become familiar with the medium of digital presentations by using the work of others in that medium -students become introduced to the vast number of hits that a search engine return and how these can be grouped with a good engine.	
Teacher's Overview	Concept of presentation software and slide shows; Concept of web browsers	
Online presentations	"Animals adaptations at pppst.com"; Slideshare; Ask.com	
See more at nwtcurriculumlinks	TAG samples: Grade2Science, planning-and-questioning; search engines	
This image is a screenshot from a website called "Animals adaptations at pppst.com". Used with permission of creator, Phillip Martin.		

ICT-SUPPORTED LEARNING
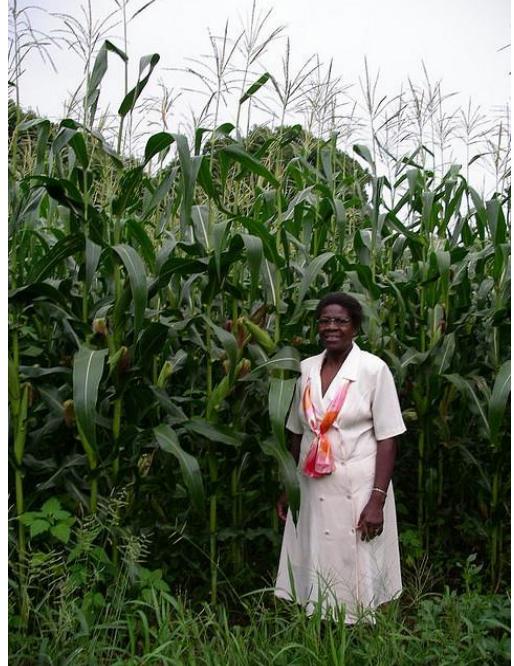
GRADE 2 – MATH		Gr. 2
Curriculum	Mathematics: Grade 2 Strand: Shape and Space (Measurement) Essential Question from KT-017: eg. How many more months until…? How many more days until…?	
Pedagogical Need in Mathematics Grade 2	Students are asked to understand the significance of 7 days and 12 months and how adjacent days and months relate to each other. Students learn better with visual and auditory stimuli.	
ICT Support	Online videos	
Pedagogical benefits of using videos to learn days of the week and months of the year.	-digital video is a powerful medium that can be easily replayed for reinforcement and review -video hosting sites such as YouTube make it easy to share the video links with others (eg. parents) and copy and embed code in your own blog, wiki, Web site, etc. -students can share their calendar learning with a real audience by uploading their own video	
Teacher's Overview	Concept of video hosting services	
Video-hosting sites	Vimeo, YouTube	
See more at nwtcurriculumlinks	TAG samples: Grade2Mathematics, music, Mathematics2-Shape-Space	
This image is a screenshot of an educational video made available for viewing on YouTube		

GRADE 2 – ENGLISH LANGUAGE ARTS		Gr. 2
Curriculum	English Language Arts: Grade 2 General Learning Outcome 2: (Comprehend and respond personally and critically to oral, print, and other media texts, through a process) Essential Question: eg. What kind of stories do I like to hear and read about?	
Pedagogical Need in English Language Arts Grade 2	Students are being asked to discuss anticipated meaning of oral, print, and other media texts; use comprehension strategies to construct, confirm, revise, and explain understanding (Gr. 2 SO 2.1.2). Students learn better when they have choices.	
ICT Support	Online children's book libraries	
Pedagogical benefits of online libraries	-often free samples are available without memberships -students can choose from a wide variety of texts -self-directed reading for pleasure means engagement with only texts they enjoy -once licensed, books are accessible at home, school, anywhere there is internet -often present are value-added puzzles and games to extend learning	
Teacher's Overview	Concept of interactive children's books	
Children's e-books	Tumble Books, Raz-Kids Books, Magic Keys Books	
See more at nwtcurriculumlinks	TAG samples: reading, books, online-book, Gr2, EnglishLanguageArts2-reading	
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GRADE 3 – CULTURE-BASED LEARNING		Gr. 3
Curriculum	*Dene Kede*: "Shrews and Mice" (p. 116); *Inuuqatigiit*: "Laws and Leadership" (p. 76) Essential Question. Eg. Does a leader have to look a certain way? What does a leader look like?	
Pedagogical Need In Context	Everyone is skilled at something—no matter how small or insignificant they look. These undeveloped skills need to be noticed and supported by the community.	
ICT Support	Digital photography	
Pedagogical benefits of digital photography	-students can show through a few digital images a process they are skilled at, a product they can build, etc. -these images are downloadable to computers and tablets	
Teacher's Overview	Concept of digital photography, concept of SD card	
Digital cameras	Many brand names. Look for compact kind—some of which are waterproof/shockproof; use SD card readers whenever possible to save camera's battery power	
See more at nwtcurriculumlinks	TAG samples: Grade3Culture-based-learning, Gr3-12, digital-photography, skills, culture-based-learning, talents	
Image made available for sharing by user, woodleywonderworks at Flickr's Creative Commons-licensed content requiring attribution; search term, "first camera"		

GRADE 3 – TOOLS FOR DIVERSITY		Gr. 3
Support	Essential Question: Is there a tool to assist students with expressive communication difficulties and promotes independence?	
Pedagogical Need	Students may have intact receptive language skills, but may require aides to promote expressive language skills. Allows students to communicate basic needs with teachers and peers.	
ICT Support	Speech producing applications	
Pedagogical benefits speech producing apps	-increases independence and promotes communication skills	
Teacher's Overview	Concept of augmentative and alternative communication	
Video applications	TapToTalk (iPad, Android)	
See more at nwtcurriculumlinks	TAG samples: inclusion, communication, Autism, Asperger Syndrome	
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GRADE 3 – SOCIAL STUDIES		Gr. 3
Curriculum	Social Studies: Grade 3 (3.3.2 Living with the Land) Essential Question from KL-017, KL-019: eg. What kinds of land on this Earth would be the easiest to live on and use? What country would you consider has the best land and climate?	
Pedagogical Need in Social Studies Grade 3	Students are required to describe the influence of natural phenomena on ways of life in communities studied. Students learn better with sensory-rich media.	
ICT Support	Online databases of images and videos of natural phenomena organized by country.	
Pedagogical benefits of online databases and hosting services.	-practically unlimited in variety and quantity allowing for maximum study choice -many images are available for public use with a Creative Commons license -downloading is enriching; uploading images according to same licences is engaging -conveniently searchable	
Teacher's Overview	Concept of online databases, list of online databases (eg. Wikipedia), concept of hosting service, concept of video hosting service, concept of image hosting service	
Databases and Hosting Services	Wikipedia, Wikimedia Commons, Vimeo (video), Flickr (image),	
See more at nwtcurriculumlinks	TAG samples: Gr3SocialStudies, living-with-land, environment, SocialStudies	

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GRADE 3 - SCIENCE		Gr. 3
Curriculum	Science: Grade 3 (Stability) Essential Question SLO#1-5 (pg. 82 in Science curric.): eg. How can I build a structure that will withstand compression or folding as it holds up small objects or organisms that are important to me?	
Pedagogical Need in Science Grade 3	Students need to use as many senses as possible to prepare them for an active inquiry and appreciate how the stability of a structure depends on its design and construction materials. Students learn better with integrated media: text, games, illustrations	
ICT Support	Websites ordered into subcategories by search engines	
Pedagogical benefits of rich web sources	-hyperlinks enable students to participate in the new literacy--that of reading from left to right and down, to reading deeper through hyperlinks -rich web sources offer images, simulations, and video of real life experiences -this same hyperlinking technology can be employed by students in their synthesis	
Teacher's Overview	concept of hyperlinking (integral to the internet); concept of hyperlinking in Word	
Sub-categorizing search engine	Ask.com (eg. of search engine that allow an inquiry question to be asked, and return hits in the form of related searches and questions)	
See more at nwtcurriculumlinks	TAG samples: images, photos, some-rights-reserved, shareable, gathering-making-sense, sounds, auditory-learners	

Related Search
Plastic Drinking **Straws**
Fried Onion **Straws**
Party **Straws**
Plans for a Bridge Made with **Straws**
Sour Punch **Straws**
Crazy **Straws**
Straw Tower Designs
Technique for **Building** Bridges with **Straws**
Novelty Drinking **Straws**
Lady Smocks
Honey Sticks
Egg Drop Project

Related Questions
How Do You Make a Strong Bridge with **Straws**?
How To **Build** A **Straw** Hut?
How To **Build** With **Straw** Bales?
How To **Build** A Barn With **Straw** Bales?
How To **Build** A Drinking **Straw** Table?
How To **Build** A House Out Of **Straw**?

Image is a screenshot of hits returned by ask.com from the question, "how can I build a structure from straws?"
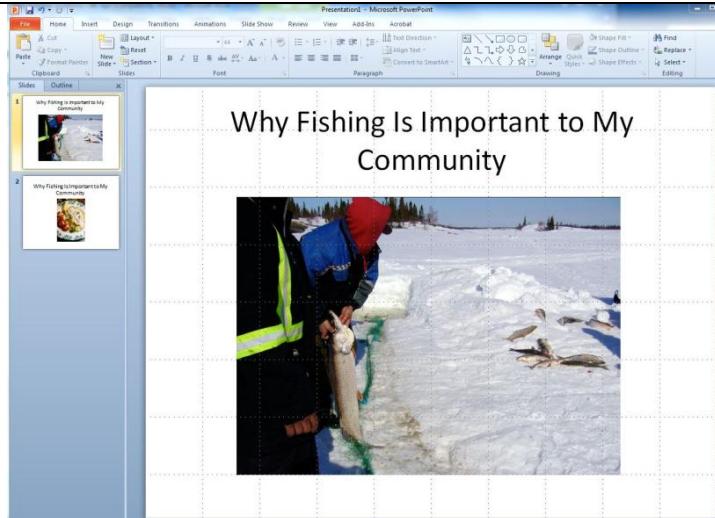
GRADE 3 – MATH	Gr. 3
Curriculum	Mathematics: Grade 3 Strand: Statistics and Probability (Data Analysis) Essential Question from SO#1 and 2: eg. What data can I collect, analyze, and display that would satisfy my curiosity about some part of my daily life?
Pedagogical Need in Mathematics Grade 3	Students need to see that many patterns in daily life can be displayed—sometimes with surprising results. By collecting data on a pattern or event, analyzing and displaying it, students will begin to see how important social, financial, political, etc. decisions can be made in life. Students need to see the connection between their daily lives and math concepts.
ICT Support	Integrated software
Pedagogical benefits of using integrated software	-data needs to be displayed in a context that makes sense to students -students can create that context through shareable media or primary data they create -integrated software (could be called an "office suite") is a one-stop shop for creating and merging text, image, and graph
Teacher's Overview	Concept of integrated software; Concept of office suites
Integrated Software	Microsoft Office, iWork
See more at nwtcurriculumlinks	TAG samples: Grade3Mathematics, Mathematics3-Statistics-Probability, integrated-software, bar-graphs, data-analysis, producing-show-understanding

Low-Calorie Breakfast Cereals?

calories per 3/4 cup serving

This image is made available by Blake Wile.

GRADE 3 – ENGLISH LANGUAGE ARTS	Gr. 3
Curriculum	English Language Arts: Grade 3 General Learning Outcome (1: Access and explore prior knowledge and experiences of self and others); (2: Comprehend and respond personally and critically to oral, print, and other media texts, through a process) Essential Question: eg. How can my friends and I understand and grow a good idea we have about our favourite topic by blogging about it in class?
Pedagogical Need in English Language Arts Grade 3	Students learn better when they can collaborate with others on real matters of importance to them. Students can share their prior experiences, knowledge, and impressions in response to images, video, print, and many other texts. To do this they can band together in interest communities.
ICT Support	Children's blogging applications
Pedagogical benefits of blogs for students	-individualized blogs within a safe and closed classroom environment -designed for elementary age students -publishing blog posts may be easier for students who are reticent to speak -students can join blog discussions that interest them -digital literacy for life is practiced as students learn writing etiquette "online"
Teacher's Overview	Concept of blogging (in general); list of blogs (not necessarily for kids)
Children's blogs	Kidblog.org
See more at nwtcurriculumlinks	TAG samples: blog, producing-showing-understanding, online-reading, EnglishLanguageArts3-exploring-responding, video, Gr3-6

Image made available for sharing at Flickr by author, xtranoise.

ICT-SUPPORTED LEARNING
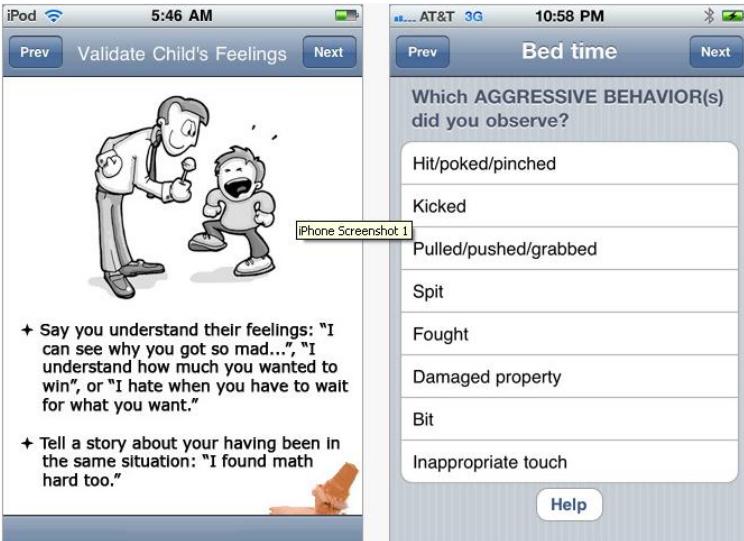
GRADE 4 – CULTURE-BASED LEARNING		Gr. 4
Curriculum	*Dene Kede*: "Fish" (p. 91); *Inuuqatigiit*: "Fish" (p. 125) Essential Question: eg. How much does my community depend upon fish (eg. food for people and animals, commerce, etc.)?	
Pedagogical Need In Context	Students need to "see" examples of the breadth and depth of dependence that northern communities have on this aspect of the environment—fish.	
ICT Support	Using a digital camera and storytelling software, students collect primary data of experiences, locations, events, etc. that support them in the presentation of the purposes of fish in their communities	
Pedagogical benefits of digital camera use and storytelling software	-digital cameras are small, affordable, easy to use, and download to a computer -digital cameras enable a student to capture their own personalized view of the world without technical and logistical restriction -digital storytelling software is ubiquitous in NWT schools in the form of PowerPoint and Movie Maker -digital storytelling software is also on line and free (Photo Story)	
Teacher's Overview	Concept of digital cameras, Concept of digital storytelling Concept of fishing for food, Concept of fish for food	
Digital Storytelling software	Photo Story, Movie Maker, iMovie, PowerPoint, Keynote	
See more at nwtcurriculumlinks	TAG samples: Grade4Culture-based-learning, Gr3-12, digital-storytelling, skills, culture-based-learning, talents, survival, environment	
	GNWT image of a digital presentation started with PowerPoint.	

GRADE 4 – TOOLS FOR DIVERSITY		Gr. 4
Support	Essential Question: What tool might I use to track, record, and assist in the design of a behaviour support plan?	
Pedagogical Need	Eliminating inappropriate behaviour requires data to understand the root cause.	
ICT Support	Application based on popular text, that provides a link to a database to record and track behaviour, as well as act as a resource for possible strategies.	
Pedagogical benefits speech producing apps	-increases independence and promotes communication skills	
Teacher's Overview	Concept of social control, Concept of behaviour management	
Applications	No More Meltdowns (iPad)	
See more at nwtcurriculumlinks	TAG samples: inclusion, behaviour-support-plan	
	Image used with permission.	

GRADE 4 – SOCIAL STUDIES		Gr. 4
Curriculum	Social Studies: Grade 4 (General Learning Outcomes: Citizenship and Identity) Essential Question from Theme 4 "Living in the NWT": eg. Whether you were born here in the NWT or moved here, what would you really miss the most about the North if you left?	
Pedagogical Need in Social Studies Grade 3	Students are required to explain from a personal perspective what it means to be a citizen in the NWT. Students learn best through experiences from their daily lives.	
ICT Support	Using a digital camera and storytelling software, students collect primary data of experiences, locations, events, etc. that support them in the presentation of their Northern identity.	
Pedagogical benefits of digital camera use and storytelling software	-digital cameras are small, affordable, easy to use, and download to a computer. -digital cameras enable a student to capture their own personalized view of the world without technical and logistical restriction -digital storytelling software is ubiquitous in NWT schools in the form of PowerPoint -digital storytelling software is also on line and free.	
Teacher's Overview	Concept of digital cameras, Concept of digital storytelling	
Digital Storytelling software	Photo Story, Movie Maker, iMovie, PowerPoint, Keynote	
See more at nwtcurriculumlinks	TAG samples: Gr3SocialStudies, living-with-land, environment, SocialStudies	
Image courtesy Blake Wile.		

GRADE 4 - SCIENCE		Gr. 4
Curriculum	Science: Grade 4 (Structures and Mechanisms) Essential Question from Specific Learning Outcomes #1-5 (pg. 84 in Science curriculum): eg. What can be done to make a one speed bicycle easier ride?	
Pedagogical Need in Science Grade 4	Students need to see images and video of background pieces about gears to better prepare them for an active inquiry as they simulate the gear system of a bicycle. Students learn better with integrated media: text, video, illustrations	
ICT Support	Video and animation content	
Pedagogical benefits of rich web sources (all still needing a benefits check)	-YouTube hosts thousands of videos explaining science principles—many appropriate for children -The Web provides synthesis of images, text, simulations that would be very difficult for teachers to build -Some television programming that specializes in education and knowledge has Web site counterparts that open their "archives" to rich resources. This category of site could be called "edutainment."	
Teacher's Overview	Concept of "edutainment"	
Edutainment Web sites	howstuffworks.com, eHow, wikiHow, How It's Made	
See more at nwtcurriculumlinks	TAG samples: video, gears, Gr4Science, Science4-Structure-Mechanisms, gathering-making-sense, sounds, visual-learners	
This image is made available for sharing by user kevinrosseel at morgueFile.com.		

| GRADE 4 – MATH		Gr. 4
Curriculum	<u>Mathematics</u>: Grade 4 Strand: Number (Developing Number Sense) <u>Essential Question</u> from SO#1 and 2: eg. What is the easiest way to understand parts and wholes: fractions or decimals?	
Pedagogical Need in Mathematics Grade 3	To support concrete and symbolic descriptions and representations, students need pictorial support to see the connection between fractions and their life experience with wholes and parts. Increasingly our culture is relying on and expecting images to convey meaning. "Screens" and their images are a part of students' daily life.	
ICT Support	Tablet applications	
Pedagogical benefits of using inexpensive applications	-student is in control of own learning pace -provides immediate feedback -provides for aural-learners -provides assessment piece	
Teacher's Overview	Concept of tablet computers; Concept of fractions	
Tablet apps	"Understanding Fractions"(iPad); "Fractions" (Android)	
See more at nwtcurriculumlinks	TAG samples: Grade4Mathematics, Mathematics4-Number, apps, fractions, producing-show-understanding	
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GRADE 4 – ENGLISH LANGUAGE ARTS		Gr. 4
Curriculum	<u>English Language Arts</u>: Grade 4 General Learning Outcome 3: (Plan and Focus an inquiry or research and interpret and analyze information and ideas, through a process) <u>Essential Question</u> from SO 3.3.2: eg. What is the easiest way to give credit to the intellectual property of others?	
Pedagogical Need in English Language Arts Grade 4	Students are required to create a bibiliography—to begin to cite references of the intellectual property of others—showing at least the author's name and title of publication. Students need to understand ideas and information originate from people—like themselves—who are very interested in a subject. By showing sources, they help others follow up on these people's ideas. If the student creates its data (primary) others can follow up with them. If the data they use is someone else's (either primary or secondary), the bibliography points to the creator for further information. By remaining silent on their sources, students actually take for themselves the authority of the ideas, and credit, as though they were the creators, and provide no direction to the reader to conduct further research.	
ICT Support	Online bibliography maker	
Pedagogical benefits of online bibliography makers	-provides students automatically with either author's name and title of work and other required information -provides choice of MLA, APA, etc. formatting -allows students to copy and paste the citation to their word processed work	
Teacher's Overview	Concept of online bibliography, or citation makers	
Bibliography makers	bibme.org; easybib.com; citationmachine.net	
See more at nwtcurriculumlinks	TAG samples: bibliography-maker, citation-creator, intellectual-property, EnglishLanguageArts4-organize-record-evaluate, video, Gr4-12	
Image of bibme.org homepage used with permission.		

GRADE 5 – CULTURE-BASED LEARNING		Gr. 5
Curriculum Eg. Essential Question	*Dene Kede*: "Bear" (p. 91); *Inuuqatigiit*: "Bear" (p. 125) Essential Question: eg. What can humans learn from bears? How ought humans behave around bears (eg. when sharing the same space; when hunting them…)?	
Pedagogical Need in Context	Students learn better when they can collaborate with others on common interests. Students can share their prior experiences, knowledge, and impressions of wildlife through (and in response to) storytelling, images, video, print. In this case example, they can blog (or web log) in protected school environments about the meaning of bears in the NWT and beyond.	
ICT Support	Children's blogging applications	
Pedagogical benefits of blogs for students	-individualized blogs within a safe and closed classroom environment -designed for elementary age students -publishing blog posts may be easier for students who are reticent to speak -students can join blog discussions that interest them -digital literacy for life is practiced as students learn writing etiquette "online"	
Teacher's Overview	Concept of blogging (in general); list of blogs (not necessarily for kids)	
Children's blogs	Kidblog.org	
See more at nwtcurriculumlinks	TAG samples: blog, producing-showing-understanding, online-reading, Grade5-culture-based-learning, video, Gr3-6	
Image by Beeblebrox, entitled, "Bearmailbox", was made available for sharing in Wikipedia article, "American black bear." The incidence of bear attacks in parks and campgrounds declined at Lake Louise State Park, Alaska after the introduction of bear-resistant garbage cans and other reforms.		

GRADE 5 – TOOLS FOR DIVERSITY		Gr. 5
Support	Essential Question: How can teachers assist students develop study skills?	
Pedagogical Need	Students need to take ownership for their own learning.	
ICT Support	Applications in a flash card format—cards that students can design.	
Pedagogical benefits of using flash card applications	-promotes independent study skill development and organizational work skills	
Teacher's Overview	Concept of study software; Concept of study skills	
Applications	Flashcards Deluxe (iPad); Flux Cards (Android)	
See more at nwtcurriculumlinks	TAG samples: study-skills, organization, apps	
	Image used by permission.	

GRADE 5 – SOCIAL STUDIES		Gr. 5
Curriculum	Social Studies: Grade 5, *Canada: The Peoples and Stories of this Land* Essential Questions (p. 37-39): eg. Which origin story best shows how important the land is in people's lives? Which criteria did you use in order to make your choice?	
Pedagogical Need in Social Studies Grade 5	Students need a "one-stop shop" to search questions and develop positions on Canadian historical events. Students learn best through web experiences that are age/grade appropriate.	
ICT Support	Using a Web portal that is easily searchable and rich.	
Pedagogical benefits of Web portals	-portals take some of the challenge out of having to use Boolean logic in search engines to find appropriate resources	
Teacher's Overview	Concept of Web portals	
Web portals in education	Historytrek, Teacher Tap	
See more at nwtcurriculumlinks	TAG samples: Gr5SocialStudies, SocialStudies, webportal	
Screenshot used with permission.		
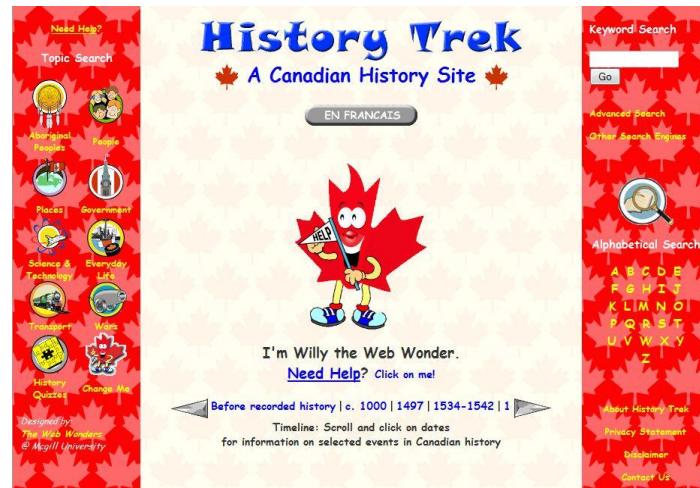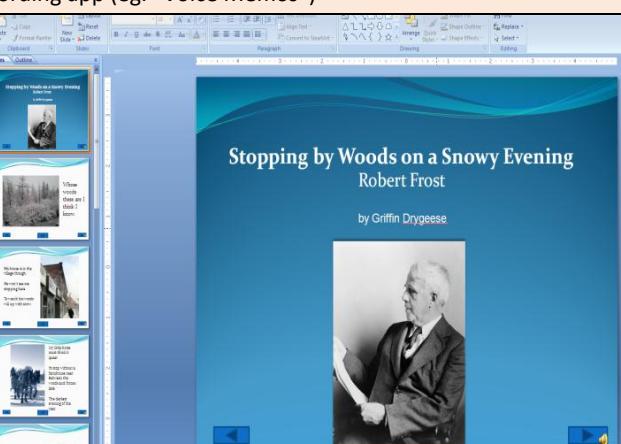
GRADE 5 - SCIENCE		Gr. 5
Curriculum	Science: Grade 5 (Earth and Space Systems) Essential Question from Specific Learning Outcomes #1-5 (pg. 102 in Science curriculum): eg. How well can weather be predicted?	
Pedagogical Need in Science Grade 5	Students need to see the connection between weather as reported and their own observations. Students learn better when investigating with real time data.	
ICT Support	Online national weather office searchable by region.	
Pedagogical benefits of online weather services/databases	-a national sense of geography is reinforced when searching for regional weather predictions -cross-curricular opportunities to collect, analyze, and display data at a specific time over many years is possible	
Teacher's Overview	Concept of weather/meteorological services	
Weather services	weatheroffice.gc.ca (CAN) , weather.gov (USA), theweathernetwork.com	
See more at nwtcurriculumlinks	TAG samples: video, weather, Gr5Science, Science5-weather, gathering-making-sense, realtime-data	
Screenshot of a government website.		

GRADE 5 – MATH		Gr. 5
Curriculum	Mathematics: Grade 5 Strand: Number (Developing Number Sense) Essential Question from SO#1 and 2: eg. What is the easiest way to understand parts and wholes: fractions or decimals?	
Pedagogical Need in Mathematics Grade 3	To support concrete and symbolic descriptions and representations, students need pictorial support to see the connection between fractions and their life experience with wholes and parts. Increasingly our culture is relying on and expecting images to convey meaning. "Screens" and their images are a part of students' daily life.	
ICT Support	Integrated internet game	
Pedagogical benefits of using online games	-student is control of own learning pace -provides immediate feedback -provides for aural-learners -provides assessment piece -seamless integration of two important math concepts (wholes/parts, and estimation)	
Teacher's Overview	Concept of estimation; Concept of decimals. Concept of fractions	
Internet resource	"Chicken Coop", Death to Decimals	
See more at nwtcurriculumlinks	TAG samples: Grade5Mathematics, Mathematics5-Number, decimals, fractions, producing-show-understanding	
	This image is used by permission.	

GRADE 5 – ENGLISH LANGUAGE ARTS		Gr. 5
Curriculum	English Language Arts: Grade 5 General Learning Outcome 4: (Clarify and enhance oral, written, and visual forms of communication, through a process) Essential Question from SO 4.1.3: eg. What is the best way for me to share my poem or story--through a talking book, an audio recording or reading my work out loud to the class?	
Pedagogical Need in English Language Arts Grade 4	Students can be offered the choice of "performing" their work out loud or "programing" PowerPoint to tell it for them using the student's voice, chosen images, and text. Students need choice of expression. They need to personalize sharing their creative products.	
ICT Supports	Integrated software (eg. PowerPoint); audio recording app (eg. "Voice Memos")	
Pedagogical benefits of using integrated software; and audio recording applications	-digital storytelling software is ubiquitous in NWT schools in the form of PowerPoint -digital storytelling software is also on line and free (eg. Photostory) -audio recording software allows a shy student to record work without having to publicly perform -audio recording apps are already on most portal media players (eg. iPod) or is free online (eg. Audacity)	
Teacher's Overview	Concept of digital cameras, Concept of digital storytelling	
Digital Storytelling software	Photo Story, Movie Maker, iMovie, PowerPoint, Voice Memos, Audacity	
See more at nwtcurriculumlinks	TAG samples: presentation, digital-storytelling, EnglishLanguageArts5-clarify-enhance, video, Gr5-12, audio-software, visual-learners, digital-voice-recorders	
	Image used with permission by Blake Wile.	

GRADE 6 – CULTURE-BASED LEARNING

		Gr. 6
Curriculum	*Dene Kede*: "Drum" (p. 15); *Inuuqatigiit*: "Chanting and Drumming" (p. 79) Essential Question: eg. How come the drum seems to be used where lots of people are gathered? Why does the drum make people happy?	
Pedagogical Need in Context	The drum is worth studying because it is thought to be a scared gift that creates Aboriginal unity, helps student prayers, assists recreational enjoyment and helps people forget their worries for a while. Students can actively create knowledge about drums and drumming through reflecting on their own experience as a drummer; recording and thinking about those who do drum and sing; or by creating audio information about drums that they learn from research and interviewing.	
ICT Support	Audio recording and editing software resulting in a "podcast"	
Pedagogical benefits of podcasting	-limitless creative freedom -merging recorded sounds of others (or themselves) with their own commentary—hence learning the first steps of synthesizing knowledge in an engaging way -an end product which is reproducible and shareable	
Teacher's Overview	Concept of audio recording, Concept of podcasting	
Podcasting software	Voice memos (iPod), Audacity (cross platform, free internet-based), Garageband (Mac)	
See more at nwtcurriculumlinks	TAG samples: podcasting, producing-showing-understanding, audio, recording, Gr6Culture-based-learning, culture-based-learning	

This image in the public domain entitled, "Blackfoot Chief, Mountain Chief making phonographic record at Smithsonian, 2/9/1916", was made available for sharing by the Library of Congress in Wikipedia article, "Sound recording and reproduction." This is a featured picture, which means that members of the community have identified it as one of the finest images on the English Wikipedia, adding significantly to its accompanying article.

GRADE 6 – TOOLS FOR DIVERSITY
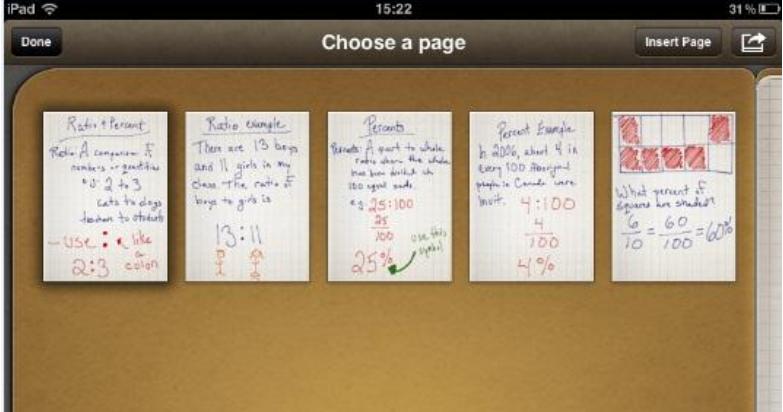
		Gr. 6
Support	Essential Question: What can be done to help students share and show their prior knowledge and experience?	
Pedagogical Need	Students are visually oriented and benefit from "seeing" their and others' knowledge.	
ICT Support	Mind mapping software can provide graphic support and self-directed control of how students collect and show their knowledge and experiences.	
Pedagogical benefits of using mind mapping software	-assists students with organization of ideas for study, writing, project development -enables students to electronically share and project their mind maps -the maps provide an "outline" of research processes and final student synthesis that can be presented	
Teacher's Overview	Concept of mind map; Concept of study software	
Applications	Idea Sketch (iPad); Flux Cards (Android)	
See more at nwtcurriculumlinks	TAG samples: study-skills, organization, presenting, gather-make-sense	
GNWT image made on an iPhone.		
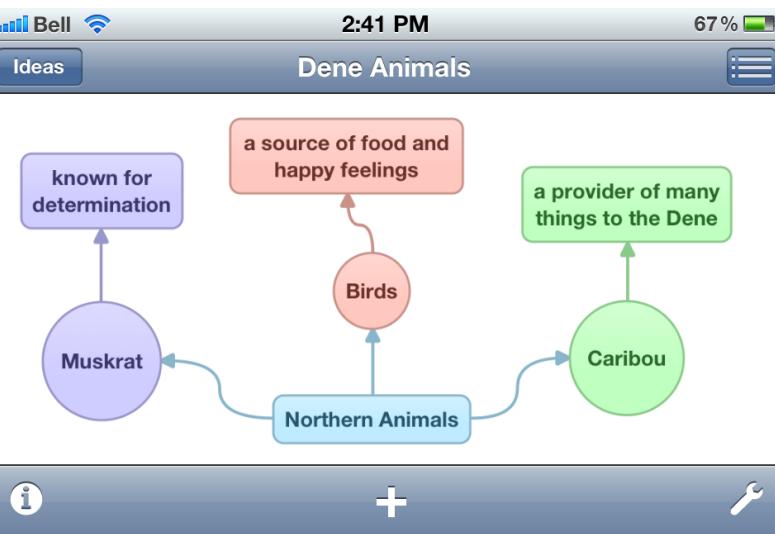
GRADE 6 – SOCIAL STUDIES		Gr. 6
Curriculum	Social Studies: Grade 6, *Our Place in the Nation* Essential Questions (B) from SS curric. guide, "Major Understandings" (p. 28, 29): eg. What, if any, does the movie "Avatar" have to do with Canada? Alberta? Sustainability? "The One Who Circles the Earth?" eg. How does the land of Canada shape our identities and how do we in turn shape the land?	
Pedagogical Need in Social Studies Grade 5	Students have an opportunity to analyze instances where Canadians have attempted to preserve their environment or modify and adapt to a changing environment. Students learn best when producing to show their understanding for a real audience.	
ICT Support	While conducting an inquiry through personal research or by participating in education networks to understand the broader Canadian context (see Teacher's Overview below), students also create images of their own local examples of sustainability and publish these using online minicard or postcard making software.	
Pedagogical benefits of online card making	-students enjoy images and the active nature of creating their own primary data -many students enjoy depth over breath if given the time to specialize (eg. using less text but making it compelling –carefully chosen descriptions for each image)	
Teacher's Overview	Concept of print-on-demand; Concept of an education network	
Print-on-demands companies; education networks	Moo, Blurb, MyPublisher iEARN	
See more at nwtcurriculumlinks	TAG samples: print-on-demands, self-publishing, card-marking, Gr6SocialStudies, SocialStudies	
Image by Blake Wile. Example of a mini-card created using Moo.		

GRADE 6 - SCIENCE		Gr. 6
Curriculum	Science: Grade 6 (Earth and Space Systems) Essential Questions (SLO #1-5): eg. What happened to Pluto? Is it a planet anymore? What conditions would have to exist for an asteroid to impact the earth?	
Pedagogical Need in Science Grade 6	Students learn better with images and simulations. Students need to see the connection between the acronym, MVEMJSUNP (**m**y **v**ery **e**ager **m**other **j**ust **s**erved **u**s **n**ine **p**izzas—for Mercury, Venus, Earth,...) and images and simulations of that factual order.	
ICT Support	Web site resource	
Pedagogical benefits of rich web sources (all still needing a benefits check)	-The Web provides synthesis of images, text, simulations very difficult for teachers to find time to build themselves -The Web can provide supplementary audio/video support to print-based resources authored by the same organizations—in this case National Geographic Society	
Teacher's Overview	Concept of non-profit, scientific, cultural, educational institutions (in USA) (Canada)	
Rich websites from large non-profit institutions	National Geographic Society, Royal Canadian Geographic Society, Canadian Space Agency, NASA	
See more at nwtcurriculumlinks	TAG samples: Gr6Science, Science6-earth-space, gathering-making-sense, planets, images, visual-learners	
This first-time image is in the public domain and made available in Wikipedia by NASA/Paolo Nespoli.		

GRADE 6 – MATH		Gr. 6
Curriculum	Mathematics: Grade 6 Strand: Number (Number Operations) Essential Question from Across the Strands: eg. How can I create and send my teacher/friends/parents my best math ideas?	
Pedagogical Need in Mathematics Grade 6	Students need to demonstrate an understanding of wholes and parts (improper fractions, ratios, decimals, percents…) and increasing and decreasing of quantities (integers, multiplication, divisions…) and order of operations in solving a multistep problem. Students live and work in an integrated fashion; schools could integrate play, work, art, and math to increase the intuitiveness of learning.	
ICT Support	A drawing/notetaking tablet application	
Pedagogical benefits of electronic note-taking in math.	-student provides doodles/illustrations that assist them toward a problem's support -student has unlimited "paper" space to work -student can send one "sheet" of the "notebook" or the whole notebook by email -students draft explanations/computations/supports can be digitally projected	
Teacher's Overview	Concept of notetaking and notetaking software	
Notetaking Apps	Penultimate (iPad); Evernote (Android)	
See more at nwtcurriculumlinks	TAG samples: Grade6Mathematics, Mathematics6-Number, decimals, fractions, percentage, producing-show-understanding, emailing-work, art-math, intuitive	
Image GNWT, created with Penultimate.		

GRADE 6 – ENGLISH LANGUAGE ARTS		Gr. 6
Curriculum	English Language Arts: Grade 6 General Learning Outcome 3: (Plan and focus an inquiry or research and interpret and analyze information and ideas, through a process). Essential Questions from SO 3.2.1, 3.2.2: eg. How fictional are "facts"? How "factual" is fiction? Isn't the internet just "made up"?	
Pedagogical Need in English Language Arts Grade 6	Students are required to identify sources of information and evaluate those sources according to criteria. This skill is particularly employed across the curriculum. Students need to know that information exists as an ecology. While students relish control over and choice in their learning, they need critical skills to make informed decisions about "facts" on the Web.	
ICT Supports	Online game	
Pedagogical benefits of using online instructional games	-learning from a game can be more engaging than a lecture since interaction is often required -high quality instructional games often exist as part of a larger network of cross-curricular games -students learn at their own pace	
Teacher's Overview	Concept of Cybersafety	
Online games	Privacy Playground, CyberSense and Nonsense	
See more at nwtcurriculumlinks	TAG samples: cybersafety, across-the-curriculum, EnglishLanguageArts6-analyze-interpret, video, Gr5-12, free, critical-thinking, media-awareness-network	
Screenshot used with permission.		

GRADE 7 – CULTURE-BASED LEARNING		Gr. 7
Curriculum	*Dene Kede*: "Leaders" (p. 179); *Inuuqatigiit*: "Elders" (p. 47) Essential Question: eg. What is a K'aawo? Can the differences be shown between these roles: Elders, Chiefs, Leaders, K'aawo? For which of these leadership roles can young people "apprentice"? What are the new kinds of government leaders in my community?	
Pedagogical Need in Context	Younger generations will acquire Dene pride and identity by "apprenticing" Dene-style leadership in their lives. Learning from past and present Dene role models will prepare them to help their own and future generations work together to survive. Expanding the role of "leader" is increasingly important with changing levels of government.	
ICT Support	Cartooning	
Pedagogical benefits of cartooning	-limitless creative freedom -merging practical experience with elders and technology -an end product which is reproducible and shareable	
Teacher's Overview	Concept of cartoonist; Concept of digital cartooning, Concept of comics; Concept of comic use in education	
Comic-creating software	Pixton.org (internet), Comic Life (Mac), bitstripsforschools (internet)	
See more at nwtcurriculumlinks	TAG samples: cartoon, comics, Gr7Culture-based learning, culture-based-learning,	
GNWT image. Photo credit Tessa Macintosh.		

GRADE 7 – TOOLS FOR DIVERSITY		Gr. 7
Support	Essential Question: What can be done to help students understand the effects of violence on relationship?	
Pedagogical Need	Students need to understand the alternatives in conflict situations. They need to know that choosing violence significantly impacts relationships.	
ICT Support	Tools for Change Educator's Website: a comprehensive listing of resources that promote healthy, equal relationships, reviewed and critiqued using a strengths-based model. Each resource is matched to grade levels (3 -9) and the Ontario curriculum. A pedagogical review will help educators choose resources for their own teaching style. This website has been developed by the Centre for Research and Education on Violence Against Women and Children at the University of Western Ontario with funding from the Ontario Women's Directorate.	
Benefits of this resource	-elementary lesson plans: JK-1; Gr. 2-3, Gr. 4-6, Gr. 7-8 -secondary lesson plans: Canadian politics and citizenship; leadership and peer support, media studies from a safe relationships perspective -resources for parents and administrators	
Teacher's Overview	Concept of violence against women	
Online resource	www.toolsforchange.ca	
See more at nwtcurriculumlinks	TAG samples: relationships, media, conflict-resolution, violence-against-women	
Screenshot used with permission.		

GRADE 7 – SOCIAL STUDIES	Gr. 7

Curriculum	Social Studies: Grade 7, *The Circumpolar World* Essential Question (Topic C): eg. How challenging is it for indigenous peoples to take political leadership in their circumpolar countries?
Pedagogical Need in Social Studies Grade 7	Through use of images, video, and possibly sound, students are expected to compare Canada's geography, social changes, and current issues to other circumpolar countries. Students learn best when they can personalize learning through use of multiple forms of media.
ICT Support	Videos of international families; online atlases; online articles
Pedagogical benefits of multiple media use	-students can choose the medium they best learn by in accessing circumpolar information
Teacher's Overview	Concepts of Circumpolar, Concept of Arctic and Circumpolar North, Concept of indigenous peoples
Videos Online atlases	"Families of the World" worldatlas.com
See more at nwtcurriculumlinks	TAG samples: Gr7SocialStudies, circumpolar-issues, atlas

Public domain image made available for sharing by user Trondtr in Wikipedia article, "Indigenous Peoples". Image depicts the first three presidents of the Norwegian Sami Parliament.

GRADE 7 - SCIENCE	Gr. 7
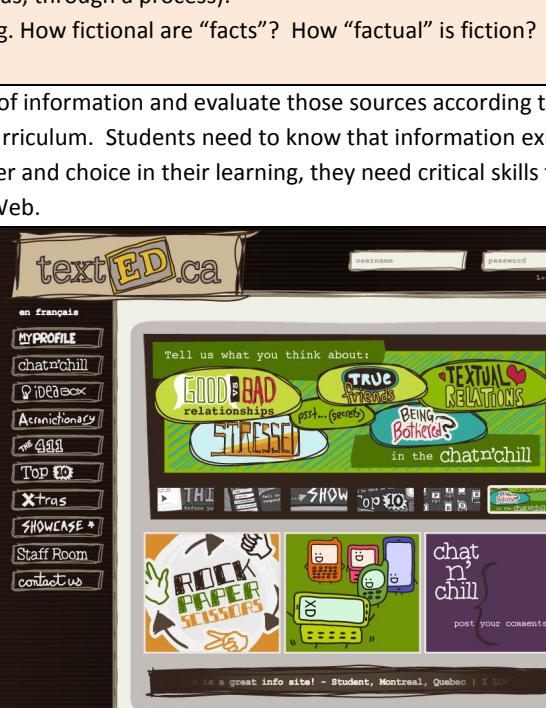
Curriculum	Science: Grade 7 : Planet Earth (Nature of Science Emphasis) Essential Question Unit E (pg. 27 in Science curriculum): eg. Why did Japan's Mar 11, 2011 earthquake cause some geologists to say we have to start all over with what we think about Plate Tectonics?
Pedagogical Need in Science Grade 7	With this unit on Planet Earth, Grade 7 students explore the interrelationships among science, technology, society and the environment. Students need to see the big picture or the landscape of a discipline—in this case geology—before they appreciate the sub-categories.
ICT Support	Web site portal
Pedagogical benefits of Web portals	-portals take some of the challenge out of having to use Boolean logic in search engines to find appropriate resources -portals provide a large thematic context for sub-categories enabling students to see the "landscape" of the discipline
Teacher's Overview	Concept of Web portals
A Web portal in Science	geology.com, dk online encyclopedia
See more at nwtcurriculumlinks	TAG samples: Gr7Science, Science7-PlanetEarth, gathering-making-sense, planets, continents, visual-learners, webportal

Image used with permission by Blake Wile. Watermelon Tourmaline mineral on quartz matrix (crystal approximately 2 cm wide at face).

GRADE 7 – MATH		Gr. 7
Curriculum	Mathematics: Grade 7 Strand: Shape and Space (Transformations) Essential Question from Specific Outcomes #4 and 5: eg. What does geometry have to do with reading a map?	
Pedagogical Need in Mathematics Grade 6	Students need to understand how positions and shapes can be plotted on a "Cartesian plane." Students need to practice concepts in a "low-stakes" interactive environment and through repetition gain understanding. Repetition is easy in an electronic setting.	
ICT Support	Free online geometry software	
Pedagogical benefits of using online software	-cost savings -the study of positions and shapes is the real focus over the "drawing" of them; this allows more practice time and better understanding.	
Teacher's Overview	Concept of Cartesian system; Concept of Geometry	
Geometry Applications/Math Practice Application	GeoGebra, GnuPlot, IXL	
See more at nwtcurriculumlinks	TAG samples: Grade7Mathematics, Mathematics7-Shape-Space, transformations, practice, Gr7Mathematics	
Image GNWT, Created with GeoGebra.		
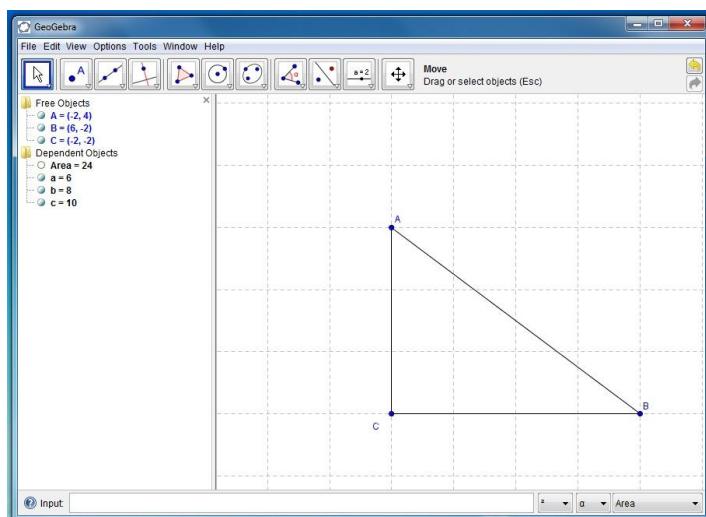
GRADE 7 – ENGLISH LANGUAGE ARTS		Gr. 7
Curriculum	English Language Arts: Grade 7 General Learning Outcome 3: (Plan and focus an inquiry or research and interpret and analyze information and ideas, through a process). Essential Question from SO 3.2.1, 3.2.2: eg. How fictional are "facts"? How "factual" is fiction? Isn't the internet just "made up"?	
Pedagogical Need in English Language Arts Grade 7	Students are required to identify sources of information and evaluate those sources according to criteria. This skill is particularly employed across the curriculum. Students need to know that information exists as an ecology. While students relish control over and choice in their learning, they need critical skills to make informed decisions about "facts" on the Web.	
ICT Supports	Online game	
Pedagogical benefits of using online instructional games	-learning from an online game can be more engaging than a lecture since interaction is often required -high quality instructional games often exist as part of a larger network of cross-curricular games -students learn at their own pace	
Teacher's Overview	Concept of Cybersafety	
Interactive website	textEd.ca, Passport to the Internet	
See more at nwtcurriculumlinks	TAG samples: cybersafety, across-the-curriculum, EnglishLanguageArts7-analyze-interpret, Gr7-10, free, critical-thinking, relationships, netiquette	
	Screenshot used with permission.	
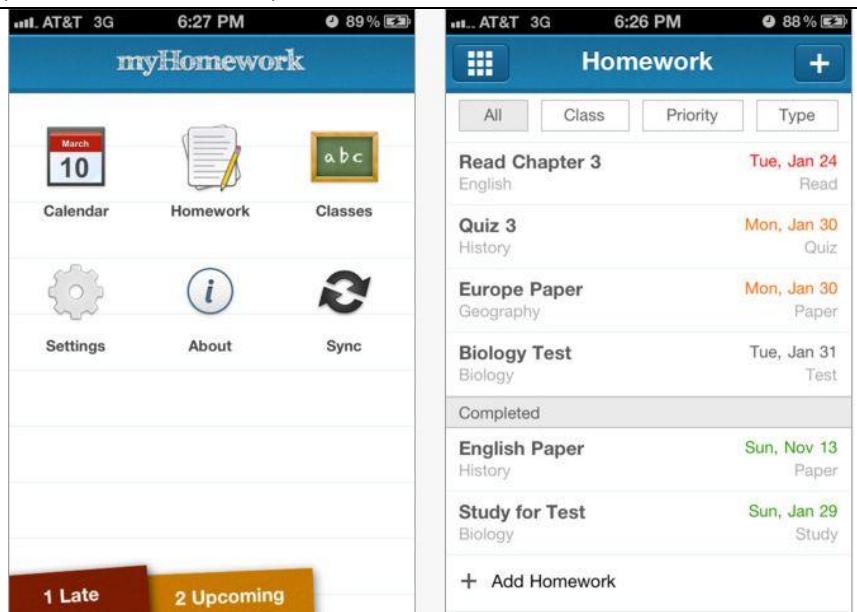
GRADE 8 – CULTURE-BASED LEARNING		Gr. 8
Curriculum	*Dene Kede*: "Grandparents" (p. 143); *Inuuqatigiit*: "Elders" (p. 47) Essential Question: eg. Did the Elders ever have the same feelings I have today? What do I miss out on if I don't ask a respected Elder a question? If I ask an Elder a question, how much of my life (eg. time and energy) can I save by not having to find out the information by myself?	
Pedagogical Need in Context	Cultural language, knowledge, values, and identity are provided by grandparents for the survival of the people in future generations. They were a resource of practical wisdom used before any serious decisions were made. Without them and their shared experiences, young people would have to rediscover the same knowledge. Young people remember important information in differentiated ways. Technology can assist by making it easy for small groups of students to digitally capture iconic cultural objects or practices and lay these out in minicards, business cards, postcards, etc. with text about the enduring knowledge.	
ICT Support	Printing products	
Pedagogical benefits of using professionally printed products	-limitless creative freedom -merging practical experience with elders and technology -an end product which is polished and invokes pride	
Teacher's Overview	Concept of desktop publishing	
Online print products companies	moo.com; zazzle.ca; tasteofink.com	
See more at nwtcurriculumlinks	TAG samples: postcards, minicards, businesscards, across-curriculum	
	GNWT image. Photo credit Tessa Macintosh.	

GRADE 8 – TOOLS FOR DIVERSITY		Gr. 8
Support	Essential Question: How can students use ICT to keep track of their learning?	
Pedagogical Need	Students need to be responsible for their own learning. ICTs they are becoming more familiar with can do this. Their own personal smartphones and tablets can help them do this.	
ICT Support	Applications that track homework and school responsibilities.	
Pedagogical benefits homework tracking applications	-track classes, homework, tests, assignments -time and black based class schedules -reminders	
Teacher's Overview	Concept of homework	
Homework applications	My Homework app (Apple, Android)	
See more at nwtcurriculumlinks	TAG samples: homework, study-skills, organization	
	This image is used with permission.	
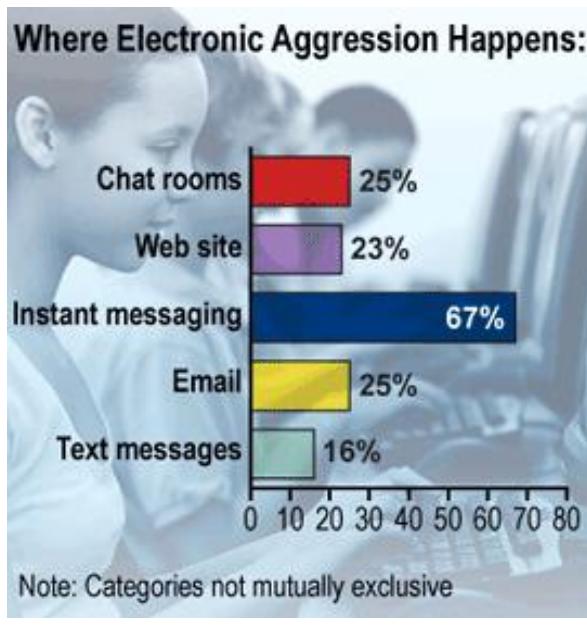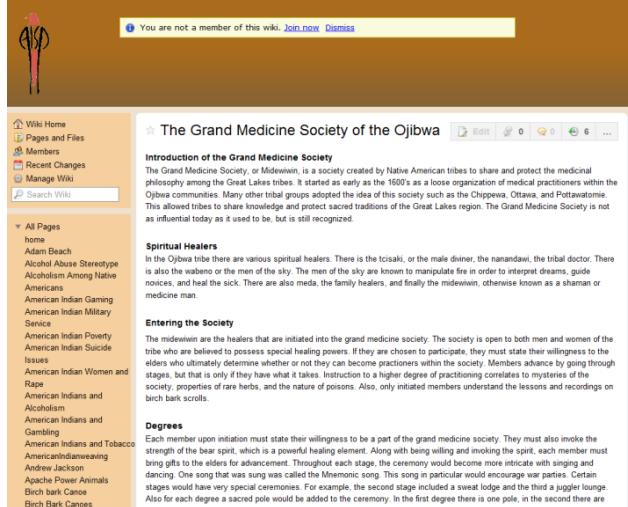
GRADE 8 – SOCIAL STUDIES		Gr. 8
Curriculum	Social Studies: Grade 8, *The Changing World* Essential Question (Central Question C): eg. What technology has made the biggest difference to modern living, or in the "global community" in the 20th/21st century? What criteria did you use for "biggest difference"?	
Pedagogical Need in Social Studies Grade 8	Through active use of social media and open source information, students can both find out and collaborate on information to personalize their inquiry, and monitor their communications relative to their parents/grandparents communications experience. Students learn best when they can personalize learning through use of multiple forms of media.	
ICT Support	Public wiki	
Pedagogical benefits of wiki use	-students can use the most famous wiki of all, Wikipedia, to learn what the "global village" is saying about communication -Wikipedia provides sub-categories that help students personalize learning -Wikipedia provides external sources and other bibliographical references -students can create public wikis to share knowledge	
Teacher's Overview	Concept of wiki; Concept of open source intelligence; Concept of Wikipedia; Concept of wiki hosting services	
wikis	Wikipedia, Wikispaces, PBWorks	
See more at nwtcurriculumlinks	TAG samples: Gr7SocialStudies, circumpolar-issues, atlas, wiki, collaboration	
Image available for sharing by author Carrigg Photography in Wikipedia article, "Wiki". Image of Ward Cunningham, inventor of the wiki (his first wiki software was called, WikiWikiWeb.		

GRADE 8 - SCIENCE		Gr. 8
Curriculum	Science: Grade 8: Freshwater and Saltwater Systems (Social and Environmental Emphasis) Essential Question Unit E (pg. 47 in Science curriculum): eg. What do the Maldives and Tuktoyaktuk have in common? How could Greenland's ice sheets change life for the New York Rangers in Manhattan, New York City?	
Pedagogical Need in Science Grade 8	A strong theme in this unit is the interrelatedness of all things. Students learn better with integrated media and simulations.	
ICT Support	Web site portal	
Pedagogical benefits of online simulations	-students learn by "seeing" -students develop a literacy for "demonstration through simulation"—a skill for high school and beyond -cost-effectiveness over creating or acquiring the real thing	
Teacher's Overview	Concept of simulations	
Web resource	PhET (interactive supports); creativeteachingsite.com	
See more at nwtcurriculumlinks	TAG samples: Gr8Science, Science8-Freshwater-Saltwater-Systems, gathering-making-sense, ocean-basins, simulations, glaciers, water, oceans, sustainability	
Image available for sharing by creator Shahee Ilyas in Wikipedia article, "Maldives". Image identified as one of the finest images on the English Wikipedia.		

GRADE 8 – MATH		Gr. 8
Curriculum	Mathematics: Grade 8 Strand: Shape and Space (Measurement) Essential Question from Specific Outcomes #3 and 4: eg. Why is the object illustrated below called the "Cyrus Cylinder"? How could this cylinder affect Middle East current events?	
Pedagogical Need in Mathematics Grade 6	Students are expected to determine the surface area of a cylinder. Students need to practice concepts in a "low-stakes" interactive environment and through repetition gain understanding. Repetition is easy in an electronic setting. Also, students need to understand the historical significance of certain objects.	
ICT Support	Free online virtual manipulatives.	
Pedagogical benefits of using online software	-cost savings -the study of positions and shapes is the real focus over the "drawing" of them; this allows more practice time and better understanding.	
Teacher's Overview	Concept of virtual manipulatives, Concept of geometric shapes	
Geometry Applications/Math Practice Application	National Library of Virtual Manipulatives, IXL (Grade 8)	
See more at nwtcurriculumlinks	TAG samples: Grade8Mathematics, Mathematics8-Shape-Space, measurement, practice, virtual, manipulatives, geometry	
Image made available for sharing by Mike Peel in Wikipedia article, "Cyrus Cylinder."		

GRADE 8 – ENGLISH LANGUAGE ARTS		Gr. 8
Curriculum	English Language Arts: Grade 8 General Learning Outcome 3: (Plan and focus an inquiry or research and interpret and analyze information and ideas, through a process). Essential Questions from SO 3.2.1, 3.2.2: eg. Is it biased when a company says it has the best support for a particular problem? What if someone independent of the company confirms that? Aren't we all biased? What is the relationship between bias and diversity?	
Pedagogical Need in English Language Arts Grade 8	Students are required to identify sources of information and evaluate those sources according to criteria. This skill is particularly employed across the curriculum. Students need to understand the power and implications of words.	
ICT Supports	Online game	
Pedagogical benefits of using online instructional games	-learning from an online game can be more engaging than a lecture since interaction is often required -high quality instructional games often exist as part of a larger network of cross-curricular games -students learn at their own pace	
Teacher's Overview	Concept of bias, Concept of Cyber-bullying	
Interactive website	Allies and Aliens, Passport to the Internet	
See more at nwtcurriculumlinks	TAG samples: cybersafety, across-curriculum, EnglishLanguageArts8-analyze-interpret, Gr7-10, free, critical-thinking, prejudice, bias	
Image in the public domain, dated May 11, 2011. Created from the government work of Centers for Disease Control and Prevention, USA Department of Health and Human Services. Wikipedia article, "cyberbullying".		

GRADE 9 – CULTURE-BASED LEARNING		Gr. 8
Curriculum	*Dene Kede*: "Earth Medicine" (p. 42); *Inuuqatigiit*: "Medicine and Healing" (p. 71) Essential Questions: eg. What natural remedies are being used today in my community? What traditional medicines and natural remedies does the nursing station or local doctor promote? Can certain plants be considered both food and medicine?	
Pedagogical Need in Context	Earth medicine is a gift that has enabled Aboriginal people to survive and can be considered in both spiritual and practical ways. The environments that produce Earth Medicines and the cultures that encouraged their use are being both lost and returned to at the same time. Wiki technologies can assist by making it easy for individuals and groups of students to share and learn stories and expertise from others in the region, territory, country and world about Earth Medicines and healing.	
ICT Support	wikis	
Pedagogical benefits of using wikis	-control of the privacy settings and how many people can be "editors" (writers) -with a couple of keyboard strokes (and no code!) student work can be live on the internet in minutes -any member of the wiki can build collective knowledge about chosen topics	
Teacher's Overview	Concept of wiki; Concept of open source intelligence; Concept of Wikipedia; Concept of wiki hosting services, Concept of traditional medicines, more, more	
wikis	Wikipedia, Wikispaces, PBWorks	
See more at nwtcurriculumlinks	TAG samples: Gr8Culture-based-knowledge, …	
Screenshot of a wikispace.		

GRADE 9 – TOOLS FOR DIVERSITY		Gr. 9
Support	Essential Question: How can schools benefit from artists and educators who adapt inspiration talks for student learning? How can schools benefit from TED talks?	
Pedagogical Need	Students need choice. Students benefit from inspiration that can be personalized and made developmentally appropriate for secondary students.	
ICT Support	Technology, Entertainment, Design (TED): Ideas Worth Spreading TED website; TED tablet application	
Pedagogical benefits of TED talks	-fascination -inspiration -imagination -learning	
Teacher's Overview	Concept of TED conferences	
TED talks examples	Jean-Baptiste Michel: The mathematics of history; JP Rangaswami: Information is food; Rory Sutherland: Perspective is everthing	
See more at nwtcurriculumlinks	TAG samples: TED, inspiration, personalized-learning, differentiation	
This image is made available for sharing by author, Erik Charlton in Wikipedia article, "TED". Robert Ballard (the man who found Titanic, Bismarck, USS Yorktown, and JFKs PT-109) gave an impassioned presentation on the importance exploring our oceans. He founded the JASON Project to let students collaborate with scientists while exploring the underwater universe.		

GRADE 9 – SOCIAL STUDIES		Gr. 9
Curriculum	Social Studies: Grade 9, *The Growth of Canada* (NWT curriculum*); Canada: Opportunities and Challenges* (Alberta curriculum). Essential Question (NWT: Central Question C; AB: General Outcome 9.2): eg. What do low interests rates, or the ability to borrow money from the bank cheaply, have to do with a prosperous Canadian citizen? Do I have to spend even 5 minutes thinking about whether a bunch of people in Arizona lost their homes because they couldn't make the monthly payments?	
Pedagogical Need in Social Studies Grade 9	Students need to understand that large policy discussions they hear every day on the national news eventually impact their northern lifestyle. Canada's international relationships affect their territory. Students learn best when they can "see" concepts illustrated through stories and scenarios.	
ICT Support	Cartooning, image annotating, storytelling software	
Pedagogical benefits of cartooning software use	-students are more engaged with images-rich text -critical thought is strengthened through engaged selection of just the right image, body-language, and language -graphic novels are increasingly used in education	
Teacher's Overview	Concept of comics; Concept of comic use in education	
Comic-creating software	Pixton.org (internet), Comic Life (Mac), bitstripsforschools (internet)	
See more at nwtcurriculumlinks	TAG samples: comics, Gr9SocialStudies, create, storytelling, cartoon	
Image available for sharing by author Greg Williams in Wikipedia article, "Cartoon".		Text excerpted from the Wikipedia article *Dr. Seuss.* 18 Dec 2006

GRADE 9 - SCIENCE		Gr. 9
Curriculum	Science: Grade 9: Space Exploration (Science and Technology Emphasis) Essential Question from Unit E (pg. 70 in Science curriculum): eg. How does exploration of space benefit life on earth?	
Pedagogical Need in Science Grade 9	Wonder and curiosity are sharpened in this unit and shown to be the drivers behind supports to intractable problems on earth such as life-support systems, communication technologies, etc. Students learn better with integrated media, simulations, and stories from the discipline being studied.	
ICT Support	Government agency online resource	
Pedagogical benefits of government Web sites	-comprehensive background and current status of a discipline provided -comprehensive range of audiences -modelling famous Canadians in the field	
Teacher's Overview	Concept of space exploration; Concept of Canadian Space Agency	
Web resource	Canadian Space Agency (asc-csa.gc.ca)	
See more at nwtcurriculumlinks	TAG samples: Gr9Science, Science9-Space-Exploration, gathering-making-sense, Canadians, curiosity,	
This image is in the public domain and made available by NASA in Wikipedia , "Julie Payette".		

GRADE 9 – MATH	Gr. 9
Curriculum	<u>Mathematics</u>: Grade 9 Strand: Shape and Space (Measurement) <u>Essential Question</u> from Specific Outcomes #1: eg. What more can circle geometry tell me beyond the way the shape describes life cycles and patterns?
Pedagogical Need in Mathematics Grade 9	Students are expected to use circle properties to solve problems and justify their strategies. Students need to be able to manipulate shapes interactively to gain greater experience with and transfer of knowledge to applied geometry.
ICT Support	Licensed software
Pedagogical benefits of using licensed software	-accountability to the market for ease and breadth of use, investment in research and development in the product -customer care and support are usually associated with product
Teacher's Overview	Concept of circles, Concept of Euclidean geometry
Geometry Applications	The Geometer's Sketchpad
See more at nwtcurriculumlinks	TAG samples: Grade9Mathematics, Mathematics9-Shape-Space, interactive-software, measurement, practice, virtual, geometry

Image of Khan As'ad Pacha Al-'Azem – Damascus, created by Jim Gordon, was made available for sharing by Bassem Jarkas in Wikipedia article, "Euclidean geometry."

GRADE 9 – ENGLISH LANGUAGE ARTS	Gr. 9
Curriculum	<u>English Language Arts</u>: Grade 9 General Learning Outcomes (all). <u>Essential Question</u> for teachers: eg. Where can I go for a "one-stop-shop" for lessons that I can use to help students become critical and ethical users of media and the Internet?
Pedagogical Need in English Language Arts Grade 9	Students are required to comprehend and respond with critical interpretations and analysis, and represent with clarity and artistry their synthesis for an appropriate audience. Students need direct instruction to address such issues as bias in the news, fact vs. opinion, deconstructing webpages, authentication online resources, how to use Wikipedia in all their courses, diversity and hate in the media, …
ICT Supports	A nationally popular and researched-based, reliable network of resources for teachers of media awareness. This is the responsibility of all teachers.
Pedagogical benefits of using online instructional games	-the resources are tied to the ELA curricular outcomes of the Northwest Territories -lessons are ready-made for teachers to adopt or adapt -same network provides free and NWT licensed online games/tours/experiences
Teacher's Overview	Concept of education network
Interactive websites	NWT licensed resources: mnet.hypernet.ca/e/ (see page 162-164), Free tutorials: http://mediasmarts.ca/
See more at nwtcurriculumlinks	TAG samples: media-awareness, across-curriculum, EnglishLanguageArts9, free, critical-thinking, licensed-resources

Screenshot used with permission.

GRADE 10 – CULTURE-BASED LEARNING		Gr. 10
Curriculum	*Dene Kede*: "The Child" (p. 152); *Inuuqatigiit*: "Responsibilities of Girls" (p. 47) "… Boys" (p. 63) Essential Questions: eg. How can I fulfill the expectations of the Elders as well as those with modern expectations for me in a wage economy? How do other young people around the world balance their cultures' traditional expectations with newer global expectations?	
Pedagogical Need in Context	Inuit grandparents and parents have expectations for their children. In the Dene cultures, children need to know how valuable they are to the culture, Elders, and people. By learning how children were raised in the past compared with the present they will deepen their values for sharing, self-discipline and respect for time-tested wisdom. By watching the growing child, experiences are to be provided that will help the child become what it is meant to be. Technology can help young people with online places and spaces to learn about role expectations, youth possibilities, and taking action.	
ICT Support	Online youth networks	
Pedagogical benefits of using online youth networks	-students can share and compare their experiences with other young people -students have an authentic audience for their ideas -students develop critical thinking by being exposed to others who make "reasoned judgments"	 INDIGENOUS CANADA
Teacher's Overview	Concept of online community; Concept of TakingITGlobal	
Communities of Youth	TakingITGlobal; Taking ITGlobal-Indigenous Canada; Taking ITGlobal-Canada; iEARN	
See more at nwtcurriculumlinks	TAG samples: postcards, minicards, businesscards, across-curriculum	
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GRADE 10 – TOOLS FOR DIVERSITY		Gr. 10
Support	Essential Question: To what extent can my students be inspired by online thought leaders that supplement classroom inspiration? How can I differentiate for the many interests of students in my class with an online tool that inspires them in the area of their interest?	
Pedagogical Need	Students need choice. Students benefit from inspiration that can be personalized.	
ICT Support	Technology, Entertainment, Design: Lessons Worth Spreading (TED-ed) (Inspired by Technology, Entertainment, Design (TED): Ideas Worth Spreading) TED-Ed's commitment to creating lessons worth sharing is an extension of TED's mission of spreading great ideas. Within the growing TED-Ed video library, you will find carefully curated educational videos, many of which represent collaborations between talented educators and animators nominated through the TED-Ed platform.	
Pedagogical benefits of TED talks	-fascination, inspiration -imagination, learning	Lesson Highlights
Teacher's Overview	ed.ted.com	
TED-ed examples:	"Just how small is an atom?"; "How folded paper can get you to the moon"; "The power of simple words"	
See more at nwtcurriculumlinks	TAG samples: TED, TEDed	
Use of Screenshot: permission pending.		

| GRADE 10 SOCIAL STUDIES		Gr. 10
Curriculum	Social Studies: Grade 10-1; 10-2: Perspectives on Globalization; Living in a Globalizing World Essential Questions from Related Issues: eg. How has globalization affected your indigenous or non-indigenous community?	
Pedagogical Need in Social Studies Grade 10	Students need to discover the realities of globalization by communicating with those affected global communities. Students learn better with visuals.	
ICT Support	Online Education Networks	
Pedagogical benefits of joining communities of youth	-students can communicate with students from other global communities -students develop critical understandings of their own contexts and identities through comparing and contrasting while making personal connections to global youth -students will be presented with opportunities to take action on many different levels; the criteria for action will be a class by class reasoned judgment	
Teacher's Overview	Concept of online community; Concept of TakingITGlobal	
Communities of Youth	TakingITGlobal; Taking ITGlobal-Indigenous Canada; Taking ITGlobal-Canada; iEARN	
See more at nwtcurriculumlinks	TAG samples: gather-making-sense, community, globalism, global-issues, SocialStudies10, Gr10, indigenous-youth	
This image was made available for sharing by cellanr in Wikipedia article, "One Laptop Per Child." Kagugu Primary School, Kigali, Rwanda.		

GRADE 10 - SCIENCE 10		Gr. 10
Curriculum	Science: Grade 10 (Unit D and beyond): Energy Flow in Global Systems (Social and Environmental Contexts Emphasis). Essential Question from Unit D (pg. 29 in Science 10 curriculum): eg. Isn't a warmer Earth better for human, animal and plant life?	
Pedagogical Need in Science Grade 10	The extent to which humans are having an impact on the earth's energy flow (absorption and transfer of thermal heat at or near earth's surface) is a serious field of study. Students learn better with integrated media, simulations, and stories from the discipline being studied.	
ICT Support	wikis	
Pedagogical benefits of using wikis	-because the common teacher is able to easily create a wiki website, strong teacher practices are being documented in wikis -wikis allow for private, semi-private, or public and global participation in an inquiry	
Teacher's Overview	Concept of wiki; Concept of open source intelligence; Concept of Wikipedia; Concept of wiki hosting services	
Wiki Web resource	PrettyGoodPhysics.wikipsaces.com	
See more at nwtcurriculumlinks	TAG samples: Gr10Science, Science10-Energy-Flow, gathering-making-sense, curiosity, heat, energy, physics, Science 10, wikispaces	
" Green House Gas (GHG) per capita 2005" is made available for sharing by user, Sailsbystars in Wikipedia article , "Global Warming".		

GRADE 10 – MATH		Gr. 10
Curriculum	Mathematics: High School Algebra Essential Question: eg. How can I get individual help with Algebra when I need it?	
Pedagogical Need in Mathematics High School	Students are expected to solve Algebra questions in Grade 9, 10C, 20-1, 20-2, 30-1 and 30-2 Students need to be able to test out their Algebra supports and receive instant support to scaffold their learning.	
ICT Support	Tablet application	
Pedagogical benefits of using licensed software	-accountability to the market for ease and breadth of use, investment in research and development in the product -customer care and support are usually associated with product	
Teacher's Overview	Concept of Algebra	
Tablet Application	Algebra Touch (iPad); meStudying: Algebra 1 (iPad); Algebra Tutor (Android)	
See more at nwtcurriculumlinks	TAG samples: Grade10Mathematics, Algebra, Gr9-12, problem-solving, Math	
Image GNWT, created with Algebra Touch.		

iPad 🛜   11:40   42% 🔋

Generate Problem   Edit   **Factoring Out**

$$\frac{-5x*1+-70x}{-5x*-17+-5x*16}$$

Explain   Practice

GRADE 10 – ENGLISH LANGUAGE ARTS		Gr. 10
Curriculum	English Language Arts: Grade 10-12 General Learning Outcomes (all). Essential Question: eg. Who will teach me about online tools so I don't make a big intractable mistake with my identity and privacy? Are their features of online tools that I don't think I need to use?	
Pedagogical Need in English Language Arts Grade 10	Students are required to comprehend and respond with critical interpretations and analysis and represent with clarity and artistry their synthesis for an appropriate audience. For example: -research and authenticate online information -manage privacy and reputation -deal with online relationships -use digital media in an ethical manner Students need direct instruction—but through simulations of their favourite online experiences--to learn the essentials of online literacy.	
ICT Supports	An online award winning tutorial for secondary students.	
Pedagogical benefits of using online instructional games	- Students may be more engaged to learn digital literacy through simulations and video messages, from clips of teens with skilled supports for online safety, than they would be from an adult "warning" them.	
Teacher's Overview	Concept of education network	
Interactive websites	NWT licensed resources: mnet.hypernet.ca/e/ (see page 162-164), Free tutorials: http://mediasmarts.ca/	
See more at nwtcurriculumlinks	TAG samples: across-curriculum, EnglishLanguageArts10, critical-thinking, licensed-resources, digital-citizenship, ethical-use	
Image used with permission.		

SPACEFACE billboard

GRADE 11 – CULTURE-BASED LEARNING		Gr. 10
Curriculum	*Dene Kede*: "One Who Circled the Earth" (p. 12); *Inuuqatigiit*: "Tunngavinga: The Foundation" (p. 30, 31) Essential Questions: eg. How important are cultural laws to my identity? How does my Dene or Inuit cultural identity affect my identity as a Canadian? In what ways does my Canadian identity influence my Aboriginal identity?	
Pedagogical Need in Context	ONE WHO CIRCLED THE EARTH (12) The story of Yamozah in the legend of "The One Who Circled the Earth" ties all five Dene tribes of the Dene Nation together, as well as to the whole world. By understanding the nature of the Dene Laws students will realize where they come from and how they are a part of something bigger and greater. The Inuit focus on the Circle of Belonging, Cycle of Life, and Cycle of Seasons help explain life's purposes and cultural identity. Technology can assist students in showing their synthesis to essential questions about identity and nation.	
ICT Support	Non-linear representations	
Pedagogical benefits of using non-linear representations (such as virtual museums)	-students can create a theme room with media rich experiences for the visitor -students have a "place" or a room for the subcategories of their learning	
Teacher's Overview	Concept of a virtual museum, Concept of virtual museums using PowerPoint	
Applications used to build virtual museums in schools	PowerPoint, Keynote	
See more at nwtcurriculumlinks Screenshot, GNWT.	TAG samples: virtual-museums, culture-based-knowledge, inquiry	

GRADE 11 – TOOLS FOR DIVERSITY		Gr. 11
Support	Essential Question: What kind of broad study/knowledge skills can help students at test taking time that addresses the language of tests?	
Pedagogical Need	Recognizing ideas/concepts behind the language experienced on formal tests.	
ICT Support	Applications that bring new words and meanings to students each day.	
Pedagogical benefits of drawing applications	-some applications gather (or "aggregate") daily words (from other languages as well) from prominent "word of the day" providers, such as Merriam-Webster -quizzes offer review opportunities of previous words -this process better prepares students to recognize these words or their roots when they appear in future documents such as diploma tests.	
Teacher's Overview	Concept of vocabulary; Concept of Alberta Diploma Exams; Concept of Test (assessment)	
Vocabulary app; online resources	Vocabology; vocabulary.com	
See more at nwtcurriculumlinks	TAG samples: vocabulary, diploma-exams	
This image is used with the permission of the creators of "Vocabology for iPhone".		

GRADE 11 - SOCIAL STUDIES		Gr. 11
Curriculum	Social Studies: Grade 11-1; 11-2: Perspectives on Nationalism; Understandings of Nationalism Essential Questions from Related Issues: eg. What is a good Canadian? How important to me is it to be a good Canadian? How important to me are my peoples' views, or my "nation's" views of life inside Canada?	
Pedagogical Need in Social Studies Grade 10	Students need to have the landscape of nationalism shown them through the arts, at least as an introduction to the topic. Students learn better with multi-media.	
ICT Support	National Film Board	
Pedagogical benefits of joining communities of youth	-films exploring Canadian and Aboriginal nationhood and identity are made available free through streaming -films can be downloaded for education on a subscription basis	
Teacher's Overview	Concept of nationalism; Concept of Canadian nationalism; Concept of a National Film Board	
Film Board	National Film Board	
See more at nwtcurriculumlinks	TAG samples: gather-making-sense, identity, Canadian-identity, Canadian-nationalism, free, subscription, across-curriculum, SocialStudiesGr11, nationalism, French-version, Aboriginal	
This image was made available for sharing by user Padraic Ryan in Wikipedia article, "Aboriginal Affairs and Northern Development Canada." Monument to Aboriginal war veterans in Confederation Park, Ottawa, Canada.		
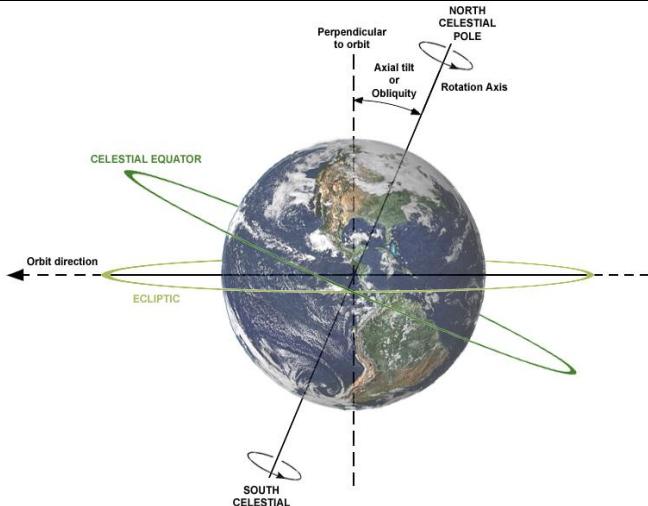
GRADE 11 – CHEMISTRY 20		Gr. 11
Curriculum	Chemistry 20: Grade 11 (all units of study). Essential Question from Unit D (pg. 29 in Chemistry 20 curriculum): eg. How can salt water freeze? Don't we use salt to melt icy steps and roads?	
Pedagogical Need in Chemistry Grade 20	Teachers are required to make understandable the diversity of matter and chemical bonding; forms of matter, gases; supports, acids, bases, and quantitative relationships in chemical changes. Teachers can benefit from the syntheses of other teachers instead of starting from scratch for each lesson.	
ICT Support	Digital presentation repositories	
Pedagogical benefits of using wikis	- chemistry teachers can adopt and adapt the digital presentations of thousands of other creators who have uploaded to a repository; and create and upload their own syntheses to add to collective chemistry knowledge from their own Northern contexts.	
Teacher's Overview	Concept of Slideshare	
Web resource	slideshare.net	
See more at nwtcurriculumlinks	TAG samples: Gr11Chemistry, Chemistry20, gathering-making-sense, curiosity	
This image is a screenshot of a shareable digital presentation from Slideshare.net.		

GRADE 11 – MATH		Gr. 11
Curriculum	<u>Mathematics</u>: Pre-Calculus <u>Essential Question</u>: eg. Why is the greatest increase of sunlight on Mar. 21?	
Pedagogical Need in Mathematics High School	Students are expected seek supports for theoretical math problems that are generally cross-disciplinary and intractable. To scaffold their learning, students need to be able to test out their "pure math" supports to this problem and receive instant graph results.	
ICT Support	Graphing applications	
Pedagogical benefits of using licensed software	-accountability to the market for ease and breadth of use, investment in research and development in the product -customer care and support are usually associated with product	
Teacher's Overview	[Concept of Pure Mathematics](#)	
Licensed resource	Geometer's Sketchpad, GeoGebra	
See more at [nwtcurriculumlinks](#)	TAG samples: Grade11Mathematics, Pre-Calculus, Gr9-12, problem-solving, Math	
This image entitled, "AxialtiltObliquity"was made available for sharing by Dennis Nilsson in Wikipedia article, "Equinox."		

GRADE 11 – ENGLISH LANGUAGE ARTS		Gr. 11
Curriculum	<u>English Language Arts</u>: Grade 10-12 General Learning Outcomes (all). <u>Essential Question</u>: eg. How can I speak to a wider audience through "texts" that interest me as a student: narrative and other styles, images, and videos?	
Pedagogical Need in English Language Arts Grade 11	Students are required to comprehend and respond with critical interpretations and analysis and represent with clarity and artistry their synthesis for an appropriate audience. This artistry needs to be youth engaging, life-sized, personal meaning-making that reflects the current open, participatory culture in which we live. Students need opportunities to speak to an audience with a tool that expands beyond, but includes exposition—a tool where an ecosystem of expression-types exists naturally—a continuum from Facebook just-in-time text to more formal meta-cognitive reflections and responses to literature and still and video images.	
ICT Supports	Blogs, wikis (collaborate on actual text vs. responding to others static blog text)	
Pedagogical benefits of using online instructional blogs	-an engaging tool that encourages both personal preference as well as reasoned judgements -provides opportunity to become familiar with blog "voice" and convention -is multi-purpose and multimodal	
Teacher's Overview	[Concept of blog](#), [Concept of educational Blogs](#), [Concept of microblogging](#)	
Blog examples	Edublogs (older students), Kidblog (younger students)	
See more at [nwtcurriculumlinks](#)	TAG samples: across-curriculum, EnglishLanguageArts20, critical-thinking, free, licensed-resources, digital-citizenship, ethical-use	
Image made available for sharing by user, glassbeednorth, under a Creative Commons license in Flickr. [@manyvoices](#) is a published version of a story that concluded after the 140th tweet from 100 students in elementary and middle schools from six countries.		
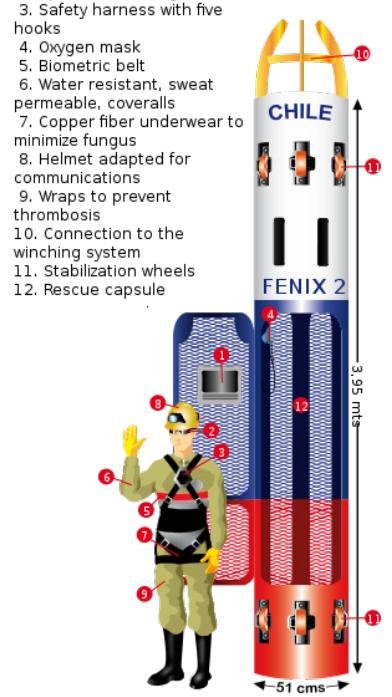
Curriculum	*Dene Kede*: "Geography and Land Use" (p. 27); *Inuuqatigiit*: "Tunngavinga: The Foundation"" (p. 30, 31) Essential Questions: eg. How important are cultural laws to my identity? How does my Dene or Inuit cultural identity affect my identity as a Canadian? In what ways does my Canadian identity influence my Aboriginal identity?
Pedagogical Need in Context	Dene Elders have said that the Land is life itself; if life is to continue then the Land must be cared for. Love for the land will lead to stewardship and pride. Being able to read the Land with its distinctive landmarks are essential skills when on the vast lands of the NWT. Attention to places with "living forces" and unique legends help young people become identified with the ideals and values associated with these places. Technology can help young people show their synthesis of this learning with final products that showcase the Land and the meaning attached to it.
ICT Support	Book publishing
Pedagogical benefits of online card making	-students enjoy images and the active nature of creating their own primary data -many students enjoy depth over breath if given the time to specialize (eg. using less text but making it compelling; create carefully chosen descriptions for each image). -the possibility of using Aboriginal fonts is a possibility on a company by company basis

Teacher's Overview	Concept of print-on-demand;	
Print-on-demands companies	Moo, Blurb, MyPublisher	
See more at nwtcurriculumlinks	TAG samples: print-on-demands, self-publishing, card-marking, Gr12Culture-based-learning, …	
Back Bay in Yellowknife, Image credit, Blake Wile.		

Support	Essential Question: How can the various components of inquiry, from planning and questioning to metacognition, motivation, and confidence be unified and supported with an ICT that synthesizes and shows the personal learning process?
Pedagogical Need	Students can get lost during an inquiry especially if it seems like too "many components" from start to finish. Students can benefit from tools that synthesize and show the connections between all components of inquiry and information and ideas learned.
ICT Support	Mind mapping tools.
Pedagogical benefits of mind mapping tools	-show connections and relationships between ideas and sources -illustrate ideas with images -provides "speaking notes" during presentation and graphics to engage the audience

Teacher's Overview	Concept of mind map; Concept of concept map; Concept of argument map	
Mind map software	XMind; Mindmeister; Omnigraffle; iThoughtsHD	
See more at nwtcurriculumlinks	TAG samples: mind-map, study-skills, presenting, graphic-organizer	
This image is used with permission.		

GRADE 12 SOCIAL STUDIES		Gr. 12
Curriculum	Social Studies: 30-1; 30-2: Perspectives on Ideologies; Understandings of Ideologies Essential Questions from Related Issues: eg. What would be my role as a citizen if I lived in a society that valued common good and collectivism? What adjustments to their orientation of "role of citizen" do Bhutan immigrants have to make when they move Canada? What adjustments do southern Canadians have to make to "role of citizen" when they move to the NWT?	
Pedagogical Need in Social Studies Grade 12	Students would benefit from connecting with students who are living other ideologies. Students learn better with the choice of collaboration—when it is deemed to be engaging.	
ICT Support	Wiki (creating projects or/and finding and joining other wikis already working on ideologies)	
Pedagogical benefits of wikis	-wikis can be authored (inquiry framed) by teacher or student and made private, protected, or public -ideology wikis can be joined and contributed to from Canadian, and northern perspectives	
Teacher's Overview	Concept of wiki; Concept of open source intelligence; Concept of Wikipedia; Concept of wiki hosting services	
Wiki	wikispaces (top right of sign in page)	
See more at nwtcurriculumlinks	TAG samples: gather-making-sense, identity, Canadian-identity, ideology, free, subscription, across-curriculum, SocialStudiesGr12, wiki	
This image in the public domain was made available for sharing by user Baburkhan from the work of Mario Biondi in Wikipedia article, "Gross national happiness."		

"Gross National Happiness is more important than Gross National Product."
By: HM. Jigme Singye Wangchuk.

GRADE 12 - SCIENCE		Gr. 12
Curriculum	Biology: Grade 12 (Unit C and beyond): Cell Division, Genetics and Molecular Biology (Change and Diversity) Essential Question from Unit D (pg. 30 in Biology 30 curriculum): eg. Aren't mutations bad?	
Pedagogical Need in Science Grade 12	Charts, illustrations, videos, and text are available for adoption or adaptation to help students understand how cell processes allow for growth and reproduction, and transmission of genetic information from one generation to another. Students learn better with integrated media, simulations, and stories from the discipline being studied.	
ICT Support	Online repository of interactive whiteboard lessons	
Pedagogical benefits of using interactive whiteboard lesson repositories	-the lessons come from an "ecosystem" of creators on a continuum of very high level sources such as the branch of Discovery specializing in education to the common credentialed Biology teacher. -lessons are written appropriately for student audiences from a practitioner's perspective	
Teacher's Overview	Concept of interactive whiteboards	
Interactive Whiteboard and Mimeo repositories	exchange.smarttech.com, mimeoconnect.com	
See more at nwtcurriculumlinks	TAG samples: Gr12Biology, Biology30-celldivision-genetics; interactive-whiteboard	
" Three cell growth types" is made available for sharing by user, Saperaud in Wikipedia article , "Cell Division".		

GRADE 12 – MATH		Gr. 12
Curriculum	Mathematics: Pre-Calculus (and Mathematical Storytelling) Essential Question: eg. How would math and science work together to rescue trapped miners?	
Pedagogical Need in Mathematics High School	By leveraging situations or accessing cultural objects that naturally spark curiosity, the likelihood of increased engagement and rigor in problem solving will increase. Some approaches will lead to more sustained work and even the creation of replicas or new objects on math principles. Students benefit from math problems that spawn curiosity and engagement—a process that in part explains the need for math theory and practice.	1. Monitor for biometric belt 2. Special dark sunglasses 3. Safety harness with five hooks 4. Oxygen mask 5. Biometric belt 6. Water resistant, sweat permeable, coveralls 7. Copper fiber underwear to minimize fungus 8. Helmet adapted for communications 9. Wraps to prevent thrombosis 10. Connection to the winching system 11. Stabilization wheels 12. Rescue capsule
ICT Support	Web sites (with video and images)	
Pedagogical benefits of using vanguard or niche-curriculum based websites	-engagement -curiosity -holistic thinking -critical thinking	
Teacher's Overview	Concept of Pure Mathematics	
Web site	101qs.com, csdt.rpi.edu	
See more at nwtcurriculumlinks	TAG samples: Grade12Mathematics, Pre-Calculus, Gr10-12, problem-solving, Math, Native-American, Aboriginalmath-through-culture	
This image entitled (and authored by) "Esquema Fenix-minero"was made available for sharing in Wikipedia article, "2010 Copiapo mining accident."		

GRADE 12 – ENGLISH LANGUAGE ARTS		Gr. 12
Curriculum	English Language Arts: Grade 10-12 General Learning Outcomes (all) Essential Question: eg. How can I speak to a wider audience through "texts" that interest me as a student? How can I use text and image to create graphic responses to what I learn about the human condition?	
Pedagogical Need in English Language Arts Grade 12	Students are required to comprehend and respond with critical interpretations and analysis and represent with clarity and artistry their synthesis for an appropriate audience. Students need engagement and purpose in their work. Students respond to a cause and the most practical of theories and concepts. In their responses to texts, they are able to take up active citizenship initiatives.	
ICT Support	Comic creating software	
Pedagogical benefits of using comic software	-an engaging tool that encourages both personal preference as well as reasoned judgements -is multi-purpose and results in products appealing to wide audiences	
Teacher's Overview	Concept of comics; Concept of comic use in education	
Comic-creating software	Pixton.org (internet), Comic Life (Mac licensed), bitstripsforschools (internet)	
See more at nwtcurriculumlinks	TAG samples: comics, EnglishLanguageArts30-1-2, Gr12EnglishLanguageArts	
Image GNWT. Comic Life software. Image format within application: Acrylic Comic.		

The digital camera could be considered one ICT that "levels the playing field." Digital cameras have become very affordable, capturing images and video in high resolutions. Their incorporation into the hardware of portable devices such as in smartphones and tablets enables further multi-contextual learning, bringing the "world into the classroom" throught the perspective of the student. Only a few images from one photo shoot are used to illustrate the ICTs in Part 4. This is done to emphasize how images captured during just one learning "event" can be used with the applications present in most NWT schools and others freely available on the Web. Each of the 21 examples provide:

- A broad "Essential Question" that NWT teachers may endeavor to answer in their teaching practice.
- A rationale for the use of an ICT in the pursuit of those "Essential Questions."
- Introductory instructions to get started.
- An illustration of an actual digital product made with that ICT.

With our society's increasing use of digital photography and photo sharing, becoming familiar with the spectrum of licenses that digital images are now made available under is essential for educators. Photo sharing means that other users can view but not necessarily download the photos; users are able to select different copyright options. Students regularly find images at image sharing sites such as Google images, Flickr, Picassa, etc. that they wish to use in projects. Even though the law is making it easier for students to do this without asking permission, it is the schools responsibility to prepare students for life after graduation when they will be required to attend to the wishes of the photo creator.

These licenses range from images that remain copyrighted ("All Rights Reserved") to those that permit various types of sharing with Creative Commons type licenses ("Some Rights Reserved"). Understanding this license "continuum" is essential for leading students to use other's and their own intellectual property in an ethical manner. More can be learned about licensing of intellectual property on p. 158 and 159.

HAIGA (ELA, Social Studies, ALC, etc.)

Essential Curricular Questions:
- How can I support my students in the quest to privilege greater critically thinking and description in fewer words?
- How can my students capture a visual "text" to illustrate and reinforce written text?

ICT-Supported Learning: Japanese poetry form called Haiga. Traditional Japanese Haiga merges word processed text and art. Contemporay Haiga can use digital images. See examples: haigaonline.com

Procedure Overview:
1. Teachers and students co-create criteria in a rubric for
   - what their best digital still shot would look like before shooting
   - qualities for "my best haiga"
2. Students shoot digital photos of ideas they are learning about in some discipline
3. Chicken or egg. The class can decide whether the words of the haiga come before or after viewing/shooting a digital image
4. Using Microsoft Word, the student merges text and image (Insert>Picture); to move image about, select image (Format>Position>More Layout Options>Text Wrapping>In Front of Text); place text near the image (Insert>Text Box>Draw Text Box); input chosen text; drag text box to chosen location
5. Use rubric to determine if the final merger of text/image is a powerful blend—without one distracting the reader's attention from other

This honest land exceeds my expectations

Image used with permission of Blake Wile

CARTOONING-COMIC MAKING SOFTWARE (ELA, Social Studies, Science, Math, ALC, etc.)

NEXT WEEK, OUR CLASS IS GOING TO THE ANNUAL SPRING MUSKRAT CAMP
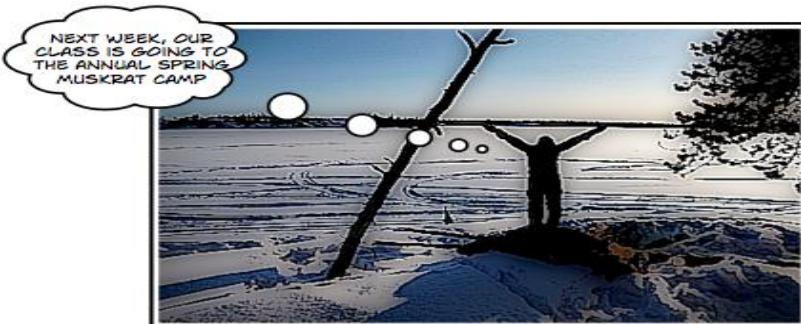
Image used with permission of Blake Wile

Essential Curricular Questions:
- How can I engage my students in descriptive and expository writing?

ICT-Supported Learning: Merge student-written text with digital images in a cartoon environment. Example shown: Comic Life software- image in "Acrylic Comic" style

Procedure Overview:
1. Choose your page template
2. Import your image
3. Choose a style for your image
4. Drag in and fill speech balloons

CARD MAKING (ELA, Social Studies, Health, ALC)

Essential Curricular Questions:
- How can I build the identity of my students and of community human resources?

ICT-Supported Learning: Merge student text with digital images in mini-business or regular business size cards, post cards. Example shown: Moo mini-card

Procedure Overview:
1. Upload images to company's online templates; reframe images
2. Place "business" text on back
3. Purchase and company ships

Images used with permission of Blake Wile

Blak   wi
8 T   Yellowknife, NT, X   867 6

"Round about what is, lies a whole mysterious world of might be,--a psychological romance of possibilities and things that do not happen."   Henry W. Longfellow

DIGITAL STORYTELLING (ELA, Social Studies, ALC, Science, Math)

Essential Curricular Questions:
- How can my students be more engaged when explaining a process or telling a story?
- How can my students build their own story or essay elements?

ICT-Supported Learning: Merge student-written text with student-taken digital images, and own recorded voice in an interactive story or essay. Example shown: PowerPoint slides (see p. 156).

Procedure Overview:
1. Place image (Insert>Picture) and text on the same slide—making both critical and creative decisions about the text-image relationship
2. Use a microphone connected to record your reading of the text (Slideshow>Record Slideshow)
3. Insert forward and backward buttons (Insert>Shapes>Action Buttons)

Image used with permission of Blake Wile

WIKIPEDIA EDITING (ELA, Social Studies, ALC, Science, Math, etc)

Image used with permission of Blake Wile

Essential Curricular Questions:
- How can specific students gain a worldwide audience for their digital photos that are worth sharing?

ICT-Supported Learning: Teaching students to be "prosumers" not only consumers of other's information by sharing images to improve a Wikipedia article. Example shown, Wikipedia article, "Winter"

Procedure Overview:
1. Find a Wikipedia article related to curricular study or student interest
2. Find an image at or donate an image to Wikimedia Foundation that will improve the Wikipedia article
3. Upload to the article (see p. 158, 159)

INTERACTIVE SLIDESHOWS (ELA, Social Studies, ALC, Science, Math, etc)

Essential Curricular Questions:
- How can my students develop critical thinking about the identity and importance of imformation contained in images?
- How can my students use shared music?

ICT-Supported Learning: Merge student-captured images with student-written text ("hotspots") with shared music to create an interactive slideshow. Example shown: Vuvox panorama (vuvox.com)
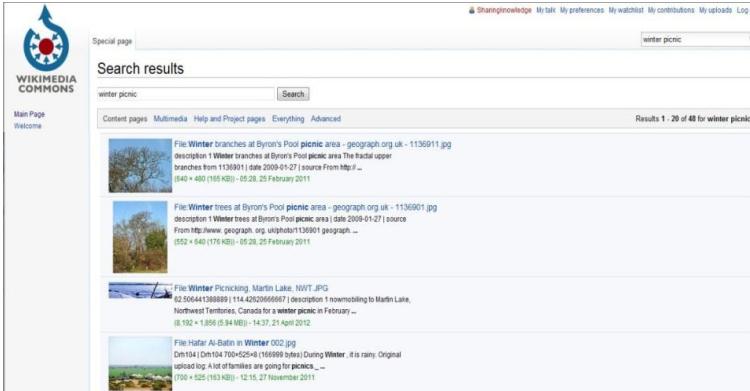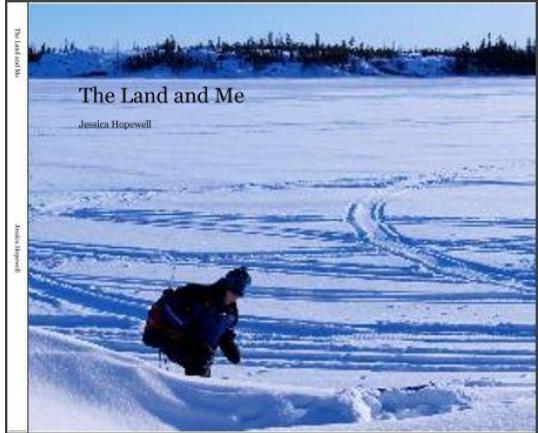
Procedure Overview:
1. Import images, and shared music files into software
2. Create detail descriptions or "hotspots"
3. Give credit to authors of share images and music
4. "Publish" to public or keep private

Image used with permission of Blake Wile

HYPERTEXT (ELA, Social Studies, ALC, Science, Math)

Essential Curricular Questions:
- How can I teach my students that being literate means being able to interact with the internet?
- How can I teach my student writers to use hypertext to let their readers go more deeply into their message?

ICT-Supported Learning: Hyperlink critically choosen text to increase reader's understanding according to the purpose of the text (see p. 154).

Procedure Overview:
1. Students input their text into a word processor
2. Key words that are worth going into depth on are hyperlinked to the Web (Insert>Hyperlink)
3. Student "insert" shared or original images that illustrate their point (Insert> Picture); to move image about, select image (Format>Position> eg. More Layout Options>Text Wrapping>In Front of Text)

Land and Identity

My people came to Canada in 1750 on the Ship Anne from Frankfurt area of Germany. The draw was to be able to own land and work it for a living. Owning land would never be a poor man's possibility in Germany at that time. If we swore to be loyal British citizens, came to Nova Scotia, worked off the costs of our passage (called "freights") in Halifax on public works for the new capital of Acadia or Nova Scotia (Latin for "New Scotland"), we would be granted land, victuals, and implements to work the land.

The land actually "belonged" to the original peoples, the Mi'kmaq. Through many struggles and partnerships, the Germans, Swiss, and Montbeliardians found a way to live together in Lunenburg County, Nova Scotia.

The idea of shared land has become clearer to me in the NWT. Here land is used collectively within a respectful understanding that most of it belongs to Aboriginal people. To be able to use the land in all its honest starkness and vastness is humbling and "centering" for the human spirit. Certainly quiet time "on the land" helps one identify the important things in life—those required for survival...

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DEVELOPING COLLECTIVE INTELLIGENCE BY SHARING DIGITAL IMAGES (ELA, Social Studies, ALC, Science, Math, etc)

Image is opensource.

Essential Curricular Questions:
- How can I teach my students that citizenship involves sharing?
- How can I teach my students that the world is very interested in certain aspects of their culture and lifestyle?

ICT-Supported Learning: Add critically chosen, student captured images to a public source of shared photos. Example shown: Wikimedia Commons (see p. 158, 159).

Procedure Overview:
1. Shoot a digital image
2. Upload to Wikimedia Commons; choose a sharing license; provide a caption; copy and save the code that is provided in case you want to post the photo in a wiki, website, or blog

PUBLISH A BOOK (ELA, Social Studies, ALC, Science, Math, etc)

Essential Curricular Questions:
- How can my students collect their best critically taken and chosen images in a place that invokes a sense of pride?
- How can students publish books?

ICT-Supported Learning: Merge student text and images in layout templates that are provided or can be customized. Example shown: cover of a "Blurb" book

Procedure Overview:
1. Open a free account with a book publishing co.
2. Choose a style of book and cover, and page layouts
4. Drop and drag images on to the templates
5. Add text on desired pages before purchasing

Image used with permission of Blake Wile

21 WAYS TO USE DIGITAL IMAGES

MINDMAPPING (ELA, Social Studies, ALC, Science, Math)

Essential Curricular Questions:
- How can my students communicate their prior knowledge and experiences in a more illustrative and engaging way?

ICT-Supported Learning: Merge text with digital images in a mindmap. Example shown: XMind.net

Procedure Overview:
1. The learner uses mindmapping software to collect thoughts about what is known / desired to be known about a curricular topic.
2. Import/ "insert" an image(s) into the mind map that sets a tone for a central idea. Similarly, illustrate sub-topics.
3. Export the mindmap as an image to use in presentation software such as PowerPoint or Keynote.

Image used with permission of Blake Wile

DEVELOPING COLLECTIVE INTELLIGENCE BY SHARING DIGITAL IMAGES (ELA, Social Studies, ALC, Science, Math, etc)

Image used with permission from glogster.com

Essential Curricular Questions:
- How can student engage in descriptive and expository writing?

ICT-Supported Learning: Merge student-written text with digital images in a electronic poster environment—in this example, called a "glog" (graphical blog). Example shown: from edu.glogster.com

Procedure Overview:
1. Get a free account
2. Choose the type of glog you would like to use
3. Upload an original digital image to one of the "stickies" areas
4. Continue to build
5. Share glog with wiki, blog or website using the code provided

CONDUCT A WEBQUEST TO BUILD DIGITAL CITIZENSHIP (ELA, Social Studies, ALC, Science, Math, etc)

Essential Curricular Questions:
- How can I teach my students the textual/visual cues to who owns the textual, audio, video, and image content found on the web?

ICT-Supported Learning: Navigate the web to the details page behind Wikipedia images, a growing source of excellent images for education. Example image shown: Wikipedia article, "Winter"

Procedure Overview:
1. Perform a quest on Wikipedia to determine how someone's intellectual property can be used
2. Teacher provides the URL. After finding the image in Wikipedia and double-clicking it, the details about the image are provided, including the license provided by the author
3. Students learn how they may use and share the image based on what the author said (see p. 144)

WEBQUEST
WHAT IS INTELLECTUAL PROPERTY? WHAT IS COPYRIGHT? WHAT ARE CREATIVE COMMONS LICENSES?

ESSENTIAL QUESTIONS: Who owns this picture? Can I use it? What does the creator of this image ask me to do in order to use the photo?

1. Go to Wikipedia.org
2. Search "winter"
3. double-click the image
4. Who is the "Author" of the image: _____
5. What two "freedoms" is the author allowing us with the use of his/her image? _____
6.

Image used with permission of Blake Wile

PARTICIPATION IN GLOBAL NETWORKS (ELA, Social Studies, ALC, Science, Math)

Essential Curricular Questions:
- How can students develop their identity by showing their creativity to a worldwide audience of students?

ICT-Supported Learning: Participate as an individual, class or small group in a worldwide network of youth. Current national or global topics and systemic problems can be collectively addressed. Example shown: TIGed (Taking It Global)

Procedure Overview:
1. Join a youth network
2. Import your image/artwork/caption

Image and screenshot used with permission.

VIRTUAL MUSEUM (ELA, Social Studies, ALC, Science, Math, etc)
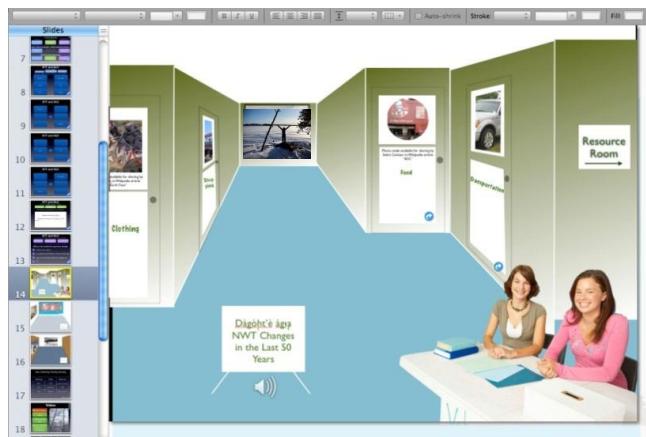
Image GNWT.

Essential Curricular Questions:
- How can my students be empowered to create a place of their own choosing?
- How can my students go into depth with engaged rigor?

ICT-Supported Learning: Create a building or virtual museum of a curricular topic. Each room is a subtopic of the key idea presented in the "foyer" of the museum. NOTE: PowerPoint software creates trapezoids easier than Keynote

Procedure Overview:
1. Use presentation software to draw floors, ceilings, walls, and signs using rectangles and trapezoids
2. Insert>Pictures on slides or other media
3. Link to other rooms (slides) by selecting an object that will become the "hotspot", then Insert>Hyperlink>Place in this Document>select the slide to link to (see p. 149)

DEVELOPING CRITICAL THINKING SKILLS (ELA, Social Studies, ALC, Science, Math, etc)

Essential Curricular Questions:
- How can image-oriented students develop critical thinking about curricular inquiries?
- How do images provide clues to draw conclusions?
- How can students learn to make reasoned judgements through careful observations and inferences using images?

ICT-Supported Learning: Student or teacher-captured images can be used to ask who, what, where, why, or how type questions as prompts to consider the clues in a photo before drawing a conclusion. With engaging images, teachers can ask students to suspend judgement until more/all facts are considered—sometimes relying on inferences when clues are not present.

Procedure Overview:
1. Import and resize original images or images from sharing sites into a word processor (Format>Position>More Layout Options>Text Wrapping>In Front of Text); place text for a caption (Insert>Text Box>Draw Text Box).
2. Create tables in which to ask prompting questions.
3. Project the "critical thinking poster" for class/small groups.
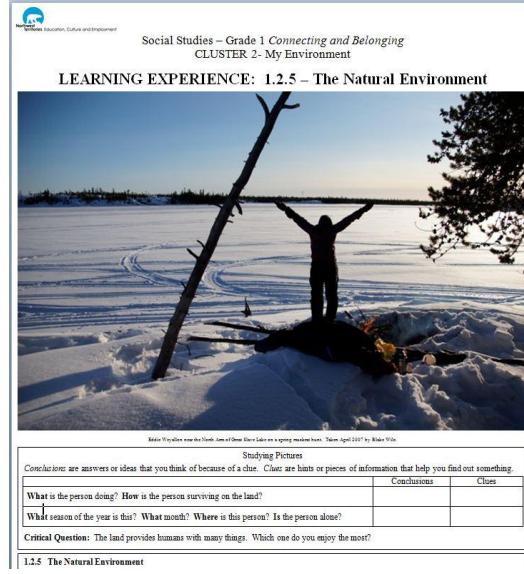
GNWT image

## BLOGGING (ELA, Social Studies, ALC, Science, Math)

Essential Curricular Questions:
- How can I support students to develop their personal "journaling voice" in illustrated blogs?

ICT-Supported Learning: Merge student text with personally-captured images in safe, class-only blogs. Example shown: kidblog.org

Procedure Overview:
1. Get a free class blog at kidblog.org
2. Students can post text and images in pursuit of curricular learning/inquiry

Images used with permission

AVATARS (ELA, Social Studies, ALC, Science, Math, etc)

Image GNWT.

Essential Curricular Questions:
- How can my shy students indirectly give voice and projection to their personalities and ideas?
- How can my students project their personas using engaging avatars?
- How can avatars be used to bring a "human touch" to my class wiki or school website?

ICT-Supported Learning: Create an avatar. Using critical thinking, make decisions about the character's setting, appearance, voice, and message.   Example shown: voki.com

Procedure Overview:
1. Get a free account
2. Choose all features of the character, one of which is the choice of background
3. Upload your image as the background, providing mood for the avatars comments
4. Share or "publish" your avatar's special "widget" code to your blog, wiki, or website

DIGITAL PAINTING (ELA, Social Studies, ALC, Science, Math, etc)

Essential Curricular Questions:
- How can I provide a "head start" for students who need encouragement to express their artistic skills?
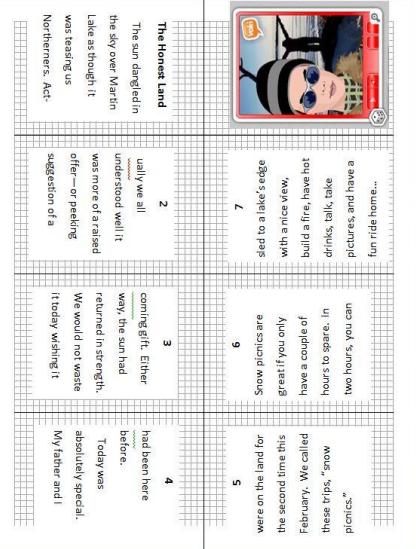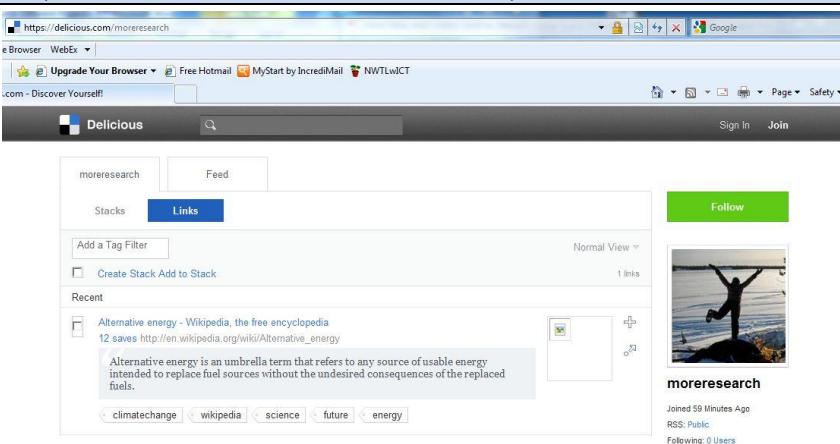
ICT-Supported Learning: Import a student-taken image into a digital "finger painting" app. Students can draw or enhance elements in the image. Example shown: tablet app, "Brushes"

Procedure Overview:
1. Images are taken by students on a tablet that has a camera
2. Brushes, a tablet app, can import your photo as the "base layer" of paint or your starting point
3. Choose brushes and colors to enhance or add features not present in the photo (in this version of the photo, a mature fire has been painted that was actually there an hour before the image was captured)

Image used with permission.

SAFE PROFILES (ELA, Social Studies, ALC, Science, Math)

Essential Curricular Questions:
- How can my students develop a simple web page?

ICT-Supported Learning: Use a free educational wiki to collect and present learning. Illustrate with student-captured images (http://bit.ly/NBSI1C)

Procedure Overview:
1. Get a free wiki. Use a name in the URL that reflects the work being done.
2. Selects "Projects" if group work is taking place.
3. Import spell-checked, word processed text and images that illustrate the learning.

Livingwiththeland

☆ home   Edit   0

Welcome to Living with the Land Wiki

photo credit: Jay Hopewell

Purpose
The purpose of the wiki is to talk about and show the way NWT people experience the land.

Images used with permission

MINI-BOOKS (ELA, Social Studies, ALC, Science, Math, etc)

Image GNWT.

Essential Curricular Questions:
- How can I encourage reluctant writers to students?
- How can I use my avatar (p. 139) "profile" to make a cover for a mini-book?

ICT-Supported Learning: Create a mini-book that uses a screenshot of the student's avatar for a cover. Import the image into the page and type expository or narrative text onto the seven available pages. Once the book is folded, cut and refolded, a little mini-book is ready to be shared or given away. Example shown:word processed page.

Procedure Overview:
1. Create or find a template such as the one in the illustration. Import a photo as a cover and rotate it in the manner shown (Insert>Picture)
2. Draw text boxes (Insert>Text Box>Draw Text Box) and type text well away from the edges of each 1/8 box as shown in the 8.5 x 11 example. Rotate each box and move into the 1/8 space. Print page.
4. A. With paper in portrait position, fold in half (east-west fold). B. Again in the portrait position, fold in half (north-south fold). C. Finally, hold the long rectangle shape in a portrait position and fold in half (east-west fold), making a little book. Now open paper to the last fold you made at B. Cut along a fold to the middle starting from the folded edge of the paper.
5. Open the whole paper again to original 8.5 x 11 size. With paper in landscape position, fold through the middle making a east-west fold. Push ends of paper toward middle. Fold into the mini-book shape. Share the book.

SAFE PROFILES (ELA, Social Studies, ALC, Science, Math, etc)

Essential Curricular Questions:
- How can I show my students what a safe internet profile is like?

ICT-Supported Learning: A group of students are researching a list of online resources that will support further inquiry in their topic area. They make safe settings for their social bookmarking account profile.

Procedure Overview:
1. Create a username that describes their work ("moreresearch") not their names.
2. Upload an image that does not reveal facial features.

Image used with permission.

The purpose of Part 5 is to provide a number of templates that can be used with students when conducting inquiry. A number of important pedagogies would bring them into use:

- Co-created rubrics that make students partners in their own learning plans and assessment
- Internet inquiry logs that trace the path of Web sites used and helps assess the suitability of the contents for the inquiry
- Webquests as a way to assist students in independent discovery and ethical use of Web information - such as finding out who owns the desired intellectual property on the Web and what rights a user has to repurpose that information
- Storyboards to plan how to balance image and text within a digital presentation
- Digital photography criteria to provide development in "having a good eye" when shooting
- "Room" thumbnails as a storyboard to plan a non-linear representation--in this case a virtual museum

These tools are found in Microsoft Word format on the CD that accompanies this paper version of the Infusion Guide. They will also be available at the GNWT Education, Culture and Employment website in 2012-2013.

RUBRICS (Fill out electronically using a word processor)

QUESTIONS ABOUT INQUIRY: How important is the criteria the **teacher** requires for this inquiry--5 points (lesser importance) or 10 points (greater importance)? What criteria does the **student** want to accomplish in this inquiry and with how much weight?

TOOLS: Teacher and Student. <u>First</u> name and weight each of the criterion by typing it into the white "Criteria" cell and by copying and pasting the appropriate line of "points" in the blue bar. <u>Last</u>, show what small efforts (1, 2 points…) and larger efforts (4,5 points) will look like by filling in the five cells.

1	2	3	4	5
2	4	6	8	10

<u>INQUIRY TITLE:</u>

Task Requirements from the Teacher:

CRITERIA:

2	4	6	8	10

CRITERIA:

2	4	6	8	10

CRITERIA:

1	2	3	4	5

Task Requirements from the Student: (add own point weight)

CRITERIA:

CRITERIA:

Comments:

TOTAL POINTS:	/ __

ELECTRONIC INTERNET INQUIRY SEARCH AND EVALUATION LOG

Show your choices by cutting and pasting the black-centered circle (◉). Word process your search experiences.
(NOTE: Find "Owner" is intended for Grade 6-12 students to evaluate credibility of sources)

Search Tool Used (broadening; narrowing, "checking out the source") Meta Search Engine: ○ixquick, ○ metacrawler Search Engine: ○ ask, ○ instaGrok ○ google, ○ bing, Directory: ○ kids.net.au Public Knowledge/Bookmarks: ○ Wikipedia ○ Delicious Find "Owner": ○ who.is (Web search the owner if in doubt)	My **1st** Search Phrase:
Next Steps and Comments	
Search Tool Used (broadening; narrowing, "checking out the source") Meta Search Engine: ○ixquick, ○ metacrawler Search Engine: ○ ask, ○ instaGrok ○ google, ○ bing, Directory: ○ kids.net.au Public Knowledge/Bookmarks: ○ Wikipedia ○ Delicious Find "Owner": ○ who.is (Web search the owner if in doubt)	My **2nd** Search Phrase:
Next Steps and Comments	
Search Tool Used (broadening; narrowing, "checking out the source") Meta Search Engine: ○ixquick, ○ metacrawler Search Engine: ○ ask, ○ instaGrok ○ google, ○ bing, Directory: ○ kids.net.au Public Knowledge/Bookmarks: ○ Wikipedia ○ Delicious Find "Owner": ○ who.is (Web search the owner if in doubt)	My **3rd** Search Phrase:
Next Steps and Comments	
Search Tool Used (broadening; narrowing, "checking out the source") Meta Search Engine: ○ ixquick, ○ metacrawler Search Engine: ○ ask, ○ instaGrok ○ google, ○ bing, Directory: ○ kids.net.au Public Knowledge/Bookmarks: ○ Wikipedia ○ Delicious Find "Owner": ○ who.is (Web search the owner if in doubt)	My **4th** Search Phrase:
Next Steps and Comments	

GROUP WEBQUEST: WHO OWNS THAT IMAGE? CAN I USE IT?

Follow the steps below to discover information about the image that users who want to use the image need to know (NOTE: If possible complete this work electronically using a word processor).

1. Open your internet browser (eg. Internet Explorer, Safari, Firefox, etc.) and choose a search engine (eg. Ask, Google, Bing, etc.).

2. Search "winter". Choose one of the top hits entitled, "**Winter – Wikipedia, the free encyclopedia**"

3. Scroll down until you see this image (near the bottom). If this image is no longer in the article, choose another image shown there.

4. Double-click the image. Scroll down to "**Author**". What name is the author using?

_____

5. What is the "**Description**" of the image? When was the photo taken?

_____

6. Perhaps your group would like to use the photo sometime for a project. What permission in the "**Licensing**" section is the author giving to you for use of the photo? You are "free" to…?

_____

7. What "**conditions**" is the author placing upon use of the photo? (NOTE: "attribution" usually means the author's name)

_____

8**. As a group**, now look at the rest of the photos in the "Winter" article. Talk about which photo:

Best creates a "surprised" reaction in an audience? _____

Best tells a story? _____

Best shows what winter is really all about? _____

8**. As a group**, talk about what winter photo is "missing" from the article. What NWT winter photo could you or your group take that could improve the article?

_____

WEBQUEST: WHO OWNS THAT WEB SITE? CAN I TRUST THE INFORMATION?

You are searching the Internet and want to know "who" is behind the information you have found. This could be easily done with the "Contact Us" menu or button at the Web site. If there is no "Contact Us", you will have to do some detective work. A Domain Finder can help you trace who is responsible for the information. Search that name on the Web to see what the world knows about that person or organization. Decide how much you can trust the accuracy of the information.

Is this image believeable? Why or why not? Image made available for sharing by user Mmxx in Wikipedia article, "Adobe Photoshop"

1. What topic are you searching? _____. Does the information on your Web site appear to be owned or "hosted" by a large organization, government, or news service? Check for these:

     _____ Does the URL (Web address) have "gov" at the end, or "u…" maybe indicating a university?

     _____ Does the URL have a media type name in it such as "gazette", "post", "cbc", "nbc", "news"?

     _____ Does the URL end in ".edu" or ".org" indicating the domain, or type of website, is an organization?

2. Does your website have a "Contact Us" menu or button?   _____ yes   _____ no

3. If you still cannot determine who is behind the information, copy the URL and then simply type over the top of the URL, "who.is".

4. You are now looking at a Domain Finder called "who.is". Paste your copied URL into the "who.is" search field, select "information" in the pull down menu, and press "Who.is Search" (see screenshot below).

5.   Notice who the owner is in the "Contact Information." Search that name in a search engine (eg. Google, Bing, Ask, etc.) to learn more about that organization or individual. Can you trust the information? Why or why not?

DIGITAL STORYTELLING WITH STORYBOARDS

Use this template to plan the sequence, text, and audio for your digital presentation (NOTE: If possible, complete some/all of this work electronically using a word processor).

SLIDE SEQUENCE
What graphics do I want to use to communicate my message? In what order?
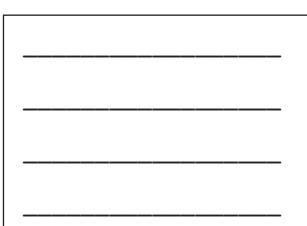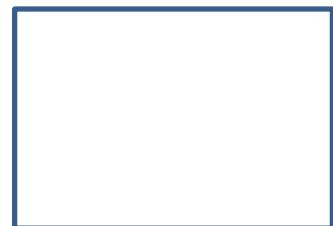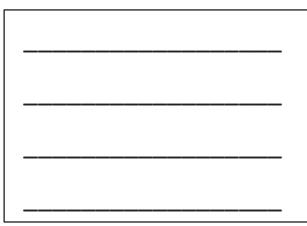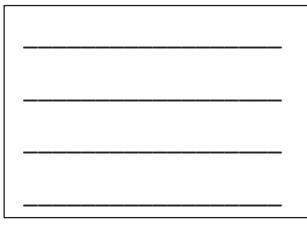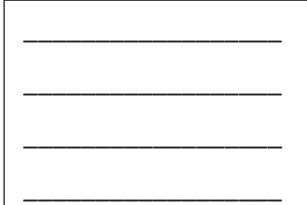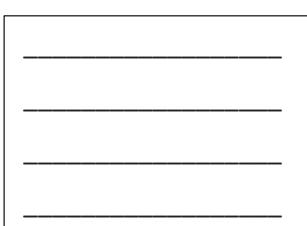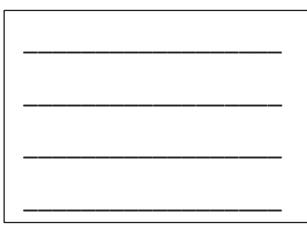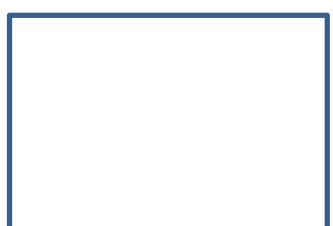
AUDIO/TEXT to MATCH
What words will I type or audio will I record in my digital presentation software to accompany each slide?
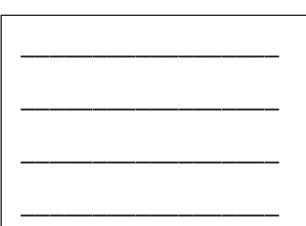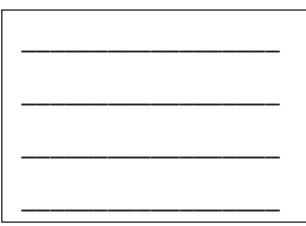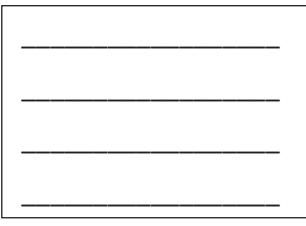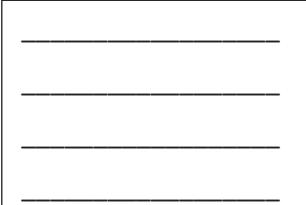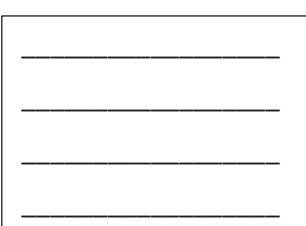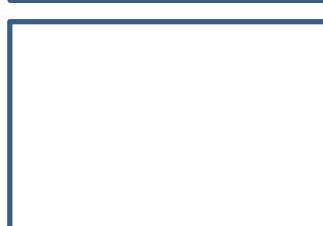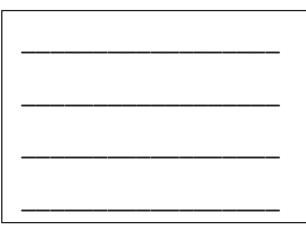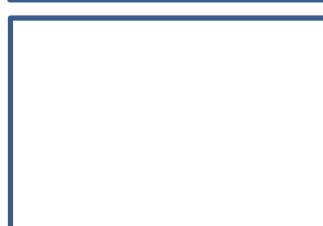
DIGITAL PHOTOGRAPHY: COMPOSITION IDEAS FOR YOUR IMAGES

Research assignments and projects can be enhanced with illustrating images captured locally. Use this template to help you imagine how your community might have objects, people, places, etc. that could make great digital photos by matching some of these composition qualities:

Surprises in my town …

surprise

Photo credit: public domain. Landing at St. Martin Island

Imagine if …
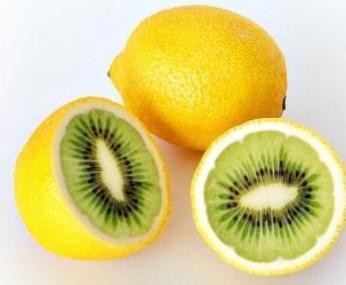
imagination

Photo credit: Manuel (Diskussion) and AKA. In Wikipedia article, "Photoshop Contest"

Funny things, situations, events, etc. in my community…

humorous

Photo credit: B. Wile

I know a picture that would make people …

the senses

Photo credit: Kitz000 in Wikipedia article, "cake"

When I think about relationships …

life forms

Photo credit: B. Wile

I feel such awe and respect when …

on the land

Photo credit: B. Wile

DIGITAL PHOTOGRAPHY: DESIGN ELEMENTS IN YOUR IMAGES

Research assignments and projects can be enhanced with illustrating images captured locally. Use this template to help you imagine how your community might have objects, people, places, etc. that could make great digital photos by matching some of these design elements:

Placing objects along the two vertical and horizontal lines—or where they meet--creates interest, tension, and energy …
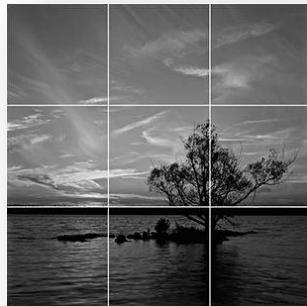
line: rule of thirds

Image made available for sharing by user:Moondigger in Wikipedia article, "Rule of thirds"

Focus on one particular object and let the rest fade away …

space: depth of field

Image made available for sharing by PiccoloNamek in Wikipedia article, "Depth of field"

Placing certain colors against certain background …

color

Photo credit: B. Wile

Light in the mornings and evenings make me see and feel …

form: light-mood

Photo credit: B. Wile.

The surfaces of some things seem to feel …

texture

Photo credit: B. Wile

Some shapes create tension—others comfort and rest …

shape

Photo credit: B. Wile

DESIGNING YOUR VIRTUAL MUSEUM

A student (or teacher) can design a virtual museum to house and eventually show learning by using PowerPoint digital presentation software. Each room that you design and fill with your learning (pictures, text, audio, etc.) is a separate slide that is linked to the doors in your museum lobby. Below, plan your museum's large rooms to give an audience a rich learning experience! Don't forget to have a resource room that shows your bibliography. Learn how at http://bit.ly/bGCzE

Welcome to the NWT Communities Virtual Museum

Culture

Economy

Language

People

Resou
Roo

Rosie Ross

Click the Foyer Music On
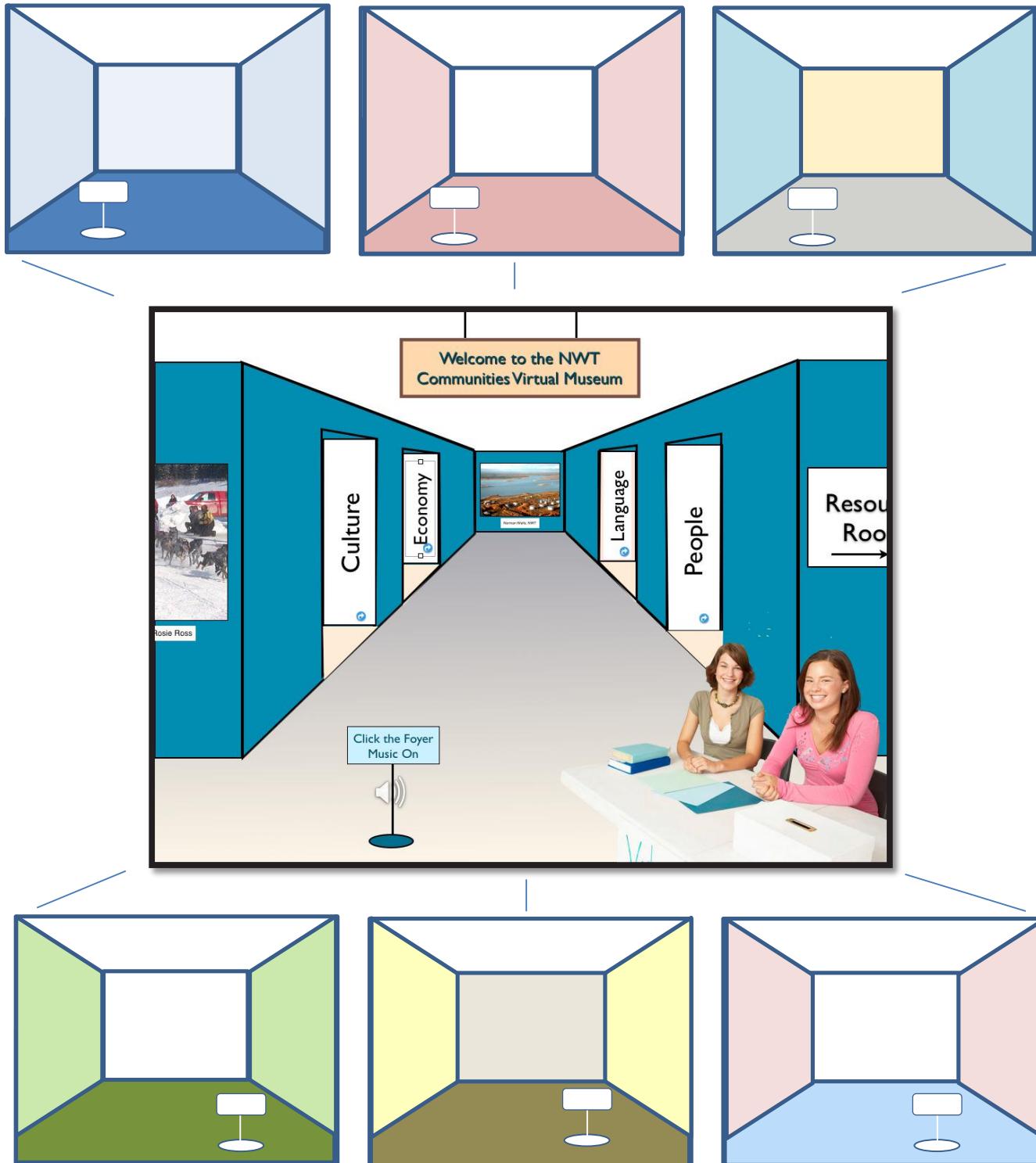
BRING YOUR OWN DEVICE TO SCHOOL (BYOD) STUDENT AGREEMENT

1. This "registration form" is intended to be filled out by any student interested in using their mobile digital device (tablet, smartphone, etc.) during a course. No unregistered use of personal digital devices is acceptable in this class.

Name: _____

Teacher: _____

Class: _____

Device: _____

(smart phone/ tablet users) One of my Favourite Apps: _____

2. (smart phone users)I would be willing to download the following <u>apps</u> for classroom use:

_____ mind mapping	_____ dictionary	_____ graphing calculator
_____ painting	_____ notetaking	_____ encyclopedia
_____ voice recognition	_____ digital presentation	_____ atlas
"voice to text"	_____ photo editing	_____ mapping and locating
_____ polling	_____ GPS related apps	_____ photo albums (with
_____ file converters	(geocaching)	tagging capabilities)
_____ "push" notifications	_____ _____	_____ _____

3. Circle the category(ies) above for which you would like names and suggestions of applications.

4. Other classroom uses for my mobile device: _____

5. I, _____, agree to the following "places, times, terms" of use of my mobile device in this course (check only the terms you will practice):

_____ I am willing to use my personal mobile device during this course

_____ I agree to use my personal mobile device strictly for educational purposes while in this course

_____ I agree to placing and keeping my device in the open on top of my working space

_____ I am willing to use my device in a group setting where others do not have devices

_____ I agree to placing my device on top of the teacher's desk during course assessments

_____ I am willing to instruct the class about a particular educational function of my digital device

_____ I am willing to keep my device in silent or vibrate only mode

_____ I understand that my device will be subject to the school's network filters

Illustrations of useful apps in education:

Painting with mobile app,"Brushes"; Made available for sharing in Flickr by user, mrbriandesign

Painting created with mobile app, "Brushes"; Made available for sharing in Flickr by user, ianmalcm
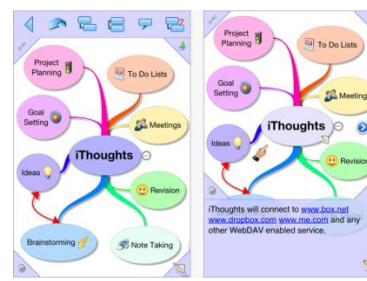
Mindmapping with iThoughts app. Screenshot used with permission.

Notetaking with iPad app, Penultimate

PROVIDING CONSENT TO USE INTELLECTUAL PROPERTY

Northwest Territories Education, Culture and Employment

GOVERNMENT OF THE NORTHWEST TERRITORIES - CONSENT FORM

Name: _____

Address: _____

Phone: _____ Email: _____

I hereby give the Department of Education, Culture and Employment (the Department), Government of the Northwest Territories (the GNWT), permission to record and/or reproduce my

___ photograph   ___ web image

___ moving image   ___ audio clip

___ participation in activity/meeting/conference/event

Please
specify:_____

and I waive any proprietary rights I may have to them. I understand that the Department may wish to use my permission in a number of ways, including on government websites, or in government publications or advertising, to provide information to the public and/or promote government programs and activities, and I grant them permission to do so.

I hereby release the Department, the GNWT, its employees, officers, agents and subcontractors from and against all claims, actions and liability for damages, losses or expenses of any sort which may arise in connection with the use of these likenesses.

I acknowledge I have read and understood the contents of this form, and have been given full opportunity to discuss the implications of this consent of my own free will and my decision is not based upon representations or advice by representatives of the Department.

I hereby give my consent, dated this _____ day of _____, 20___.

Signature of subject: _____

Signature of Parent or Guardian if subject is under age 19:

_____Print Name:_____

Refusing to sign this form will not result in any adverse effect upon rights, benefits or services currently provided by the GNWT.

The following pages display only a small sample of effective information and communication technologies available for K-12 students. Three kinds of information are presented here:

Instructions:
- Emphasis on applications already on most NWT school computers and on web-based tools that can provide cross-curricular ICT lesson support.

Plans:
- Suggested planning tool for teachers to develop their ICT skills in a sequenced fashion over three years.
- Schedule of professional ICT learning opportunities delivered through one hour web conferencing sessions from 3:45-4:45 PM throughout the year. The topics presented will be complementary to DVD tutorial topics made available to all teachers.

Licensed and Unlicensed Resources:
- MediaSmarts (formerly known as the Media Awareness Network) resources are increasingly being used by schools across Canada. The GNWT Department of Education, Culture and Employment licenses three tools for students, teachers, and parents. These tools prepare all users of Internet-based information and communication tools to be well informed about:
  - Online privacy, identity, and safety.
  - Information credibilty and authentication.
  - Media techniques used to persuade viewers.
  - Ethical use of the Web sources and handling of intellectual property.
- Freely available parent guide to *LwICT*.

STUDENTS AND HYPERTEXTING

One way to add value and depth to student-written work is hyperlinking additional web-based information as shown below:

Reading and writing as usual from left to right and then down

What Joe was expecting: gold, rubies, diamonds, emerald ...

What Joe was expecting: gold, rubies, diamonds, emerald ...

gold

rubies
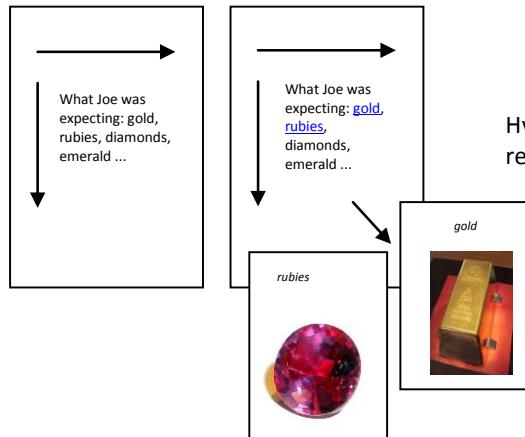
Hyperlinking adds another dimension: reading and writing "deep" into the web

PHOTO CREDITS: gold photo made available for sharing by user PHGCOM in Wikipedia article "gold"; ruby photo made available for sharing by user Louise Oriole in Wikipedia article "ruby."

Notice how this student's word processing (from the following story, "Treasure Hunt" written in a grade 4 ELA class) can be supported with hypertext by linking various words to useful web-based documents that would expand the reader's understanding of the student's story.

Random hyperlinking will not be helpful to the writer or the reader. The full benefit of hyperlinking occurs when the writer intentionally hyperlinks a word for a *planned* effect, and explains why during the presentation of the work. The hyperlink becomes a source of illustrations, quotes, charts and further reading for the audience's benefit. The critical process of preparing the best links expands the writer's knowledge as well. David Warlick, a technology leader in education, calls this kind of writing and reading: across, down, and **deeper**.

Treasure Hunt
by Willem Mount, April 21, 2009

At Southeast Central School it was pretty normal in 4B classroom until recess when Joe Bob found a treasure map. The word spread pretty quickly because all the students came with shovels the next day. Even Joe Bob's friends. At 10:05 when the bell for recess rang, Joe Bob was shocked at how many holes kids were digging. The map said to go back in the school. It was next to his locker. What Joe Bob was expecting: gold, rubies, diamonds, emeralds and jewels. What Joe Bob found: ten dollars, socks, pencil and shoes. Joe Bob went outside and put the treasure in somebody's hole when he wasn't looking (except the pencil because it looked cool).

-Story used with permission from Mildred Hall School and author Willem Mount

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HOW TO HYPERLINK: (eg. to information on "gold")

1. Open internet browser and use search engine to find "gold"
2. Find the article or picture you want; copy (control-C; or command-C) the URL
3. Go straight to your word processed story; highlight the word "gold"
4. In Microsoft Word, "Insert" menu; "Hyperlink"; paste the URL (control-V; or command-V) into the address line and press "OK"
5. Try out your hyperlink by pressing the "Control" button and clicking your hypertext with the mouse
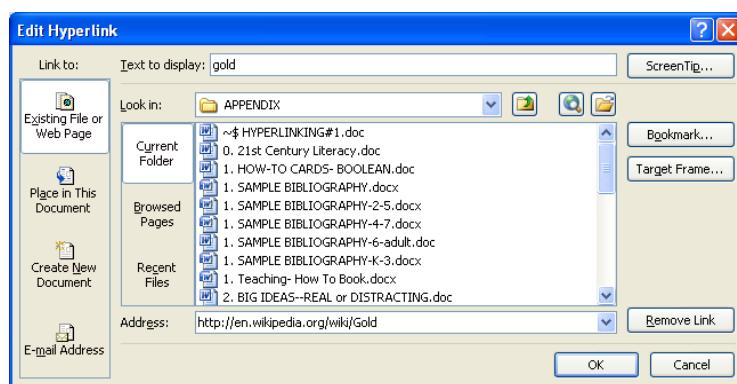
FINDING THEMES WITH WORDLE

Although Wordle identifies itself as a "toy for generating word clouds from text that you provide", it can be a useful tool to help students understand main ideas, when those ideas are based on repetition.

For example pasting Jack Layton's last letter to Canadians into Wordle (with a setting for "25 words") results in a 25 word, *word cloud*. The larger the font size, the more often the word appeared in the letter. This text representation can be helpful to reluctant readers in "text-heavy" contexts. The image is also an artistic illustration for a lesson introduction, etc.

For example, the image could be an effective illustration in a presentation when the student communicates a synthesis of their learning with a mind map (free XMind online software shown below):
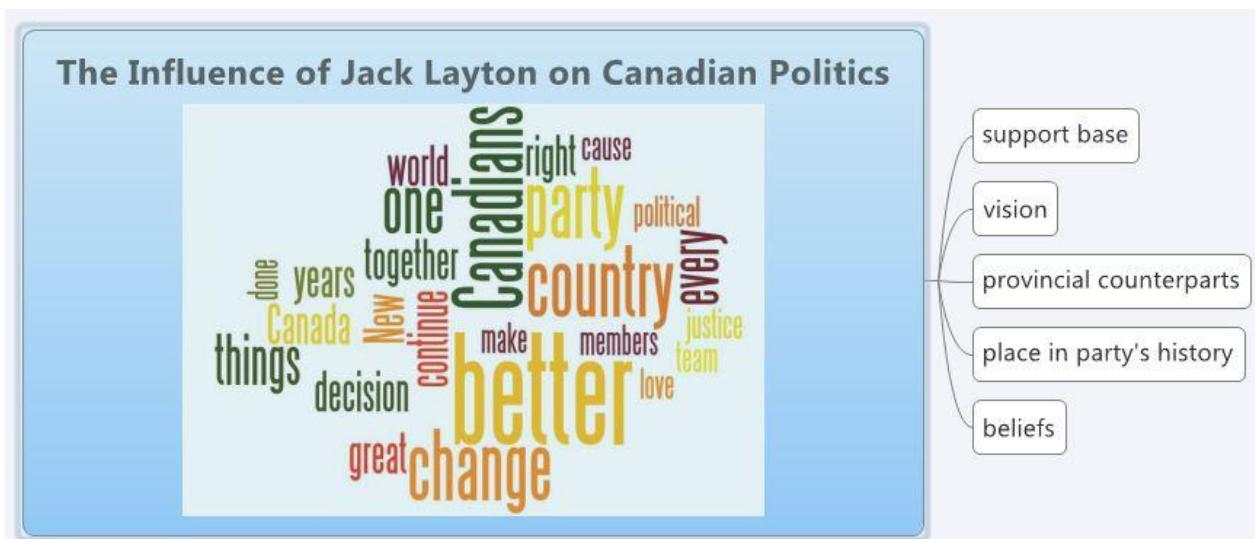
TELLING YOUR STORY AND SHOWING YOUR IDEAS DIGITALLY

Schools in the NWT have either "PowerPoint" digital presentation software or "Keynote" on most computers. These are powerful programs integrated with "sister" applications such as Microsoft Word or Pages. In other words the students will feel somewhat at home with the menus within these application groups. The purpose of students using these presentation applications is to gather and show their information, "program" the features (but not to distraction!), and to personalize their learning with multi-sensorial elements (images, audio, animations, etc.). Creating PowerPoint digital storybooks or "stand alone" presentations (users can use the presentation independently) are emphasized in these instructions.

1. Open your digital presentation application (eg. PowerPoint). Make slides ("Home" menu > "New Slide")

2. "Insert" into your slides your: background ("Design" menu), text ("Insert" menu > "Text Box"), and images ("Insert" menu > eg. "Picture" or "Clip Art" etc.)

3. Add matching sounds: **"Insert"** menu > "Clip Art" > "Select Media File Types">"Go"> double-click choice > (keep the newly appeared sound icon highlighted and go to "Animation" menu) > under "Audio Tools">"Playback"> "Start" > "On Click" or some other settings to determine when you want the sound to start > test with "Slide Show" menu ("From Current Slide")

What The Lake Taught Me
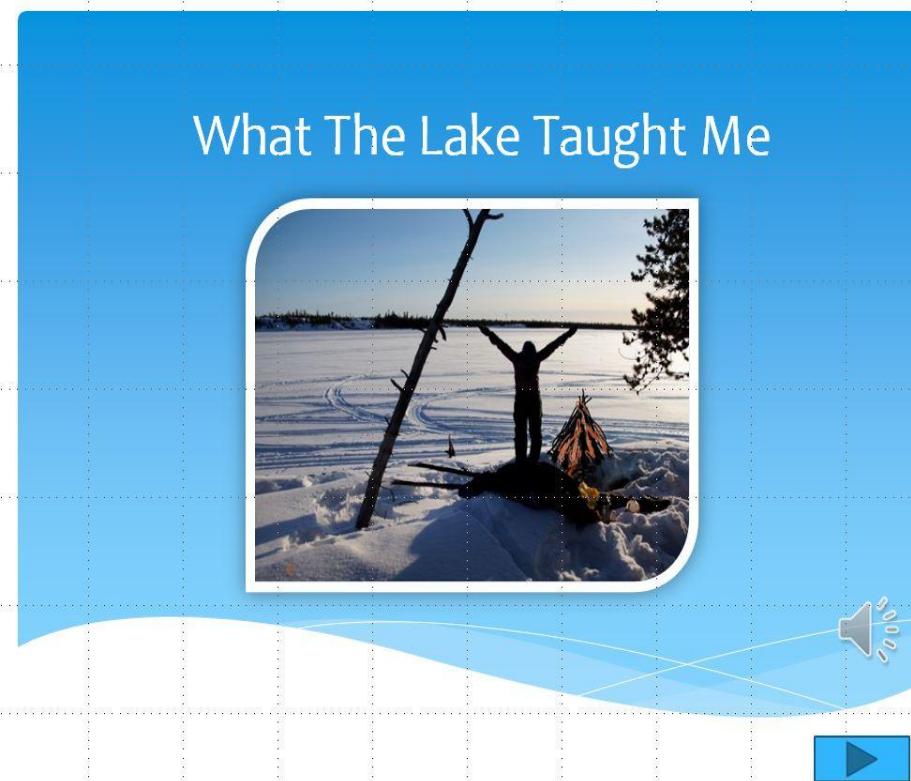
4. Add voice to a particular slide(s) using a desktop microphone. "Insert" menu > "Audio" menu >"Record Audio" > press red button (square button to stop)

5. Add navigation buttons (shown above) that hyperlink to the next slide for users to control how they enjoy your slideshow. "Insert" > "Shapes"> "Action Buttons" > "Mouse Click" (decide what slide you want to hyperlink to if different then the "Next Slide" default)

6. Add transitions to move smoothly from slide to slide. "Transitions" > (select one) > "Apply to All"

7. "Save as". Choose the name for and location of your presentation.

What the Lake Taught Me

February on Martin Lake. Seems like the sun is endless since the dark days of January.

I wanted to go on a picnic—a snowmobile picnic. I wanted to build my first "one match" fire...

SOCIAL BOOKMARKING

As the name suggests, "social booking" is when a group of people flag websites that are useful for others to visit within a web-based application such as Delicious.com.   This is done by assigning key terms to a resource called "tags". Much can be learned from tags others assign to a topic. Any teacher can go to Delicious.com and search all tagged resources selected by the general public on a topic. Or a search can be conducted just within a specific collection as shown below.

In an NWT context, ECE is creating a dynamic list of web resources that are useful for NWT teachers—called "nwtcurriculumlinks." Any NWT teacher can go to http://www.delicious.com/nwtcurriculumlinks and without a membership, search the links by typing in a query in the grey box at the top (you are feeling confident) or in the "Add a Tag Filter" (you want to see what tags pop up for your consideration). Several different filters can be used at the same time to narrow your search.

If NWT educators know of a web-based resource that has widespread relevance for many teachers, please email, blake_wile@gov.nt.ca, for its consideration. ECE will continue to curate the resource for relevance to NWT curriculum documents and program use.

Delicious accounts can be created by anyone. Once this is done, a user can add their favourite web resources to their Delicious account, or add bookmarks of others by pressing the "+" sign.

Other social bookmarking companies such as Diigo.com offer additional services worth considering.

CREATING AND SHARING PRIMARY DATA (The Concept)

The *LwICT* curriculum calls for students to collect and use primary data (while conducting course inquiries) and assess its potential for online sharing. The Grade 10-12 *LwICT* skills under "Collaboration" state the need to "weigh the advantages and disadvantages of making personal or group primary data available for online sharing."   If a high school student/group decides that primary data has some universal value, the group should consider how they would like to license their work. Beyond the automatic "all rights reserved" that any intellectual property has, other "some rights reserved" licenses used in the social media world have potential for students wanting to easily share their work. These licenses state what controls or restrictions the author has placed upon their work, or in effect, what rights the author is willing to give up to make their work available for sharing.

Large image made available for sharing by Lviatour in Wikimedia Commons.
Smaller image made available for sharing by Pristurus in Wikimedia Commons

Before sharing primary data online, critical thought must be used to assess:

- The extent, if any, of the potential commercial value.
- The rights of subjects (people) in the photo. Out of respect for the subjects in NWT student's primary data, the creator should gain the permission of the subject to use their likeness in an online photo sharing site. It is also best in the first place not to collect identifiable people (accept in big groups) that require the asking of permission.
- Whether the representation is a fair and quality depiction of the subject that would be acceptable to the person, group, or town being presented.

One of the best places to share primary data is at Wikimedia Commons (commons.wikimedia.org shown in top illustration).

For the purposes of training and modeling, the teacher (or with mature and responsible students) can demonstrate how to secure and use their own free account. How to upload and license creative work with a "creative commons" license they choose is the key point. There are helpful videos explaining Creative Commons licenses at creativecommons.org/videos/ (see illustration).

Four types of licences are available to the creator to consider: whether to make the work completely open and available ("public domain"); whether users should give them credit (called "attribution"); whether to permit users to build upon or change their work (called "derivatives"); or whether to permit others to profit from their work ("non-commercial").

CREATING AND SHARING PRIMARY DATA (The Instructions)

STEP 1: **Learn**. Go to http://commons.wikimedia.org/wiki/Special:UploadWizard. Log in or get a free account. Then, see "Upload File on left of Web page. Check that the data you want to upload meets the criteria.
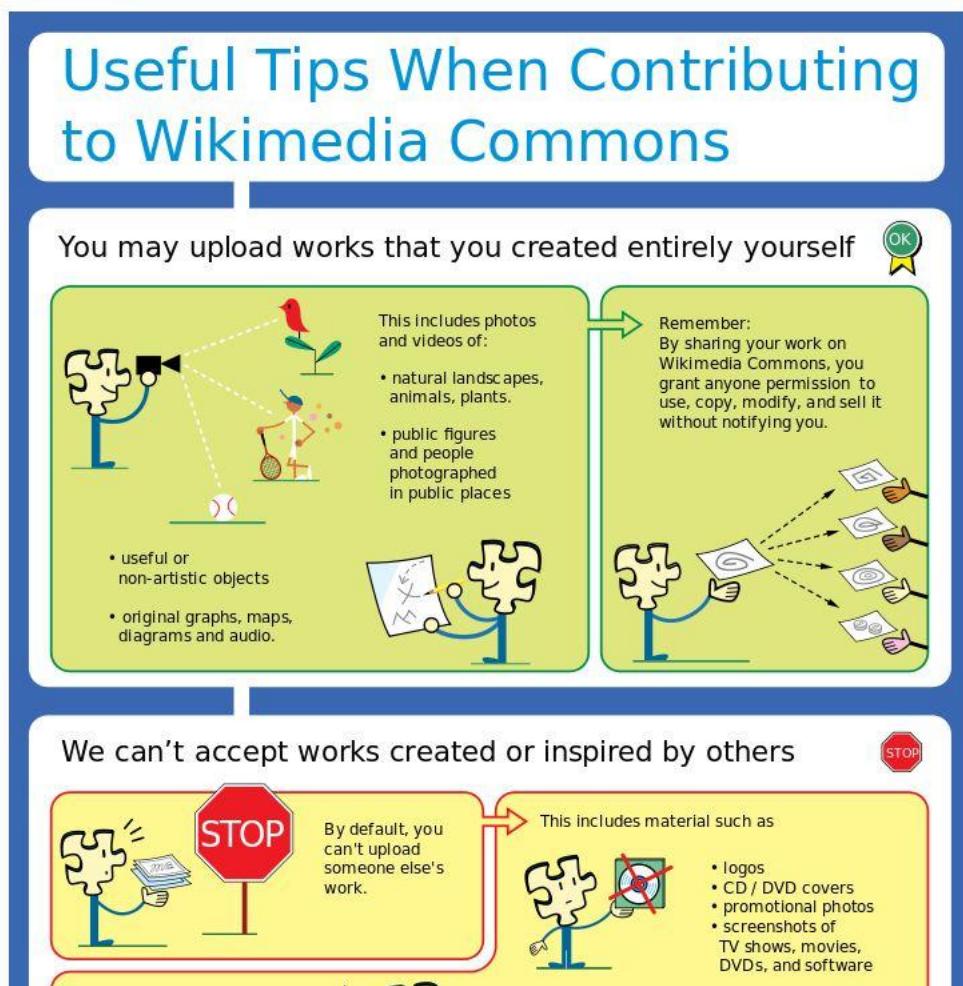

STEP 2: **Upload**. Navigate to the file you have planned to upload.

STEP 3: **Release Rights**. Choose the license that describes how much you are willing to share the image.

STEP 4: **Describe.** Write a description that will appear with the image.

STEP 5: **Use.** Copy the code somewhere in case you decide to use the image in a personal wiki or even a Wikipedia article, or other Web destinations (eg. blogs, wikis, Twitter, etc.).

SUGGESTED THREE YEAR PLANS FOR TEACHERS TO ACQUIRE *LwICT* SKILLS

A. All K-12 Skills Approach ---

This "breadth" approach is good for those who like to be exposed to a lot of technologies and how these support K-12 learning. Learning all K-12 skills enables a teacher to decide whether an ICT practice or ICT at a higher level could be useful with some or all of their students. Also, a teacher may decide to teach in a different division in the future and would have the ICT background. Exposure to many skills increases a teacher's sense of choice.

YEAR 1	YEAR 2	YEAR 3
Beginner	Intermediate	Advanced
Gr. K-6 Skills	**Gr. 7-9 skills**	**Gr. 10-12 skills**

B. One Division Skills Approach (eg. Gr. 7-9) --

This "depth" approach is good for those who want to specialize in certain ICTs and practices at a divisional level and experience moving along the continuum with their students. Repetition of ICT use within a division brings expertise.

(by Level)

YEAR 1	YEAR 2	YEAR 3
BEGINNING TO LEARN I am just beginning; I like to have lots of help (eg. approximately Gr. 7)	**LEARNING AS I GO** I am remembering from before; I still need help sometimes (eg. approximately Gr. 8)	**LEARNING AND TEACHING** I have lots of practice; I can help others (eg. approximately Gr. 9)

OR

(by Inquiry Component)

YEAR 1	YEAR 2	YEAR 3
BEGINNING TO LEARN **ICT Supported Learning during Inquiry Components:** • Planning and Questioning • Gathering and Making Sense + • Ethics and Responsibility • Social Implications • Metacognition, Motivation, Confidence	**LEARNING AS I GO** **ICT Supported Learning during Inquiry Components:** • Planning and Questioning • Gathering and Making Sense • Producing to Show Understanding + • Ethics and Responsibility • Social Implications • Collaboration • Metacognition, Motivation, Confidence	**LEARNING AND TEACHING** **ICT Supported Learning during Inquiry Components:** • Planning and Questioning • Gathering and Making Sense • Producing to Show Understanding • Communicating and Reflecting + • Ethics and Responsibility • Social Implications • Collaboration • Metacognition, Motivation, Confidence

c

LWICT INFUSION: TEACHER WEB CONFERENCE SCHEDULE 2012-2013 (GR. K-12)

PURPOSE OF WEB CONFERENCES: *LwICT* is a cross-curricular infused continuum of information and communication technology skills. The Infusion Guide, outcomes and examples poster, and exemplar lessons exists in PDF/Word formats at ECE's Web site, and demonstrates applications of critical, creative, ethical uses of ICT-supported K-12 learning. Further support is provided in DVD tutorials sent to schools, and web conferences offered throughout the year shown below in this schedule.

DEFINITION OF WEB CONFERENCE: In our NWT context, web conferencing will take the form of a presenter sharing the lesson that is on their computer screen ("sharing their desktop") with all attendees. The presenter and other participants are heard through dialing in to the conference on a telephone (saves bandwidth). Besides interacting through voice, we may turn the chat feature on for questions to be typed in to the presenter or other participants.

TECHNOLOGY-SUPPORTED LEARNING OPPORTUNITIES SCHEDULE: K-12

Web Conf. Dates	Essential Learning Question Addressed (*Why* should we use ICT?)	Type of ICT Profiled
Sept. 19 (Wed. 3:45-4:45)	How can I know my students better in a way that engages them? How can my students "collect and show" their background knowledge and experiences? How can I know about gaps in my students' use of ICT?	Mindmapping software
Oct. 17 (Wed. 3:45-4:45)	How can I teach my age 5-12 students to be safe and smart online?	MediaSmarts.ca
Oct. 18 (Thurs. 3:45-4:45)	How can I teach my age 10-18 students to think critically when online?	MediaSmarts.ca
Nov. 14 (Wed. 3:45-4:45)	How can I teach my students to narrow their online searches?	Search engines
Nov. 21 (Wed. 3:45-4:45)	How can I teach my students about ownership, authority, credibility, and attribution of online sources?	Domain Finders, Bibliography-makers
Dec. 5 (Wed. 3:45-4:45)	How can I teach my students through our inquiry practices how to respect intellectual property? Where can my students go to find media for their projects that is shareable?	Creative Commons repositories
Jan. 16 (Wed. 3:45-4:45)	How can my students capture the richness and variety of their cultures in digital stills and proudly use this media at school?	Digital media projects
Jan. 23 (Wed. 3:45-4:45)	How can my age 9-18 students collaborate locally and from great distances to construct knowledge and new synthesis?	Collaborative technologies
Feb. 13 (Wed. 3:45-4:45)	How can my age 5-18 students participate in global youth networks?	Youth networks in education
Feb. 20 (Wed. 3:45-4:45)	How can my students learn to read "right, down and DEEP"?	Hyperlinking text
April 17 (Wed. 3:45-4:45)	How can my age 10-18 students show their learning in a digital way?	Digital presentation software
April 24 (Wed. 3:45-4:45)	How can my age 12-18 students create a virtual museum or virtual place of learning that can be visited?	Digital presentation software
May 8 (Wed. 3:45-4:45)	How can my students contribute to worldwide authentic audiences? How can my students be "prosumers" of information rather than just consumers?	Wikimedia Commons and Wikipedia
May 15 (Wed. 3:45-4:45)	How can my students collect and analyze data?	Online surveys, Graphing software

HOW DO I ATTEND?

STEP 1: Tell the technology mentor (TM) or leader of technology in your school your intention to attend.
STEP 2: The TM will send ECE your email address or their own email address at least 48 hours before (the TM may project the conference in their room from their computer).
STEP 3: ECE will invite you (or the TM as per your preference) with an email and link.
STEP 4: A few minutes before the web conference you or the TM will dial the telephone number for the audio-- and logon to a computer to see the agenda. A troubleshooting telephone number is provided in the event of any technical difficulties.

Passport
to the Internet

Student tutorial for Internet literacy (Grades 4-8)

Passport to the Internet helps young people develop the critical thinking skills they need to apply to their online experiences by enabling them to use popular online tools and websites in a secure and ethical manner, and to their full potential. Using simulations of the most popular Internet environments, this interactive resource teaches students about online safety, authenticating online information, recognizing online marketing ploys, protecting their privacy, managing online relationships and dealing with cyberbullying.

MediaSmarts' research report *Young Canadians in a Wired World* (the most comprehensive and wide-ranging study of its kind in Canada) showed us that young Canadians, who are online from an early age, are actively seeking new ways to optimize the Internet's social and educational opportunities. Offensive and misleading content and risky situations on sites young people visit, and their own concerns regarding safety, privacy and the authenticity of Internet information, have given rise to the need for digital citizenship and digital literacy tools. *Passport to the Internet* will help teachers meet this critical need.

Passport to the Internet, a Web-based licensed resource in Flash, is accompanied by an extensive teacher's guide that features detailed instructions, backgrounders, classroom activities and handouts.

Passport to the Internet modules:

MyFace
A social networking site that challenges students to create an engaging profile while protecting their privacy.

Co-Co's Choco Match
A simulated advergame that teaches the "tricks of the trade" that online advertisers use to reach young consumers.

Study Space
A research assignment that teaches authentication skills through a mock search engine and by having students judge the reliability of three different websites.

Web Café
A general introduction to safe and wise Web surfing that shows students how to judge what is behind a link, email, banner ad or search result before clicking on it.

Instant Pigeon
An instant messaging program in which students engage in four conversations, allowing them to make ethical choices about how to reply to their online "buddies" and how to deal with issues such as uploading photos and videos, stranger contact and cyberbullying.

Passport to the Internet **Partners**
- Inukshuk Wireless Learning Plan Fund
- Elementary Teachers' Federation of Ontario
- Toronto Catholic District School Board
- London Public Library

MediaSmarts is a Canadian not-for-profit centre for digital and media literacy. Its vision is that young people have the critical thinking skills to engage with media as active and informed digital citizens.

This MediaSmarts in-class resource for digital literacy is available through licensing to: provincial/territorial departments, school districts and boards, post-secondary institutions and individual schools.

For more information contact: licensing@mediasmarts.ca

MYWRLD

MyWorld helps secondary students develop the decision-making and critical thinking skills necessary to actively and positively engage with digital media. Much like the complementary elementary resource, *Passport to the Internet*, *MyWorld* uses simulations of online environments, such as search engines, instant messaging, social networking sites and file-sharing services, to teach students digital literacy skills. To reflect the complexity of their online activities, students playing *MyWorld* assume a variety of roles – student, friend, peer and mentor – as they use the simulated online tools within the tutorial to address bullying and ethical behaviour, do homework, and manage relationships and their privacy.

MediaSmarts' research report *Young Canadians in a Wired World* showed that young Canadians, who are online from an early age, actively seek out new ways to optimize the Internet's social and educational opportunities. At the same time, offensive and misleading content and risky situations on sites young people visit, and their own concerns regarding safety, privacy and the authenticity of Internet information have given rise to the need for digital citizenship and digital literacy tools. *MyWorld* will help teachers meet this critical need.

MyWorld, a Web-based Flash resource, is designed as four self-contained chapters, and is accompanied by step-by-step walkthroughs for each chapter, a classroom activities guide, and an extensive teacher's guide containing detailed instructions, backgrounders and handouts.

Chapter One
Focuses on the challenges students encounter in authenticating and evaluating Internet content: rumours, advertisements, hoaxes and hate material.

Chapter Two
Focuses on the challenges students encounter in managing their privacy and reputation online.

Chapter Three
Focuses on managing online relationships, including topics such as recognizing risky online behaviour in peers, excessive Internet use or gaming, "sexting" and dealing with hateful comments by friends.

Chapter Four
Focuses on questions of online ethics including intellectual property issues, plagiarism and cyberbullying.

MyWorld Partners

- Inukshuk Wireless Learning Plan Fund
- TELUS
- Promoting Relationships and Eliminating Violence (PREVNet)
- Ontario Institute for Studies in Education (OISE), University of Toronto

MediaSmarts is a Canadian not-for-profit centre for digital and media literacy. Its vision is that young people have the critical thinking skills to engage with media as active and informed digital citizens.

mediasmarts.ca

Web Awareness Workshop Series

The *Web Awareness Workshop Series* includes six professional development (PD) workshops that provide a comprehensive program to help teachers of Grades K to 12 and librarians understand and address cyberbullying issues, online safety, marketing, privacy and information authentication. The workshops include Web-based self-directed tutorials, PowerPoint slides with speaking notes, workshop guides, Webographies and participant handouts – a package of tools that allow educators and librarians to manage their own PD activities and facilitate PD workshops on these topics for their colleagues. Accessed online and available individually, the six workshops are:

Cyberbullying: Encouraging ethical online behaviour

This workshop offers strategies for librarians, teachers and parents on how to help young people develop responsible online behaviour and strike a balance between freedom of expression and creating an environment in which children feel free from harassment.

Safe Passage: Teaching kids to be safe and responsible online

This workshop explores the various Internet environments that kids enjoy, highlights Internet safety hazards and offers tips for managing inappropriate content and promoting ethical online behaviour. The workshop also contains information on creating Internet "house rules," using kid-friendly search engines and finding great kids' sites.

Kids for Sale: Online privacy and marketing

This workshop offers a sampling of online commercial environments that attract children. It explores current strategies for marketing to kids and the ways in which children's privacy may be compromised online. The workshop underlines how important it is for kids to know when they are being informed, entertained or marketed to online and also to understand how their personal information may be used.

Fact or Folly: Authenticating online information

To get the most out of the Internet, kids need to learn two things: how to find good information; and how to question and evaluate online sources. The workshop explores examples of misinformation on the Net and provides guidelines and techniques for finding and verifying Internet resources.

Growing with the Net: The Early Years (Ages 4-12)

This workshop provides a snapshot of children's favourite Internet activities, explores the social and psychological developmental traits associated with different ages and looks at the way these characteristics can affect how children interpret and respond to Internet content and situations. Supporting the *Passport to the Internet* tutorial, It offers developmentally appropriate education strategies for fostering critical thinking and maximizing positive Internet experiences.

Growing with the Net: The Teen Years (Ages 13-17)

Supporting the *MyWorld* tutorial for secondary schools, this workshop outlines Internet activities and behaviours common to teens, developmental traits associated with adolescence, and how these characteristics can affect how teens interpret and respond to what they encounter online. The workshop highlights challenges adults face while raising and educating a highly connected generation and offers strategies to help teens develop the critical thinking skills they need to effectively manage their online experiences.

MediaSmarts is a Canadian not-for-profit centre for digital and media literacy. Its vision is that young people have the critical thinking skills to engage with media as active and informed digital citizens.

RESOURCES

Manitoba has prepared a parent guide to introduce *Literacy with Information and Communication Technology* (*LwICT*). This can be read online or printed off as a PDF in part or whole at   http://bit.ly/caBR9F
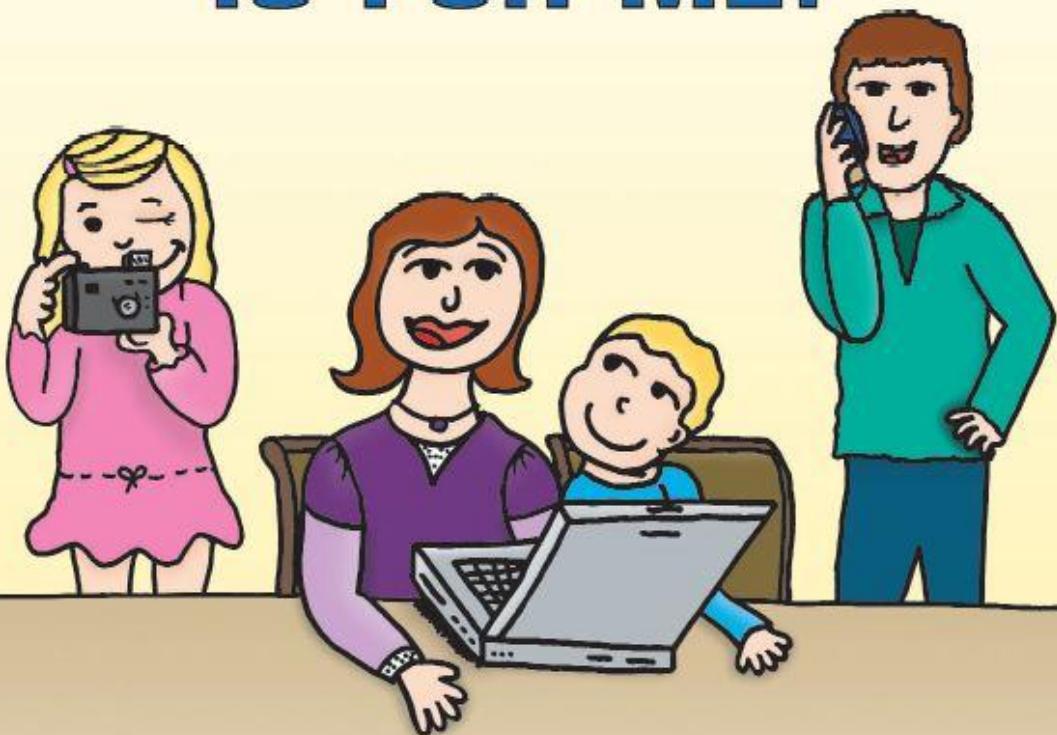
TRANSDISCIPLINARY NWT PROJECT

For the 2012-2013 school year, the Government of the Northwest Territories and the schools throughout the NWT will be collaborating on an ELA-Social Studies-ICT project. Each school will submit to GNWT Department of Education, Culture and Employment two student-written Haikus and two student-captured digital images that illustrate the Haikus. These submissions will be consolidated into a printed book with two complimentary copies going back to each school. More copies will be available at cost in the publisher's online store.

(screenshot of supporting wiki)

The book will draw upon the students' Northern identities. Opportunities to write condensed thought in the form of Haikus will be provided during ELA time; opportunities to consider one's community, culture, heritage, land, language, nationhood, and place in the world will be provided in Social Studies, among other disciplines. There will likely be opportunities to use school-owned digital cameras and personally owned devices throughout the year and across the curriculum.

Any NWT teacher can go http://mynorthproject.wikispaces.com/ (illustrated above) to see the full details of the project. All documents, and posters for display are found at the wiki. This is a public wiki--meaning you do not have to be a member to access the site.

For questions or support please contact blake_wile@gov.nt.ca or susan_catlin@gov.nt.ca.