Literacy with ICT Across the Curriculum

GUIDE TO INFUSION
2012
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)

**EXEMPLARY 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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Part 1: Understanding Literacy with ICT
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).

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).

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.

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).

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-
Introduction

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

<table>
<thead>
<tr>
<th>Competency</th>
<th>Tags and Defining Characteristics</th>
</tr>
</thead>
<tbody>
<tr>
<td>Construct Identity in Multiple Contexts</td>
<td>Construct Identity:</td>
</tr>
<tr>
<td>Overview: The 21st Century citizen</td>
<td>- metacognition, reflection</td>
</tr>
<tr>
<td>- is mindful of one’s personal needs and present surroundings that promotes emotional, physical and spiritual well-being.</td>
<td></td>
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<tr>
<td>- communicates and builds relationships.</td>
<td>- sense of self (emotional, physical, spiritual well-being and resilience).</td>
</tr>
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<td>- establishes a balance between online and offline lifestyles.</td>
<td>- mindful awareness (the relaxation response)</td>
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<td>- understand one’s knowledge, skills, attitudes, values, in comparison and contrast with the diverse contexts of others.</td>
<td>- development of personal potential and ethical consciousness</td>
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<tr>
<td>- develops the dynamic ability to act on this understanding by learning, unlearning, and relearning in a lifelong development of identity and meaning making.</td>
<td>- coherence of all facets of identity, online and offline</td>
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<tr>
<td>Multiple Contexts</td>
<td>- recognition of the right to privacy,</td>
</tr>
<tr>
<td>- awareness of personal affinities and memberships</td>
<td></td>
</tr>
<tr>
<td>Participate Actively in Collective Intelligence and Sustainable Common Good</td>
<td>Participate Actively:</td>
</tr>
<tr>
<td>Overview: The 21st Century citizen</td>
<td>- confidence, motivation, ethical and respectful relationships,</td>
</tr>
<tr>
<td>- 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.</td>
<td>- 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</td>
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<tr>
<td>- develops the ability to focus deeply and sustain thought using tools when and where appropriate.</td>
<td>Collective Intelligences:</td>
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<td>- develops the ability to participate in open discussion where certainty and ambiguity are inherent.</td>
<td>- collaboration, teamwork</td>
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<td>- 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.</td>
<td>- posing questions from multiple perspectives</td>
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<td>- pooling knowledge</td>
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<td>- advocating for ideas, causes, and actions</td>
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<td>- bridging ingenuity gaps</td>
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<td>- reflecting on processes</td>
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<td>- intentional and measured risk-taking</td>
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<td></td>
<td>Sustainable Common Good</td>
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<td></td>
<td>- mutual dependence</td>
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<td></td>
<td>- delay of gratification for long-term collective well-being</td>
</tr>
</tbody>
</table>
### 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 and Think Critically

**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
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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 consciousness 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 “continuous 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. 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.
Introduction

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 (NWTS).A

- 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.
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• 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, multimedia).
• 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.
Introduction

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).

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).

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.
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.

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?

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Figure 5

“...technology can enhance learning when the focus is on pedagogy and the student’s needs.” (Steeves, 2012)
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).

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.
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).

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
### Typical Inquiry Components

<table>
<thead>
<tr>
<th>Supporting Principles</th>
<th>ELA Inquiry Process</th>
<th>MATH Problem-Solving</th>
<th>SCIENCE</th>
<th>SOCIAL STUDIES</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Plan and Question</strong></td>
<td>GO#1: Access and explore prior knowledge and experiences of self and others</td>
<td>Understands a given or a formulated question, task, or situation that introduces and applies mathematical ideas</td>
<td>Initiating</td>
<td>Select appropriate goals</td>
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<td></td>
<td></td>
<td>Develops a plan</td>
<td>Researching</td>
<td>Formulate essential questions for research</td>
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<td>Planning/Hypothesizing</td>
<td>Plan alternatives for final project ideas</td>
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<tr>
<td><strong>Gather and Make Sense</strong></td>
<td>GO#2: Comprehend and respond personally and critically to oral, print, and other media texts, through a process</td>
<td>Carries out a plan • collects data, if applicable, and evaluates the collection process • analyzes data or given information</td>
<td>Observing, Measuring, Recording</td>
<td>Gather/Select information from oral, visual, print, or electronic sources</td>
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<td></td>
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<td>Revise ideas and opinions/Interpret information and ideas from multiple perspectives</td>
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<td>Sort/Categorize/Organize and record information using visual organizers/Documenting Sources</td>
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<tr>
<td><strong>Produce to Show Understanding</strong></td>
<td>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</td>
<td>Displays solution process or data. Interprets data, if applicable. Finds multiple strategies and develops personal strategies</td>
<td>Analyzing and Interpreting</td>
<td>Select and use appropriate tools and technologies to accomplish tasks</td>
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<td></td>
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<td></td>
<td>Present information and ideas orally, visually, concretely, or electronically</td>
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<tr>
<td><strong>Communicate</strong></td>
<td>GO#5: Celebrate and build community with in the home, school, workplace, and wider community</td>
<td>Communicates conclusion/solution</td>
<td>Concluding and applying solutions</td>
<td>A conversation that communicates learning</td>
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<td><strong>Reflect</strong></td>
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<td>Revise ideas and opinions through interaction with other learners</td>
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<td><strong>Ethics and Responsi</strong></td>
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<td>Modify the plan for non-solutions and retest</td>
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<tr>
<td><strong>Collaboration</strong></td>
<td>Encourage, Support, and Work with Others</td>
<td>Describes the effect of bias, use of language, ethics, cost, time and timing, privacy, and cultural sensitivity if collecting data to answer a question</td>
<td>Demonstrating Scientific and Technological Attitudes</td>
<td>Cooperate/Collaborate with others</td>
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<tr>
<td><strong>Motivation and Confidence</strong></td>
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<td><strong>Social Implications</strong></td>
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<td>Reflecting on Science and Technology</td>
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Figure 8: Literacy with ICT and Inquiry Processes Across the Curriculum
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, authenticity, 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

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.

“...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).

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 Component, “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.
Supporting Principles

- 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.
- Enhance 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):

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.

“*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).
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 teacher actually rides the 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.
Supporting Principles


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),

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… ‘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.

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.

Horizontal Axis: 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 |

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.
READING THE DEVELOPMENTAL CONTINUUM FOR LITERACY WITH ICT

STUDENT SELF-ASSESSMENT: 7-9 LwICT SNAPSHOT

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.

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.

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.

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)

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.

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.

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, synthesizing, 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)

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.
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; evaluate information for relevancy, accuracy, currency, and validity; organize and categorize information using ICT; and collect primary 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.

**Affective Domain**

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 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
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
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 Assessment 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. 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

<table>
<thead>
<tr>
<th>LITERACY WITH INFORMATION, COMMUNICATION AND TECHNOLOGY (LwICT)</th>
<th>Senior High (10-12) Across the Curriculum</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>BEGINNING TO LEARN</strong></td>
<td>I am just beginning; I like to have lots of help</td>
</tr>
<tr>
<td><strong>LEARNING AS I GO</strong></td>
<td>I am learning from both, I still need help sometimes</td>
</tr>
<tr>
<td><strong>LEARNING AND TEACHING</strong></td>
<td>I have lots of practice, I can help others</td>
</tr>
</tbody>
</table>

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


Bibliography


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 \textit{LwICT} Skills by Division
- Student Self-Assessment: \textit{LwICT} Divisional Snapshots
- Teacher Preparation for \textit{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.
**CONTINUUMS FOR TEACHER ASSESSMENT OF LwICT SKILL**

**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)

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**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 how ICT is used at home, school, and the community
- can tell about the right times and places to use ICT
### CONTINUUMS FOR TEACHER ASSESSMENT OF LwICT SKILL

**INQUIRY COMPONENT, COLLABORATION**  
(see poster for “EXAMPLES”)

- Works with others to complete a teacher-directed task using ICT; Helps 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”)

- Demonstrates motivation and confident when using ICT alone and with others; Recognizes 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)

**Input/Output**

- 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...)

**Access and Communication**

- Logs on and off of ICT devices
- Opens applications and files (examples: PC: using Start Menu, My Computer, desktop icons etc.; APPLE: using the Finder Window, Dock, etc.)
- Saves files (examples: follow a specific file path to a network, hard drive, flash memory device, CD-ROM, DVD,...)
- Prints files (examples: selecting print options such as page range, number of copies, paper tray, fit to page, ...)
- Navigates within an application (examples: using icons, menus, keyboard shortcuts, ...)
- Browses multimedia (examples: CD-ROMs, DVDs, flash memory devices, ...)
- Navigates within a website
- Searches the internet using teacher selected search engines and keywords
- Manipulates input devices (examples: mouse buttons, keyboards, styluses, trackballs, touch screens, electronic whiteboards, adaptive devices...)
- 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...)
- Inserts hyperlinks into electronic work that show electronic sources
- Captures digital data (examples: with microphones, digital audio-recording devices, digital cameras, video cameras, GPS, probeware...)
- Manages electronic files and folders

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**Grade K-12**

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### 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 the teacher’s electronic study plan and sometimes collaborates on changes to the ideas, language, and format

### INQUIRY COMPONENT: GATHERING AND MAKING SENSE
(see poster for “EXAMPLES”)
Finds/collates 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
- Revises and edits electronic work for greater clarity and visual appeal according to the co-created task criteria

### 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

### 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
- Seeks and receives feedback from others on work and the criteria used for the inquiry
- Offers feedback to others
- Discusses ICT choices and future options for communicating learning
<table>
<thead>
<tr>
<th>Continuum</th>
<th>Description</th>
<th>Grade Level</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>BEGINNING TO LEARN</strong></td>
<td>I am just beginning; I like to have lots of help</td>
<td>(approximately Gr. 4)</td>
</tr>
<tr>
<td><strong>LEARNING AS I GO</strong></td>
<td>I am remembering from before; I still need help sometimes</td>
<td>(approximately Gr. 5)</td>
</tr>
<tr>
<td><strong>LEARNING AND TEACHING</strong></td>
<td>I have lots of practice; I can help others</td>
<td>(approximately Gr. 6)</td>
</tr>
</tbody>
</table>

**INQUIRY COMPONENT. ETHICS and RESPONSIBILITY** (see poster for “EXAMPLES”)

- 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 permission is required to use the words, pictures, sounds, and videos of others, and give credit to the authors/creators

**INQUIRY COMPONENT. SOCIAL IMPLICATIONS** (see poster for “EXAMPLES”)

- 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, education, sales, and health care
- Can tell about how ICT is used at home, school, and the community for recreation, communication, education, sales, and health care

**INQUIRY COMPONENT. COLLABORATION** (see poster for “EXAMPLES”)

- 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

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

- Is motivated and confident to use ICT with others
- Recognizes problems and asks for help from peers and teachers
- Recognizes problems and asks for help from peers and teachers

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 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; Applies the rules about internet safety (username and password privacy); Understands healthy uses of ICT (e.g., learning, sharing ideas, building relationships…) and unhealthy uses (e.g., 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; Analyzes 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; 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; Recognizes ICT problems and asks for help from peers and teachers; Attempts to solve ICT problems with previous or new solutions.
### TECHNICAL SKILL LEVEL (each skill is fully realized at the “Learning and Teaching” level)

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

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 LwICT Skill

### Name: ____________________

#### Literacy with Information, Communication and Technology (LwICT)

**Ongoing Assessment Continuum:** Junior High (7-9) Across the Curriculum

<table>
<thead>
<tr>
<th>Grade</th>
<th>Continuum for Teacher Assessment of Student LwICT Skill</th>
</tr>
</thead>
<tbody>
<tr>
<td>58</td>
<td>I am just beginning; I like to have lots of help (approximately Gr. 7)</td>
</tr>
<tr>
<td>59</td>
<td>I am remembering from before; I still need help sometimes (approximately Gr. 8)</td>
</tr>
<tr>
<td>60</td>
<td>I have lots of practice; I can help others (approximately Gr. 9)</td>
</tr>
</tbody>
</table>

### Inquiry Component Skill Level

- **Planning and Questioning**
  - 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

- **Gathering and Making Sense**
  - 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
  - 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

- **Producing to Show Understanding**
  - 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
### INQUIRY COMPONENT, COMMUNICATING AND REFLECTING
(see poster for “EXAMPLES”)
Communicates learning and data created with a face to face audience or an audience from a distance using electronic tools; 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

<table>
<thead>
<tr>
<th>BEGINNING TO LEARN</th>
<th>LEARNING AS I GO</th>
<th>LEARNING AND TEACHING</th>
</tr>
</thead>
<tbody>
<tr>
<td>I am just beginning; I like to have lots of help (approximately Gr. 7)</td>
<td>I am remembering from before; I still need help sometimes (approximately Gr. 8)</td>
<td>I have lots of practice; I can help others (approximately Gr. 9)</td>
</tr>
</tbody>
</table>

- 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”)
Explains consequences of unsafe and unfair use of ICT 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 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”)
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 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”)
Collaborates in various contexts to pose questions, share and pool expertise, bridge ingenuity gaps, determine risks…; Collaborates 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
## CONTINUUMS FOR TEACHER ASSESSMENT OF LwICT SKILL

### Grade K-12

<table>
<thead>
<tr>
<th>Grade</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>61</td>
<td>BEGINNING TO LEARN I am just beginning; I like to have lots of help (approximately Gr. 7)</td>
</tr>
<tr>
<td></td>
<td>LEARNING AS I GO I am remembering from before; I still need help sometimes (approximately Gr. 8)</td>
</tr>
<tr>
<td></td>
<td>LEARNING AND TEACHING I have lots of practice; I can help others (approximately Gr. 9)</td>
</tr>
</tbody>
</table>

### INQUIRY COMPONENT: META-COGNITION: MOTIVATION AND CONFIDENCE
(see poster for “EXAMPLES”)
- Investigates ICT problems and applies strategies to solve them; Perseveres 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
- 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)

<table>
<thead>
<tr>
<th>Skill Description</th>
<th>Grade</th>
<th>Grade</th>
<th>Grade</th>
</tr>
</thead>
<tbody>
<tr>
<td>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)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Can log on and off of ICT devices (1. Access and Communication)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Can save files (examples: follow a specific file path to a network, hard drive, flash memory device, CD-ROM, DVD,...) (3. Access and Communication)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Can print files (examples: selecting print options such as page range, number of copies, paper tray, fit to page, ...) (4. Access and Communication)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Can navigate within an application (examples: using icons, menus, keyboard shortcuts, ...) (5. Access and Communication)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Can navigate between applications (6. Access and Communication)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Can browse the internet (9. Access and Communication)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Can choose and use search engines using own keywords (15. Access and Communication)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Can refine searches using Boolean logic (16. Access and Communication)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>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)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>BEGINNING TO LEARN</strong></td>
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<td>(approximately Gr. 9)</td>
<td></td>
</tr>
</tbody>
</table>

- 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)  
  - [ ]  
  - [ ]  
  - [ ]
## 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

<table>
<thead>
<tr>
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</tr>
</tbody>
</table>

### INQUIRY COMPONENT SKILL LEVEL

#### (each Inquiry Component is fully realized at the “Learning and Teaching” level)

#### INQUIRY COMPONENT. PLANNING AND QUESTIONING

- **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

- **-broads** 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

#### INQUIRY COMPONENT. GATHERING AND MAKING SENSE

- **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

#### INQUIRY COMPONENT. PRODUCING TO SHOW UNDERSTANDING

- **Designs** and creates non-sequential representations, simulations and models that best convey the findings, meanings, solutions, and proposals for action are created criteria for clarity and artistry and the extent 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

- **-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

- **-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

- **-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 enhanced meaning and artistry, audience and context appropriateness, and focus on message without exaggerated use of ICT features

- **-assesses** whether the message is the focus—not the features of the ICT (eg. not overusing transitions, builds, special effects, etc.)
## Continuums for Teacher Assessment of LwICT Skill

<table>
<thead>
<tr>
<th>Grade K-12</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>BEGINNING TO LEARN</strong></td>
</tr>
<tr>
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</tr>
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</table>

### Inquiry Component: Communicating and Reflecting

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 | -communicates and discusses the meaning of the digital work with a face to face audience or an audience from a distance using ICT |
| -uses this learning and the communication process to help plan and share future electronic work | -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 tools | -uses the audience’s responses during and after the communications to evaluate the ICT’s influence over the intended meaning and make appropriate adjustments | -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 tools |

### Inquiry Component: Ethics and Responsibility

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 possible health issues associated with ICT such as inactivity, eye strain, and addictive behaviors | -personally evaluates the effects, benefits and risks of each communication and interaction when using ICT to learn and share |
| -understands the need for rules about internet safety such as username and password privacy and careful use of words and ideas | -applies the school division’s acceptable-use of ICT policy to digital work | -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 |
| -knows that permission must be gained and credit given for the use of other’s words, pictures, sounds, music, and videos | -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 |
| -gives credit for the words, ideas, pictures, sounds, music, and videos | -gives credit for the words, ideas, pictures, sounds, and videos of others | |

### Inquiry Component: Social Implications

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 | -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 |
| -analyzes the trend of sharing information in a socially networked world | | -makes reasoned judgments about society’s right to information versus the right to individual privacy |

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**Adjustments:**

- The content provided is a snapshot of the assessment criteria for evaluating students' understanding and use of ICT skills. It outlines various levels of proficiency, ranging from beginning to experienced, and details the specific skills and behaviors associated with each level. The criteria are structured around different components: Communicating and Reflecting, Ethics and Responsibility, and Social Implications.

- The assessment focuses on self-evaluation, feedback, and the influence of ICT on learning and teaching processes. It also emphasizes the importance of sharing primary data responsibly and ethically, considering the implications for audiences and future work.

- The document suggests a practical approach to assessing students' ICT skills, encouraging educators to observe and evaluate students' performance across different contexts and situations, ensuring a comprehensive understanding of their ICT abilities.

**Clarifications:**

- The assessment criteria are aligned with the broader educational goals of preparing students to be IT literate and socially responsible in the digital age.

- It highlights the evolving nature of ICT and the need for ongoing assessment and adaptation of teaching strategies to accommodate new technologies and communication modes.

---

**References:**

- [Educational Psychology](https://example.com/educationpsychology)
- [Digital Literacy](https://example.com/digitalliteracy)
- [Assessment Criteria](https://example.com/assessmentcriteria)

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**Footer:**

- **64**
<table>
<thead>
<tr>
<th>Grade K-12</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>CONTINUUMS FOR TEACHER ASSESSMENT OF LWICT SKILL</strong></td>
</tr>
<tr>
<td><strong>BEGINNING TO LEARN</strong></td>
</tr>
<tr>
<td>I am just beginning; I like to have lots of help</td>
</tr>
</tbody>
</table>

**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

**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

- 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

- Persists in applying a synthesis of previously learned and/or new strategies for common and unique ICT problems
### KEYS

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

### STUDENT SELF-ASSESSMENT: K-3 LwICT SNAPSHOT (with adult assistance)

**Name**

<table>
<thead>
<tr>
<th><strong>BEGINNING TO LEARN</strong></th>
<th><strong>LEARNING AS I GO</strong></th>
<th><strong>LEARNING AND TEACHING</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>I am just beginning; I like to have lots of help</td>
<td>I am remembering from before; I still need help sometimes</td>
<td>I have lots of practice; I can help others</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>PUTTING MY IDEAS ON THE COMPUTER OR TABLET</strong></th>
<th><strong>DECIDING ABOUT INFORMATION ON THE COMPUTER OR TABLET</strong></th>
<th><strong>SHOWING MY LEARNING ON A COMPUTER OR TABLET</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>I like <strong>watching</strong> someone use the computer or tablet. Sometimes I <strong>try to use</strong> the computer or tablet by myself.</td>
<td>With help, I can <strong>open</strong> the teacher’s assignment on my computer or tablet. I can <strong>type</strong> my ideas inside the assignment.</td>
<td>I can <strong>type</strong> my ideas right in the teacher’s assignment, or in another program. I tell the teacher what I want my work to look like.</td>
</tr>
<tr>
<td><strong>With people helping me, I find</strong> digital information.</td>
<td>I can <strong>ask</strong> if the information is real and true. I <strong>help</strong> others find the source and author of their information. I <strong>group</strong> information in mind maps, tables, etc. I <strong>take</strong> pictures/videos to help my study.</td>
<td>I <strong>tell</strong> others what I like to make on the computer or tablet.</td>
</tr>
<tr>
<td>I <strong>choose</strong> how to make my ideas look good on a computer or tablet. I <strong>make</strong> my ideas look good with pictures, words, drawings, sounds, …</td>
<td>I <strong>use</strong> text, pictures, audio, video, etc. to show my learning. I <strong>change</strong> my work to make it better by looking at what my teacher and I first thought would make it good.</td>
<td><strong>I tell</strong> others how to find who owns the words and pictures they want to use.</td>
</tr>
<tr>
<td>I <strong>watch</strong> others show their computer or tablet work.</td>
<td>I <strong>share</strong> and <strong>explain</strong> my computer or tablet work. I think and talk about my future computer or tablet work.</td>
<td><strong>I chose</strong> how to make my ideas look good on a computer or tablet.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>I <strong>make</strong> my ideas look good with pictures, words, drawings, sounds, …</td>
</tr>
<tr>
<td></td>
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<td>I <strong>use</strong> text, pictures, audio, video, etc. to show my learning. I <strong>change</strong> my work to make it better by looking at what my teacher and I first thought would make it good.</td>
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<td><strong>I tell</strong> others what I like to make on the computer or tablet.</td>
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<thead>
<tr>
<th><strong>SHOWING OTHERS MY COMPUTER OR TABLET WORK</strong></th>
<th><strong>COMPUTER OR TABLET RULES</strong></th>
<th><strong>PEOPLE AND COMPUTER OR TABLETS</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>I <strong>watch</strong> others show their computer or tablet work.</td>
<td>I use ICT safely and carefully. I <strong>am respectful</strong> when my classmate is using the computer or tablet. I <strong>learn</strong> that people can own words and pictures.</td>
<td>I <strong>learn</strong> that computers or tablets are expensive. I <strong>know</strong> my friends need space when using the computer or tablet. I <strong>learn</strong> that people can own words and pictures.</td>
</tr>
<tr>
<td>I <strong>share</strong> my electronic work</td>
<td>I <strong>use</strong> ICT safely and carefully. I <strong>am respectful</strong> when my classmate is using the computer or tablet. I <strong>learn</strong> that people can own words and pictures.</td>
<td>I use ICT safely and carefully. I <strong>am respectful</strong> when my classmate is using the computer or tablet. I <strong>learn</strong> that people can own words and pictures.</td>
</tr>
<tr>
<td>I <strong>explain</strong> the choices I made.</td>
<td>I <strong>am careful</strong> and respectful with a computer or tablet and I respect my classmates’ computer or tablet space. I <strong>turn</strong> my head when my friend enters his/her private password on the computer or tablet. I <strong>show</strong> others how to find who owns the words and pictures they want to use.</td>
<td>I can <strong>tell</strong> how computers or tablets are used at home.</td>
</tr>
<tr>
<td>I <strong>share</strong> and <strong>explain</strong> my computer or tablet work. I think and talk about my future computer or tablet work.</td>
<td>I <strong>am careful</strong> and respectful with a computer or tablet and I respect my classmates’ computer or tablet space. I <strong>turn</strong> my head when my friend enters his/her private password on the computer or tablet. I <strong>show</strong> others how to find who owns the words and pictures they want to use.</td>
<td>I can <strong>tell</strong> how computers or tablets are used at home.</td>
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<tr>
<th><strong>WORKING TOGETHER WITH COMPUTERS OR TABLETS</strong></th>
<th><strong>WHAT I DO WHEN I HAVE COMPUTER OR TABLET PROBLEMS</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>I <strong>like</strong> to <strong>watch</strong> others in my group complete the assignment on the computer or tablet.</td>
<td>I <strong>like</strong> trying to use the computer or tablet.</td>
</tr>
<tr>
<td>I <strong>like</strong> help from my group on my parts of the computer or tablet assignment.</td>
<td>I <strong>know</strong> how to use the computer or tablet with others and sometimes try it alone.</td>
</tr>
<tr>
<td>I am a good worker in my group. I sometimes <strong>lead</strong> the group in completing the assignment on the computer or tablet.</td>
<td>I <strong>notice</strong> when I am having a computer or tablet problem and ask for help from friends or teachers.</td>
</tr>
<tr>
<td><strong>BEGINNING TO LEARN</strong></td>
<td><strong>LEARNING AS I GO</strong></td>
</tr>
<tr>
<td>------------------------</td>
<td>----------------------</td>
</tr>
<tr>
<td>I am just beginning;</td>
<td>I am remembering from before</td>
</tr>
<tr>
<td>I like to have lots of help</td>
<td>I still need help sometimes</td>
</tr>
</tbody>
</table>

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**

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

<table>
<thead>
<tr>
<th>BEGINNING TO LEARN</th>
<th>LEARNING AS I GO</th>
<th>LEARNING AND TEACHING</th>
</tr>
</thead>
<tbody>
<tr>
<td>I am just beginning; I like to have lots of help</td>
<td>I am remembering from before; I still need help sometimes</td>
<td>I have lots of practice; I can help others</td>
</tr>
</tbody>
</table>

### 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.

### 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.

### 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.

### 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.

(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

### Divisional LWICT Snapshots

#### 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)

<table>
<thead>
<tr>
<th>I try</th>
<th>I take</th>
<th>I am careful</th>
</tr>
</thead>
<tbody>
<tr>
<td>to be careful and respectful with computer or tablets and my classmates’ computer or tablet space.</td>
<td>care of technology.</td>
<td>and respectful with computers or tablets and other’s work spaces.</td>
</tr>
<tr>
<td>I turn my head when my friend enters his/her private password on the computer or tablet.</td>
<td>I respect my classmate’s computer or tablet space and username and password privacy.</td>
<td>I show others how to keep usernames and passwords private—and to use technology safely/respectfully.</td>
</tr>
<tr>
<td>I know that somebody owns the pictures, sounds, and music I want to use.</td>
<td>I find out who owns the words, pictures, sounds, video, etc. I want to use and use them only with permission.</td>
<td>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.</td>
</tr>
</tbody>
</table>

**NOTES:**

### PEOPLE AND COMPUTER OR TABLETS (Social Implications)

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

**NOTES:**

### Working Together on Computer or Tablets (Collaboration)

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

**NOTES:**

### What I Do When I Have Computer or Tablet Problems (Motivation and Confidence)

<table>
<thead>
<tr>
<th>I like</th>
<th>I notice</th>
<th>When I am having a computer or tablet problem, I try</th>
</tr>
</thead>
<tbody>
<tr>
<td>using computer or tablets with others.</td>
<td>when I am having a computer or tablet problem and ask for help from friends or teachers.</td>
<td>to solve it the way I did in the past or even try new ways.</td>
</tr>
<tr>
<td>NOTES:</td>
<td>NOTES:</td>
<td>NOTES:</td>
</tr>
</tbody>
</table>

**NOTES:**

### Technical Skills

### Using the Computer or Tablet

- I understand and can press the keys on keyboards or virtual keyboards.
Possible Ways to Use this Snapshot: check circles describing you; circle words describing your strengths; circle words about new things to learn.

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<tr>
<th>BEGINNING TO LEARN</th>
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<td>I am remembering from before</td>
<td>I have lots of practice; I can help others</td>
</tr>
</tbody>
</table>

- 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.
### 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

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</tr>
</tbody>
</table>

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

1. **I know** information about the topic.
2. **I type or show** it using a computer or tablet.

**NOTES:**

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

1. **I ask** if the information I am using is **real** or **true**.
2. **I use** online bibliography-makers to show where my information came from.
3. **I take** pictures to show my understanding of topics.

**NOTES:**

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

1. **I use** a recommended program that will help me get the work done the way I want to do it.
2. **I use** my first work done as my final copy.

**NOTES:**

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

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</tr>
</tbody>
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**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.
- **NOTES:**

- I **share** my work with a face-to-face audience.
- I **tell** how I made the work and why I made the way I did.
- I **ask** others for feedback.
- **NOTES:**

- 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:**

**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.
- **NOTES:**

- 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.
- **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.
- **NOTES:**

**PEOPLE AND COMPUTER OR TABLETS (SOCIAL IMPLICATIONS)**

- I can **tell** how computer or tablets 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:**

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

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</tr>
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**WORKING TOGETHER ON COMPUTERS OR TABLETS (COLLABORATION)**

- I like to be **told** and shown what to do with technology when working with others.
- 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.
- 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.
- I **try** one way to solve a technology problem before asking for help from others.
- 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:**

**TECHNICAL SKILLS**

**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.
**STUDENT SELF-ASSESSMENTS: DIVISIONAL LWICT SNAPSHOTS**

(continued)

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

<table>
<thead>
<tr>
<th>BEGINNING TO LEARN</th>
<th>LEARNING AS I GO</th>
<th>LEARNING AND TEACHING</th>
</tr>
</thead>
<tbody>
<tr>
<td>I am just beginning; I like to have lots of help</td>
<td>I am remembering from before I still need help sometimes</td>
<td>I have lots of practice; I can help others</td>
</tr>
</tbody>
</table>

I can go back and forth between different applications.

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I can use internet browsers.

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

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

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</table>

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

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I can put hyperlinks into my text.

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I can move information/data between applications/programs.

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

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</table>

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

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<tbody>
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</table>

I can draw images using electronic tools.

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</table>

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

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<tbody>
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</tbody>
</table>

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

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</table>

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.

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<thead>
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</thead>
<tbody>
<tr>
<td></td>
<td></td>
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</tbody>
</table>
### PUTTING MY IDEAS ON THE COMPUTER (PLANNING AND QUESTIONING)

<table>
<thead>
<tr>
<th>I know information about the topic.</th>
<th>I use the electronic assignment provided.</th>
<th>I assess where there are gaps in knowledge in the topic being studied.</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>1</strong> type or show it using a computer.</td>
<td>I sometimes adapt the electronic assignment by making the topic broader, or, more specific to what I want to learn.</td>
<td><strong>I create and defend</strong> the need for new questions.</td>
</tr>
<tr>
<td><strong>I use</strong> online bibliography makers to give credit to authors/creators.</td>
<td><strong>I create new</strong> 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)</td>
<td><strong>NOTES:</strong></td>
</tr>
</tbody>
</table>

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

<table>
<thead>
<tr>
<th>I use ICT to help me narrow or broaden my study.</th>
<th>I use criteria to show what good work with this topic will look like in the end.</th>
<th>I assess the motive behind the information, as well as its perspective, bias, depth and accuracy.</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>I check</strong> to make sure the information is real and is not just an advertisement.</td>
<td><strong>I find</strong> out who the author/creator of the information is using a domain finder and search that name using a search engine.</td>
<td><strong>I judge</strong> whether to change the focus of my original topic in light of new information.</td>
</tr>
<tr>
<td><strong>I take</strong> my notes electronically.</td>
<td><strong>I use</strong> an online bibliography maker.</td>
<td><strong>I use</strong> an online bibliography maker.</td>
</tr>
<tr>
<td><strong>I use</strong> online bibliography makers to give credit to authors/creators.</td>
<td><strong>I group</strong> information into categories with tools like mind mapping software.</td>
<td><strong>I group</strong> information into categories with tools like mind mapping software.</td>
</tr>
<tr>
<td><strong>I check</strong> if the information is real, logical, accepted by many people, trustworthy, and dependable.</td>
<td><strong>NOTES:</strong></td>
<td><strong>NOTES:</strong></td>
</tr>
</tbody>
</table>

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

<table>
<thead>
<tr>
<th>I follow the guidelines given me for the work I create.</th>
<th>I choose a program/app that will make my work (graphs, drawings, pictures, music, video) clear.</th>
<th>I judge whether to change the order and linking of my information as I respond to the audience’s needs.</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>I choose to</strong> make a few edits and revisions to make my work more understandable.</td>
<td><strong>I use</strong> 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.</td>
<td><strong>I ask</strong> for suggestions from friends, teachers, and parents about how to make my work more understandable, convincing, and artistic.</td>
</tr>
<tr>
<td><strong>NOTES:</strong></td>
<td><strong>NOTES:</strong></td>
<td><strong>I judge</strong> 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.</td>
</tr>
<tr>
<td><strong>NOTES:</strong></td>
<td><strong>NOTES:</strong></td>
<td><strong>I emphasize</strong> the message—not the features of the ICT.</td>
</tr>
</tbody>
</table>

### SHOWING OTHERS MY COMPUTER WORK (COMMUNICATING AND REFLECTING)

<table>
<thead>
<tr>
<th>I share my work with a face-to-face audience.</th>
<th>I share my work with an audience that may be in my school—or in another part of the NWT or world.</th>
<th>I judge whether to change the way I communicate when I notice how the local or global audience is reacting.</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>I tell</strong> how I made the work and why I made it the way I did.</td>
<td><strong>I ask</strong> for certain kinds of feedback that talks about the things in my plan.</td>
<td><strong>I judge</strong> whether the ICT changed the meaning of my original message.</td>
</tr>
<tr>
<td><strong>I ask</strong> others for feedback.</td>
<td><strong>I give</strong> others the same kind of feedback.</td>
<td><strong>I plan</strong> future uses of ICT.</td>
</tr>
<tr>
<td><strong>NOTES:</strong></td>
<td><strong>I judge</strong> the usefulness of the technology I used for more work in the future.</td>
<td><strong>I judge</strong> whether it is appropriate to share original data (images, audio clips, video, etc.) online with a local or global audience.</td>
</tr>
<tr>
<td><strong>NOTES:</strong></td>
<td><strong>NOTES:</strong></td>
<td><strong>NOTES:</strong></td>
</tr>
</tbody>
</table>
Possible Ways to Use this Snapshot: check circles describing you; circle words describing your strengths; circle words about new things to learn

<table>
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<th>BEGINNING TO LEARN</th>
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<tbody>
<tr>
<td>I am just beginning; I like to have lots of help</td>
<td>I am remembering from before I still need help sometimes</td>
<td>I have lots of practice; I can help others</td>
</tr>
</tbody>
</table>

### 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.

#### 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.

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### 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 evaluate** current technology trends and weigh future advantages/opportunities against the disadvantages and risks they have for local and global societies.
- **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.

---

### 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.

---

### 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 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:**
- **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** current technology trends and weigh future advantages/opportunities against the disadvantages and risks they have for local and global societies.
- **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:**
- **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:**
- **I synthesize** or blend my technology experience with new information to solve unique problems—or meet new requirements that require several approaches.
# Teacher Preparation: Divisional LWICT Skills

## 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.

### 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. *(WORD PROCESSING)*  
- With help, I can **open** the teacher’s assignment on my computer 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**

- With people helping me, I find digital information. *(LICENSED DATABASES, REPOSITORIES)*
- Using the computer or tablet, I **put** my information into groups. 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 **watching** 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.
## TEACHER PREPARATION: DIVISIONAL LWICT SKILLS

### (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

<table>
<thead>
<tr>
<th>Task</th>
<th>Grade 80</th>
<th>Grade 70</th>
<th>Grade 60</th>
<th>Grade 50</th>
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</thead>
<tbody>
<tr>
<td>I understand and can press the keys on the keyboard.</td>
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<tr>
<td>I can log on and off of computer or tablets.</td>
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</tr>
<tr>
<td>I can open programs and files.</td>
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<tr>
<td>I can choose a certain place to save my computer or tablet files.</td>
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</tr>
<tr>
<td>I can print files by choosing what pages I want to print and the way my work will look on the page.</td>
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<tr>
<td>I can use the menus in the programs I use.</td>
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</tr>
<tr>
<td>I can browse DVDs/CDs/memory sticks and other media I put into the computer or tablet.</td>
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</tr>
<tr>
<td>I can find the things I want when at website on the internet.</td>
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</tr>
<tr>
<td>I can search the internet using a search engine and keywords.</td>
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</tr>
<tr>
<td>I can use things connected to the computer or tablet like the mouse, keyboards, whiteboards, …</td>
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<td></td>
</tr>
<tr>
<td>I can choose the right things to connect to the computer or tablet so I can play, show, change, save, and record information.</td>
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<td></td>
</tr>
<tr>
<td>I can put hyperlinks into my computer or tablet work to show how it is connected to the internet.</td>
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<td></td>
</tr>
<tr>
<td>I can make new information by recording sounds and taking picture using special tools.</td>
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</tr>
<tr>
<td>I can keep all my files in order and placed in the correct folder on the computer or tablet, portable memory stick, or server.</td>
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</tbody>
</table>
**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”

<table>
<thead>
<tr>
<th>INQUIRY COMPONENT SKILL LEVEL (ICT TO BE FAMILIAR WITH) (“” MEANS ONGOING USE)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>BEGINNING TO LEARN</strong> I am just beginning; I like to have lots of help</td>
</tr>
</tbody>
</table>

**PUTTING MY IDEAS ON THE COMPUTER OR TABLET**

<table>
<thead>
<tr>
<th>I know information about the topic and with lots of help, I type or show it using a computer or tablet.</th>
<th>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.</th>
<th>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.</th>
</tr>
</thead>
<tbody>
<tr>
<td>WORD PROCESSING MIND MAPPING</td>
<td>TABLES, RUBRICS, GRAPHS</td>
<td></td>
</tr>
</tbody>
</table>

**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. | 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. |
| DATABASES, REPOSITORIES | DOMAINS FINDERS ONLINE BIBLIOGRAPHY-MAKERS DIGITAL CAMERAS | INTERNET BROWSERS, SEARCH ENGINES AUDIO SOFTWARE VIDEO EDITING SOFTWARE GRAPHING APPLICATIONS |

**SHOWING MY LEARNING ON A COMPUTER OR TABLET**

<table>
<thead>
<tr>
<th>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. I use the first thing I make on the computer or tablet as my final work.</th>
<th>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.</th>
<th>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.</th>
</tr>
</thead>
<tbody>
<tr>
<td>HYPERLINKING TEXT CARTOONING APPLICATIONS BLOGGING APPLICATIONS</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**SHOWING OTHERS MY COMPUTER OR TABLET WORK**

<table>
<thead>
<tr>
<th>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.</th>
<th>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.</th>
<th>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.</th>
</tr>
</thead>
<tbody>
<tr>
<td>DIGITAL PROJECTION AUDIO AMPLIFICATION</td>
<td></td>
<td>INTERNET-BASED COMMUNICATION TOOLS FOR VOICE, VIDEO AND INSTANT MESSAGING</td>
</tr>
</tbody>
</table>
### Computer or Tablet Rules

**BEGINNING TO LEARN**
- I try to be careful and respectful with computers or tablets and my classmates' work spaces.
- 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.

**LEARNING AS I GO**
- 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.

**LEARNING AND TEACHING**
- 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

**BEGINNING TO LEARN**
- 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.

**LEARNING AS I GO**
- 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.

**LEARNING AND TEACHING**
- 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

**BEGINNING TO LEARN**
- I like to watch others in my group complete the assignment on the computer or tablet.

**LEARNING AS I GO**
- I use computers or tablets with others. Sometimes with help, I try to use computers or tablets by myself.

**LEARNING AND TEACHING**
- 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

**BEGINNING TO LEARN**
- I like using computers or tablets with others.

**LEARNING AS I GO**
- I notice when I am having a computer or tablet problem and ask for help from friends or teachers.

**LEARNING AND TEACHING**
- 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.

### 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.
<table>
<thead>
<tr>
<th>BEGINNING TO LEARN</th>
<th>LEARNING AS I GO</th>
<th>LEARNING AND TEACHING</th>
</tr>
</thead>
<tbody>
<tr>
<td>I am just beginning; I like to have lots of help</td>
<td>I am remembering from before I still need help sometimes</td>
<td>I have lots of practice; I can help others</td>
</tr>
</tbody>
</table>

- **I can choose a certain place to save my computer or tablet files.**
  - BEGINNING TO LEARN: ☐
  - LEARNING AS I GO: ☑
  - LEARNING AND TEACHING: ☑

- **I can print files by choosing what pages I want to print and the way my work will look on the page.**
  - BEGINNING TO LEARN: ☐
  - LEARNING AS I GO: ☑
  - LEARNING AND TEACHING: ☑

- **I can use the menus in the programs I use.**
  - BEGINNING TO LEARN: ☐
  - LEARNING AS I GO: ☑
  - LEARNING AND TEACHING: ☑

- **I can browse DVDs/CDs/memory sticks and other media I put into the computer or browse media choices on the tablet.**
  - BEGINNING TO LEARN: ☐
  - LEARNING AS I GO: ☑
  - LEARNING AND TEACHING: ☑

- **I can find the things I want when at a website on the internet.**
  - BEGINNING TO LEARN: ☐
  - LEARNING AS I GO: ☑
  - LEARNING AND TEACHING: ☑

- **I can search the internet using a search engine and keywords.**
  - BEGINNING TO LEARN: ☐
  - LEARNING AS I GO: ☑
  - LEARNING AND TEACHING: ☑

- **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.**
  - BEGINNING TO LEARN: ☐
  - LEARNING AS I GO: ☑
  - LEARNING AND TEACHING: ☑

- **I can use things connected to the computer or tablet like the mouse, keyboards, whiteboards, SD card reader…**
  - BEGINNING TO LEARN: ☐
  - LEARNING AS I GO: ☑
  - LEARNING AND TEACHING: ☑

- **I can choose the right things to connect to the computer or tablet so I can play, show, change, save, and record information.**
  - BEGINNING TO LEARN: ☐
  - LEARNING AS I GO: ☑
  - LEARNING AND TEACHING: ☑

- **I can put hyperlinks into my computer or tablet work to show how it is connected to the Internet.**
  - BEGINNING TO LEARN: ☐
  - LEARNING AS I GO: ☑
  - LEARNING AND TEACHING: ☑

- **I can make new information by recording sounds and taking picture using special tools.**
  - BEGINNING TO LEARN: ☐
  - LEARNING AS I GO: ☑
  - LEARNING AND TEACHING: ☑

- **I can keep all my files in order and placed in the correct folder on the computer or tablet, portable memory stick, or server.**
  - BEGINNING TO LEARN: ☐
  - LEARNING AS I GO: ☑
  - LEARNING AND TEACHING: ☑
### 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”

#### INQUIRY COMPONENT SKILL LEVEL (ICT TO BE FAMILIAR WITH) (“⇒” MEANS ONGOING USE)

<table>
<thead>
<tr>
<th>PUTTING MY IDEAS ON THE COMPUTER OR TABLET</th>
<th>DECIDING ABOUT INFORMATION ON THE COMPUTER OR TABLET</th>
<th>SHOWING MY LEARNING ON A COMPUTER OR TABLET</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>BEGINNING TO LEARN</strong></td>
<td><strong>LEARNING AS I GO</strong></td>
<td><strong>LEARNING AND TEACHING</strong></td>
</tr>
<tr>
<td>I am just beginning; I like to have lots of help</td>
<td>I am remembering from before; I still need help sometimes</td>
<td>I have lots of practice; I can help others</td>
</tr>
</tbody>
</table>

#### PUTTING MY IDEAS ON THE COMPUTER OR TABLET

<table>
<thead>
<tr>
<th>I know information about the topic.</th>
<th>Sometimes with the teacher, I make changes to the electronic assignment given me.</th>
<th>I type or show my ideas right in the teacher’s electronic assignment, or in another program.</th>
</tr>
</thead>
<tbody>
<tr>
<td>I type or show it using a computer or tablet.</td>
<td>I sometimes add new questions (eg. “how” and “why” type) about the topic using a computer or tablet.</td>
<td>I create criteria with the teacher for the inquiry.</td>
</tr>
<tr>
<td><strong>WORD PROCESSING</strong></td>
<td><strong>TABLES AND GRAPHING</strong></td>
<td></td>
</tr>
<tr>
<td><strong>MIND MAPPING</strong></td>
<td><strong>NOTES:</strong></td>
<td></td>
</tr>
<tr>
<td><strong>NOTES:</strong></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

#### DECIDING ABOUT INFORMATION ON THE COMPUTER OR TABLET

<table>
<thead>
<tr>
<th>I ask if the information I am using is real or true.</th>
<th>I ask if the information I am using is real or true or has been changed.</th>
<th>I decide to narrow or broaden my topic by using search engine features such as “related searches”, “related questions”, “word clouds”, etc.</th>
</tr>
</thead>
<tbody>
<tr>
<td>I use online bibliography-makers to show where my information came from.</td>
<td>I find out who the author/creator of the information is and search that name using a search engine.</td>
<td>I judge if information is useful, makes sense, is correct, and can be trusted.</td>
</tr>
<tr>
<td>I take pictures to show my understanding of topics.</td>
<td>I use an online bibliography maker.</td>
<td>I electronically group my information.</td>
</tr>
</tbody>
</table>

#### SHOWING MY LEARNING ON A COMPUTER OR TABLET

<table>
<thead>
<tr>
<th>I use a recommended program that will help me get the work done the way I want to do it.</th>
<th>With assistance, I choose a program/app that will make my work (graphs, drawings, pictures, music, video) clear.</th>
<th>I choose a program/application for my work thinking about what is best for my audience.</th>
</tr>
</thead>
<tbody>
<tr>
<td>I use my first work done as my final copy.</td>
<td>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.</td>
<td>I show the importance of my work and how it is connected to other knowledge.</td>
</tr>
<tr>
<td><strong>HYPERLINKING TEXT</strong></td>
<td><strong>CARTOONING APPLICATIONS</strong></td>
<td><strong>I JUDGE how well my work measures up to my student-teacher-made plan and make changes if I need to.</strong></td>
</tr>
<tr>
<td><strong>BLOGGING APPLICATIONS</strong></td>
<td><strong>NOTES:</strong></td>
<td>I ask for suggestions from friends, teachers, and parents about how to make my work more understandable and convincing.</td>
</tr>
</tbody>
</table>

**NOTES:**
### SHOWING OTHERS MY COMPUTER WORK

<table>
<thead>
<tr>
<th>I like to <strong>share</strong> my computer work with one other person. If the teacher asks me questions, I will <strong>tell</strong> how I made the work.</th>
<th><strong>Notes:</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>I share</strong> my work with a face-to-face audience. <strong>I tell</strong> how I made the work and why I made it the way I did. <strong>I ask</strong> others for feedback.</td>
<td><strong>Digital Projection</strong> <strong>Audio Amplification</strong></td>
</tr>
</tbody>
</table>

**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

<table>
<thead>
<tr>
<th>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.</th>
<th><strong>Notes:</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>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.</td>
<td><strong>Mediasmarts Notes:</strong></td>
</tr>
</tbody>
</table>

### PEOPLE AND COMPUTERS

<table>
<thead>
<tr>
<th>I can <strong>tell</strong> how computers are used at home, school, and in the community.</th>
<th><strong>Notes:</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>I can <strong>tell</strong> how technology has changed my grandparents’ and parents’ lives. I can <strong>tell</strong> how technology has been helpful and hurtful to society.</td>
<td><strong>Notes:</strong></td>
</tr>
</tbody>
</table>

### WORKING TOGETHER ON COMPUTERS

<table>
<thead>
<tr>
<th>I like to be <strong>told</strong> and shown what to do with technology when working with others.</th>
<th><strong>Notes:</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>I <strong>work</strong> 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.</td>
<td><strong>Notes:</strong></td>
</tr>
</tbody>
</table>

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:**
### HOW I FEEL ABOUT COMPUTERS AND PROBLEMS WITH COMPUTERS

<table>
<thead>
<tr>
<th>I like using computers with others.</th>
<th>I try one way to solve a technology problem before asking for help from others.</th>
<th>I try to solve computer problems by remembering how I solved the problem last time.</th>
</tr>
</thead>
<tbody>
<tr>
<td>I like other people to solve any computer problem I have.</td>
<td>NOTES:</td>
<td>I keep trying by using “help menus” in the program.</td>
</tr>
<tr>
<td>NOTES:</td>
<td>NOTES:</td>
<td>I use online communities, blogs, and “forums” to find solutions.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>I keep my mind open to other ways to solve the problem and discuss options with peers, teachers, etc.</td>
</tr>
</tbody>
</table>

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

### 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

<table>
<thead>
<tr>
<th>I can log on and off of computers and other technology.</th>
<th>1 2 3 4 5</th>
<th>1 2 3 4 5</th>
<th>1 2 3 4 5</th>
</tr>
</thead>
<tbody>
<tr>
<td>I can open programs and files.</td>
<td>1 2 3 4 5</td>
<td>1 2 3 4 5</td>
<td>1 2 3 4 5</td>
</tr>
<tr>
<td>I can keep all my files in order and placed in the correct folder on the computer, portable memory stick, or server.</td>
<td>1 2 3 4 5</td>
<td>1 2 3 4 5</td>
<td>1 2 3 4 5</td>
</tr>
<tr>
<td>I can choose a certain place to save my computer or tablet files.</td>
<td>1 2 3 4 5</td>
<td>1 2 3 4 5</td>
<td>1 2 3 4 5</td>
</tr>
<tr>
<td>I can print files by choosing what pages I want to print and the way my work will look on the page.</td>
<td>1 2 3 4 5</td>
<td>1 2 3 4 5</td>
<td>1 2 3 4 5</td>
</tr>
<tr>
<td>I can use the menus, buttons, and shortcuts in the programs I use.</td>
<td>1 2 3 4 5</td>
<td>1 2 3 4 5</td>
<td>1 2 3 4 5</td>
</tr>
<tr>
<td>I can go back and forth between different applications.</td>
<td>1 2 3 4 5</td>
<td>1 2 3 4 5</td>
<td>1 2 3 4 5</td>
</tr>
<tr>
<td>I can use internet browsers.</td>
<td>1 2 3 4 5</td>
<td>1 2 3 4 5</td>
<td>1 2 3 4 5</td>
</tr>
<tr>
<td>I can search the internet using a search engine and keywords.</td>
<td>1 2 3 4 5</td>
<td>1 2 3 4 5</td>
<td>1 2 3 4 5</td>
</tr>
<tr>
<td>I can use AND, OR, NOT (Boolean logic) to narrow my search.</td>
<td>1 2 3 4 5</td>
<td>1 2 3 4 5</td>
<td>1 2 3 4 5</td>
</tr>
<tr>
<td>Grade K-12</td>
<td>TEACHER PREPARATION: DIVISIONAL LWICT SKILLS</td>
<td></td>
<td></td>
</tr>
<tr>
<td>------------</td>
<td>---------------------------------------------</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>I can investigate who is behind a website, wiki, podcast, email or other media message.</td>
<td>1 2 3 4 5</td>
<td>1 2 3 4 5</td>
</tr>
<tr>
<td>BEGINNING TO LEARN</td>
<td>LEARNING AS I GO</td>
<td>LEARNING AND TEACHING</td>
<td></td>
</tr>
<tr>
<td>I am just beginning; I like to have lots of help</td>
<td>I am remembering from before I still need help sometimes</td>
<td>I have lots of practice; I can help others</td>
<td></td>
</tr>
<tr>
<td>1 2 3 4 5</td>
<td>1 2 3 4 5</td>
<td>1 2 3 4 5</td>
<td></td>
</tr>
<tr>
<td>I can put hyperlinks into my text.</td>
<td>1 2 3 4 5</td>
<td>1 2 3 4 5</td>
<td>1 2 3 4 5</td>
</tr>
<tr>
<td>I can move information/data between applications/programs.</td>
<td>1 2 3 4 5</td>
<td>1 2 3 4 5</td>
<td>1 2 3 4 5</td>
</tr>
<tr>
<td>I can make new information by recording sounds, capturing video, and taking pictures using special tools.</td>
<td>1 2 3 4 5</td>
<td>1 2 3 4 5</td>
<td>1 2 3 4 5</td>
</tr>
<tr>
<td>I can choose the right things to connect to the computer so I can play, show, change, save, record, and print information.</td>
<td>1 2 3 4 5</td>
<td>1 2 3 4 5</td>
<td>1 2 3 4 5</td>
</tr>
<tr>
<td>I can draw images using electronic tools.</td>
<td>1 2 3 4 5</td>
<td>1 2 3 4 5</td>
<td>1 2 3 4 5</td>
</tr>
<tr>
<td>I can edit my media for the audience that will see it.</td>
<td>1 2 3 4 5</td>
<td>1 2 3 4 5</td>
<td>1 2 3 4 5</td>
</tr>
<tr>
<td>I can construct graphic organizers, tables, spreadsheets, databases, multimedia presentations and/or web pages.</td>
<td>1 2 3 4 5</td>
<td>1 2 3 4 5</td>
<td>1 2 3 4 5</td>
</tr>
<tr>
<td>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.</td>
<td>1 2 3 4 5</td>
<td>1 2 3 4 5</td>
<td>1 2 3 4 5</td>
</tr>
</tbody>
</table>
**TEACHER PREPARATION: DIVISIONAL LWICT SKILLS**

**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”

<table>
<thead>
<tr>
<th>BEGINNING TO LEARN</th>
<th>LEARNING AS I GO</th>
<th>LEARNING AND TEACHING</th>
</tr>
</thead>
<tbody>
<tr>
<td>I am just beginning; I like to have lots of help</td>
<td>I am remembering from before; I still need help sometimes</td>
<td>I have lots of practice; I can help others</td>
</tr>
</tbody>
</table>

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

<table>
<thead>
<tr>
<th>PUTTING MY IDEAS ON THE COMPUTER</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>I know information about the topic.</td>
<td>I use the electronic assignment provided.</td>
</tr>
<tr>
<td>I type or show it using a computer.</td>
<td>I sometimes adapt the electronic assignment by making the topic broader, or, more specific to what I want to learn.</td>
</tr>
<tr>
<td>WORD PROCESSING MIND MAPPING</td>
<td>TABLES AND GRAPHS</td>
</tr>
<tr>
<td>NOTES:</td>
<td>NOTES:</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>DECIDING ABOUT INFORMATION ON THE COMPUTER</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>I use ICT to help me narrow or broaden my study.</td>
<td>I use criteria to show what good work with this topic will look like in the end.</td>
</tr>
<tr>
<td>I check to make sure the information is real and is not just an advertisement.</td>
<td>I find out who the author/creator of the information is using a domain finder and search that name using a search engine.</td>
</tr>
<tr>
<td>I take my notes electronically.</td>
<td>I use an online bibliography maker.</td>
</tr>
<tr>
<td>I use online bibliography makers to give credit to authors/creators.</td>
<td>I group information into categories with tools like mind mapping software.</td>
</tr>
<tr>
<td>DATABASES, REPOSITORIES ONLINE BIBLIOGRAPHY-MAKERS DIGITAL CAMERAS</td>
<td>I check if the information is real, logical, accepted by many people, trustworthy, and dependable.</td>
</tr>
<tr>
<td>NOTES:</td>
<td>DOMAIN FINDERS WORD PROCESSED TABLES GRAPHING APPLICATIONS</td>
</tr>
<tr>
<td>NOTES:</td>
<td>NOTES:</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>SHOWING MY LEARNING ON A COMPUTER</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>I follow the guidelines given me for the work I create.</td>
<td>I choose a program/app that will make my work (graphs, drawings, pictures, music, video) clear.</td>
</tr>
<tr>
<td>I choose to make a few edits and revisions to make my work more understandable.</td>
<td>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.</td>
</tr>
<tr>
<td>I use HYPERLINKED TEXT CARTOONING APPLICATIONS BLOGGING APPLICATIONS CREATING WORD CLOUDS</td>
<td>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.</td>
</tr>
<tr>
<td>NOTES:</td>
<td>I ask for suggestions from friends, teachers, and parents about how to make my work more understandable, convincing, and artistic.</td>
</tr>
<tr>
<td></td>
<td>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.</td>
</tr>
<tr>
<td></td>
<td>I emphasize the message—not the features of the ICT.</td>
</tr>
<tr>
<td></td>
<td>HYPERLINKED SLIDES, SOCIAL BOOKMARKING</td>
</tr>
<tr>
<td></td>
<td>CREATIVE COMMON LICENSES</td>
</tr>
<tr>
<td></td>
<td>WIDGETS, EMBEDDED CODE, BARCODES</td>
</tr>
<tr>
<td>NOTES:</td>
<td>NOTES:</td>
</tr>
</tbody>
</table>
## SHOWING OTHERS MY COMPUTER WORK

| I share my work with a face-to-face audience. | I share my work with an audience that may be in my school—or in another part of the NWT or world. | I judge whether to change the way I communicate when I notice how the local or global audience is reacting. |
| I tell how I made the work and why I made it the way I did. | 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 whether the ICT changed the meaning of my original message. |
| I ask others for feedback. | I judge the usefulness of the technology I used for more work in the future. | I plan future uses of ICT. |

### NOTES:
- DIGITAL PROJECTION
- AUDIO AMPLIFICATION

## 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 can tell how technology has changed my grandparents’ and parents’ lives.
- I can tell how technology has been helpful and hurtful to society.

### 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

### ONLINE MEDIA SHARING AND LICENSING SITES

### PEOPLE AND COMPUTERS

### I can tell how technology has been 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.

### 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.

### 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.

### 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
# HOW I FEEL ABOUT COMPUTERS AND PROBLEMS WITH COMPUTERS

- I try one way to solve a technology problem before asking for help from others.
- 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.
- I synthesize or blend my technology experience with new information to solve unique problems or meet new requirements that require several approaches.

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

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### 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.

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### I can open programs and files.

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

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

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

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

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### I can go back and forth between different applications.

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### I can use Internet browsers.

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

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

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

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<thead>
<tr>
<th>BEGINNING TO LEARN</th>
<th>LEARNING AS I GO</th>
<th>LEARNING AND TEACHING</th>
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<tbody>
<tr>
<td>I am just beginning; I like to have lots of help</td>
<td>I am remembering from before I still need help sometimes</td>
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</table>

I can put hyperlinks into my text.

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I can move information/data between applications/programs.

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

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

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I can draw images using electronic tools.

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

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

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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.

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</table>
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

**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**
- 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](https://www.nwtcurriculumlinks.com)**
- 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

**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**
- 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](https://www.nwtcurriculumlinks.com)**
- TAG samples: GrKCulture-based-learning, K-3, receptive-language, visual-memory, northstar-connected

This screenshot of Scene Speak application is used by permission of goodkarmaapplications.com.
# ICT-SUPPORTED LEARNING

<table>
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<tr>
<th>GRADE K – IDENTITY + RELATIONSHIPS WITH OTHERS + CREATIVITY + CITIZENSHIP</th>
<th>Gr. K</th>
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</table>
| **Curriculum** | **Culture-based Learning Themes:** Family (Dene Kede, 139); Family and Kinship (Inuuqatigiit, 39)  
**Kindergarten Key Competencies:** 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  
**Essential Question:** 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** | 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. |
| **In Context** | 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. |
| **ICT Support** | - 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 |
| **Pedagogical benefits of online sticker making** | Concept of print-on-demand; 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. |
| **Teacher’s Overview** | Print-on-demand companies Moo, Blurb, MyPublisher  
See more at nwtcurriculumlinks |
| **See more at** | TAG samples: GrKCulture-based-learning, K-3, publishing, authentic-audience, northstar-connected |

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<th>GRADE K – SELF-REGULATION + DIVERSITY</th>
<th>Gr. K</th>
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</table>
| **Curriculum** | **Culture-based Learning Themes:** Geography and Land Use (Dene Kede, 27); Land (Inuuqatigiit, 93)  
**Kindergarten Key Competencies:** Self-regulation: self-regulates emotionally and cognitively; Diversity: embraces diversity  
**Essential Question:** eg. What happens next? How do you do this? |
| **Pedagogical Need** | 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. |
| **In Context** | 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. |
| **ICT Support** | - children see and hear school/home activities in digital stills and videos and use as checklists  
- order of visual schedules are easily changed |
| **Pedagogical benefits of using a customizable iPad app** | Concept of “app”  
**iPad apps** | First Then (Mac and Android), others at goodkarmaapplications.com |
| **Teacher’s Overview** | TAG samples: GrKCulture-based-learning, K-3, visual-schedules, northstar-connected |

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This screenshot from the Moo sticker page is used by permission of goodkarmaapplications.com.
## GRADE 1 – CULTURE-BASED LEARNING

| Curriculum | Dene Kede: “Getting Along” (p. 177); Inuuqatigiit: “Family and Kinship” (p. 40) |
| Essential Question | 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

| Support | Essential Question: 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 accommodation**

**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

<table>
<thead>
<tr>
<th>Curriculum</th>
<th>Social Studies: Grade 1 (1.1.3 Connections to the Past)</th>
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<tbody>
<tr>
<td>Essential Question</td>
<td>eg. What traditions do I like the most in my community?</td>
</tr>
</tbody>
</table>

**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

---

## Grade 1 – Science

<table>
<thead>
<tr>
<th>Curriculum</th>
<th>Science: Grade 1 (Life Systems)</th>
</tr>
</thead>
</table>
| 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

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**This image is made available for sharing by Nicoguaro in Wikipedia article, “Mind map”**

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**This image is a screenshot of a hit at freesound.org with the search term "wolf". Used with permission of bram delong at freesound.**
## ICT-SUPPORTED LEARNING

### GRADE 1 – MATH

<table>
<thead>
<tr>
<th>Curriculum</th>
<th>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?</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pedagogical Need in Mathematics Grade 1</td>
<td>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.</td>
</tr>
<tr>
<td>ICT Support</td>
<td>Tablet application: Electronic tangram game (Gr1-12)</td>
</tr>
</tbody>
</table>

**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**
[ntcurriculumlinks](#)

**TAG samples:**
Grade1SocialStudies, brainstorming, mindmapping, planning-and-questioning

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### GRADE 1 – ENGLISH LANGUAGE ARTS

<table>
<thead>
<tr>
<th>Curriculum</th>
<th>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?</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pedagogical Need in English Language Arts Grade 1</td>
<td>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.</td>
</tr>
<tr>
<td>ICT Support</td>
<td>Electronic storytelling application [Gr K-3]</td>
</tr>
</tbody>
</table>

**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**
[ntcurriculumlinks](#)

**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

<table>
<thead>
<tr>
<th>Curriculum</th>
</tr>
</thead>
<tbody>
<tr>
<td><em>Dene Kede</em>: “Family” (p. 140); <em>Inuujatigiit</em>: “Family and Kinship” (p. 44)</td>
</tr>
<tr>
<td><strong>Essential Question:</strong> eg. Who are the people in my family and do they have special names?</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Pedagogical Need</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>In Context</strong></td>
</tr>
<tr>
<td>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.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>ICT Support</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mind mapping software</td>
</tr>
<tr>
<td>“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</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Teacher’s Overview</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Concept of mind mapping</strong></td>
</tr>
<tr>
<td>See more at <a href="#">nwtcurriculumlinks</a></td>
</tr>
<tr>
<td><strong>TAG samples:</strong> Grade2Culture-based-learning, K-4, mindmapping, family, culture-based-learning</td>
</tr>
</tbody>
</table>

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## GRADE 2 – TOOLS FOR DIVERSITY

<table>
<thead>
<tr>
<th>Support</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Essential Question:</strong> What might I use to support the teaching of functional social skills?</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>ICT Support</th>
</tr>
</thead>
<tbody>
<tr>
<td>Videos via applications</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Pedagogical benefits of video applications</th>
</tr>
</thead>
<tbody>
<tr>
<td>- supports teaching of key social skills: requesting assistance, greetings, manners, etc.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Teacher’s Overview</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Concept of social skills; Concept of People Skills</strong></td>
</tr>
<tr>
<td>See more at <a href="#">nwtcurriculumlinks</a></td>
</tr>
<tr>
<td><strong>TAG samples:</strong> inclusion, social skills, communication, Autism, Asperger Syndrome</td>
</tr>
</tbody>
</table>

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*GHWT 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.*

*This image is used with permission of Conover Company.*
### Grade 2 - Social Studies

**Curriculum**

Social Studies: Grade 2 (Cluster 2 Communities in Canada): Diversity of People; Features of Canadian Communities; Natural Resources; Work, Goods and Services; Diversity and Change

**Essential Question:** 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

See more at [nwtcurriculumlinks](#)

**ICT Support**

Education network

**See more at** nwtcurriculumlinks

TAG samples: Grade2SocialStudies, brainstorming, planning-and-questioning, active-citizenship, education-network

### Grade 2 - Science

**Curriculum**

Science: Grade 2 (Life Systems)

**Essential Question:** 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.
### GRADE 2 – MATH

<table>
<thead>
<tr>
<th>Curriculum</th>
<th>Mathematics: Grade 2 Strand: Shape and Space (Measurement)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Essential Question from KT-017: eg. How many more months until...? How many more days until...?</td>
<td></td>
</tr>
</tbody>
</table>

| 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. |

<table>
<thead>
<tr>
<th>ICT Support</th>
<th>Online videos</th>
</tr>
</thead>
</table>

| 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 |

<table>
<thead>
<tr>
<th>Teacher’s Overview</th>
<th>Concept of video hosting services</th>
</tr>
</thead>
<tbody>
<tr>
<td>Video-hosting sites</td>
<td>Vimeo, YouTube</td>
</tr>
</tbody>
</table>

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

| 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. |

<table>
<thead>
<tr>
<th>ICT Support</th>
<th>Online children’s book libraries</th>
</tr>
</thead>
</table>

| 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 |

<table>
<thead>
<tr>
<th>Teacher’s Overview</th>
<th>Concept of interactive children’s books</th>
</tr>
</thead>
</table>

See more at [nwtcurriculumlinks](#)  
TAG samples: reading, books, online-book, Gr2, EnglishLanguageArts2-reading

Image made available for sharing at Wikimedia Commons by author, Linda Spashett
### GRADE 3 – CULTURE-BASED LEARNING

| Curriculum | Dene Kede: “Shrews and Mice” (p. 116); Inuuvatigiit: “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 |

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### GRADE 3 – TOOLS FOR DIVERSITY

| 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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## ICT-SUPPORTED LEARNING

### GRADE 3 – SOCIAL STUDIES

<table>
<thead>
<tr>
<th>Curriculum</th>
<th>Social Studies: Grade 3 (3.3.2 Living with the Land)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>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?</td>
</tr>
<tr>
<td>Pedagogical Need</td>
<td>Students are required to describe the influence of natural phenomena on ways of life in communities studied. Students learn better with sensory-rich media.</td>
</tr>
<tr>
<td>in Social Studies Grade 3</td>
<td>Online databases of images and videos of natural phenomena organized by country.</td>
</tr>
</tbody>
</table>
| ICT Support      | -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 | TAG samples: Gr3SocialStudies, living-with-land, environment, SocialStudies |

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### GRADE 3 – SCIENCE

<table>
<thead>
<tr>
<th>Curriculum</th>
<th>Science: Grade 3 (Stability)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Essential Question SLO#1-5 (pg. 82 in Science curriculum): 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?</td>
</tr>
<tr>
<td>Pedagogical Need</td>
<td>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</td>
</tr>
<tr>
<td>in Science Grade 3</td>
<td>Websites ordered into subcategories by search engines</td>
</tr>
</tbody>
</table>
| ICT Support      | -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 | TAG samples: images, photos, some-rights-reserved, shareable, gathering-making-sense, sounds, auditory-learners |

Image is a screenshot of hits returned by ask.com from the question, “how can I build a structure from straws?”
<table>
<thead>
<tr>
<th><strong>GRADE 3 – MATH</strong></th>
<th><strong>Gr. 3</strong></th>
</tr>
</thead>
</table>
| **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 |

<table>
<thead>
<tr>
<th><strong>GRADE 3 – ENGLISH LANGUAGE ARTS</strong></th>
<th><strong>Gr. 3</strong></th>
</tr>
</thead>
</table>
| **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 |

This image is made available by Blake Wile.

Image made available for sharing at Flickr by author, xtranoise.
### ICT-SUPPORTED LEARNING

#### GRADE 4 – CULTURE-BASED LEARNING

| 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.)? |
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Pedagogical Need In Context</td>
<td>Students need to “see” examples of the breadth and depth of dependence that northern communities have on this aspect of the environment—fish.</td>
</tr>
<tr>
<td>ICT Support</td>
<td>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</td>
</tr>
</tbody>
</table>
| 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](#) |

> Why Fishing Is Important to My Community

#### GRADE 4 – TOOLS FOR DIVERSITY

<table>
<thead>
<tr>
<th>Support</th>
<th>Essential Question: What tool might I use to track, record, and assist in the design of a behaviour support plan?</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pedagogical Need</td>
<td>Eliminating inappropriate behaviour requires data to understand the root cause.</td>
</tr>
<tr>
<td>ICT Support</td>
<td>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.</td>
</tr>
<tr>
<td>Pedagogical benefits speech producing apps</td>
<td>-increases independence and promotes communication skills</td>
</tr>
<tr>
<td>Teacher’s Overview</td>
<td>Concept of social control, Concept of behaviour management</td>
</tr>
<tr>
<td>Applications</td>
<td>No More Meltdowns (iPad)</td>
</tr>
<tr>
<td>See more at</td>
<td><a href="#">nwtcurriculumlinks</a></td>
</tr>
</tbody>
</table>

> Image used with permission.
### GRADE 4 – SOCIAL STUDIES

**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](nwtcurriculumlinks)

**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

**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”](nwtcurriculumlinks)

**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

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### GRADE 4 – MATH

**Curriculum**
- Mathematics: Grade 4 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**
- 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: Grade 4 Mathematics, Mathematics 4-Number, apps, fractions, producing-show-understanding

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### GRADE 4 – ENGLISH LANGUAGE ARTS

**Curriculum**
- English Language Arts: Grade 4 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 3.3.2: 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 bibliography—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

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*Image of bibme.org homepage used with permission.*
## GRADE 5 – CULTURE-BASED LEARNING

| Curriculum Eg. Essential Question | Dene Kede: “Bear” (p. 91); Inuuvatigiit: “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...)? |
<table>
<thead>
<tr>
<th></th>
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</thead>
<tbody>
<tr>
<td>Pedagogical Need in Context</td>
<td>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.</td>
</tr>
</tbody>
</table>
| ICT Support                      | Children’s blogging applications  
- 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” |
| Pedagogical benefits of blogs for students | Concept of blogging (in general); list of blogs  
(Not necessarily for kids) |
| Teacher’s Overview               | Kidblog.org  
See more at nwtcurriculumlinks |

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

<table>
<thead>
<tr>
<th>Support</th>
<th>Essential Question: How can teachers assist students develop study skills?</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pedagogical Need</td>
<td>Students need to take ownership for their own learning.</td>
</tr>
</tbody>
</table>
| 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. |
# ICT-SUPPORTED LEARNING

## Grade 5 – Social Studies  
### Curriculum

| 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

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## Grade 5 – Science  
### Curriculum

| 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

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Screenshot used with permission.

Screenshot of a government website.
## Grade 5 - Math

| 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? |
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Pedagogical Need in Mathematics Grade 3</td>
<td>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.</td>
</tr>
<tr>
<td>ICT Support</td>
<td>Integrated internet game</td>
</tr>
</tbody>
</table>
| 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 |

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## Grade 5 - English Language Arts

| 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? |
<table>
<thead>
<tr>
<th></th>
<th></th>
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</thead>
<tbody>
<tr>
<td>Pedagogical Need in English Language Arts Grade 4</td>
<td>Students can be offered the choice of “performing” their work out loud or “programming” 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.</td>
</tr>
<tr>
<td>ICT Supports</td>
<td>Integrated software (eg. PowerPoint); audio recording app (eg. “Voice Memos”)</td>
</tr>
</tbody>
</table>
| 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 |

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Image used with permission by Blake Wile.
## ICT-SUPPORTED LEARNING

### GRADE 6 – CULTURE-BASED LEARNING

<table>
<thead>
<tr>
<th>Curriculum</th>
<th>Dene Kede: “Drum” (p. 15); Inuuqtigiit: “Chanting and Drumming” (p. 79)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Essential Question</td>
<td>eg. How come the drum seems to be used where lots of people are gathered? Why does the drum make people happy?</td>
</tr>
</tbody>
</table>

| 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. |

<table>
<thead>
<tr>
<th>ICT Support</th>
<th>Audio recording and editing software resulting in a “podcast”</th>
</tr>
</thead>
</table>
| 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 |

<table>
<thead>
<tr>
<th>Teacher’s Overview</th>
<th>Concept of audio recording, Concept of podcasting</th>
</tr>
</thead>
<tbody>
<tr>
<td>Podcasting software</td>
<td>Voice memos (iPod), Audacity (cross platform, free internet-based), Garageband (Mac)</td>
</tr>
<tr>
<td>See more at</td>
<td>nwtcurriculumlinks</td>
</tr>
<tr>
<td>TAG samples:</td>
<td>podcasting, producing-showing-understanding, audio, recording, Gr6Culture-based-learning, culture-based-learning</td>
</tr>
</tbody>
</table>

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

<table>
<thead>
<tr>
<th>Support</th>
<th>Essential Question: What can be done to help students share and show their prior knowledge and experience?</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pedagogical Need</td>
<td>Students are visually oriented and benefit from “seeing” their and others’ knowledge.</td>
</tr>
</tbody>
</table>

| 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 |

<table>
<thead>
<tr>
<th>Teacher’s Overview</th>
<th>Concept of mind map; Concept of study software</th>
</tr>
</thead>
<tbody>
<tr>
<td>Applications</td>
<td>Idea Sketch (iPad); Flux Cards (Android)</td>
</tr>
<tr>
<td>See more at</td>
<td>nwtcurriculumlinks</td>
</tr>
<tr>
<td>TAG samples:</td>
<td>study-skills, organization, presenting, gather-make-sense</td>
</tr>
</tbody>
</table>

GNWT image made on an iPhone.
## Grade 6 - Social Studies

**Curriculum**
Social Studies: Grade 6, *Our Place in the Nation*

**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 breadth if given the time to specialize (e.g. 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

**Web Resources**
Moo, Blurb, MyPublisher

**See more at nwtcurriculumlinks**
TAG samples: print-on-demands, self-publishing, card-marking, Gr6SocialStudies, SocialStudies

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## Grade 6 - Science

**Curriculum**
Science: Grade 6 (Earth and Space Systems)

**Pedagogical Need in Science Grade 6**
Students learn better with images and simulations. Students need to see the connection between the acronym, MVEMJSUNP (my very eager mother just served us nine pizzas—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)
- Concept of non-profit, scientific, cultural, educational institutions (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

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*This first-time image is in the public domain and made available in Wikipedia by NASA/Paolo Nespoli.*
### GRADE 6 – MATH

**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

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### GRADE 6 – ENGLISH LANGUAGE ARTS

**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

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*Image GNWT, created with Penultimate.*
<table>
<thead>
<tr>
<th>GRADE 7 – CULTURE-BASED LEARNING</th>
<th>Gr. 7</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Curriculum</strong></td>
<td>Dene Kede: “Leaders” (p. 179); Inuuqatigiit: “Elders” (p. 47)</td>
</tr>
<tr>
<td><strong>Essential Question:</strong></td>
<td>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?</td>
</tr>
<tr>
<td><strong>Pedagogical Need in Context</strong></td>
<td>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.</td>
</tr>
<tr>
<td><strong>ICT Support</strong></td>
<td>Cartooning</td>
</tr>
</tbody>
</table>
| **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), bitstripforschools (internet) |
| **See more at**                 | TAG samples: cartoon, comics, Gr7Culture-based learning, culture-based-learning, |
| **nwtcurriculumlinks**          | GNWT image. Photo credit Tessa Macintosh. |

<table>
<thead>
<tr>
<th>GRADE 7 – TOOLS FOR DIVERSITY</th>
<th>Gr. 7</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Support</strong></td>
<td>Essential Question: What can be done to help students understand the effects of violence on relationships?</td>
</tr>
<tr>
<td><strong>Pedagogical Need</strong></td>
<td>Students need to understand the alternatives in conflict situations. They need to know that choosing violence significantly impacts relationships.</td>
</tr>
<tr>
<td><strong>ICT Support</strong></td>
<td>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.</td>
</tr>
</tbody>
</table>
| **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**               | TAG samples: relationships, media, conflict-resolution, violence-against-women |
| **nwtcurriculumlinks**        | Screenshot used with permission. |
**GRADE 7 – SOCIAL STUDIES**

| 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? |
<table>
<thead>
<tr>
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</thead>
<tbody>
<tr>
<td>Pedagogical Need in Social Studies Grade 7</td>
<td>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.</td>
</tr>
</tbody>
</table>
| 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**

| 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? |
<table>
<thead>
<tr>
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<th></th>
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</thead>
<tbody>
<tr>
<td>Pedagogical Need in Science Grade 7</td>
<td>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.</td>
</tr>
</tbody>
</table>
| 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

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 | TAG samples: Grade7Mathematics, Mathematics7-Shape-Space, transformations, practice, Gr7Mathematics

GRADE 7 – ENGLISH LANGUAGE ARTS

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 | 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? |
<table>
<thead>
<tr>
<th></th>
<th></th>
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</thead>
<tbody>
<tr>
<td>Pedagogical Need in Context</td>
<td>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.</td>
</tr>
</tbody>
</table>
| 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**

<table>
<thead>
<tr>
<th>Support</th>
<th>Essential Question: How can students use ICT to keep track of their learning?</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pedagogical Need</td>
<td>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.</td>
</tr>
</tbody>
</table>
| 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

**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

- 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

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### GRADE 8 – SCIENCE

**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

- 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

---
## ICT-SUPPORTED LEARNING

### GRADE 8 – MATH

| 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? |
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Pedagogical Need in Mathematics</td>
<td>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.</td>
</tr>
<tr>
<td>ICT Support</td>
<td>Free online virtual manipulatives.</td>
</tr>
</tbody>
</table>
| 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**

[www.nwtcurriculumlinks](http://www.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

| 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? |
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Pedagogical Need in English Language Arts</td>
<td>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.</td>
</tr>
<tr>
<td>ICT Supports</td>
<td>Online game</td>
</tr>
</tbody>
</table>
| 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**

[www.nwtcurriculumlinks](http://www.nwtcurriculumlinks)

**TAG samples:** cybersafety, across-curriculum, EnglishLanguageArts8-analyze-interpret, Gr7-10, free, critical-thinking, prejudice, bias

### Grade 9 – Culture-Based Learning

**Curriculum**

Dene Kede: “Earth Medicine” (p. 42); Inuuqatigiit: “Medicine and Healing” (p. 71)

**Essential Questions:**

- 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, ...

### Grade 9 – Tools for Diversity

**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 everything

See more at [nwtcurriculumlinks](#)

**TAG samples:**

TED, inspiration, personalized-learning, differentiation
## ICT-SUPPORTED LEARNING

<table>
<thead>
<tr>
<th>Grade 9 – Social Studies</th>
<th>Gr. 9</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Curriculum</strong></td>
<td>Social Studies: Grade 9, <em>The Growth of Canada</em> (NWT curriculum); Canada: Opportunities and Challenges (Alberta curriculum). Essential Question (NWT: Central Question C; AB: General Outcome 9.2): eg. What do low interest 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?</td>
</tr>
<tr>
<td><strong>Pedagogical Need in Social Studies Grade 9</strong></td>
<td>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.</td>
</tr>
<tr>
<td><strong>ICT Support</strong></td>
<td>Cartooning, image annotating, storytelling software</td>
</tr>
<tr>
<td><strong>Pedagogical benefits of cartooning software use</strong></td>
<td>-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</td>
</tr>
<tr>
<td><strong>Teacher’s Overview</strong></td>
<td>Concept of comics; Concept of comic use in education</td>
</tr>
<tr>
<td><strong>Comic-creating software</strong></td>
<td>Pixton.org (internet), Comic Life (Mac), bitstripforschools (internet)</td>
</tr>
<tr>
<td><strong>See more at</strong></td>
<td>nwtcurriculumlinks</td>
</tr>
</tbody>
</table>

**Image available for sharing by author Greg Williams in Wikipedia article, “Cartoon”**.

## Grade 9 – Science

<table>
<thead>
<tr>
<th>Grade 9 – Science</th>
<th>Gr. 9</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Curriculum</strong></td>
<td>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?</td>
</tr>
<tr>
<td><strong>Pedagogical Need in Science Grade 9</strong></td>
<td>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.</td>
</tr>
<tr>
<td><strong>ICT Support</strong></td>
<td>Government agency online resource</td>
</tr>
<tr>
<td><strong>Pedagogical benefits of government Web sites</strong></td>
<td>-comprehensive background and current status of a discipline provided -comprehensive range of audiences -modelling famous Canadians in the field</td>
</tr>
<tr>
<td><strong>Teacher’s Overview</strong></td>
<td>Concept of space exploration; Concept of Canadian Space Agency</td>
</tr>
<tr>
<td><strong>Web resource</strong></td>
<td>Canadian Space Agency (asc-csa.gc.ca)</td>
</tr>
<tr>
<td><strong>See more at</strong></td>
<td>nwtcurriculumlinks</td>
</tr>
</tbody>
</table>

**Image available for sharing by author Greg Williams in Wikipedia article, “Julie Payette”**.
## Grade 9 – Math

| Curriculum | **Mathematics:** Grade 9 Strand: Shape and Space (Measurement)  
Essential Question from Specific Outcomes #1: eg. What more can circle geometry tell me beyond the way the shape describes life cycles and patterns? |
<table>
<thead>
<tr>
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</thead>
<tbody>
<tr>
<td>Pedagogical Need in Mathematics Grade 9</td>
<td>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.</td>
</tr>
<tr>
<td>ICT Support</td>
<td>Licensed software</td>
</tr>
</tbody>
</table>
| 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 | TAG samples: Grade9Mathematics, Mathematics9-Shape-Space, interactive-software, measurement, practice, virtual, geometry |
| nwtcurriculumlinks | |

Image of Khan Al’ad Pacha Al’ Azemi – Damascus, created by Jim Gordon, was made available for sharing by Bassem Jarkas in Wikipedia article, “Euclidean geometry.”

## Grade 9 – English Language Arts

| Curriculum | **English Language Arts:** Grade 9 General Learning Outcomes (all).  
Essential Question 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? |
<table>
<thead>
<tr>
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</thead>
<tbody>
<tr>
<td>Pedagogical Need in English Language Arts Grade 9</td>
<td>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, ...</td>
</tr>
<tr>
<td>ICT Supports</td>
<td>A nationally popular and researched-based, reliable network of resources for teachers of media awareness. This is the responsibility of all teachers.</td>
</tr>
</tbody>
</table>
| 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 | TAG samples: media-awareness, across-curriculum, EnglishLanguageArts9, free, critical-thinking, licensed-resources |

Image of Khan Al’ad Pacha Al’ Azemi – Damascus, created by Jim Gordon, was made available for sharing by Bassem Jarkas in Wikipedia article, “Euclidean geometry.”
### ICT-SUPPORTED LEARNING

#### GRADE 10 – CULTURE-BASED LEARNING

| 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? |
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Pedagogical Need in Context</td>
<td>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.</td>
</tr>
</tbody>
</table>
| 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” |
| 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 | nwtcurricululinks  
TAG samples: postcards, minicards, businesscards, across-curriculum |

#### GRADE 10 – TOOLS FOR DIVERSITY

<table>
<thead>
<tr>
<th>Support</th>
<th>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?</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pedagogical Need</td>
<td>Students need choice. Students benefit from inspiration that can be personalized.</td>
</tr>
</tbody>
</table>
| 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 |
| Teacher’s Overview | ed.ted.com  
“Just how small is an atom?”; “How folded paper can get you to the moon”; “The power of simple words” |
| TED-ed examples: | TAG samples: TED, TEDed |

[See more at nwtcurriculumlinks](#)  
TAG samples: postcards, minicards, businesscards, across-curriculum  
Use of Screenshot: permission pending.
### GRADE 10 SOCIAL STUDIES

**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

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### GRADE 10 - SCIENCE 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.wikispaces.com

**See more at nwtcurriculumlinks**  
TAG samples: Gr10Science, Science10-Energy-Flow, gathering-making-sense, curiosity, heat, energy, physics, Science 10, wikispaces

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"Green House Gas (GHG) per capita 2005" is made available for sharing by user, Sailsbystars in Wikipedia article, "Global Warming".
## ICT-SUPPORTED LEARNING

### GRADE 10 – MATH

| Curriculum                        | Mathematics: High School Algebra  
| Essential Question: eg. How can I get individual help with Algebra when I need it? |
|-----------------------------------|---------------------------------------------------------------------------------|
| Pedagogical Need in Mathematics   | 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 our their Algebra supports and receive instant support to scaffold their learning. |
| High School                      |                                                                                 |
| ICT Support                      | Tablet application                                                              |
| Pedagogical benefits of using     | -accountability to the market for ease and breadth of use, investment in research and development in the product  
| licensed software                | -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                      | TAG samples: Grade10Mathematics, Algebra, Gr9-12, problem-solving, Math          |
| nwtcurriculumlinks               |                                                                                 |

Image GNWT, created with Algebra Touch.

### GRADE 10 – ENGLISH LANGUAGE ARTS

| 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       | 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. |
| Language Arts Grade 10            |                                                                                 |
| ICT Supports                      | An online award winning tutorial for secondary students.                       |
| Pedagogical benefits of using     | - 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. |
| online instructional games        |                                                                                 |
| 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                       | TAG samples: across-curriculum, EnglishLanguageArts10, critical-thinking, licensed-resources, digital-citizenship, ethical-use |
| nwtcurriculumlinks                |                                                                                 |

Image used with permission.
## ICT-SUPPORTED LEARNING

### GRADE 11 – CULTURE-BASED LEARNING

| 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 | TAG samples: virtual-museums, culture-based-knowledge, inquiry | ScreensPot, GNWT.

### GRADE 11 – TOOLS FOR DIVERSITY

| 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 | See more at nwtcurriculumlinks | TAG samples: vocabulary, diploma-exams |

This image is used with the permission of the creators of “Vocabology for iPhone”.

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### GRADE 11 - SOCIAL STUDIES

| 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 | nwtcurricululinks |

| Teacher’s Overview | Concept of nationalism; Concept of Canadian nationalism; Concept of a National Film Board |

| 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 Slideshow |

| Web resource | slideshare.net |

| See more at | nwtcurricululinks |

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### GRADE 11 – CHEMISTRY 20

| 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 Slideshow |

| Web resource | slideshare.net |

| See more at | nwtcurricululinks |

| Teacher’s Overview | Concept of Slideshow |

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.

This image is a screenshot of a shareable digital presentation from Slideshare.net.
## ICT-SUPPORTED LEARNING

### GRADE 11 – MATH

| Curriculum | Mathematics: Pre-Calculus  
Essential Question: eg. Why is the greatest increase of sunlight on Mar. 21? |
<table>
<thead>
<tr>
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</thead>
<tbody>
<tr>
<td>Pedagogical Need in Mathematics High School</td>
<td>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.</td>
</tr>
<tr>
<td>ICT Support</td>
<td>Graphing applications</td>
</tr>
</tbody>
</table>
| 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 | 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

| 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: narrative and other styles, images, and videos? |
<table>
<thead>
<tr>
<th></th>
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<tbody>
<tr>
<td>Pedagogical Need in English Language Arts Grade 11</td>
<td>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.</td>
</tr>
<tr>
<td>ICT Supports</td>
<td>Blogs, wikis (collaborate on actual text vs. responding to others static blog text)</td>
</tr>
</tbody>
</table>
| 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 | 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.
### GRADE 12 – CULTURE-BASED LEARNING

<table>
<thead>
<tr>
<th>Curriculum</th>
<th><strong>Dene Kede</strong>: “Geography and Land Use” (p. 27); <strong>Inuuqatigiit</strong>: “Tunngavinga: The Foundation” (p. 30, 31)</th>
</tr>
</thead>
</table>
| Essential Questions | 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. |

<table>
<thead>
<tr>
<th>ICT Support</th>
<th>Book publishing</th>
</tr>
</thead>
</table>
| Pedagogical benefits of online card making | -students enjoy images and the active nature of creating their own primary data  
-many students enjoy depth over breadth 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 |

<table>
<thead>
<tr>
<th>Teacher’s Overview</th>
<th><strong>Concept of print-on-demand;</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>Print-on-demands companies</td>
<td>Moo, Blurb, MyPublisher</td>
</tr>
<tr>
<td>See more at</td>
<td><a href="#">nwtcurriculumlinks</a></td>
</tr>
</tbody>
</table>

Back Bay in Yellowknife, Image credit, Blake Wile.

### GRADE 12 – TOOLS FOR DIVERSITY

<table>
<thead>
<tr>
<th>Support</th>
<th>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?</th>
</tr>
</thead>
</table>

| 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. |

<table>
<thead>
<tr>
<th>ICT Support</th>
<th>Mind mapping tools.</th>
</tr>
</thead>
</table>
| 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** |
<table>
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<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Mind map software</td>
<td>XMind; Mindmeister; Omnigraffle; iThoughtsHD</td>
</tr>
<tr>
<td>See more at</td>
<td><a href="#">nwtcurriculumlinks</a></td>
</tr>
</tbody>
</table>

Teacher's Overview: This image is used with permission.
### GRADE 12 SOCIAL STUDIES

**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

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### GRADE 12 - SCIENCE

**Curriculum**
- **Biology**: Grade 12 (Unit C and beyond): Cell Division, Genetics and Molecular Biology (Change and Diversity)
- Essential Questions 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

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**Binary fission**

**Mitosis**

**Meiosis**

*"Three cell growth types" is made available for sharing by user, Saperaud in Wikipedia article, "Cell Division".*
## Grade 12 – Math

<table>
<thead>
<tr>
<th>Curriculum</th>
<th>Mathematics: Pre-Calculus (and Mathematical Storytelling)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Essential Question</td>
<td>eg. How would math and science work together to rescue trapped miners?</td>
</tr>
</tbody>
</table>

**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.

**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

<table>
<thead>
<tr>
<th>Curriculum</th>
<th>English Language Arts: Grade 10-12 General Learning Outcomes (all)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Essential Question</td>
<td>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?</td>
</tr>
</tbody>
</table>

**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” through 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. Contemporary 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.)

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

Next week, our class is going to the annual spring muskrat camp

Image used with permission of Blake Wile

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

*Round about what is, lies a whole mysterious world of might be—a psychological romance of possibilities and things that do not happen.* — Henry Wadsworth 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)

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

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 information 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
## 21 WAYS TO USE DIGITAL IMAGES

### 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 chosen 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)

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

**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
3. Drop and drag images on to the templates
4. Add text on desired pages before purchasing
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.

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

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

ICT-Supported Learning: Merge student-written text with digital images in an 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?


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)
### Participating 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

### Virtual Museum (ELA, Social Studies, ALC, Science, Math, etc)

**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, when, 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.
### 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

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

**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)
**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.

![Mini-books Image](Image GNWT)

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

**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.
3. 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.
4. 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](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. First 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. Last, show what small efforts (1, 2 points…) and larger efforts (4, 5 points) will look like by filling in the five cells.

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<td>2</td>
<td>4</td>
<td>6</td>
<td>8</td>
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</tbody>
</table>

INQUIRY TITLE:

Task Requirements from the Teacher:

CRITERIA:

<p>| | | | | |</p>
<table>
<thead>
<tr>
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<td>4</td>
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<td>8</td>
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</tbody>
</table>

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

CRITERIA:

<p>| | | | | |</p>
<table>
<thead>
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</tr>
</tbody>
</table>

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)

<table>
<thead>
<tr>
<th>Search Tool Used (broadening; narrowing, “checking out the source”)</th>
<th>My 1st Search Phrase:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Meta Search Engine: ○ ixquick, ○ metacrawler</td>
<td></td>
</tr>
<tr>
<td>Search Engine: ○ ask, ○ instaGrok, ○ google, ○ bing,</td>
<td></td>
</tr>
<tr>
<td>Directory: ○ kids.net.au</td>
<td></td>
</tr>
<tr>
<td>Public Knowledge/Bookmarks: ○ Wikipedia, ○ Delicious</td>
<td></td>
</tr>
<tr>
<td>Find “Owner”: ○ who.is (Web search the owner if in doubt)</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Next Steps and Comments</th>
<th></th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Search Tool Used (broadening; narrowing, “checking out the source”)</th>
<th>My 2nd Search Phrase:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Meta Search Engine: ○ ixquick, ○ metacrawler</td>
<td></td>
</tr>
<tr>
<td>Search Engine: ○ ask, ○ instaGrok, ○ google, ○ bing,</td>
<td></td>
</tr>
<tr>
<td>Directory: ○ kids.net.au</td>
<td></td>
</tr>
<tr>
<td>Public Knowledge/Bookmarks: ○ Wikipedia, ○ Delicious</td>
<td></td>
</tr>
<tr>
<td>Find “Owner”: ○ who.is (Web search the owner if in doubt)</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Next Steps and Comments</th>
<th></th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Search Tool Used (broadening; narrowing, “checking out the source”)</th>
<th>My 3rd Search Phrase:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Meta Search Engine: ○ ixquick, ○ metacrawler</td>
<td></td>
</tr>
<tr>
<td>Search Engine: ○ ask, ○ instaGrok, ○ google, ○ bing,</td>
<td></td>
</tr>
<tr>
<td>Directory: ○ kids.net.au</td>
<td></td>
</tr>
<tr>
<td>Public Knowledge/Bookmarks: ○ Wikipedia, ○ Delicious</td>
<td></td>
</tr>
<tr>
<td>Find “Owner”: ○ who.is (Web search the owner if in doubt)</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Next Steps and Comments</th>
<th></th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Search Tool Used (broadening; narrowing, “checking out the source”)</th>
<th>My 4th Search Phrase:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Meta Search Engine: ○ ixquick, ○ metacrawler</td>
<td></td>
</tr>
<tr>
<td>Search Engine: ○ ask, ○ instaGrok, ○ google, ○ bing,</td>
<td></td>
</tr>
<tr>
<td>Directory: ○ kids.net.au</td>
<td></td>
</tr>
<tr>
<td>Public Knowledge/Bookmarks: ○ Wikipedia, ○ Delicious</td>
<td></td>
</tr>
<tr>
<td>Find “Owner”: ○ who.is (Web search the owner if in doubt)</td>
<td></td>
</tr>
</tbody>
</table>

| 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 believable? 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).

<table>
<thead>
<tr>
<th>SLIDE SEQUENCE</th>
<th>AUDIO/TEXT to MATCH</th>
</tr>
</thead>
<tbody>
<tr>
<td>What graphics do I want to use to communicate my message? In what order?</td>
<td>What words will I type or audio will I record in my digital presentation software to accompany each slide?</td>
</tr>
</tbody>
</table>
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 ...**
  - Photo credit: public domain. Landing at St. Martin Island

- **Imagine if ...**
  - Photo credit: Manuel (Diskussion) and AKA. In Wikipedia article, “Photoshop Contest”

- **Funny things, situations, events, etc. in my community...**
  - Photo credit: B. Wile

- **I know a picture that would make people ...**
  - Photo credit: Kitz000 in Wikipedia article, “cake”

- **When I think about relationships ...**
  - Photo credit: B. Wile

- **I feel such awe and respect when ...**
  - Photo credit: B. Wile

- **life forms**
  - Photo credit: B. Wile

- **on the land**
  - Photo credit: B. Wile
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:

<table>
<thead>
<tr>
<th>Design Element</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Line:</strong> rule of thirds</td>
<td>Focus on one particular object and let the rest fade away …</td>
</tr>
<tr>
<td><strong>Space:</strong> depth of field</td>
<td>Light in the mornings and evenings make me see and feel …</td>
</tr>
<tr>
<td><strong>Color</strong></td>
<td>Placing certain colors against certain background …</td>
</tr>
<tr>
<td><strong>Form:</strong> light-mood</td>
<td>Some shapes create tension—others comfort and rest …</td>
</tr>
<tr>
<td><strong>Texture</strong></td>
<td>Placing objects along the two vertical and horizontal lines—or where they meet—creates interest, tension, and energy …</td>
</tr>
<tr>
<td><strong>Shape</strong></td>
<td>The surfaces of some things seem to feel …</td>
</tr>
</tbody>
</table>

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

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

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
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 apps for classroom use:

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

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
- Notetaking with iPad app, Penultimate
- Mindmapping with iThoughts app. Screenshot used with permission.

150
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 credibility 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

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

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”)

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.
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.
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.

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.).
### 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.

<table>
<thead>
<tr>
<th>YEAR 1</th>
<th>YEAR 2</th>
<th>YEAR 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Beginner</td>
<td>Intermediate</td>
<td>Advanced</td>
</tr>
<tr>
<td>Gr. K-6 Skills</td>
<td>Gr. 7-9 skills</td>
<td>Gr. 10-12 skills</td>
</tr>
</tbody>
</table>

### 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)

<table>
<thead>
<tr>
<th>YEAR 1</th>
<th>YEAR 2</th>
<th>YEAR 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>BEGINNING TO LEARN</td>
<td>LEARNING AS I GO</td>
<td>LEARNING AND TEACHING</td>
</tr>
<tr>
<td>I am just beginning; I am remembering from before; I still need help sometimes (eg. approximately Gr. 7)</td>
<td>I have lots of practice; I can help others (eg. approximately Gr. 9)</td>
<td></td>
</tr>
</tbody>
</table>

#### (by Inquiry Component)

<table>
<thead>
<tr>
<th>YEAR 1</th>
<th>YEAR 2</th>
<th>YEAR 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>BEGINNING TO LEARN</td>
<td>LEARNING AS I GO</td>
<td>LEARNING AND TEACHING</td>
</tr>
<tr>
<td>ICT Supported Learning during Inquiry Components:</td>
<td>ICT Supported Learning during Inquiry Components:</td>
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<td>Planning and Questioning</td>
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<td>Gathering and Making Sense</td>
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<td>Producing to Show Understanding</td>
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<td>Ethics and Responsibility</td>
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<td>Social Implications</td>
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<td>Metacognition, Motivation, Confidence</td>
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</table>
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 exist 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

<table>
<thead>
<tr>
<th>Web Conf. Dates</th>
<th>Essential Learning Question Addressed (Why should we use ICT?)</th>
<th>Type of ICT Profiled</th>
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</thead>
<tbody>
<tr>
<td>Sept. 19 (Wed. 3:45-4:45)</td>
<td>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?</td>
<td>Mindmapping software</td>
</tr>
<tr>
<td>Oct. 17 (Wed. 3:45-4:45)</td>
<td>How can I teach my age 5-12 students to be safe and smart online?</td>
<td>MediaSmarts.ca</td>
</tr>
<tr>
<td>Oct. 18 (Thurs. 3:45-4:45)</td>
<td>How can I teach my age 10-18 students to think critically when online?</td>
<td>MediaSmarts.ca</td>
</tr>
<tr>
<td>Nov. 14 (Wed. 3:45-4:45)</td>
<td>How can I teach my students to narrow their online searches?</td>
<td>Search engines</td>
</tr>
<tr>
<td>Nov. 21 (Wed. 3:45-4:45)</td>
<td>How can I teach my students about ownership, authority, credibility, and attribution of online sources?</td>
<td>Domain Finders, Bibliography-makers</td>
</tr>
<tr>
<td>Dec. 5 (Wed. 3:45-4:45)</td>
<td>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?</td>
<td>Creative Commons repositories</td>
</tr>
<tr>
<td>Jan. 16 (Wed. 3:45-4:45)</td>
<td>How can my students capture the richness and variety of their cultures in digital stills and proudly use this media at school?</td>
<td>Digital media projects</td>
</tr>
<tr>
<td>Jan. 23 (Wed. 3:45-4:45)</td>
<td>How can my age 9-18 students collaborate locally and from great distances to construct knowledge and new synthesis?</td>
<td>Collaborative technologies</td>
</tr>
<tr>
<td>Feb. 13 (Wed. 3:45-4:45)</td>
<td>How can my age 5-18 students participate in global youth networks?</td>
<td>Youth networks in education</td>
</tr>
<tr>
<td>Feb. 20 (Wed. 3:45-4:45)</td>
<td>How can my students learn to read “right, down and DEEP”?</td>
<td>Hyperlinking text</td>
</tr>
<tr>
<td>April 17 (Wed. 3:45-4:45)</td>
<td>How can my age 10-18 students show their learning in a digital way?</td>
<td>Digital presentation software</td>
</tr>
<tr>
<td>April 24 (Wed. 3:45-4:45)</td>
<td>How can my age 12-18 students create a virtual museum or virtual place of learning that can be visited?</td>
<td>Digital presentation software</td>
</tr>
<tr>
<td>May 8 (Wed. 3:45-4:45)</td>
<td>How can my students contribute to worldwide authentic audiences? How can my students be “prosumers” of information rather than just consumers?</td>
<td>Wikimedia Commons and Wikipedia</td>
</tr>
<tr>
<td>May 15 (Wed. 3:45-4:45)</td>
<td>How can my students collect and analyze data?</td>
<td>Online surveys, Graphing software</td>
</tr>
</tbody>
</table>

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 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, backgrounds, 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.

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.
**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.

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**MyWorld Partners**
- Inukshuk Wireless Learning Plan Fund
- TELUS
- Promoting Relationships and Eliminating Violence (PREVNet)
- Ontario Institute for Studies in Education (OISE), University of Toronto

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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.**
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](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.

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/](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.