



Literacy with ICT* Across the Curriculum

A Developmental Continuum

COGNITIVE DOMAIN

Knows–Comprehends–Becomes Aware

Analyzes–Applies–Believes

Synthesizes–Evaluates–Values

Plan and Question

P-1.1 recalls and/or records prior knowledge and asks topic-related questions

P-2.1 constructs “how and why” questions, predictions, hunches, educated guesses, and hypotheses and identifies information needs

P-3.1 evaluates original inquiry questions and creates new questions for future inquiry

P-1.2 follows given plans

P-2.2 adapts given electronic plans
(examples: electronic storyboards, outlines, timelines, graphic organizers, science experiment reports...)
◆ sc1.1, sc1.3, sc1.4, sc1.5, sc1.7, sc2.1

P-3.2 designs own electronic plans
(examples: electronic storyboards, outlines, timelines, graphic organizers...)
◆ sa2.2, sa2.3, sc2.3

Gather and Make Sense

G-1.1 finds and collects information (text, images, data, audio, video) from given media sources
(examples: within applications, CD-ROMs, the Internet, broadcast media, email...)
◆ sa1.1, sa1.2, sa1.3, sa1.4, sa1.5, sa1.7, sa1.8, sa1.10, sa1.11, sb1.1, sb2.1

G-2.1 refines information searches using a variety of media sources
◆ sa1.6, sa1.9, sa2.4, sa2.5

G-3.1 incorporates new information with prior knowledge and adjusts inquiry strategies

G-1.2 identifies sources of information and provides bibliographic/reference data
(examples: titles, authors, publication dates, URLs, standard bibliographic formats...)
◆ sb1.2, sc1.6

G-2.2 analyzes textual, numerical, aural, and visual information gathered from media sources, applying established criteria
(examples: accuracy, currency, credibility, validity, reliability, objectivity, fairness, relevance...)
◆ sa2.6

G-3.2 assesses textual, numerical, aural, and visual information, as well as the sources of the media, to determine context, perspective, bias, and/or motive

G-1.3 records data or makes notes on gathered information and ideas using given categories and given ICT
(examples: tables, graphic organizers, spreadsheets...)
◆ sa1.1, sa1.2, sa1.3, sa1.5, sa2.3, sb1.2, sc1.3

G-2.3 categorizes information using the ICT suitable for the purpose
(examples: tables, graphic organizers, spreadsheets, outlines, prioritized email, geographic information system layers...)
◆ sa1.5, sa2.3, sc2.1

G-1.4 collects primary data using electronic devices
(examples: digital cameras, email, video cameras, digital audio recorders, digital microscopes, archived original artifacts, online surveys, Global Positioning System [GPS], probeware...)
◆ sb1.3

G-2.4 analyzes whether information collected from media sources is sufficient and/or suitable for purpose and audience
(examples: CD-ROMs, websites, wikis, blogs, podcasts, syndications, broadcast media, email from peers or experts...)

G-1.5 questions whether information from media sources is real, useful, and/or distracting
(examples: falsified digital images, banners, and/or pop-up advertisements...)

G-2.5 analyzes whether information from media sources has been manipulated
(examples: bogus websites, bogus email, spam, graphs showing selected data...)

Produce to Show Understanding

- Pr-1.1** participates in establishing criteria for student-created electronic work
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- Pr-1.2** composes text, records sound, sketches images, graphs data, and/or creates video
 ◆ sa1.1, sa1.2, sa1.3, sa1.5, sb1.1, sb1.2, sc1.1, sc1.2, sc1.3, sd1.1, sd2.1
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- Pr-1.3** edits electronic work according to established criteria, conventions, and/or standards
 (examples: text, images, sound, concept maps, multimedia presentations, email, tables, spreadsheets, graphs, video, animation, web pages, wikis, blogs...)
 ◆ sa1.4, sa1.6, sa1.11, sa2.1, sc1.3, sc1.4, sc1.5, sc1.6, sc1.7, sc2.3

- Pr-2.1** selects a suitable ICT application and/or device to create electronic work and explains the selection
 ◆ sb2.1
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- Pr-2.2** revises electronic work to improve organization and clarity, enhance content and artistry, and meet audience needs, according to established criteria, feedback, and personal preferences
 (examples: by creating and/or critically revising text, images, and/or sound to enhance electronic work; by revising audio/video clips or effects; by adjusting the pace and transitions in multimedia presentations; by adding animation to web pages...)
 ◆ sc1.1, sc1.2, sc1.3, sc1.4, sc1.5, sc1.6, sc1.7, sc2.1, sc2.2, sc2.3
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- Pr-2.3** solves problems, reaches conclusions, makes decisions, and/or proposes answers to questions by analyzing data/information and concepts using ICT devices and/or applications
 (examples: virtual manipulatives, animation, simulation software, simulation websites, spreadsheets, geographic information systems, probeware...)
 ◆ sa1.5, sa2.3, sc2.1

- Pr-3.1** designs and creates non-sequential ICT representations
 (examples: hyperlinked web pages, layered graphic organizers, branching multimedia presentations, multiple-sheet spreadsheets, virtual realities, relational databases...)
 ◆ sc2.3
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- Pr-3.2** self-assesses ICT representations to go beyond established criteria by enhancing meaning and/or artistry, according to topic, audience, purpose, and occasion
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- Pr-3.3** designs and creates simulations and models using ICT applications
 (examples: spreadsheet modelling of a real situation, animation of an abstract concept or process, computer-aided design of a real object...)

Communicate

- C-1.1** displays and/or discusses electronic work
 (examples: text, images, sound, concept maps, multimedia presentations, email, tables, spreadsheets, graphs, video, animation, web pages, wikis, blogs...)
 ◆ sa1.1, sa1.2, sa1.5, sa2.2, sb1.1, sb1.2, sb2.1

- C-2.1** discusses information, ideas, and/or electronic work using tools for electronic communication
 (examples: email, electronic whiteboards, web pages, threaded discussions, videoconferences, chats, instant messages, camera phones, wikis, blogs, podcasts, online whiteboards...)
 ◆ sa1.11

- C-3.1** adjusts communication based on self-evaluation and feedback from a global audience

Reflect

- R-1.1** participates in guided conferences to think about using ICT to learn
 (examples: with peers, parents, teachers...)
 ◆ sd2.1

- R-2.1** invites and shares constructive feedback, related to established criteria, to reflect on using ICT to learn
 (example: explains selection of ICT...)

- R-3.1** self-monitors learning goals, reflects on the value of ICT to complete learning tasks, and sets personal goals for using ICT to learn

AFFECTIVE DOMAIN

Knows–Comprehends–Becomes Aware

- E-1.1** respects ICT equipment and personal technology space of other ICT users
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- E-1.2** recognizes guidelines for safety and security
 (examples: guidelines for Internet safety, security of user names and passwords, responsible use of email...)
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- E-1.3** recognizes the need to acknowledge authorship of intellectual property
 (examples: text, images, data, music, video...)
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- E-1.4** identifies possible health issues associated with using ICT
 (examples: ergonomic factors, inactivity, carpal tunnel syndrome, repetitive stress injury, eye strain, addictive/obsessive behaviour...)

Analyzes–Applies–Believes

- E-2.1** applies school division's acceptable-use policy for ICT
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- E-2.2** applies safety guidelines when communicating electronically
 (examples: email, web pages, threaded discussions, videoconferences, chats, instant messages, camera phones, wikis, blogs, podcasts, online whiteboards...)
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- E-2.3** explains consequences of unethical behaviour
 (examples: cyberbullying, promotion of prejudice and hatred, copyright violations, plagiarism, wilful destruction/manipulation of data, hacking, propagation of viruses, spamming, software piracy, consumer fraud, identity theft...)
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- E-2.4** applies guidelines for ethical and responsible use of ICT
 (examples: respects others' privacy, protects personal information, follows security procedures, respects intellectual property and credits sources, uses licensed software, discourages cyberbullying, collects data ethically, analyzes information ethically...)

Synthesizes–Evaluates–Values

- E-3.1** evaluates effects of personal ICT behaviour on others
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- E-3.2** weighs personal benefits and risks of using ICT

Ethics and Responsibility

Social Implications

S-1.1 identifies uses of ICT at home, at school, at work, and in the community
(examples: recreation, communication, education, sales, health care...)

S-1.2 relates societal consequences of ethical and unethical use of ICT

S-1.3 chooses appropriate times and places to use wireless games and/or communication devices
(examples: electronic pets/games, iPods, MP3 players, cell phones, PDAs...; at school, on buses, in theatres, in restaurants, in meetings, while driving...)

S-2.1 analyzes current trends in ICT to predict effects of emerging technologies

S-2.2 analyzes various ICT skill and competency requirements for personal career choices

S-2.3 analyzes advantages and disadvantages of ICT use in society
(examples: lack of access, consequences of unethical use, ease of manipulating data, ease of communicating information, addictive/obsessive behaviour...)

S-3.1 weighs society's right to information access against right to individual privacy

S-3.2 weighs benefits versus risks to society of creating new ICTs
(example: outsourcing jobs...)

Collaboration

Co-1.1 works with others in teacher-directed learning tasks using ICT and assists others with ICT knowledge and procedures
(examples: listens actively to a partner, collaborates in creating ICT products, participates in team webquests...)

Co-2.1 collaborates with peers to accomplish self-directed learning with ICT in various settings
(examples: assumes assigned group roles, sets group goals, solves group productivity issues...)

Co-3.1 leads a group in the process of collaborative learning
(examples: motivates team members, values contributions of team members, manages group conflict, works toward consensus...)

Co-2.2 collaborates with others over distance using ICT
(examples: email, web pages, threaded discussions, videoconferences, chats, instant messages, camera phones, wikis, blogs, podcasts, online whiteboards...)

Co-3.2 weighs benefits and challenges of collaborating on learning with ICT

Motivation and Confidence

M-1.1 demonstrates confidence and self-motivation while doing ICT tasks alone and with others

M-1.2 recognizes ICT problems and seeks assistance to solve them
(examples: consults peers, teachers, help menus, online supports, telephone helplines...)

M-1.3 recalls prior knowledge of procedures for troubleshooting and attempts to solve ICT problems

M-2.1 investigates ICT problems and applies strategies to solve them

M-2.2 perseveres in working through complex ICT problems using higher-level thinking skills
(examples: open-mindedness, precision, accuracy...)

M-3.1 synthesizes knowledge and information to solve unique ICT problems

For detailed information, samples, learning experiences, glossary, and bibliography, see <www.edu.gov.mb.ca/ks4/tech/lict/index.html>.

* Information and Communication Technology (ICT)

◆ Supporting Skills are listed on the reverse.

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