Ontario

Ministry of Education

Curriculum Expectations
GRADE 4

for

English Language
French as a Second Language
Mathematics
Science and Technology
Social Studies
Health & Physical Education
The Arts

2007

Oral Communication

Overall Expectations

4e1 1. listen in order to understand and respond appropriately in a variety of situations for a variety of purposes;

4e2 2. use speaking skills and strategies appropriately to communicate with different audiences for a variety of purposes;

4e3 3. reflect on and identify their strengths as listeners and speakers, areas for improvement, and the strategies they found most helpful in oral communication situations.

1. Listening to Understand

4e4 Purpose

1.1 identify purposes for listening in a variety of situations, formal and informal, and set goals related to specific listening tasks *(e.g., to summarize the theme of a small-group drama presentation; to record important details about an upcoming event announced on the radio; to clarify suggestions for improvements in a peer writing conference)*

4e5 Active Listening Strategies

1.2 demonstrate an understanding of appropriate listening behaviour by adapting active listening strategies to suit a variety of situations, including work in groups *(e.g., demonstrate an understanding of when to speak, when to listen, and how much to say; summarize information and ideas from a small-group meeting; ask relevant questions to clarify meaning and link responses appropriately to the topic of conversation; adapt listening behaviour to the requirements of informal social settings and more formal settings)*

4e6 Comprehension Strategies

1.3 identify a variety of listening comprehension strategies and use them appropriately before, during, and after listening in order to understand and clarify the meaning of oral texts *(e.g., make notes to summarize what has been heard; use graphic organizers, diagrams, or sketches to record information or ideas presented orally; prepare for a visit to the theatre by activating prior knowledge of the structure of a play and discussing the subject of the play with peers)*

4e7 Demonstrating Understanding

1.4 demonstrate an understanding of the information and ideas in a variety of oral texts by summarizing important ideas and citing important details *(e.g., present an oral report to the class after listening to a guest speaker; use a graphic organizer to map the important ideas in a text; represent the important ideas of an oral text through visual art, music, or drama)*

4e8 Making Inferences/Interpreting Texts

1.5 make inferences using stated and implied ideas in oral texts *(e.g., listen "between the lines" to detect bias in an oral text)*

4e9 Extending Understanding

1.6 extend understanding of oral texts by connecting the ideas in them to their own knowledge, experience, and insights; to other texts, including print and visual texts; and to the world around them *(e.g., relate the topic of an oral presentation to prior knowledge and information from personal experiences, articles, movies, stories, or television shows; ask questions about relevant stated and implied details; relate the ideas of other speakers in a dialogue group to their own experiences; use role play and drama to connect the themes and emotions depicted in an oral text to real-life situations)*

4e10 Analysing Texts

1.7 analyse oral texts and explain how specific elements in them contribute to meaning *(e.g., ideas and information, body language, tone of voice)*

Teacher prompt: "How did the speaker's body language and tone of voice contribute to the meaning?"

4e11 Point of View

1.8 identify the point of view presented in oral texts and ask questions about possible bias *(e.g., identify the use of words and/or phrases that signal generalizations or stereotypes about gender, culture, ability, or age)*

Teacher prompts: "Whose point of view is presented in this poem?" "Whose point of view is excluded?" "Does this reflect the way the world is today?" "How might this text be different if another point of view were presented?"

4e12 Presentation Strategies

1.9 identify the presentation strategies used in oral texts and analyse their effect on the audience *(e.g., the use of emotive language)*

Teacher prompt: "Do you think this type of emotive language influences the audience in the way the speaker intends?"

2. Speaking to Communicate

4e13 Purpose

2.1 identify a variety of purposes for speaking *(e.g., to entertain a wider school audience; to establish positive personal and learning relationships with peers; to ask questions or explore solutions to problems in mall-group and paired activities; to solicit opinions and react to information and ideas in a discussion or dialogue group; to explain to another person how something works; to summarize and comment on an event or oral text for the class; to clarify and organize thinking in order to contribute to understanding in large and small groups)*

4e14 Interactive Strategies

2.2 demonstrate an understanding of appropriate speaking behaviour in a variety of situations, including paired sharing and small- and large-group discussions *(e.g., acknowledge and extend other group members' contributions; make relevant and constructive comments on the contributions of other group members)*

4e15 Clarity and Coherence

2.3 communicate in a clear, coherent manner, presenting ideas, opinions, and information in a readily understandable form *(e.g., respond in an appropriate order to multi-part, higher-level questions in a student-teacher conference or a group discussion; explain the results of research in an oral presentation, including a statement of the research focus, the procedures followed, and the conclusions reached; use an organizational pattern such as chronological order or cause and effect to present ideas in a dialogue or discussion)*

4e16 Appropriate Language

2.4 use appropriate words and phrases from the full range of their vocabulary, including inclusive and non-discriminatory terms, and appropriate elements of style, to communicate their meaning accurately and engage the interest of their audience *(e.g., use evaluative terms to clarify opinions and for emphasis; use descriptive words to give specificity and detail to personal anecdotes; use humour or emotive language to engage the audience's interest or sympathy)*

4e17 Vocal Skills and Strategies

2.5 identify some vocal effects, including tone, pace, pitch, volume, and a range of sound effects, and use them appropriately and with sensitivity towards cultural differences to help communicate their meaning *(e.g., adjust the pace of speaking for effect and to hold the listener's attention)*

4e18 Non-Verbal Cues
2.6 identify some non-verbal cues, including facial expression, gestures, and eye contact, and use them in oral communications, appropriately and with sensitivity towards cultural differences, to help convey their meaning *(e.g., use body language, such as moving closer, leaning forward, nodding or shaking their head for emphasis, to connect with their audience)*

4e19 Visual Aids
2.7 use a variety of appropriate visual aids *(e.g., CDs or DVDs, computer-generated graphic organizers, concrete materials, artefacts)* to support or enhance oral presentations *(e.g., use pictures or samples of different kites to illustrate a talk on how to build a kite)*

3. Reflecting on Oral Communication Skills and Strategies

4e20 Metacognition
3.1 identify, in conversation with the teacher and peers, what strategies they found most helpful before, during, and after listening and speaking and what steps they can take to improve their oral communication skills
Teacher prompts: "What strategies do you use to monitor your listening to be sure that you are understanding the speaker?" "If, after listening, you think you don't understand, what steps do you take to clear up your confusion?" "How do you identify the things that you do well as a speaker and what you would like to improve upon?"

4e21 Interconnected Skills
3.2 identify, in conversation with the teacher and peers, how their skills as viewers, representers, readers, and writers help them improve their oral communication skills
Teacher prompts: "How can viewing media texts help you as a listener or speaker?" "How can reading texts from different cultures help you connect to your audience as a speaker?"

Reading

Overall Expectations

4e22 1. read and demonstrate an understanding of a variety of literary, graphic, and informational texts, using a range of strategies to construct meaning;

4e23 2. recognize a variety of text forms, text features, and stylistic elements and demonstrate understanding of how they help communicate meaning;

4e24 3. use knowledge of words and cueing systems to read fluently;

4e25 4. reflect on and identify their strengths as readers, areas for improvement, and the strategies they found most helpful before, during, and after reading.

1. Reading for Meaning

4e26 Variety of Texts
1.1 read a variety of texts from diverse cultures, including literary texts *(e.g., myths, plays, short stories, chapter books, letters, diaries, poetry)*, graphic texts *(e.g., graphic novels, diagrams, brochures, graphs and graphic organizers, charts and tables, maps)*, and informational texts *(e.g., textbooks, non-fiction books on a range of topics, print and online newspaper and magazine articles or reviews, print and online encyclopedias and atlases, electronic texts such as e-mails or zines)*

4e27 Purpose

1.2 identify a variety of purposes for reading and choose reading materials appropriate for those purposes *(e.g., letters and diaries for information and new ideas, leisure/hobby books and magazines for recreation and interest, print and online magazine or newspaper articles to research a current issue, instructions or information about how to play a computer game)*

4e28 Comprehension Strategies

1.3 identify a variety of reading comprehension strategies and use them appropriately before, during, and after reading to understand texts *(e.g., activate prior knowledge through brainstorming; ask questions to focus or clarify reading; use visualization to clarify details about such things as the sights, sounds, and smells in a medieval castle; make and confirm predictions based on evidence from the text; synthesize ideas during reading to generate a new understanding of a text)*

4e29 Demonstrating Understanding

1.4 demonstrate understanding of a variety of texts by summarizing important ideas and citing supporting details *(e.g., make an outline of a section from a textbook in another subject to prepare for a test)*

4e30 Making Inferences/Interpreting Texts

1.5 make inferences about texts using stated and implied ideas from the texts as evidence

Teacher prompts: "What does the graphic show that the text doesn't tell you?" "If you just saw the picture without the speech bubble/text box, what would you think?" "What does the author want you to realize when she says…?"

4e31 Extending Understanding

1.6 extend understanding of texts by connecting the ideas in them to their own knowledge, experience, and insights, to other familiar texts, and to the world around them

Teacher prompts: "Are there personal connections that you can make to the events in the text?" "How are other books by this author similar to the one we are reading?" "Which other books/movies/articles/online texts share a similar topic/theme/point of view?"

4e32 Analysing Texts

1.7 analyse texts and explain how specific elements in them contribute to meaning *(e.g., narrative:* characters, setting, main idea, problem/challenge and resolution, plot development; *review:* statement of opinion, reasons for opinion, concluding statement)

Teacher prompts: "How does the author use the setting to establish the mood of the text? Is it effective?" "How does the author use the opening paragraph to establish a framework for the book review?"

4e33 Responding to and Evaluating Texts

1.8 express opinions about the ideas and information in texts and cite evidence from the text to support their opinions

Teacher prompts: "Do you agree with the decisions made by the main character in the story?" "What is your opinion of this newspaper article? What evidence in the text supports your opinion?"

4e34 Point of View

1.9 identify the point of view presented in a text, citing supporting evidence from the text, and suggest some possible alternative perspectives *(e.g., identify words or phrases that reveal the point of view presented; write a letter or use role play to present the perspective of a character whose voice is not heard in the text)*

Teacher prompt: "Whose voice/opinion is missing from this text? Why do you think it has been left out of the text? What words might you give to this missing voice?"

2. Understanding Form and Style

4e35 Text Forms

2.1 explain how the particular characteristics of various text forms help communicate meaning, with a focus on literary texts such as a diary or journal *(e.g., first-person record of events, thoughts, and feelings, usually in prose, gives a personal perspective on events; dated daily or weekly entries provide context)*, graphic texts such as a brochure *(e.g., headings, subheadings, text boxes, photographs, lists, and maps clarify and highlight important material)*, and informational texts such as an encyclopedia (*e.g., table of contents, glossary, index, headings, and subheadings help the reader use key words to locate information)*

4e36 Text Patterns

2.2 recognize a variety of organizational patterns in texts of different types and explain how the patterns help readers understand the texts *(e.g., comparison in an advertisement; cause and effect in a magazine or newspaper article)*

4e37 Text Features

2.3 identify a variety of text features and explain how they help readers understand texts *(e.g., the back cover copy for a book helps readers decide whether the book will interest them; titles, subtitles, captions, labels, a menu allow the reader to skim a text to get a general idea of what it is about)*

4e38 Elements of Style

2.4 identify various elements of style – including alliteration, descriptive adjectives and adverbs, and sentences of different types, lengths, and structures – and explain how they help communicate meaning *(e.g., alliteration and rhythm can emphasize ideas or help convey a mood or sensory impression)*

3. Reading With Fluency

4e39 Reading Familiar Words

3.1 automatically read and understand high-frequency words, most regularly used words, and words of personal interest or significance in a variety of reading contexts *e.g., words from gradelevel texts; terminology used regularly in discussions and posted on anchor charts; words from shared-, guided-, and independent-reading texts and some regularly used resource materials in the curriculum subject areas)*

4e40 Reading Unfamiliar Words

3.2 predict the meaning of and rapidly solve unfamiliar words using different types of cues, including:

- semantic (meaning) cues *(e.g., prefixes, suffixes, base words, phrases, sentences, and visuals that activate existing knowledge of oral and written language)* ;
- syntactic (language structure) cues *(e.g., word order; language patterns such as those for regular and irregular plurals, possessives, and contractions; punctuation)* ;
- graphophonic (phonological and graphic) cues *(e.g., familiar words within larger words:* high*light*, en*light*en; *recognizable sequences of letters within long words:* spa*cious*, cons*cious*, deli*cious)*

4e41 Reading Fluently

3.3 read appropriate texts at a sufficient rate and with sufficient expression to convey the sense of the text readily to the reader and an audience *(e.g., read orally in role as part of a readers' theatre, using appropriate phrasing and expression)*

4. Reflecting on Reading Skills and Strategies

4e42 Metacognition

4.1 identify, in conversations with the teacher and peers or in a reader's notebook, what strategies they found most helpful before, during, and after reading and how they can use these and other strategies to improve as readers

Teacher prompts: "How do you check to be sure that you are understanding while you read?" "What helps you identify the important ideas while you are reading?" "What helps you 'read between the lines'?" "How do you know if you are not understanding?" "What 'fix-up' strategies work effectively for you?"

4e43 Interconnected Skills

4.2 explain, in conversations with the teacher and peers or in a reader's notebook, how their skills in listening, speaking, writing, viewing, and representing help them make sense of what they read *(e.g., orally summarizing what has been read helps a reader to check on understanding; engaging in dialogue about a text helps the reader understand other perspectives and interpretations of a text)*

Teacher prompt: "How does conferencing with a peer or the teacher about a text help you understand the text better?"

Writing

Overall Expectations

4e44 1. generate, gather, and organize ideas and information to write for an intended purpose and audience;

4e45 2. draft and revise their writing, using a variety of informational, literary, and graphic forms and stylistic elements appropriate for the purpose and audience;

4e46 3. use editing, proofreading, and publishing skills and strategies, and knowledge of language conventions, to correct errors, refine expression, and present their work effectively;

4e47 4. reflect on and identify their strengths as writers, areas for improvement, and the strategies they found most helpful at different stages in the writing process.

1. Developing and Organizing Content

4e48 Purpose and Audience

1.1 identify the topic, purpose, and audience for a variety of writing forms *(e.g., a cinquain or shape poem modelled on the structures and style of poems read, to contribute to a student poetry anthology for the school library; a set of directions to complete a science experiment on pulleys and gears, for a class presentation; a timeline of significant events in the writer's life, to accompany a biography for a class collection)*

Teacher prompts: "How will you identify your topic?" "What is the purpose of your writing?" "What formwill best suit the purpose?" "Who will your audience be?"

4e49 Developing Ideas

1.2 generate ideas about a potential topic using a variety of strategies and resources *(e.g., brainstorm; formulate and ask questions to identify personal experiences, prior knowledge, and information needs)*

4e50 Research
1.3 gather information to support ideas for writing using a variety of strategies and oral, print, and electronic sources *(e.g., identify key words to help narrow their searches; cluster ideas; develop a plan for locating information; scan texts for specific information, including teacher readalouds, mentor texts, reference texts, shared-, guided-, and independent-reading texts, and media texts)*

4e51 Classifying Ideas
1.4 sort and classify ideas and information for their writing in a variety of ways *(e.g., by underlining key words and phrases; by using graphic and print organizers such as mind maps, concept maps, timelines, jot notes, bulleted lists)*

4e52 Organizing Ideas
1.5 identify and order main ideas and supporting details and group them into units that could be used to develop a summary, using a variety of graphic organizers *(e.g., a Venn diagram, a paragraph frame)* and organizational patterns *(e.g., generalization with supporting information, cause and effect)*

4e53 Review
1.6 determine whether the ideas and information they have gathered are relevant and adequate for the purpose, and do more research if necessary *(e.g., discuss material with a peer or adult using a KWHLW organizer:* What do I know? What do I want to learn? How will I find out? What have I learned? What do I still want to know?*, compare their material to the content of similar texts)*

2. Using Knowledge of Form and Style in Writing

4e54 Form
2.1 write more complex texts using a variety of forms *(e.g., a storyboard using captions and photographs or drawings to recount a significant event in their life; a report, including jot notes, comparing the environments of two or more regions in Canada; a letter to the author about the student's reaction to a particular text; a summary of the role of a medieval person; a review of a book or website; an original folk tale, fairy tale, or tall tale, or an extension of an existing tale; a board game related to a unit of study)*

4e55 Voice
2.2 establish a personal voice in their writing, with a focus on using words and stylistic elements that convey a specific mood such as amusement *(e.g., use simple irony to poke fun at themselves:* "Lucky me. I got to do the dishes.")

4e56 Word Choice
2.3 use specific words and phrases to create an intended impression *(e.g., comparative adjectives such as* faster*; words that create specific effects through sound, as in alliteration for emphasis:* rotten rain*)*

4e57 Sentence Fluency
2.4 use sentences of different lengths and structures *(e.g., complex sentences incorporating conjunctions such as* because, so, if*)*

4e58 Point of View
2.5 identify their point of view and other possible points of view on the topic, and determine whether their information sufficiently supports their own view
Teacher prompt: "Have you included enough details that support your point of view? What facts or details that you have left out would challenge your point of view?"

4e59 Preparing for Revision

2.6 identify elements of their writing that need improvement, using feedback from the teacher and peers, with a focus on specific features *(e.g., logical organization, depth of content)*

Teacher prompts: "How might you reorganize the information to make it easier for the audience to understand?" "Are there clear links between your ideas?" "Can you add one sentence that would help clarify your main idea?"

4e60 Revision

2.7 make revisions to improve the content, clarity, and interest of their written work, using several types of strategies *(e.g., reordering sentences; removing repetition or unnecessary information; changing the sequence of ideas and information and adding material if appropriate; adding transition words and phrases to link sentences and/or paragraphs and improve the flow of writing; adding or substituting words from other subject areas, word lists, and a variety of sources, such as a dictionary or thesaurus and the Internet, to clarify meaning or add interest; checking for and removing negative stereotypes, as appropriate)*

Teacher prompts: "What words or phrases could you use to help the reader follow your thinking more easily?" "What descriptive words could you add to make your characters come alive for the reader?"

4e61 Producing Drafts

2.8 produce revised, draft pieces of writing to meet identified criteria based on the expectations related to content, organization, style, and use of conventions

3. Applying Knowledge of Language Conventions and Presenting Written Work Effectively

4e62 Spelling Familiar Words

3.1 spell familiar words correctly *(e.g., words from their oral vocabulary, anchor charts, and shared-, guided-, and independent -reading texts; words used regularly in instruction across the curriculum)*

4e63 Spelling Unfamiliar Words

3.2 spell unfamiliar words using a variety of strategies that involve understanding sound-symbol relationships, word structures, word meanings, and generalizations about spelling *(e.g., pronounce the silent letters in words:* k-now*; divide long words into manageable chunks; make connections between words with similar spellings; apply knowledge of vowel patterns to new words; apply knowledge of letter patterns and rules for forming regular and irregular plurals and possessive contractions; identify roots in related words:* explore, explorer, exploration; *highlight the differences between similar words; use mnemonics:* twin *is* two*)*

4e64 Vocabulary

3.3 confirm spellings and word meanings or word choice using different types of resources appropriate for the purpose *(e.g., locate words in online and print dictionaries using alphabetical order, entry words, guide words, pronunciation, and homographs; use a variety of dictionaries such as a dictionary of idioms or homonyms; use a thesaurus to find alternative words)*

4e65 Punctuation

3.4 use punctuation appropriately to help communicate their intended meaning, with a focus on the use of: the apostrophe to indicate possession, and quotation marks to indicate direct speech

4e66 Grammar

3.5 use parts of speech appropriately to communicate their meaning clearly, with a focus on the use of: common and proper nouns; verbs in the simple present, past, and future tenses; adjectives and adverbs; subject/verb agreement; prepositions; and conjunctions *(e.g., since, through, until)*

4e67 Proofreading

3.6 proofread and correct their writing using guidelines developed with peers and the teacher *(e.g., an editing checklist specific to the writing task; a posted class writing guideline)*

4e68 Publishing
3.7 use some appropriate elements of effective presentation in the finished product, including print, script, different fonts, graphics, and layout *(e.g., use legible printing and some cursive writing; use a variety of font sizes and colours to distinguish headings and subheadings from the body of the text; supply detailed labels for diagrams in a report; include graphs such as a bar graph or a pie graph)*

4e69 Producing Finished Works
3.8 produce pieces of published work to meet identified criteria based on the expectations related to content, organization, style, use of conventions, and use of presentation strategies

4. Reflecting on Writing Skills and Strategies

4e70 Metacognition
4.1 identify what strategies they found most helpful before, during, and after writing and what steps they can take to improve as writers
Teacher prompts: "Explain how you used the thesaurus to help with your revisions." "How does keeping a writer's notebook help you plan your next steps for writing?"

4e71 Interconnected Skills
4.2 describe, with prompting by the teacher, how their skills in listening, speaking, reading, viewing, and representing help in their development as writers
Teacher prompts: "How does your experience of variety of texts help you as a writer?" "In what way is talking before writing helpful to you?" "How does it help you to listen to someone else read your writing?"

4e72 Portfolio
4.3 select pieces of writing that they think reflect their growth and competence as writers and explain the reasons for their choice

Media Literacy

Overall Expectations

4e73 1. demonstrate an understanding of a variety of media texts;

4e74 2. identify some media forms and explain how the conventions and techniques associated with them are used to create meaning;

4e75 3. create a variety of media texts for different purposes and audiences, using appropriate forms, conventions, and techniques;

4e76 4. reflect on and identify their strengths as media interpreters and creators, areas for improvement, and the strategies they found most helpful in understanding and creating media texts.

1. Understanding Media Texts

4e77 Purpose and Audience
1.1 identify the purpose and audience for a variety of media texts *(e.g., this print advertisement is designed to interest children in taking karate lessons; this website is designed to provide information to fans about a favourite singer; this CD cover is designed to attract classical music fans/pop fans/rap fans)*
Teacher prompt: "Why do you think this text was created? What age, gender, cultural group is it aimed at? How do you know?"

4e78 Making Inferences/Interpreting Messages

1.2 use overt and implied messages to draw inferences and construct meaning in media texts *(e.g., overt message on packaging for a video game:* In this adventure game, characters take big risks and perform amazing deeds; *implied message:* If you buy this game, you can share in the excitement and be more like the daring characters*)*

Teacher prompts: "What messages on the packaging make you think you would like to play this game? What do the images on the package make you think about? Which do you think influence you more – the overt messages or the implied messages?" "On television, what characteristics are shared by positive role models?"

4e79 Responding to and Evaluating Texts

1.3 express opinions about ideas, issues, and/or experiences presented in media texts, and give evidence from the texts to support their opinions *(e.g.,"I think this documentary about lions is one-sided because it only shows them as predators"; defend an opinion about whether or not a sitcom or video game reflects reality) Teacher prompts:* "Which elements of this sitcom (or video game) seemed realistic and believable to you? Why? Did anything seem exaggerated?" "Do the characters in the program accurately represent the diversity of society? Explain."

4e80 Audience Responses

1.4 explain why different audiences might respond differently to specific media texts *(e.g., examine children's books or video games that have been rated as suitable for different age groups and suggest reasons for the ratings)*

Teacher prompt: "Find the age rating for a DVD/video/game that you enjoy. Is it fair? Why/why not?"

4e81 Point of View

1.5 identify whose point of view is presented or reflected in a media text, citing supporting evidence from the text, and suggest how the text might change if a different point of view were used *(e.g., explain how the point of view reflected in an advertisement is conveyed and describe how the advertisement might change to reflect the point of view of a different audience; describe how a TV show might change if it were told from the point of view of a different character) Teacher prompts:* "What kinds of images would you use in this advertisement for a children's breakfast cereal if you wanted parents to buy the cereal?" "From whose point of view is your favourite television show presented?"

4e82 Production Perspectives

1.6 identify who produces various media texts and the reason for their production *(e.g., the government produces public service announcements, and the media broadcast them at no charge, to protect citizens' safety and the public interest; arts groups produce posters to advertise upcoming events; publishers produce newspapers to provide information, influence people's thinking, and make money) Teacher prompt:* "Where would we find a public service announcement?" "How do people access or acquire newspapers?"

2. Understanding Media Forms, Conventions, and Techniques

4e83 Form

2.1 identify elements and characteristics of some media forms *(e.g., a television game show:* game host/hostess, contestants, prizes; *a television nature program:* outdoor setting, wildlife "actors", voiceover narration, background music; *a billboard:* frame, large surface area, colour, images, graphics, words, font, punctuation*)*

Teacher prompts: "What would you expect to see in a game-show program? A nature program?" "What aspect of this billboard caught your immediate attention?"

4e84 Conventions and Techniques

2.2 identify the conventions and techniques used in some familiar media forms and explain how they help convey meaning *(e.g., movies and videos use camera closeups to show details, medium and long shots to put people and objects in perspective, high and low camera angles to create illusions of size or artistic effects, environmental sounds for realistic effects, background music to suggest a mood)*

Teacher prompt: "What kind of music would you use in a commercial for bicycles? Why?"

3. Creating Media Texts

4e85 Purpose and Audience

3.1 describe in detail the topic, purpose, and audience for media texts they plan to create *(e.g., an album of camera shots to help classmates understand the uses of different camera angles and distances in photography and/or film)*

4e86 Form

3.2 identify an appropriate form to suit the specific purpose and audience for a media text they plan to create *(e.g., a poster advertising a school science fair; a flyer to encourage students to participate in the fair)*

Teacher prompt: "Why is a poster better to advertise the fair and a flyer better to tell students how to participate?"

4e87 Conventions and Techniques

3.3 identify conventions and techniques appropriate to the form chosen for a media text they plan to create *(e.g., a board game related to a unit of study from a curriculum subject area could include a list of game rules; a board showing the game name, movement path, obstacles, and finish line; and visual details that will appeal to the intended audience)*

Teacher prompt: "What are the essential components of this form? Have you included them all?"

4e88 Producing Media Texts

3.4 produce media texts for specific purposes and audiences, using a few simple media forms and appropriate conventions and techniques*(e.g.,*

- *an album of camera shots showing the different angles and distances and commenting on their uses*
- *a poem, announcement, or flyer produced electronically by combining word-processed text with pictures and/or photographs*
- *a mock television commercial for a favourite cereal, toy, or book*
- *a newspaper article that includes a photograph and headline*
- *a board game related to a unit of study from a curriculum subject area such as science or health*
- *a picture book to accompany a unit of study for a younger grade*
- *a storyboard identifying the sound effects, images, and dialogue to be used in filming a scene from a novel)*

4. Reflecting on Media Literacy Skills and Strategies

4e89 Metacognition

4.1 identify, initially with support and direction, what strategies they found most helpful in making sense of and creating media texts, and explain how these and other strategies can help them improve as media viewers/ listeners/producers

Teacher prompt: "What skills do you use, before, during, and after you work with or create a media text? Be sure to consider all the skills required for texts that have more than one form: for example, television uses sound, visual images, and sometimes print."

4e90 Interconnected Skills

4.2 explain, initially with support and direction, how their skills in listening, speaking, reading, and writing help them to make sense of and produce media texts

Teacher prompt: "Does reading and writing about a story after seeing the movie or DVD give you new ideas about what you saw?"

French as a Second Language Expectations Grade 04

Oral Communication, Reading, and Writing

Overall Expectations

4f1	• talk about familiar topics, using very simple phrases and sentences;
4f2	• listen to short, very simple oral texts, and respond to specific simple questions;
4f3	• read a variety of very simple materials, 50 to 100 words long, containing basic learned vocabulary, and demonstrate understanding;
4f4	• write very simple texts and responses following a model;
4f5	• identify and use the vocabulary and the grammar and language conventions appropriate for this grade level.

Oral Communication

4f6	– follow basic classroom instructions;
4f7	– ask very simple questions, and ask for repetition to clarify understanding;
4f8	– use visual and verbal cues to understand what they hear, following repetition (e.g., gestures, facial expressions, tone of voice);
4f9	– use some conventions of oral language (e.g., pronunciation, intonation) to speak in rehearsed contexts;
4f10	– respond briefly to oral texts (e.g., answer short, simple questions; act out the words of a song);
4f11	– give an oral presentation of up to five sentences in length (e.g., a description of themselves, skits, songs);
4f12	– make simple revisions to oral language in form and content (e.g., correct use of gender), using feedback from the teacher.

Reading

4f13	– read aloud familiar material, using correct pronunciation and intonation;
4f14	– read at least six simple passages or stories (e.g., greeting cards, song lyrics);
4f15	– read and respond briefly to written materials (e.g., answer short questions, fill in missing words, draw a picture, select answers);
4f16	– use all available cues (e.g., visual cues, knowledge of basic sounds, and context) to determine meaning.

Writing

4f17	– copy and write simple words, phrases, and short sentences and questions, using basic vocabulary and very simple language structures;
4f18	– write, using a model, a first draft and corrected version in guided and cooperative writing tasks (e.g., greeting cards);
4f19	– write responses to very simple questions;
4f20	– use and spell the vocabulary appropriate for this grade level.

Mathematical Process Expectations

Problem Solving

4m1 • develop, select, and apply problem-solving strategies as they pose and solve problems and conduct investigations, to help deepen their mathematical understanding;

Reasoning And Proving

4m2 • develop and apply reasoning skills (e.g., classification, recognition of relationships, use of counter-examples) to make and investigate conjectures and construct and defend arguments;

Reflecting

4m3 • demonstrate that they are reflecting on and monitoring their thinking to help clarify their understanding as they complete an investigation or solve a problem (e.g., by comparing and adjustung strategies used, by explaining why they think their results are reasonable, by recording their thinking in a math journal);

Selecting Tools and Computational Strategies

4m4 • select and use a variety of concrete, visual, and electronic learning tools and appropriate computational strategies to investigate mathematical ideas and to solve problems;

Connecting

4m5 • make connections among mathematical concepts and procedures, and relate mathematical ideas to situations or phenomena drawn from other contexts (e.g., other curriculum areas, daily life, sports);

Representing

4m6 • create a variety of representations of mathematical ideas (e.g., by using physical models, pictures, numbers, variables, diagrams, graphs, onscreen dynamic representations), make connections among them, and apply them to solve problems;

Communicating

4m7 • communicate mathematical thinking orally, visually, and in writing, using everyday language, a basic mathematical vocabulary, and a variety of representations, and observing basic mathematical conventions.

Number Sense and Numeration

Overall Expectations

4m8 • read, represent, compare, and order whole numbers to 10 000, decimal numbers to tenths, and simple fractions, and represent money amounts to $100;

4m9 • demonstrate an understanding of magnitude by counting forward and backwards by 0.1 and by fractional amounts;

4m10 • solve problems involving the addition, subtraction, multiplication, and division of single- and multi-digit whole numbers, and involving the addition and subtraction of decimal numbers to tenths and money amounts, using a variety of strategies;

4m11 • demonstrate an understanding of proportional reasoning by investigating whole-number unit rates.

Quantity Relationships

4m12 – represent, compare, and order whole numbers to 10 000, using a variety of tools (e.g., drawings of base ten materials, number lines with increments of 100 or other appropriate amounts);

4m13 – demonstrate an understanding of place value in whole numbers and decimal numbers from 0.1 to 10 000, using a variety of tools and strategies (e.g., use base ten materials to represent 9307 as 9000 + 300 + 0 + 7) (Sample problem: Use the digits 1, 9, 5, 4 to create the greatest number and the least number possible, and explain your thinking.);

4m14 – read and print in words whole numbers to one thousand, using meaningful contexts (e.g., books, highway distance signs);

4m15 – round four-digit whole numbers to the nearest ten, hundred, and thousand, in problems arising from real-life situations;

4m16 – represent, compare, and order decimal numbers to tenths, using a variety of tools (e.g., concrete materials such as paper strips divided into tenths and base ten materials, number lines, drawings) and using standard decimal notation (Sample problem: Draw a partial number line that extends from 4.2 to 6.7, and mark the location of 5.6.);

4m17 – represent fractions using concrete materials, words, and standard fractional notation, and explain the meaning of the denominator as the number of the fractional parts of a whole or a set, and the numerator as the number of fractional parts being considered;

4m18 – compare and order fractions (i.e., halves, thirds, fourths, fifths, tenths) by considering the size and the number of fractional parts (e.g., 4/5 is greater than 3/5 because there are more parts in 4/5; 1/4 is greater than 1/5 because the size of the part is larger in 1/4);

4m19 – compare fractions to the benchmarks of 0, 1/2, and 1 (e.g., 1/8 is closer to 0 than to 1/2; 3/5 is more than 1/2);

4m20 – demonstrate and explain the relationship between equivalent fractions, using concrete materials (e.g., fraction circles, fraction strips, pattern blocks) and drawings (e.g., "I can say that 3/6 of my cubes are white, or half of the cubes are white. This means that 3/6 and 1/2 are equal.");

4m21 – read and represent money amounts to $100 (e.g., five dollars, two quarters, one nickel, and four cents is $5.59);

4m22 – solve problems that arise from real-life situations and that relate to the magnitude of whole numbers up to 10 000 (Sample problem: How high would a stack of 10 000 pennies be? Justify your answer.).

Counting

4m23 – count forward by halves, thirds, fourths, and tenths to beyond one whole, using concrete materials and number lines (e.g., use fraction circles to count fourths: "One fourth, two fourths, three fourths, four fourths, five fourths, six fourths, …");

4m24 – count forward by tenths from any decimal number expressed to one decimal place, using concrete materials and number lines (e.g., use base ten materials to represent 3.7 and count forward: 3.8, 3.9, 4.0, 4.1, …; "Three and seven tenths, three and eight tenths, three and nine tenths, four, four and one tenth, …") (Sample problem: What connections can you make between counting by tenths and measuring lengths in millimetres and in centimetres?).

Operational Sense

4m25 – add and subtract two-digit numbers, using a variety of mental strategies (e.g., one way to calculate 73 – 39 is to subtract 40 from 73 to get 33, and then add 1 back to get 34);

4m26 – solve problems involving the addition and subtraction of four-digit numbers, using student-generated algorithms and standard algorithms (e.g., "I added 4217 + 1914 using 5000 + 1100 + 20 + 11.");

4m27 – add and subtract decimal numbers to tenths, using concrete materials (e.g., paper strips divided into tenths, base ten materials) and student-generated algorithms (e.g., "When I added 6.5 and 5.6, I took five tenths in fraction circles and added six tenths in fraction circles to give me one whole and one tenth. Then I added 6 + 5 + 1.1, which equals 12.1.");

4m28 – add and subtract money amounts by making simulated purchases and providing change for amounts up to $100, using a variety of tools (e.g., currency manipulatives, drawings);

4m29 – multiply to 9 x 9 and divide to 81 ÷ 9, using a variety of mental strategies (e.g., doubles, doubles plus another set, skip counting);

4m30 – solve problems involving the multiplication of one-digit whole numbers, using a variety of mental strategies (e.g., 6 x 8 can be thought of as 5 x 8 + 1 x 8);

4m31 – multiply whole numbers by 10, 100, and 1000, and divide whole numbers by 10 and 100, using mental strategies (e.g., use a calculator to look for patterns and generalize to develop a rule);

4m32 – multiply two-digit whole numbers by one-digit whole numbers, using a variety of tools (e.g., base ten materials or drawings of them, arrays), student-generated algorithms, and standard algorithms;

4m33 – divide two-digit whole numbers by one-digit whole numbers, using a variety of tools (e.g., concrete materials, drawings) and student-generated algorithms;

4m34 – use estimation when solving problems involving the addition, subtraction, and multiplication of whole numbers, to help judge the reasonableness of a solution (Sample problem: A school is ordering pencils that come in boxes of 100. If there are 9 classes and each class needs about 110 pencils, estimate how many boxes the school should buy.).

Proportional Relationships

4m35 – describe relationships that involve simple whole-number multiplication (e.g., "If you have 2 marbles and I have 6 marbles, I can say that I have three times the number of marbles you have.");

4m36 – determine and explain, through investigation, the relationship between fractions (i.e., halves, fifths, tenths) and decimals to tenths, using a variety of tools (e.g., concrete materials, drawings, calculators) and strategies (e.g., decompose into 2/5 into 4/10 by dividing each fifth into two equal parts to show that 2/5 can be represented as 0.4);

4m37 – demonstrate an understanding of simple multiplicative relationships involving unit rates, through investigation using concrete materials and drawings (e.g., scale drawings in which 1 cm represents 2 m) (Sample problem: If 1 book costs $4, how do you determine the cost of 2 books?… 3 books?…4 books?).

Measurement

Overall Expectations

4m38 • estimate, measure, and record length, perimeter, area, mass, capacity, volume, and elapsed time, using a variety of strategies;

4m39 • determine the relationships among units and measurable attributes, including the area and perimeter of rectangles.

Attributes, Units, and Measurement Sense

4m40 – estimate, measure, and record length, height, and distance, using standard units (i.e., millimetre, centimetre, metre, kilometre) (e.g., a pencil that is 75 mm long);

4m41 – draw items using a ruler, given specific lengths in millimetres or centimetres (Sample problem: Use estimation to draw a line that is 115 mm long. Beside it, use a ruler to draw a line that is 115 mm long. Compare the lengths of the lines.);

4m42 – estimate, measure (i.e., using an analogue clock), and represent time intervals to the nearest minute;

4m43 – estimate and determine elapsed time, with and without using a time line, given the durations of events expressed in five-minute intervals, hours, days, weeks, months, or years (Sample problem: If you wake up at 7:30 a.m., and it takes you 10 minutes to eat your breakfast, 5 minutes to brush your teeth, 25 minutes to wash and get dressed, 5 minutes to get your backpack ready, and 20 minutes to get to school, will you be at school by 9:00 a.m.?);

4m44 – estimate, measure using a variety of tools (e.g., centimetre grid paper, geoboard) and strategies, and record the perimeter and area of polygons;

4m45 – estimate, measure, and record the mass of objects (e.g., apple, baseball, book), using the standard units of the kilogram and the gram;

4m46 – estimate, measure, and record the capacity of containers (e.g., a drinking glass, a juice box), using the standard units of the litre and the millilitre;

4m47 – estimate, measure using concrete materials, and record volume, and relate volume to the space taken up by an object (e.g., use centimetre cubes to demonstrate how much space a rectangular prism takes up) (Sample problem: Build a rectangular prism using connecting cubes. Describe the volume of the prism using the number of connecting cubes.).

Measurement Relationships

4m48 – describe, through investigation, the relationship between various units of length (i.e., millimetre, centimetre, decimetre, metre, kilometre);

4m49 – select and justify the most appropriate standard unit (i.e., millimetre, centimetre, decimetre, metre, kilometre) to measure the side lengths and perimeters of various polygons;

4m50 – determine, through investigation, the relationship between the side lengths of a rectangle and its perimeter and area (Sample problem: Create a variety of rectangles on a geoboard. Record the length, width, area, and perimeter of each rectangle on a chart. Identify relationships.);

4m51 – pose and solve meaningful problems that require the ability to distinguish perimeter and area (e.g., "I need to know about area when I cover a bulletin board with construction paper. I need to know about perimeter when I make the border.");

4m52 – compare and order a collection of objects, using standard units of mass (i.e., gram, kilogram) and/or capacity (i.e., millilitre, litre);

4m53 – determine, through investigation, the relationship between grams and kilograms (Sample problem: Use centimetre cubes with a mass of one gram, or other objects of known mass, to balance a one-kilogram mass.);

4m54 – determine, through investigation, the relationship between millilitres and litres (Sample problem: Use small containers of different known capacities to fill a one-litre container.);

4m55 – select and justify the most appropriate standard unit to measure mass (i.e., milligram, gram, kilogram) and the most appropriate standard unit to measure the capacity of a container (i.e., millilitre, litre);

4m56 – solve problems involving the relationship between years and decades, and between decades and centuries (Sample problem: How many decades old is Canada?);

4m57 – compare, using a variety of tools (e.g., geoboard, patterns blocks, dot paper), two-dimensional shapes that have the same perimeter or the same area (Sample problem: Draw, using grid paper, as many different rectangles with a perimeter of 10 units as you can make on a geoboard.).

Geometry and Spatial Sense

Overall Expectations

4m58 • identify quadrilaterals and three-dimensional figures and classify them by their geometric properties, and compare various angles to benchmarks;

4m59 • construct three-dimensional figures, using two-dimensional shapes;

4m60 • identify and describe the location of an object, using a grid map, and reflect two-dimensional shapes.

Geometric Properties

4m61 – draw the lines of symmetry of two-dimensional shapes, through investigation using a variety of tools (e.g., Mira, grid paper) and strategies (e.g., paper folding) (Sample problem: Use paper folding to compare the symmetry of a rectangle with the symmetry of a square.);

4m62 – identify and compare different types of quadrilaterals (i.e., rectangle, square, trapezoid, parallelogram, rhombus) and sort and classify them by their geometric properties (e.g., sides of equal length; parallel sides; symmetry; number of right angles);

4m63 – identify benchmark angles (i.e., straight angle, right angle, half a right angle), using a reference tool (e.g., paper and fasteners, pattern blocks, straws), and compare other angles to these benchmarks (e.g., "The angle the door makes with the wall is smaller than a right angle but greater than half a right angle.") (Sample problem: Use paper folding to create benchmarks for a straight angle, a right angle, and half a right angle, and use these benchmarks to describe angles found in pattern blocks.);

4m64 – relate the names of the benchmark angles to their measures in degrees (e.g., a right angle is 90º);

4m65 – identify and describe prisms and pyramids, and classify them by their geometric properties (i.e., shape of faces, number of edges, number of vertices), using concrete materials.

Geometric Relationships

4m66 – construct a three-dimensional figure from a picture or model of the figure, using connecting cubes (e.g., use connecting cubes to construct a rectangular prism);

4m67 – construct skeletons of three-dimensional figures, using a variety of tools (e.g., straws and modelling clay, toothpicks and marshmallows, Polydrons), and sketch the skeletons;

4m68 – draw and describe nets of rectangular and triangular prisms (Sample problem: Create as many different nets for a cube as you can, and share your results with a partner.);

4m69 – construct prisms and pyramids from given nets;

4m70 – construct three-dimensional figures (e.g., cube, tetrahedron), using only congruent shapes.

Location and Movement

4m71 – identify and describe the general location of an object using a grid system (e.g., "The library is located at A3 on the map.");

4m72 – identify, perform, and describe reflections using a variety of tools (e.g., Mira, dot paper, technology);

4m73 – create and analyse symmetrical designs by reflecting a shape, or shapes, using a variety of tools (e.g., pattern blocks, Mira, geoboard, drawings), and identify the congruent shapes in the designs.

Patterning and Algebra

Overall Expectations

4m74 • describe, extend, and create a variety of numeric and geometric patterns, make predictions related to the patterns, and investigate repeating patterns involving reflections;

4m75 • demonstrate an understanding of equality between pairs of expressions, using addition, subtraction, and multiplication.

Patterns and Relationships

4m76 – extend, describe, and create repeating, growing, and shrinking number patterns (e.g., "I created the pattern 1, 3, 4, 6, 7, 9, …. I started at 1, then added 2, then added 1, then added 2, then added 1, and I kept repeating this.");

4m77 – connect each term in a growing or shrinking pattern with its term number (e.g., in the sequence 1, 4, 7, 10, …, the first term is 1, the second term is 4, the third term is 7, and so on), and record the patterns in a table of values that shows the term number and the term;

4m78 – create a number pattern involving addition, subtraction, or multiplication, given a pattern rule expressed in words (e.g., the pattern rule "start at 1 and multiply each term by 2 to get the next term" generates the sequence 1, 2, 4, 8, 16, 32, 64, …);

4m79 – make predictions related to repeating geometric and numeric patterns (Sample problem: Create a pattern block train by alternating one green triangle with one red trapezoid. Predict which block will be in the 30th place.);

4m80 – extend and create repeating patterns that result from reflections, through investigation using a variety of tools (e.g., pattern blocks, dynamic geometry software, dot paper).

Expressions and Equality

4m81 – determine, through investigation, the inverse relationship between multiplication and division (e.g., since 4 x 5 = 20, then 20 ÷ 5 = 4; since 35 ÷ 5 = 7, then 7 x 5 = 35);

4m82 – determine the missing number in equations involving multiplication of one- and two-digit numbers, using a variety of tools and strategies (e.g., modelling with concrete materials, using guess and check with and without the aid of a calculator) (Sample problem: What is the missing number in the equation x 4 = 24?);

4m83 – identify, through investigation (e.g., by using sets of objects in arrays, by drawing area models), and use the commutative property of multiplication to facilitate computation with whole numbers (e.g., "I know that 15 x 7 x 2 equals 15 x 2 x 7. This is easier to multiply in my head because I get 30 x 7 = 210.");

4m84 – identify, through investigation (e.g., by using sets of objects in arrays, by drawing area models), and use the distributive property of multiplication over addition to facilitate computation with whole numbers (e.g., "I know that 9 x 52 equals 9 x 50 + 9 x 2. This is easier to calculate in my head because I get 450 + 18 = 468.").

Data Management and Probability

Overall Expectations

4m85 • collect and organize discrete primary data and display the data using charts and graphs, including stem-and-leaf plots and double bar graphs;

4m86 • read, describe, and interpret primary data and secondary data presented in charts and graphs, including stem-and-leaf plots and double bar graphs;

4m87 • predict the results of a simple probability experiment, then conduct the experiment and compare the prediction to the results.

Collection and Organization of Data

4m88 – collect data by conducting a survey (e.g., "Choose your favourite meal from the following list: breakfast, lunch, dinner, other.") or an experiment to do with themselves, their environment, issues in their school or the community, or content from another subject, and record observations or measurements;

4m89 – collect and organize discrete primary data and display the data in charts, tables, and graphs (including stem-and-leaf plots and double bar graphs) that have appropriate titles, labels (e.g., appropriate units marked on the axes), and scales (e.g., with appropriate increments) that suit the range and distribution of the data, using a variety of tools (e.g., graph paper, simple spreadsheets, dynamic statistical software).

Data Relationships

4m90 – read, interpret, and draw conclusions from primary data (e.g., survey results, measurements, observations) and from secondary data (e.g., temperature data in the newspaper, data from the Internet about endangered species), presented in charts, tables, and graphs (including stem-and-leaf plots and double bar graphs);

4m91 – demonstrate, through investigation, an understanding of median (e.g., "The median is the value in the middle of the data. If there are two middle values, you have to calculate the middle of those two values."), and determine the median of a set of data (e.g., "I used a stem-and-leaf plot to help me find the median.");

4m92 – describe the shape of a set of data across its range of values, using charts, tables, and graphs (e.g. "The data values are spread out evenly."; "The set of data bunches up around the median.");

4m93 – compare similarities and differences between two related sets of data, using a variety of strategies (e.g., by representing the data using tally charts, stem-and-leaf plots, or double bar graphs; by determining the mode or the median; by describing the shape of a data set across its range of values).

Probability

4m94 – predict the frequency of an outcome in a simple probability experiment, explaining their reasoning; conduct the experiment; and compare the result with the prediction (Sample problem: If you toss a pair of number cubes 20 times and calculate the sum for each toss, how many times would you expect to get 12? 7? 1? Explain your thinking. Then conduct the experiment and compare the results with your predictions.);

4m95 – determine, through investigation, how the number of repetitions of a probability experiment can affect the conclusions drawn (Sample problem: Each student in the class tosses a coin 10 times and records how many times tails comes up. Combine the individual student results to determine a class result, and then compare the individual student results and the class result.).

Science and Technology Expectations (2007) Grade 4

UNDERSTANDING LIFE SYSTEMS: Habitats and Communities

Overall Expectations

4s1 **CR2007**	1. analyse the effects of human activities on Habitats and Communities;
4s2 **CR2007**	2. investigate the interdependence of plants and animals within specific Habitats and Communities;
4s3 **CR2007**	3. demonstrate an understanding of Habitats and Communities and the relationships among the plants and animals that live in them.

1. Relating Science and Technology to Society and the Environment

4s4 **CR2007**	1.1 analyse the positive and negative impacts of human interactions with natural habitats and communities (e.g., human dependence on natural materials), taking different perspectives into account (e.g., the perspectives of a housing developer, a family in need of housing, an ecologist), and evaluate ways of minimizing the negative impacts Sample issues: (a) Humans depend on natural habitats and communities for many things, including food, building materials, clothing, and medicine. Natural habitats also help to purify our air and water. In spite of this dependency, however, we are destroying some of the habitats and communities that we depend on. How can we continue to draw benefits from the natural environment and still ensure that it is there to benefit future generations? (b) Urban development provides housing for an expanding population, but it also destroys natural habitats, causing some species to die off locally or go elsewhere and enabling other species to multiply rapidly. When scarce farmland is used for development, we lose family farms and a way of life, as well as local sources of fresh food and important open spaces. To lessen such impacts, we need to think of alternative ways of meeting our needs. Some cities work with developers to conserve green spaces. Others are starting to concentrate expansion within their existing boundaries instead of spreading beyond them. How is development affecting natural habitats in your community, and what is being done to protect them?
4s5 **CR2007**	1.2 identify reasons for the depletion or extinction of a plant or animal species (e.g., hunting, disease, invasive species, changes in or destruction of its habitat), evaluate the impacts on the rest of the natural community, and propose possible actions for preventing such depletions or extinctions from happening Sample issues: (a) Deforestation for land development, as well as hunting, trapping, and increased tourism, have had an impact on the wolf population in Ontario. Despite recent laws designed to protect them, wolves in Ontario still face many threats. What other animals and plants would be affected by their destruction, and what can we do to help them survive? (b) A plant called American ginseng has commonly been used as a traditional medicine and may be useful in preventing colds and treating diabetes and other diseases. Because of harvesting, timber extraction, and the clearing of land for agriculture and development, American ginseng is on the endangered species list in Ontario. It is a long-lived perennial herb, but slow-growing, so replenishing its population will take time. How can we protect the wild plant? What might be some alternative ways of getting the plant without taking it from the wild?

2. Developing Investigation and Communication Skills

4s6 **CR2007**	2.1 follow established safety procedures for working with soils and natural materials (e.g., wear gloves when handling soils to set up a working terrarium)
4s7 **CR2007**	2.2 build food chains consisting of different plants and animals, including humans
4s8 **CR2007**	2.3 use scientific inquiry/research skills (see page 15) to investigate ways in which plants and animals in a community depend on features of their habitat to meet important needs (e.g., beavers use water for shelter [they build their lodges so the entrance is under water], food [cattails, water lilies, and other aquatic plants], and protection [they slap their tails on the water to warn of danger])
4s9 **CR2007**	2.4 use scientific inquiry/research skills (see page 15) to create a living habitat containing a community, and describe and record changes in the community over time Sample guiding questions: What factors need to be considered when setting up your habitat (e.g., location for container; creating the right climate, light, and humidity)? What equipment and materials (e.g., a container of the correct size, appropriate plant material and/or animals) will you need to create a habitat that meets the needs of the community it supports? What did you learn from your initial observations about meeting the needs of living things? What modifications, based on your observations, need to be made to keep the habitat healthy?
4s10 **CR2007**	2.5 use appropriate science and technology vocabulary, including habitat, population, community, adaptation, and food chain, in oral and written communication

4s11 CR2007	2.6 use a variety of forms (e.g., oral, written, graphic, multimedia) to communicate with different audiences and for a variety of purposes (e.g., use presentation software to show the steps one might follow to set up and maintain a terrarium)

3. Understanding Basic Concepts

4s12 CR2007	3.1 demonstrate an understanding of habitats as areas that provide plants and animals with the necessities of life (e.g., food, water, air, space, and light)
4s13 CR2007	3.2 demonstrate an understanding of food chains as systems in which energy from the sun is transferred to producers (plants) and then to consumers (animals)
4s14 CR2007	3.3 identify factors (e.g., availability of water or food, amount of light, type of weather) that affect the ability of plants and animals to survive in a specific habitat
4s15 CR2007	3.4 demonstrate an understanding of a community as a group of interacting species sharing a common habitat (e.g., the life in a meadow or in a patch of forest)
4s16 CR2007	3.5 classify organisms, including humans, according to their role in a food chain (e.g., producer, consumer, decomposer)
4s17 CR2007	3.6 identify animals that are carnivores, herbivores, or omnivores
4s18 CR2007	3.7 describe structural adaptations that allow plants and animals to survive in specific habitats (e.g., the thick stem of a cactus stores water for the plant; a duck's webbed feet allow it to move quickly and efficiently in water)
4s19 CR2007	3.8 explain why changes in the environment have a greater impact on specialized species than on generalized species (e.g., diminishing ice cover hampers the ability of polar bears to hunt seals, their main food source, and so the polar bear population in some areas is becoming less healthy and may begin to decrease; black bear habitat has been heavily disrupted by human encroachment, but because black bears are highly adaptable omnivores that eat everything from insects to garbage generated by humans, their numbers have been increasing)
4s20 CR2007	3.9 demonstrate an understanding of why all habitats have limits to the number of plants and animals they can support
4s21 CR2007	3.10 describe ways in which humans are dependent on natural habitats and communities (e.g., for water, medicine, flood control in wetlands, leisure activities)

UNDERSTANDING STRUCTURES AND MECHANISMS: Pulleys and Gears

Overall Expectations

4s22 CR2007	1. evaluate the impact of pulleys and gears on society and the environment;
4s23 CR2007	2. investigate ways in which pulleys and gears modify the speed and direction of, and the force exerted on, moving objects;
4s24 CR2007	3. demonstrate an understanding of the basic principles and functions of pulley systems and gear systems.

Science and Technology Expectations Grade 4

1. Relating Science and Technology to Society and the Environment

4s25 **CR2007**	1.1 assess the impact of pulley systems and gear systems on daily life Sample issues: Elevators and other lifting devices use pulley and gear systems; they allow people with physical challenges to have equal access to all floors of a building. Bicycles use gears; they provide us with transportation and exercise. Snowmobiles, VCRs, and joysticks use pulleys and/or gears; they provide us with leisure activities. Clothes dryers and clotheslines, sewing machines, and windshield wipers on cars and trucks use pulleys and/or gears. However, many of these mechanisms require power to operate.
4s26 **CR2007**	1.2 assess the environmental impact of using machines with pulleys and gears, taking different perspectives into account (e.g., the perspectives of a car driver or cyclist, someone who is physically challenged, the owner of a multifloor building), and suggest ways to minimize negative impacts and maximize positive impacts Sample issues: (a) Escalators run all the time, using large amounts of electrical energy. (b) A clothesline and a clothes dryer, which use pulleys or gears, are both used to dry clothes. Using a clothes dryer is faster than drying clothes on a line, but the environmental impact of the dryer is greater because it uses electricity or natural gas. (c) Gears reduce the effort needed to pedal a bicycle, but riding a bicycle still requires more effort and takes longer than driving a car to the same destination. However, the bicycle is more environmentally friendly because it does not use fossil fuel

2. Developing Investigation and Communication Skills

4s27 **CR2007**	2.1 follow established safety procedures for working with machinery (e.g., check to ensure that pulley systems are firmly attached to a secure support before operating them; be aware that changing a larger gear wheel to a smaller one will change the speed at which the mechanism moves)
4s28 **CR2007**	2.2 use scientific inquiry/experimentation skills (see page 12) to investigate changes in force, distance, speed, and direction in pulley and gear systems Sample guiding questions: What happens when the number of pulleys in a system is increased? When the number is decreased? How does the force required to raise a load change when the number of pulleys is changed? How does the distance over which the force is exerted change? What happens when you change the size of one of the wheels in a gear system? What gear system will you use to change the direction of the motion?
4s29 **CR2007**	2.3 use technological problem-solving skills (see page 16) to design, build, and test a pulley or gear system that performs a specific task Sample problems: Design, build, and test a mechanism that will raise and lower a flag. Design, build, and test a changing billboard. Design, build, and test a model elevator that could be used in a barn. Design, build, and test a model drawbridge for a castle.
4s30 **CR2007**	2.4 use appropriate science and technology vocabulary, including pulley, gear, force, and speed, in oral and written communication
4s31 **CR2007**	2.5 use a variety of forms (e.g., oral, written, graphic, multimedia) to communicate with different audiences and for a variety of purposes (e.g., write a set of instructions for setting up a pulley system)

3. Understanding Basic Concepts

4s32 **CR2007**	3.1 describe the purposes of pulley systems and gear systems (e.g., to facilitate changes in direction, speed, or force)
4s33 **CR2007**	3.2 describe how rotary motion in one system or its components (e.g., a system of pulleys of different sizes) is transferred to another system or component (e.g., a system of various gears) in the same structure
4s34 **CR2007**	3.3 describe how one type of motion can be transformed into another type of motion using pulleys or gears (e.g., rotary to linear in a rack and pinion system, rotary to oscillating in a clock pendulum)
4s35 **CR2007**	3.4 describe, using their observations, how gears operate in one plane (e.g., spur gears, idler gears) and in two planes (e.g., crown, bevel, or worm gears)
4s36 **CR2007**	3.5 distinguish between pulley systems and gear systems that increase force and those that increase speed
4s37 **CR2007**	3.6 identify pulley systems (e.g., clotheslines, flagpoles, cranes, elevators, farm machinery) and gear systems (e.g., bicycles, hand drills, can openers) that are used in daily life, and explain the purpose and basic operation of each

4s38 **CR2007**	3.7 explain how the gear system on a bicycle works (e.g., by using the largest gear on the front chain ring and the smallest gear on the rear wheel, we can move quickly along a flat surface)
4s39 **CR2007**	3.8 identify the input components that drive a mechanism and the output components that are driven by it (e.g., the pedals on a bike are the input component; the rear wheel is the output component)

UNDERSTANDING MATTER AND ENERGY: Light and Sound

Overall Expectations

4s40 **CR2007**	1. assess the impact on society and the environment of technological innovations related to light and sound;
4s41 **CR2007**	2. investigate the characteristics and properties of light and sound;
4s42 **CR2007**	3. demonstrate an understanding of light and sound as forms of energy that have specific characteristics and properties.

1. Relating Science and Technology to Society and the Environment

4s43 **CR2007**	1.1 assess the impacts on personal safety of devices that apply the properties of light and/or sound (e.g., UV-coated lenses in sunglasses, safety eyes on garage door openers, reflective material on clothing, ear plugs, backup signals on trucks and cars, MP3 players, cellphones), and propose ways of using these devices to make our daily activities safer Sample prompts: (a) It is important to be physically active in our daily lives. Walking, skateboarding, rollerblading, and bicycling are all good forms of exercise that take place outside. When taking part in these activities we should be sure to wear sunglasses that protect our eyes from the sun and wear clothing marked with reflective material so we can be seen by motorists. (b) Using MP3 players or cellphones while walking, riding, or driving can prevent us from hearing warning noises or divert our attention from approaching dangers. (c) Ear plugs can protect our ears from excessive noise from lawn mowers and power tools.
4s44 **CR2007**	1.2 assess the impacts on society and the environment of light and/or sound energy produced by different technologies, taking different perspectives into account (e.g., the perspectives of someone who has to walk on the street late at night, a cottage owner, a person who is hearing impaired, manufacturers of and merchants who sell MP3 players) Sample issues: (a) Streetlights increase visibility and make areas safer for people to move about in the city at night. However, they use large amounts of electrical energy and contribute to light pollution that obscures the features of the night sky. Also, birds may be disoriented by lights from tall buildings and may be killed when they hit the buildings. (b) Items like gasoline-powered lawn mowers and leaf blowers make work easier, and items like jet skis provide enjoyment to the user. However, these technologies also create noise pollution. (c) Advances in electronic technology have allowed us to develop hearing aids for people who might never have been able to hear well without them. However, these same advances have allowed us to create powerful sound systems and devices like personal music players that can be played at volume levels that annoy others and are potentially damaging to human hearing.

2. Developing Investigation and Communication Skills

4s45 **CR2007**	2.1 follow established safety procedures for protecting eyes and ears (e.g., use proper eye and ear protection when working with tools)
4s46 **CR2007**	2.2 investigate the basic properties of light (e.g., conduct experiments to show that light travels in a straight path, that light reflects off of shiny surfaces, that light refracts [bends] when passing from one medium to another, that white light is made up of many colours, that light diffracts [bends and spreads out] when passing through an opening)
4s47 **CR2007**	2.3 investigate the basic properties of sound (e.g., conduct experiments to show that sound travels, that sound can be absorbed or reflected, that sound can be modified [pitch, volume], that there is a relationship between vibrations and sound)
4s48 **CR2007**	2.4 use technological problem-solving skills (see page 16) to design, build, and test a device that makes use of the properties of light (e.g., a periscope, a kaleidoscope) or sound (e.g., a musical instrument, a sound amplification device) Sample guiding questions: How might you use what you know about sound or about light and mirrors in your device? Which properties of light or sound will be most useful to you in your device? What challenges might you encounter, and how can you overcome them?

4s49 **CR2007**	2.5 use scientific inquiry/research skills (see page 15) to investigate applications of the properties of light or sound (e.g., careers where knowledge of the properties of light and/or sound play an important role [photography, audio engineering]; ways in which light and/or sound are used at home, at school, and in the community; ways in which animals use sound)
4s50 **CR2007**	2.6 use appropriate science and technology vocabulary, including natural, artificial, beam of light, pitch, loudness, and vibration, in oral and written communication
4s51 **CR2007**	2.7 use a variety of forms (e.g., oral, written, graphic, multimedia) to communicate with different audiences and for a variety of purposes (e.g., create a song or short drama presentation for younger students that will alert them to

3. Understanding Basic Concepts

4s52 **CR2007**	3.1 identify a variety of natural light sources (e.g., the sun, a firefly) and artificial light sources (e.g., a candle, fireworks, a light bulb)
4s53 **CR2007**	3.2 distinguish between objects that emit their own light (e.g., stars, candles, light bulbs) and those that reflect light from other sources (e.g., the moon, safety reflectors, minerals)
4s54 **CR2007**	3.3 describe properties of light, including the following: light travels in a straight path; light can be absorbed, reflected, and refracted
4s55 **CR2007**	3.4 describe properties of sound, including the following: sound travels; sound can be absorbed or reflected and can be modified (e.g., pitch, loudness)
4s56 **CR2007**	3.5 explain how vibrations cause sound
4s57 **CR2007**	3.6 describe how different objects and materials interact with light and sound energy (e.g., prisms separate light into colours; voices echo off mountains; some light penetrates through wax paper; sound travels further in water than air)
4s58 **CR2007**	3.7 distinguish between sources of light that give off both light and heat (e.g., the sun, a candle, an incandescent light bulb) and those that give off light but little or no heat (e.g., an LED, a firefly, a compact fluorescent bulb, a glow stick)
4s59 **CR2007**	3.8 identify devices that make use of the properties of light and sound (e.g., a telescope, a microscope, and a motion detector make use of the properties of light; a microphone, a hearing aid, and a telephone handset make use of the properties of sound)

UNDERSTANDING EARTH AND SPACE SYSTEMS: Rocks and Minerals

Overall Expectations

4s60 **CR2007**	1. assess the social and environmental impacts of human uses of rocks and minerals;
4s61 **CR2007**	2. investigate, test, and compare the physical properties of rocks and minerals;
4s62 **CR2007**	3. demonstrate an understanding of the physical properties of rocks and minerals.

Science and Technology Expectations Grade 4

1. Relating Science and Technology to Society and the Environment

4s63 **CR2007**	1.1 assess the social and environmental costs and benefits of using objects in the built environment that are made from rocks and minerals Sample issues: (a) Quarried stone, sand, and gravel are used to make concrete. We need the strength and long life that concrete gives to roads and buildings, but making concrete uses a lot of natural resources and energy. (b) Aluminum is used to make soft drink containers and trash cans. It can be recycled many times, and recycling uses much less energy than making aluminum from ore. (c) One person uses 5.4 kilograms of salt per year on food and another 180 kilograms a year for other things, such as de-icing roads and sidewalks in winter. We need salt in our diet, but when we use it excessively on our roads and sidewalks, it causes damage to cars, water, and plants. (d) Clay is used to make plates and mugs, bricks for buildings, and kitty litter, but clay is mined. The products made from it break down at rates that are similar to those for other rocks.
4s64 **CR2007**	1.2 analyse the impact on society and the environment of extracting and refining rocks and minerals for human use, taking different perspectives into account (e.g., the perspectives of mine owners, the families of the miners, Aboriginal communities, the refinery workers, manufacturers of items who need the refined rocks and minerals to make their products, residents who live in communities located near refineries and manufacturing facilities and who are concerned about the environment) Sample issues: (a) Surface mining is used to extract rocks and minerals for eventual human use. It is less hazardous for humans than underground mining, but it has a greater impact on the surface landscape, including the removal of significant amounts of rich topsoil. Efforts are being made by mining companies to reclaim land where mines and quarries have been closed. Mined-out quarries can be filled with water and used for recreational purposes. When a mine is closed, the topsoil that had been removed can be replaced and native species replanted. (b) The smelting process is necessary to extract the metals contained in some ores that can then be made into products for human use. But the process produces waste materials, including gases that contribute to climate change, acid rain, and smog.

2. Developing Investigation and Communication Skills

4s65 **CR2007**	2.1 follow established safety procedures for outdoor activities and for working with tools, materials, and equipment (e.g., use scratch and streak test materials for the purposes for which they are intended; when working outdoors, leave the site as it was found)
4s66 **CR2007**	2.2 use a variety of tests to identify the physical properties of minerals (e.g., hardness [scratch test], colour [streak test], magnetism)
4s67 **CR2007**	2.3 use a variety of criteria (e.g., colour, texture, lustre) to classify common rocks and minerals according to their characteristics
4s68 **CR2007**	2.4 use scientific inquiry/research skills (see page 15) to investigate how rocks and minerals are used, recycled, and disposed of in everyday life (e.g., nickel and copper are made into coins; coins that are out of circulation can be melted down and the metal can be used for making other things; calcium [from limestone], silicon [from sand or clay], aluminum [from bauxite], and iron [from iron ore] are made into cement that is used for roads and buildings; concrete can be returned to cement and concrete production facilities, and can be recycled; rocks from quarries are used for garden landscaping, and these rocks can be reused; marble is used for countertops and statues) Sample guiding questions: Where might we find products made from rocks and minerals in our daily life? How might you find out other ways in which rocks and minerals are used in everyday items? Why might some people and groups have concerns about the use of some of these rocks and minerals? What might be some alternative materials that could be used instead of the rocks and minerals? How are some of the items made from rocks and/or minerals disposed of when they are no longer useful? Which minerals can be recycled or reused in other products?
4s69 **CR2007**	2.5 use appropriate science and technology vocabulary, including hardness, colour, lustre, and texture, in oral and written communication
4s70 **CR2007**	2.6 use a variety of forms (e.g., oral, written, graphic, multimedia) to communicate with different audiences and for a variety of purposes (e.g., use a graphic organizer to show how rocks and minerals are used in daily life)

3. Understanding Basic Concepts

4s71 **CR2007**	3.1 describe the difference between rocks (composed of two or more minerals) and minerals (composed of the same substance throughout), and explain how these differences determine how they are used
4s72 **CR2007**	3.2 describe the properties (e.g., colour, lustre, streak, transparency, hardness) that are used to identify minerals

4s73 **CR2007**	3.3 describe how igneous, sedimentary, and metamorphic rocks are formed (e.g., Igneous rocks form when hot, liquid rock from deep below the earth's surface rises towards the surface, cools, and solidifies, for instance, after a volcanic eruption. Sedimentary rocks form when small pieces of the earth that have been worn away by wind and water accumulate at the bottom of rivers, lakes, and oceans and are eventually compacted and consolidated into rock; they can also be formed when sea water evaporates and the dissolved minerals are deposited on the sea floor. Metamorphic rocks form when pre-existing rocks are changed by heat and pressure.)
4s74 **CR2007**	3.4 describe the characteristics of the three classes of rocks (e.g., Sedimentary rocks often have flat layers, are composed of pieces that are roughly the same size with pores between these pieces that are commonly filled with smaller grains, and sometimes contain fossils. Igneous rocks generally have no layers, have variable textures, and do not contain fossils. Metamorphic rocks may have alternating bands of light and dark minerals, or may be composed predominantly of only one mineral, such as marble or quartzite, and rarely contain fossils.), and explain how their characteristics are related to their origin

HC: Medieval Times

Overall Expectations

4z1 • identify and describe major features of daily life and social organization in medieval European societies from about 500 to 1500 C.E. (Common Era);

4z2 • use a variety of resources and tools to investigate the major events and influences of the era and determine how they shaped medieval society;

4z3 • relate significant elements of medieval societies to comparable aspects of contemporary Canadian communities.

Knowledge and Understanding

4z4 – describe the hierarchical structure of medieval society and the types of people in it (e.g., peasants, officials, scholars, clergy, merchants, artisans, royalty, nobles), and explain how and why different groups cooperated or came into conflict at different times (e.g., to promote trade, to wage war, to introduce the Magna Carta);

4z5 – describe aspects of daily life for men, women, and children in medieval societies (e.g., food, housing, clothing, health, religion, recreation, festivals, crafts, justice, roles);

4z6 – describe characteristics of castles and aspects of castle life (e.g., design and building methods; community structure – lord, knights, squires, men-at-arms, workers; sports and entertainment; heraldry; justice; conflict and defence);

4z7 – outline the reasons for and some of the effects of medieval Europe's expanding contact with other parts of the world (e.g., the Crusades; Muslim influence on arts, architecture, and the sciences; the explorations of Marco Polo, the opening of the Silk Road, and the trade in luxury goods; the Black Death; Italian control of the Mediterranean; development of the printing press);

4z8 – describe some of the ways in which religions shaped medieval society (e.g., Catholicism, Judaism, Islam; *events and practices:* pilgrimages, tithing, confession, festivals; *occupations*: clergy, caliph, nuns, monks; *buildings*: cathedrals, mosques, monasteries, temples, synagogues; influences on the arts; the building of libraries);

4z9 – describe medieval agricultural methods and innovations (e.g., common pasture, three-field rotation, fertilizers, the padded horse collar, the wheeled plough, mills), and explain why the innovations were important;

4z10 – outline important ways in which medieval society changed over time (e.g., growth of towns, specialization of labour, changes in transportation methods, changes to law and justice), and give reasons for the changes.

Inquiry/Research and Communication Skills

4z11 – formulate questions to guide research (e.g.,What impact did Islamic culture have on European medieval societies? Why did castles have moats? Which medieval trade guilds have comparable apprenticeship programs today? What valuable items did Marco Polo bring back from Asia?);

4z12 – use primary and secondary sources to locate information about medieval civilizations (e.g., *primary sources*: artefacts, field trips; *secondary sources*: atlases, encyclopedias and other print materials, illustrations, videos, CD-ROMs, Internet sites);

4z13 – use graphic organizers to summarize information (e.g., pyramid showing social hierarchies, circle chart showing system of crop rotation, timeline showing dates of innovations and events,T-chart showing comparison of peasants' and lords' lifestyles);

4z14 – draw and label maps or create models to illustrate features of medieval landscapes (e.g., a village, a castle or palace, a mosque with a minaret);

4z15 – read and interpret maps relevant to the period (e.g., showing trade routes, locations of castles, layout of a town or city);

4z16 – use media works, oral presentations, written notes and descriptions, and drawings to communicate information about life in medieval society (e.g., the roles of men, women, and children; the problems of sanitation and health in towns and cities);

4z17 – use appropriate vocabulary (e.g., *peasant, page, clergy, squire, caliph, imam, merchant, trade guild, chivalry, manor, monastery, mosque, pilgrimage, Islam, Christianity, Judaism, Magna Carta, Crusades*) to describe their inquiries and observations.

Application

4z18 – compare aspects of life in a medieval community and their own community (e.g., with respect to housing, social structure, recreation, land use, geography, climate, food, dress, government);

4z19 – make connections between social or environmental concerns of medieval times and similar concerns today (e.g., pollution, the spread of disease, crime, warfare, poverty, religious intolerance);

4z20 – use artistic expression to re-create or respond to imaginative works from medieval times (e.g., illustrate a coat of arms; dramatize a story about the Knights of the Round Table; listen and respond to medieval ballads and poems; create a storyboard for a tale from *The Thousand and One Nights*).

CWC: Canada 's Provinces, Territories,and Regions

Overall Expectations

4z21 • name and locate the various physical regions, provinces, and territories of Canada and identify the chief natural resources of each;

4z22 • use a variety of resources and tools to determine the influence of physical factors on the economies and cultures of Ontario and the other provinces and territories;

4z23 • identify, analyse, and describe economic and cultural relationships that link communities and regions within Ontario and across Canada.

Knowledge and Understanding

4z24 – explain the concept of a region (i.e, an area that is similar throughout its extent and different from the places around it);

4z25 – identify the physical regions of Ontario and describe their characteristics (e.g., Canadian Shield, Great Lakes – St. Lawrence lowlands, Hudson Bay lowlands);

4z26 – explain how the St. Lawrence River and the Great Lakes systems shape or influence the human activity of their surrounding area (e.g., with respect to transportation, industry, recreation, commercial fishing);

4z27 – identify Ontario's major natural resources and their uses and management (e.g., water, for hydroelectricity and recreation);

4z28 – identify and describe types of communities in each physical region of Ontario (e.g., tourist, manufacturing, and agricultural communities in the St. Lawrence lowlands; First Nation communities in the Hudson Bay lowlands; forestry and mining communities in the Canadian Shield region);

4z29 – describe a variety of exchanges that occur among the communities and regions of Ontario (e.g., fruit from the Niagara Peninsula, nickel from Sudbury, vehicles from Oshawa, wild rice from Kenora, cranberries from Wahta First Nation) and among the provinces and territories (e.g., potatoes from Prince Edward Island, fish from British Columbia, grain from Saskatchewan, Inuit artwork from Nunavut);

4z30 – identify Canada's provinces and territories and its main physical regions (e.g., Canadian Shield,Appalachians, Hudson Bay lowlands, Arctic lowlands, Great Lakes –St. Lawrence lowlands, interior plains, cordilleras);

4z31 – describe and compare the environments of the physical regions of Canada (e.g., with respect to landforms and waterways);

4z32 – identify the natural resources necessary to create Canadian products, and the provinces and territories from which they originate (e.g., trees/furniture/Ontario);

4z33 – relate the physical environment to economic and cultural activities in the various provinces and territories (e.g., mountains/ skiing/British Columbia; the Grand Banks/fishing/Newfoundland and Labrador; beaches/tourism/Prince Edward Island; temperate climate and fertile soil/orchards/ southern Ontario).

Inquiry/Research and Communication Skills

4z34 – formulate questions to guide research and clarify information on study topics (e.g., What are the effects of physical features on land use? How are goods transported from one province or territory to another?);

4z35 – use primary and secondary sources to locate information about natural resources and their uses (e.g., *primary sources*: interviews, classroom visitors, class trips; *secondary sources*: atlases, encyclopedias and other print materials, illustrations, videos, CD-ROMs, Internet sites);

4z36 – use graphic organizers and graphs to sort information, clarify issues, solve problems, and make decisions (e.g., use a pro-and-con chart to identify the effects of clear-cutting on a forest community; use a decision-making chart to consider the alternatives to and consequences of constructing dams on a river system; create a bar graph to show average temperature by province);

4z37 – use media works, oral presentations, written notes and descriptions, drawings, tables, and graphs to identify and communicate key information about the regions, provinces, and territories;

– use appropriate vocabulary (e.g., *regions, Canadian Shield, Great Lakes lowlands, St. Lawrence lowlands, Hudson Bay lowlands, interior plains, Arctic lowlands, cordilleras, physical features, boundaries, province, capital, territory, natural resources, grid*) to describe their inquiries and observations.

Map, Globe, and Graphic Skills *

4z39 – locate on a map community boundaries and adjacent communities (e.g., towns, counties) within a region;

4z40 – locate on a map of Ontario and label the Great Lakes and other major bodies of water and waterways (e.g., Hudson Bay, James Bay, the Ottawa River);

4z41 – use a variety of sources (e.g., atlases, relief maps, globes, aerial and satellite photographs) to locate and label the physical regions of Canada on a map;

4z42 – use cardinal and intermediate directions, pictorial and non-pictorial symbols (e.g., dots to represent entire cities), scale, and colour to locate and display geographic information on various maps;

4z43 – use number and letter grids to locate places on base maps and road maps, and in atlases;

4z44 – create and use a variety of thematic maps of Canada's physical features (e.g., landforms, climate, natural resources);

4z45 – construct maps of transportation routes between local communities within a region (e.g., rail, road, water, air);

4z46 – construct maps of the provinces and territories, showing major roadways, railways, and cities, including capital cities;

4z47 – prepare various forms of maps, using symbols and legends, to display places, transportation routes, and political boundaries (e.g., international, national, provincial) in Canada.

Application

4z48 – identify relationships, in a variety of fields, that link Ontario and the other provinces and territories (e.g., in art, literature, music, dance, technology, heritage, tourism, sports);

4z49 – compare two or more regions (e.g., the Arctic and the Prairies), with respect to their physical environments and exchanges of goods and services;

4z50 – identify and describe a cause-and-effect relationship between the environment and the economy in a province or territory (e.g., overfishing on the Grand Banks; changes to landscape resulting from open-pit mining or clear-cut logging);

4z51 – describe how technology (e.g., in communications, transportation) affects the lives of people in an isolated community in Canada (e.g., the impact of snowmobiles on hunting in the Arctic; the effects of satellite television and the Internet on schoolchildren; the effect of air transport on the availability of products).

Healthy Living

Overall Expectations

4p1 • explain the role of healthy eating practices, physical activity, and heredity as they relate to body shape and size;

4p2 • identify the physical, interpersonal, and emotional aspects of healthy human beings;

4p3 • use living skills to address personal safety and injury prevention;

4p4 • identify the influences (e.g., the media, peers, family members) affecting the use of tobacco, as well as the effects and legalities of, and healthy alternatives to, tobacco use.

Healthy Eating

4p5 – outline the factors that influence body shape and size (e.g., heredity, diet, exercise);

4p6 – analyse, over a period of time, their own food selections, including food purchases (e.g., "everyday food" versus "sometimes food") and determine whether or not they are healthy choices;

Growth and Development

4p7 – describe the four stages of human development (infancy, childhood, adolescence, and adulthood) and identify the physical, interpersonal, and emotional changes appropriate to their current stage;

4p8 – identify the characteristics of healthy relationships (e.g., showing consideration of others' feelings by avoiding negative communication);

4p9 – identify the challenges (e.g., conflicting opinions) and responsibilities in their relationships with family and friends;

Personal Safety / Injury Prevention

4p10 – apply decision-making and problem-solving skills in addressing threats to personal safety (e.g., from abuse or physical fighting) and injury prevention (e.g., bicycle safety, road safety);

4p11 – identify people (e.g., parents, guardians, neighbours, teachers) and community agencies (e.g., Kids' Help Phone) that can assist with injury prevention, emergency situations, and violence prevention;

Substance Use / Abuse

4p12 – identify the major harmful substances found in tobacco and explain the term addiction;

4p13 – describe the short- and long-term effects of first- and second-hand smoke, and identify the advantages of being smoke-free;

4p14 – apply decision-making and assertiveness skills to make and maintain healthy choices related to tobacco use, and recognize factors that can influence decisions to smoke or to abstain from smoking (e.g., the media, family members, friends, laws).

Fundamental Movement Skills

Overall Expectations

4p15 • perform the movement skills required to participate in lead-up games, gymnastics, dance, and outdoor pursuits: locomotion/travelling (e.g., sliding, gliding), manipulation (e.g., kicking, trapping), and stability (e.g., putting their weight on different body parts);

4p16 • demonstrate the principles of movement in acquiring and then beginning to refine movement skills (e.g., combining directions and levels in sequence).

Locomotion / Travelling Skills

4p17 – combine locomotion/travelling skills in repeatable sequences, incorporating a variety of speeds and levels (e.g., in novelty dances, co-operative games);

Manipulation Skills

4p18 – throw, both while stationary and while moving, a ball using a one-hand overhand motion to a partner or large stationary target, or pass (hand off) and receive an object (e.g., relaying a baton);

4p19 – stop an object with the lower part of the body or with a piece of equipment (e.g., trapping a ball or disc with the foot or a piece of equipment);

Stability Skills

4p20 – balance safely in a variety of static positions;

4p21 – grip, hang, and swing from equipment;

4p22 – jump from a low height, using a variety of turns, shapes, and directions.

Active Participation

Overall Expectations

4p23 • participate on a regular basis in physical activities that maintain or improve physical fitness (e.g., tag games);

4p24 • identify the benefits of physical fitness;

4p25 • apply living skills – such as goal setting, conflict-resolution techniques, and interpersonal skills (e.g., playing fairly, co-operating, behaving respectfully) – to physical activities (e.g., games, gymnastics, dance, outdoor pursuits);

4p26 • demonstrate a variety of interpersonal skills (e.g., playing fairly, co-operating, behaving respectfully);

4p27 • follow safety procedures related to physical activity, equipment, and facilities.

Physical Activity

4p28 – participate vigorously in all aspects of the program (e.g., lead-up games, creative dance);

4p29 – identify the factors that motivate participation in daily physical activity (e.g., fun, improved health, increased energy level);

Physical Fitness

4p30 – improve their fitness levels by participating in vigorous physical activities (e.g., line dancing) for a minimum of twenty minutes each day, including appropriate warm-up and cool-down procedures;

4p31 – recognize that the health of the heart and lungs is improved by physical activity (e.g., aerobics activities to music);

4p32 – recognize that muscle strength and endurance increase with exercise and physical activity;

4p33 – monitor their pulse rates before and after physical activity (e.g., locate and compare their pulses before and after taking part in physical activity, and explain the reasons for differences in pulse rates);

Living Skills

4p34 – use a goal-setting process (e.g., set a realistic goal, identify and address barriers, prepare an action plan, decide who can help, and identify how to know when the goal has been reached) related to physical activity;

4p35 follow the rules of fair play in games and activities (e.g., displaying good sports etiquette by maintaining self-control whether winning or losing);

4p36 – demonstrate respectful behaviour towards others in the group (e.g., speaking kindly, refraining from hurtful comments, acknowledging others' ideas and opinions).

Music

Overall Expectations

4a1 • demonstrate an understanding of the basic elements of music specified for this grade (see below) through listening to, performing, and creating music;

4a2 • create and perform music, using a variety of sound sources;

4a3 • use correctly the musical terminology associated with the specific expectations for this grade;

4a4 • begin to read standard musical notation;

4a5 • identify and perform music from various cultures and historical periods;

4a6 • communicate their response to music in ways appropriate for this grade (e.g., through visual arts, drama, creative movement, language).

Knowledge of Elements

4a7 – recognize that the treble clef defines the names of the lines (e, g, b, d, f) and spaces (f, a, c, e) on the staff;

4a8 – recognize that specific pitches may be represented by notes placed on a staff;

4a9 – recognize that a unison consists of two notes on the same line or in the same space that are to be sung or played simultaneously;

4a10 – distinguish between movement by a step (i.e., the interval between a note on a line and a note on the adjacent space, or vice versa) and movement by a skip (e.g., any interval larger than a step);

4a11 – identify whole notes, half-notes, quarter-notes, and eighth-notes, and their corresponding rests in 4/4 time;

4a12 – identify the form verse–chorus in familiar songs;

4a13 – identify the individual instruments of the woodwind, brass, string, and percussion families;

4a14 – identify tone colours (the specific sounds of individual instruments or voices) in familiar music;

4a15 – demonstrate an understanding of correct breathing technique and posture when playing and/or singing;

4a16 – demonstrate knowledge of techniques to produce a clear and open head tone while singing;

4a17 – demonstrate their understanding of beat through conducting a piece in 4/4 time, using the standard conducting pattern.

Creative Work

4a18 – write new words to familiar melodies, using their knowledge of rhythm to ensure that the new text fits with the melody;

4a19 – create an accompaniment for a story, poem, or drama presentation, using their knowledge of beat, rhythm, and tone colour;

4a20 – read music, using their knowledge of contour mapping and notation;

4a21 – read and perform simple rhythmic patterns in 4/4 time;

4a22 – sing or play expressively, giving particular attention to using suitable dynamics and tempi;

4a23 – create musical compositions that show appropriate use of some of the elements of music (e.g., tempo,dynamics, pitch, beat, rhythm, tone colour), and perform them;

4a24 – create an accompaniment for a song, using a melodic ostinato (short melodic pattern repeated throughout the song);

4a25 – sing and/or play in tune songs from a variety of times and places.

Critical Thinking

4a26 – express their response to music from a variety of cultures and historical periods (e.g., “Frère Jacques”, “Waltzing Matilda”);

4a27 – communicate their thoughts and feelings about the music they hear, using language and a variety of art forms and media (e.g., a word-processing program, storytelling, a collage);

4a28 – explain, using appropriate musical terminology, their preference for specific songs or pieces of music;

4a29 – describe how a composer can manipulate the elements of music to create a specific mood (e.g., in The Sorcerer's Apprentice by Dukas);

4a30 – explain the effects of different musical choices.

Visual Arts

Overall Expectations

4a31 • produce two- and three-dimensional works of art that communicate ideas (thoughts, feelings, experiences) for specific purposes and to specific audiences;

4a32 • identify the elements of design (colour, line, shape, form, space, texture), and use them in ways appropriate for this grade when producing and responding to works of art;

4a33 • describe their interpretation of a variety of art works, basing their interpretation on evidence from the works (i.e., on ways in which an artist has used the elements of design for expressive purposes) and on their own knowledge and experience;

4a34 • use correctly vocabulary and art terminology associated with the specific expectations for this grade.

Knowledge of Elements

4a35 – identify monochromatic colour schemes (i.e., tints and shades of one colour);

4a36 – identify the emotional quality of lines (e.g., smooth, flowing, horizontal lines create a feeling of peace and harmony; sharp, jagged, vertical lines create a feeling of energy and unease);

4a37 – demonstrate awareness that the overlapping of shapes is one way of creating the illusion of depth;

4a38 – distinguish between relief and free-standing sculpture;

4a39 – describe ways in which artists use a variety of tools, materials, and techniques to create texture (e.g., painting with a palette knife, embedding fabric in gesso, gouging Plasticine);

4a40 – describe their knowledge of the strengths and limitations of a variety of familiar art tools, materials, and techniques, which they gained through experiences in drawing, painting, sculpting, and printmaking (e.g., "found" materials can provide a rich assortment of textures for mask making, but may be difficult to fasten to the surface of the mask);

4a41 – demonstrate understanding of the proper and controlled use of art tools, materials, and techniques singly and in combination (e.g., outline shapes, create shading, or colour a surface using both the point and the side of pencil crayons; create texture using cross-hatching).

Creative Work

4a42 – solve artistic problems in their art work, using the elements of design specified for this grade (e.g., create a self-portrait and defend their colour choices);

4a43 – produce two- and three-dimensional works of art (i.e., works involving media and techniques used in drawing, painting, sculpting, printmaking) that communicate thoughts, feelings, and ideas for specific purposes and to specific audiences (e.g., create a poster for display in the school library to commemorate a personal literary hero, using an additive form of printmaking);

4a44 – plan a work of art, identifying the artistic problem and a proposed solution (e.g., plan to use a sponge to paint the background of an underwater scene to produce a bubbly environment for the fish to swim through);

4a45 – identify strengths and areas for improvement in their own work and that of others.

Critical Thinking

4a46 – describe how a variety of artists working in different styles and media and in different historical periods have used the elements of design and/or tools, materials, and techniques of their art (e.g., describe buildings made in different historical periods, such as the CN Tower, a Native longhouse, and the Parliament Buildings in Ottawa, and show how the availability of certain materials influenced the designers or architects);

4a47 – explain how the elements of design are organized in a work of art to communicate feelings and convey ideas (e.g., explain that, by painting a picture using a monochromatic colour scheme for all the houses on a street except one, the artist has conveyed the idea that all of these houses are uniform and that the one in a different colour is unique);

4a48 – state their preference for a specific work chosen from among several on a similar theme, and defend their choice with reference to their own interests and experience and to the artist's use of the various elements of design (e.g., the artist's repeated use of lines, colours, and shapes create patterns that convey a sense of harmony and formality).

Drama & Dance

Overall Expectations

4a49 • demonstrate understanding of some of the principles involved in the structure of works in drama and dance (e.g., variety, unity);

4a50 • interpret and communicate the meaning of stories, poems, plays, and other material drawn from a variety of sources and cultures, using a variety of drama and dance techniques (e.g., techniques used in the activity of "inner and outer circle");

4a51 • communicate, orally and in writing, their response to their own and others' work in drama and dance (e.g., through discussions, interviews, research projects);

4a52 • identify and apply solutions to problems presented through drama and dance, and make appropriate decisions in large and small groups;

4a53 • explain their use of available technology to enhance their work in drama and dance.

Knowledge of Elements

4a54 – demonstrate an understanding of voice and audience by speaking and writing in role as characters in a story (e.g., using the first-person point of view);

4a55 – describe and interpret their own and others' work, using appropriate drama and dance vocabulary (e.g., terms for elements of surprise, aspects of energy, use of space);

4a56 – identify and explain the use and significance of symbols or objects (e.g., gestures to represent grief, letters in an old trunk) in drama and dance;

4a57 – identify and describe how the principles of variety and unity are used in drama and dance productions;

4a58 – identify and describe examples of movement found in their environment, and explain their use in creative movement;

4a59 – describe aspects of dances from a variety of cultures (e.g., styles, costumes, music, forms, steps, positions);

4a60 – demonstrate awareness of the need to do warm-up exercises before engaging in activities in dance.

Creative Work

4a61 – enact or create, rehearse, and present drama and dance works based on novels, stories, poems, and plays;

4a62 – represent and interpret main characters by speaking, moving, and writing in role (e.g., write and present monologues);

4a63 – demonstrate control of voice and movement by using appropriate techniques (e.g., projection and enunciation in choral speaking);

4a64 – demonstrate the ability to maintain concentration while in role (e.g., create tableaux in small groups, using different levels, a specific focus, facial expressions, and symbols to convey meaning);

4a65 – create and present a short choreography individually or in a group;

4a66 – demonstrate an understanding of the use of production technology to create different effects (e.g., the use of music for surprise; the use of lighting to create shadows that suggest danger).

Critical Thinking

4a67 – explain how elements of drama and dance work together to create an intended effect on the audience;

4a68 – identify their own feelings and reactions in various situations, and compare them with those of a character they have portrayed;

4a69 – solve problems in drama and dance, individually and in groups, by analysing the problems;

4a70 – explain the importance of research in producing effective dramatizations (e.g., in portraying people in history, depicting current world events).