A presentation for GED®/CAEC instructors

Preparing adult learners for the new Canadian Adult Education Credential (CAEC)

An analysis of <u>CAEC sample tests</u> and recommendations for instruction



Project team and presenters



Today's presentation is based on a report developed by the following experienced GED® instructors and researchers:

Digital - Monica Leong, Calgary Learns, Calgary, Alberta

Mathematics - Will Northgrave, Lethbridge Polytechnic, Lethbridge, Alberta

Science - Leah Rondeau, Adult Basic Education Association, Hamilton, Ontario

Social Studies - Alex Davey-Muise, Yarmouth County Learning Network, Yarmouth, Nova Scotia

Reading and writing - Christine Pinsent-Johnson, AlphaPlus, Toronto, Ontario

Some links



Full Report



Preparing adult learners for the new Canadian Adult Education Credential

An analysis of CAEC sample tests and recommendations for instruction
October 2024

Recording



Chat

14:55:31 From Will Northgrave to Everyone:

Hello all

14:56:14 From Info AlphaPlus to Will Northgrave(direct mes Do you want to talk through your section?

15:00:54 From Will Northgrave to Info AlphaPlus(direct mes Either way

15:01:06 From Info AlphaPlus to Everyone:

https://drive.google.com/file/d/10SM7sgvksj0PDZ_rc 15:06:20 From Judy DesRoches to Everyone:

Will, does the Alberta website take precedence ove 15:08:07 From Leah Rondeau to Info AlphaPlus(direct messag Hey Christine, this is a private message, I dont w

presentation is cut off. It wasn't when you shared it init table

15:08:11 From Will Northgrave to Everyone:

Provincial Sites listed here:

https://hslda.ca/high-school-diploma-equivalency-c 15:11:04 From Cathie Raynor to Info AlphaPlus(direct messa I don't think I am seeing the entire slides. the

15:11:15 From Alicia Gallant to Everyone:

I think the slides are missing the bottom half? 15:11:22 From Shannon Donaldson to Everyone:

-



About AlphaPlus

AlphaPlus champions the use of technology in adult education to create equity and access to learning and enhance learning experiences. Our specialized team members have expertise in the use of digital technology in education, as well as experience in and understanding of the adult education field.

Please address questions to the lead researcher and project coordinator, Christine Pinsent-Johnson, PhD, OCT (christine@alphaplus.ca).

Learn more about AlphaPlus by visiting our website.

Funded by







Session overview

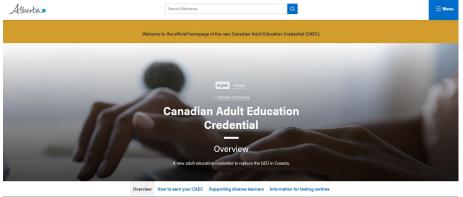


- → Background
- → What we did and how
- Overview of three major changes
- → Highlights of changes within each subject
 - Digital implications
 - Reading
 - Writing
 - Math
 - Science
 - Social studies
- Questions

More information about the CAEC

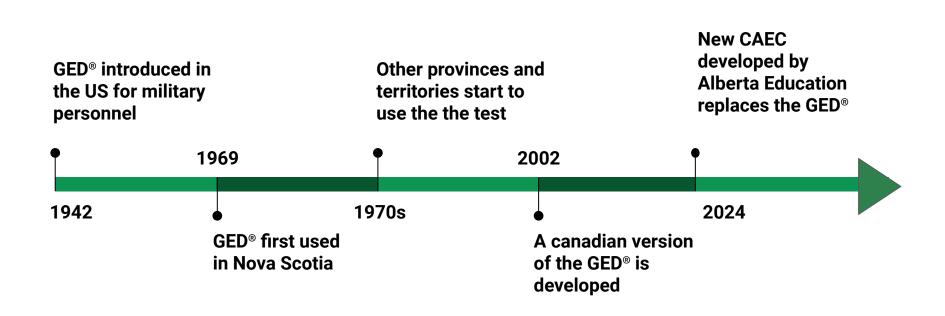






GED® and CAEC timeline







GED® Subjects	GED® test topics	Number of test questions and time
Language Arts reading 75 percent literary 25 percent non-fiction	Comprehension Application Analysis Synthesis	40 questions 65 minutes
Language Arts writing, Part 1	Sentence structure Organization Usage Mechanics	75 minutes
Language Arts writing, Part 2	Well focused main points Clear organization Development of ideas Sentence structure, punctuation, grammar, word choice and spelling	One writing task 45 minutes
Mathematics, Part 1 (calculator) Mathematics, Part 2 (no calculator)	Numbers and operations Geometry Measurement and data analysis Algebra	25 questions (calculator) 25 questions (no calculator) 90 minutes
Science	Life science Earth and space science Physical science Unifying concepts and processes Science as inquiry Science and technology The nature of science	50 questions 80 minutes
Social studies	Canadian history World history Civics and government Economics Geography	50 questions 70 minutes

240 questions

7 hours



CAEC Subjects	CAEC test topics	Number of test questions and time	
Reading • 60-80 percent informational • 20-40 percent literary	Content and context Structure, elements and techniques Grammar, syntax, and language conventions	50 questions 75 minutes	
Writing Write a persuasive text on the assigned topic	Position and support Voice and presentation Conventions, mechanics and syntax	One writing task 75 minutes	
Math Part 1 (no calculator)	Computational fluency and mental math	12 questions 30 minutes	
Math Part 2 (calculator)	Number sense Patterns and relations Geometry and measurement Data management and probability	30 questions 90 minutes	
Science	Nature of science Scientific inquiry skills Science, tech, society and environment	35 questions 90 minutes	
Social studies	Citizenship and government Economics and systems Historical and contemporary Canada Geography/environment	40 questions 90 minutes	

209 questions

9 hours



Analysis questions





What does a test-taker have to know and do to respond to test questions?

- The online environment and interface
- Test question sources to read and interpret
 - The knowledge, skills and abilities needed to understand the sources
- Types of test questions
 - The knowledge, skills and abilities needed to respond

Sample Tests

Subject specific released items candidates can use to prepare for CAEC tests.



- CAEC Try the Tools
- CAEC English Reading
- CAEC English Writing
- CAEC Math Part I and II
- CAEC Math Part I
- CAEC Math Part II
- CAEC Science
- CAEC Social Studies

- CCEA Naviguer dans l'évaluation
- CCEA Français Lecture
- CCEA Français Écriture
- CCEA Mathématiques Partie I and II
- CCEA Mathématiques Partie I
- CCEA Mathématiques Partie II
- CCEA Sciences
- CCEA Études Sociales



Test Outcomes and Evaluation Plan by Subject

Objectifs d'évaluation et plan d'ensemble par matière



Reading

Cont	ent and context	50% - 55%
1.1	Locate and retrieve explicit ideas or information from texts.	28 Jun 2006
1.2	Interpret the literal or figurative meaning of words and phrases based on the contextual information presented in a text.	
1.3	Determine and analyze supporting ideas or information within texts.	
1.4	Evaluate, integrate, and synthesize ideas or information from texts to make connections and draw conclusions.	
Struc	cture, elements, techniques	25 - 30%
2.1	Identify and analyze organizational structures and features of literary and informational texts.	
2.2	Determine and evaluate the purpose and effect of literary devices in texts.	
Gran	nmar, syntax, and language conventions	20 - 25%
3.1	Apply and analyze usage and correctness of grammar and punctuation.	
	Determine and assess purpose and effectiveness of syntactic structures.	

Every subject has a list of the topics and cognitive strategies that are assessed.

These are called **CAEC outcomes**.

Reading includes both literary and informational texts.

Every subject includes a **cognitive complexity overview**.

Text Type

Literar	text	20% - 40%
•	Examples include excerpts from novels, poems, essays, dramas, short stories, etc.	C.
Informa	tional text	60% - 80%
95		0.00

 Examples include essays, comics, editorials, news articles, photographs and other visual texts, brochures, maps, tables, graphics, infographics, surveys, advertisements, emails, websites, workplace documents, etc.

Cognitive Domain

Low o	complexity (recall and reproduction)	20% - 30%
•	Items require recognition of previously learned information, such a concept, a principle, or performance of a simple procedure.	s a fact, a definition, a term,
Mode	rate complexity (skills and concepts)	40% - 50%
•	Items require application of knowledge of one or more concepts an how to approach a question or problem, how ideas relate, or what	
High o	complexity (strategic thinking)	20% - 30%
•	Items require interpretation, analysis, generalization, abstract reasonnection of information and evidence in context.	oning, judgement, or

What did we learn?





The CAEC is very different from the GED due to the introduction of the following changes:

- Digital
- 2. Content
- 3. Cognitive complexity.

However, math has fewer content and complexity changes.

Digital



Interface

Navigation buttons

Accessibility tools

Digital sources to read and interpret

At least **13 different types** of Interactive test questions

Virtual measurement tools

Word processing and composing online

Content



Canadian content

Less print and more visuals

Solid background knowledge needed

- → Some science questions don't have sources
- → Some social studies questions assume certain types of knowledge
- → A few different types of math questions are introduced

Cognitive Complexity



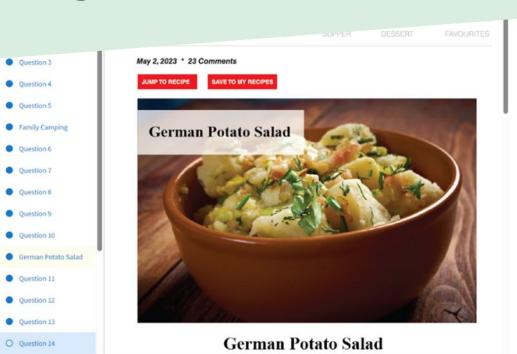
Test questions reflect three types of knowledge and thinking:

- 1. Recall and reproduction
- 2. Application of skills and concepts
- 3. Strategic thinking and reasoning.

The application of skills and concepts along with the use of strategic thinking and reasoning require more confident and comprehensive knowledge.



Digital



_o ... me recipe. First step of the recipe Create dressing Boil potatoes $\mathbf{+}$ Cook bacon and onions Combine all ingredients Peel back potato skin Last step of the recipe

-

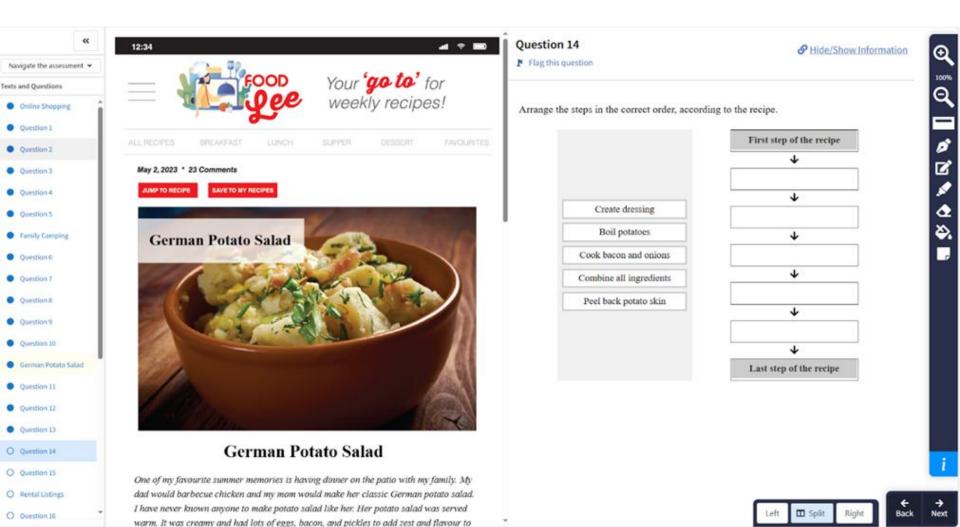
Digital skills and knowledge demands of the CAEC



- 1. Interpret a large amount of information displayed on the screen
- 2. Navigate the test interface and using a variety of digital tools
- 3. Respond to at least **13 different kinds** of multiple-choice questions that require a variety of digital skills and knowledge
- 4. Read and interpret **content from online environments**, particularly in the reading section.

While digital skills and knowledge are not the focus of the CAEC tests, they are essential for success. The digital skills are not separate from the content but are a means through which learners can show what they know in the content areas. Instructors across all subject areas should be aware of the digital demands of the tests and should receive training to understand and manage the cognitive load that some learners will feel.

Monica Leong



Sample Tests

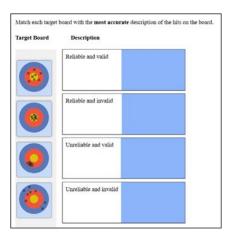
Subject specific released items candidates can use to prepare for CAEC tests.

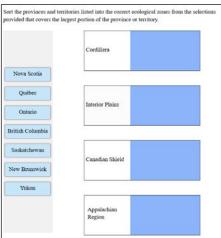
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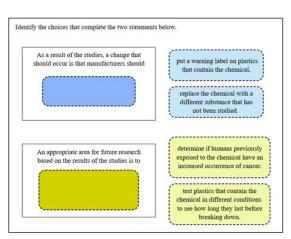
- CAEC Try the Tools
- CAEC English Reading
- CAEC English Writing
- CAEC Math Part I
- CAEC Math Part II
- CAEC Science
- CAEC Social Studies

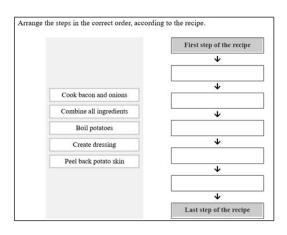
- CCEA Naviguer dans l'évaluation
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- CCEA Mathématiques Partie I
- CCEA Mathématiques Partie II
- CCEA Sciences
- CCEA Études Sociales

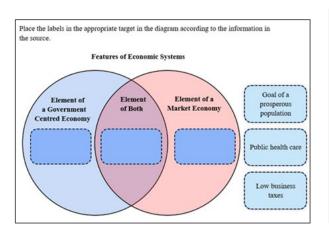
A partially completed 3-In-A-Row puzzle is shown below. Select the features that apply to each archeological site identified in the source. When the puzzle is completed correctly, select the colours that will be in the blue spaces. Could have originated Contains more than 600 Presents the Carved Representations into Rock of Animals **Human Form** years ago Sproat Lake Writing-on-Stone Agaw Traditional single-select multiple choice example. Identify the proper storage of the solution and a necessary precaution to take when handling the solution. Proper Storage of the Solution A Necessary Precaution If the pattern continues, then how many more grey tiles will the homeowner need to finish When Handling the Solution tiling the floor? \sim 12 15 Store in a ventilated place 24 27 Store in a cool, dark, sealed place

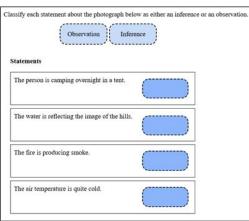




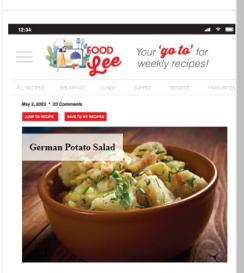








German Potato Salad



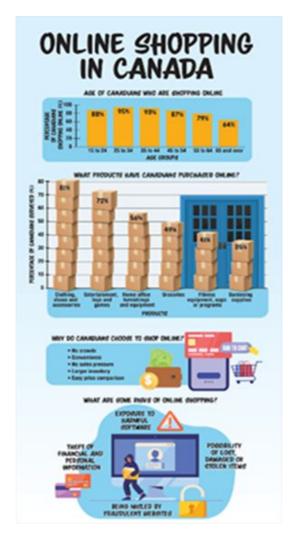
German Potato Salad

One of my fanourite summer memories is having diviner on the patio with my family. My dad would barbecus chicken and my mom would make her classic German potato salad. I have never known anyone to make potato salad like her. Her potato salad was served warm. It was creamy and had lots of eggs, bacon, and pickles to add zest and flavour to the potatoes.

As an adult. I've started to appreciate my mom's tips and tricks for creating this delicious recipe. She boils the potatoes with the skins on and then peels them while they are still warm. Finding that tweet spot to peel the potatoes while still warm, but before they get too cold is the challenge!

10 Ingredients:

- 2 lbs Yukon Gold Potatoes (or any yellow potato)
- 5 hard boiled eggs (or more!), chopped
- 4 slices of bacon, chopped
- 4 large dill pickles, chopped
- 15 1 small onion, chopped
- 1/2 cup of fresh parsley, chopped
- 1/2 cup of mayonnaise
- 6 tbsp of vinegar (or pickle juice)
- 2 tablespoons of mustard powder



How to support learners



- 1. Understand where learners are at with their digital skills and confidence
 - Rely on conversation and observation
- Perceive and address emotions
 - Reduce the cognitive load
 - Watch for increased stress and frustration
 - Introduce tools slowly and thoughtfully
- 3. Provide **explicit instruction** and time to practise with the test
 - Practise using all CAEC tools
- 4. Support learners to understand and control what they see on the screen

Text-to-speech

Magnifying tools

Line reader















€

100%

4

Reading



Groceries	
Gardening supplies	
Clothing, shoes and accessories	

Reading skills, knowledge and strategy demands



- Read mostly a variety of informational texts that mimic those an adult may encounter in day-to-day living.
- Read online content such as an infographic, a recipe posted on a blog, an informational post, an email, and results from an online search on a short-term rental platform
- 3. Interpret and read numerous design elements that accompany the printed information, such as colour, photos, graphics, inactive navigational buttons, comments, charts, and tables.
- 4. Draw on **background knowledge** related to literal or figurative meaning of words and phrases, organizational structures and features, usage and correctness of grammar and punctuation, syntactic structures and topics related to work, learning, recreation, etc.



Family vacations are priceless. We enjoy a great time with the kids, but is it all worth it? Flights, hotels, and food all add up to fun, but pricey getuways. Our solution so maximizing enjoyable family adventures while minimizing cost was to purchase a trailer and give camping a try. Campgrounds and RV parks are priced lower than hotel noons, and food costs are reduced 5 when you make your own meals. And since both my husband and I camped as kids, we had an idea of what to pack, how to set up and take down the RV utilities, and how to maintain it.

We chose a trailer that our vehicle could easily tow and with a layout that worked for our family. The hathroom included a sink, a toilest and a shower. We had a double bod in the bedroom, a night table on each side and a wardrobe with mirrors. The eating area was a bit tight, but there to was enough room to prepare needs. It here was even a small couch and a television, and to the right of that there was a small area for curling up with a book. Past this area behind cuttants, there were two single beds for the kids. We planned on spending most of our time outdoors, but it was nice to know that we had a place to go if the weather was bad.

Our first few trips were great. Set up and take down were a hit time consuming, especially if 15 we were only staying one or two nights, but we enjoyed ourselves. Most campgrounds had little to no internet service, so we were occupied with a variety of outdoor activities. If it rained, we spent time in the trailer playing board games and cards.

We soon discovered, however, that we were definitely not alone in our decision to take our family on the road. The popularity of camping had skyrocketed. Reservations often needed 20 to be made months in advance to ensure a spot at a campground. Imprompt weekends at campgrounds close to home were almost impossible. We found that we were not getting the use out of the trailer that we had hoped for.

We decided that a perfect solution would be to find a camping spot where we could park and leave the trailer set up, then use it whenever we wanted. After some research, we located a small campignound, within an hour from home, that had seasonal camping sites. There were many amenities, including a playground, group fire pits and a small beach. It was perfect!

No more worrying about reservations, setting up and taking down or long drives. We just needed to pack enough food and clothes for a weekend. A bornus was that there was an established community of families that became our close friends. We have finally found our happy affamily vacation spot, and we are looking forward to many future camping adventures!



Family Camping

- Most straightforward example of the source texts to read
- Mimics a blog post
- Digital elements are inactive
- 491 words
- Grade 8 readability level

Source I

Four friends are going to Winnipeg for a hockey game. One friend has sent an email to the others about the accommodation options.

Hi guys We have tickets to a professional backey game in downtown Winnipes this weekend We will be driving, and we need the perfect place to stay: We would liked to rent a modern space for the four of us for two nights. It needs to be in the heart of downtown (preferably nea Portage & Main), close enough to Canada Life Centre to get to the bockey game by transit but also within walking distance to downtown. To lower the cost of the trip, we would like at least two bethrooms and a kitchen in which to prepare our meals. Free parking would be an asset. We are hoping to stay within our budget (\$300 to \$400 for all of us, both nights). This is so time to be a much full.

After searching for the perfect place, I was unable to find a listing that meets all of our requirements. However, we should consider the following four listings.

Cheers.

Matt

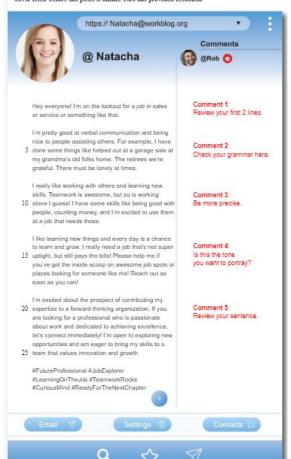
Source II

Below are the four listings from the email.



Natacha is looking for a job. She has asked her friend Rob to take a look at her networking cover letter before she posts it online. Rob has provided feedback.

Networking Cover Letter



Two sources to read

ONLINE SHOPPING IN CANADA ASK OF CANADIANG WHO ARE ENOFFING ONLINE WHAT PRODUCTS HAVE CANADIANS PURCHASED ON ME? MAY DO CAMIDIANE CHOOSE TO GILD ON THE * Convenience · No suries pressure WHAT ARE GOME PHONE OF CHLINE ENGPTING? POSSBLITY OF LOST, DAMAGED OF CTOLEN STEWS THEFT OF

Bar graph

Bar graph with illustrative elements

Illustration with bulleted list of information

Illustration with bits of information

CAEC reading outcomes



Cont	ent and context	50% - 55%
1.1	Locate and retrieve explicit ideas or information from texts.	28 Jun 2000
1.2	Interpret the literal or figurative meaning of words and phrases based on the contextual information presented in a text.	
1.3	Determine and analyze supporting ideas or information within texts.	
1.4	Evaluate, integrate, and synthesize ideas or information from texts to make draw conclusions.	connections and
Struc	cture, elements, techniques	25 - 30%
2.1	Identify and analyze organizational structures and features of literary and in	formational texts.
2.2	Determine and evaluate the purpose and effect of literary devices in texts.	
Gran	nmar, syntax, and language conventions	20 - 25%
3.1	Apply and analyze usage and correctness of grammar and punctuation.	
3.2	Determine and assess purpose and effectiveness of syntactic structures.	

Source I

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After searching for the perfect place, I was unable to find a listing that meets all of our requirements. However, we should consider the following four listings.

Cheers

Matt

Source II

Below are the four listings from the email.



In Source I, the four friends indicate their need to rent a space with a kitchen because they want to

avoid crowds

be near downtown

have more time for shopping

save money

Low complexity

Select the row that identifies the purposes of the parentheses used in lines 3 to 4 and line 7.

Row	"(preferably near Portage & Main)"	"(\$300 to \$400 for all of us, both nights)"
0	insert an unusual suggestion	review the total cost
0	show an alternative location	insert details from the readers
0	give a common suggestion	explain the purpose of the price
0	provide a precise location	describe the four friends' budget

Moderate complexity

Based on details in Source I, which of the rental choices in Source II is most appropriate for the needs of the four friends?

Choice 2

Choice 3

Choice 4

High complexity

Recognizing cognitive complexity in test questions

Low complexity	 Recall and reproduction of information, knowledge and skills Indication of where or how to determine the answer One step process, such as matching test question phrase and text phrase Source to read and interpret contains only one element such as text or an equation
Moderate complexity	 Application of skills and concepts Might or might not be an indication of answer location Two step processes are involved Source to read and interpret contains more complex elements like charts or diagrams
High complexity	 Reasoning, interpretation and generalization needed; no clear cut answer provided More than one source must be consulted Three or more steps are needed to determine an answer or write a response Multiple sources could also contain more complex elements

Combine active and explicit instruction to support learners



Make opportunities for deep and engaged reading in a digital world that promotes superficial reading

Deep reading involves personal and meaningful engagement with text.

It leads to more intrinsically motivated reading, and

Deep reading leads to confident and independent reading.

Suggested resources are in the full report

Explicit instruction is focused on developing the specific skills, knowledge and strategies that are assessed

- Tables and charts to convey data-driven information
- Literary devices
- Basic punctuation
- Grammatical structures
- General reading vocabulary and specific word choices to enhance meaning
- Similar online topics.



Writing

System

O Option 2: Off-Leash Dog

O Writing Space

Continue to Review

you work for a company where management has recently proposed to implement a video security system in the workplace. Those in favour of the proposal believe that it will increase safety and security, while those opposed believe that it has the potential to be misused and is an invasion of privacy.

In deciding whether to agree or disagree with the proposal, your company has invited employees to make their views known. You are an employee of the company. You have considered information and opinions from various sources. After considering the advantages and disadvantages of the proposal, you have determined your position. You now need to write a persuasive letter or email that makes clear:

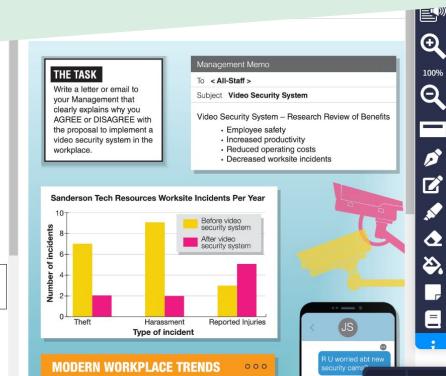
- · whether you agree or disagree with the proposal
- · the arguments and support for your position

The Task

Write a letter or email to your Management that clearly explains why you AGREE or DISAGREE with the proposal to implement a video security system in the workplace.

In preparing your letter or email, BE SURE TO

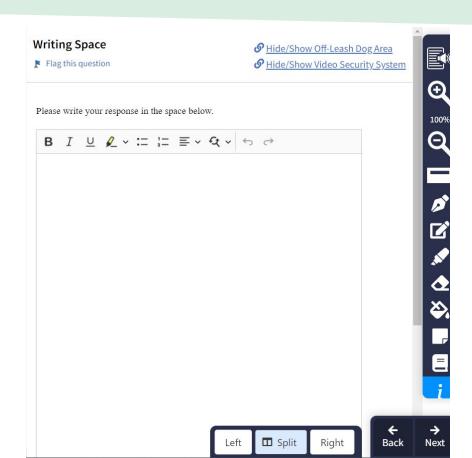
- · read the information in the sources
- · clearly state whether you AGREE or DISAGREE with the proposal



Writing skills, knowledge and strategy demands



- Compose a persuasive argument in the form of a formal letter or email using background information, sources provided and/or personal knowledge.
- Test-takers can choose one of two topics.
- 3. Reading is as important in the writing section as writing, and the text to read is more difficult than the texts in the reading section.



PERSUASIVE WRITING (Option 2)

Read the situation described below and use it to complete the writing task that follows.

The Situation

Gity council he put forward a proposal that would allow dogs to be off-leash in Liberty Gardens, a community greenspace. Residents who are in favour of the proposal express the need for urban dogs to run and play freely. Those opposed are concerned about the safety and waste management issues associated with a multi-use park.

City council is requesting feedback on the proposal to allow dogs to be off-leash in Liberty Gardens. You are a resident who has gathered information and opinions from a variety of sources. After considering the advantages and disadvantages of the proposal, you have determined your position. You now need to write a persuasive letter or email to city council that makes clear:

- · whether you agree or disagree with the proposal
- · the agreements and support for your position

The Task

Write a letter or email to city council that clearly explains why you AGREE or DISAGREE with the proposal to allow dogs to be off-leash in Liberty Gardens.

In preparing your letter or email, BE SURE TO

- · read the information in the sources
- · clearly state whether you AGREE or DISAGREE with the proposal
- · develop and support your arguments with appropriate details
- · organize your arguments in a logical order
- · consider your audience, your tone and your voice
- · check sentence structures, usage, grammar, words and expressions

To support your position, you may use

- · the information in the sources
- · your own knowledge and/or experiences
- · a combination of both

Option 2: Off-Leash Dog Area



THE TASK

Write a letter or email to eny council that clearly explains very you AGREE or DISAGREE with the proposal to allow dogs to be off-leash in Liberty Gardens.

My Council Meeting Minutes

4.0 Off-Leash Proposal for Liberty Gardens Highlights of the proposal:

- . Park hours will remain from 5:00 a.m. to 11 p.m.
- Liberty Gardens will remain open to the public.
 Dogs will not need to be leashed, but dog owners must maintain control of their dog at all times.

000

- Fencing and pet waste stations with bag dispensers will be installed.
- The city maintenance department will continue to regularly service the greenspace.
- Costs associated with this proposal will be covered with funds from this year's recreation budget.

--- WEEKLY UPDATE ---

PET POINTS: WEEKLY PET ADVICE -

As a veterinarian, I need to caution how you approach outdoor, off-leash time with your dog, Make save your dog is up-to-date on all vaccinations. Dogs must also be trained to come to you on command. Next, remember that some dogs are not ready for the excitement of off-leash areas. Know when your dog is becoming uncomfortable, overwhelmed or overexited.

Being a responsible dog owner is essential, both for the safety of your dog and for the safety of others.

Gram 2: I do not want dogs running aroust during my family pionic. GPett.over\$65: I love set my

dog can run! But, where's te parking? @spence14: I don't want my taxes to go to a space for dogs. I don't own a doo!

@Foodle77: I'm excited! I'm going to make the patio at my restaurant dog-friendly.

Recreational development options

Proposed Location



Combine active and explicit instruction to support learners



Active learning

Discuss, read about and respond in writing (online and offline) to a variety of community issues and local news stories.

Use community news sites, pages or email updates and printed community newspapers, if available.

Choose topics of interest together and create a scenario. Include snippets of information found in the various sources.

Explicit instruction

Create or collect models of strong writing that address the CAEC outcomes. Together with learners, make explicit connections between the model and each of the CAEC outcomes.

Emphasize that this writing is very analytical and strategic rather than expressive or creative.

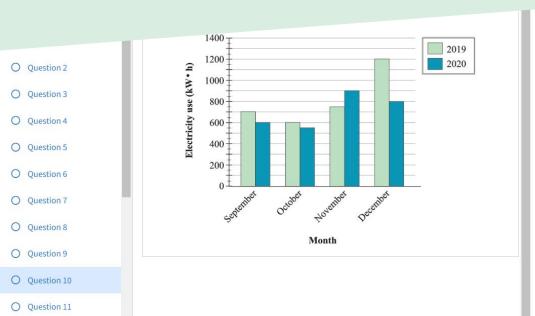
Comparing strong and weak examples can help learners acquire these analytical skills. Working together and engaging in a discussion will help learners see their writing more objectively.

Suggested resources are in the full report



Math

O Question 12



In 2019, the range of electricity use from September to December was and in 2020, the median electricity use from September to December was

Math skills, knowledge and strategy demands

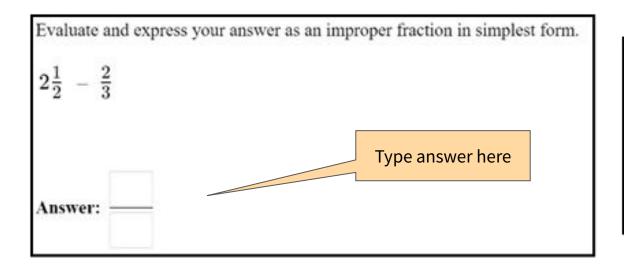


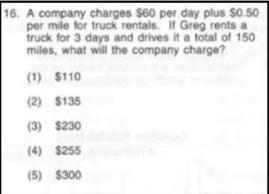
- CAEC mathematics assesses a more condensed set of math skills and knowledge than the 2002 Canadian GED®.
- 2. Many of the questions in **Part II of the CAEC are similar to those found on the GED®**, both in terms of content and question design.
- 3. The calculator-free section of the CAEC (Part I) is half the length and value. There are no word problems, only expressions to be simplified or equations to be evaluated.
- 4. The more abstract content found in the GED® is not present. There are no questions about quadratics, lines on a Cartesian plane, inequalities, laws of exponents, scientific notation, or properties of lines or angles.
- 5. The **vast majority of the test questions are considered moderate complexity**, requiring test-takers to apply skills and concepts to make decisions about how to approach a question or problem, how ideas relate or what tools to use.

		GED8			72	GED8	
		Canada	CAEC			Canada	CAE
lumber	Compare or sort numbers (including fractions)	1	1		Create algebraic equations to solve problems	•	-
perations and	Use place value for rounding				Manipulate polynomials with unknowns	······	
number sense	Represent and use numbers in a variety of equivalent	1	-		Colleting like terms	· · · · · · · · · · · · · · · · · · ·	٧,
	forms (integers, fractions, decimals, percents,				Using the distributive property	✓	·
	exponents				Requiring factoring	1	
	Represent and use numbers in scientific notation	-		Solve problems	Extrapolate or interpolate from linear relationships	1	/
				with linear	shown in table or graph form		
	Perform addition, subtraction, multiplication, and	1000		algebra	Understand and use the slope-intercept formula		ļ
	division with and without a calculator				Calculate slope		ļ
	Choose and sequence operators to solve problems				Identify or calculate x and y intercepts from an equation		
	Identify relevant information from passages and other	-	*		or graph		ļ
	sources.				Solve for an unknown x or y when given the other	v	ļ
	Use exponents and roots in geometric problem solving	1	1		Verify points on a line	· · · · · ·	ļ
	Apply properties of exponents to simplify expressions	1			Identify and graph points and lines on a Cartesian plane	Ψ,	ļ
Rate and ratio	Solve rate problems involving distance/time/speed	7	1		Solve two-step linear equations	· ·	ļ
	Solve rate problems involving wage/costs		7		Solve and graph inequalities	٧,	
	Solve ratio problems involving scale (e.g. maps and	7	-		Solve quadratics (limited to assessing possible solutions	~	
	diagrams)	Debay 1	33		in a multiple-choice setting)		
	200 - 0.002			Geometry	Calculate area, perimeter, and surface area of simple	1	1
	Solve ratio problems involving equivalent triangles				and compound shapes (polygons and circles)		<u>.</u>
	Solve ratio problems involving part-to-part ratios	-	-		Calculate volume of prisms, pyramids, and cones.	✓	
	Solve ratio problems involving part-to-whole ratios	1	1		Apply properties of lines and angles	V	
	Solve ratio problems involving part-to-part-to-part ratios		1		Apply properties of polygons to solve problems - side	1	٧
	(e.g., 5:12:13)				lengths of regular and symmetrical polygons		<u> </u>
	Perform metric/metric conversion (no rate provided)	7	1	1	Apply properties of polygons to solve problems - sum of	4	
	Perform metric/imperial conversion (rate provided)		7		interior angles		
	Calculate simple interest (with a provided formula)	7	-		Solve problems using the Pythagorean relationship.	1	٧
					Identify congruent figures	✓	٧
Algebra	Simplify expressions and solve equations using order of			Probability and	Calculate probability of independent events	4	٧
	operations (with both known and unknown values)			statistics	Identify and calculate mean, median, and mode	1	٧
	Evaluate expressions after substitute values for	1	·		Identify the effect of outliers on mean, median, and		٧
	unknowns				mode		
	Recognize expressions which appropriately model	1			Analyze impact of sampling choices on collected data		V
	problems			Graphs	Use information from line, bar, and pie charts	7	-

Part 1 - No calculator







GED had word problems in the calculator free section.

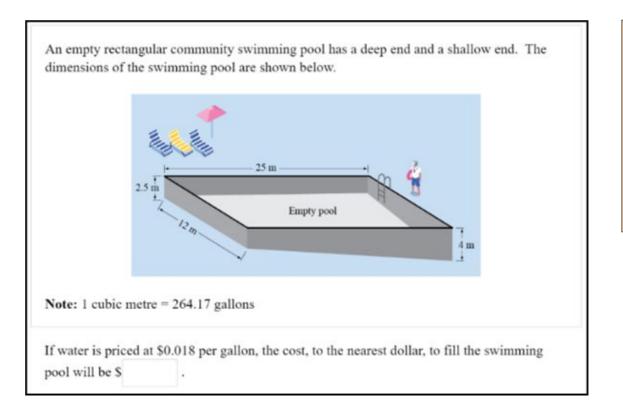
Mostly moderate complexity questions



Cognitive Domain

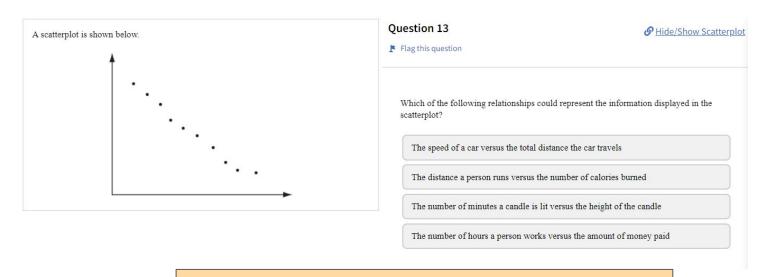
Low	complexity (recall and reproduction)	15% - 25%
•	Items require recognition of previously learned information, such as a concept, a principle, or performance of a simple procedure.	a fact, a definition, a term,
ivode	rate complexity (skills and concepts)	70% - 80%
•	Items require application of knowledge of one or more concepts and how to approach a question or problem, how ideas relate, or what to	
High (complexity (strategic thinking)	5 % - 15%
•	Items require interpretation, analysis, generalization, abstract reason	ning, judgement, or

Number sense example



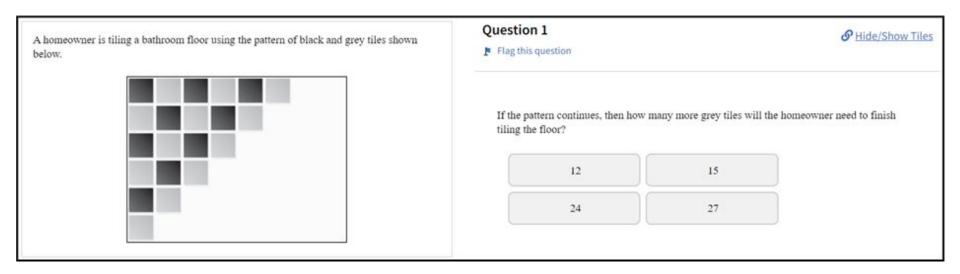
This question requires the calculation of a volume in metric and the conversion of that volume to imperial before the final rate can be applied.

Patterns and relations example



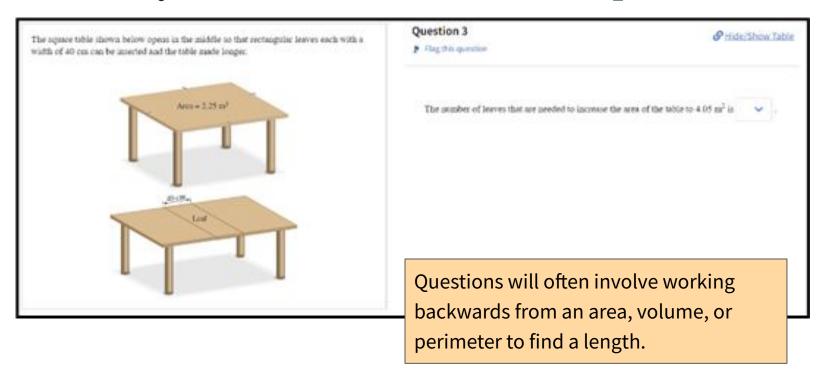
This question doesn't require any calculations but does require a conceptual understanding of linear relationships. It is also moderate complexity.

Patterns and relations to practise

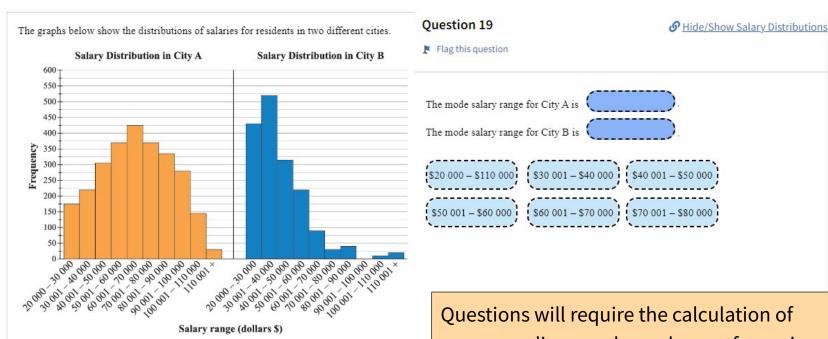


Pattern extension questions and logical reasoning questions, as shown above, will often be based on visual sources. These questions may feel unfamiliar to people and should be given specific attention.

Geometry and measurement example



Data management and probability example



Questions will require the calculation of mean, median, mode, and range from given values or information presented in a graph.

How to support learners



- 1. Build math skills using a variety of resources. Many can be repurposed.
- Prepare for the CAEC test using similar questions. Also consult the <u>Alberta Provincial</u> <u>Achievement Tests (PATs)</u>.
- 3. Mix multiple-choice and direct entry answers into question sets.
- 4. Develop multi-step questions and questions that work backwards.
- Provide multiple strategies for solving problems that could be solved by creating a linear equation.
- 6. Build skills for identifying and collecting relevant information.
- 7. Review pattern extension problems.



Science



O Question 15

O Question 16

O Question 17

O Question 18

O Question 19

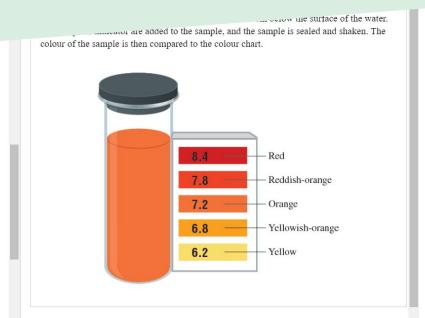
O Question 20

O Question 21

O Question 22

O Question 23

O Question 24



Based on the results of the drop test, the hot tub water has a pH of

8.4 7.8

7.2 6.8

Science skills, knowledge and strategy demands



- 1. The CAEC science test **doesn't assess particular content knowledge**. It only assesses broader scientific topics --- the nature of science, scientific inquiry skills, and science, tech, society, and the environment.
- 2. Some **questions don't have a source to read and interpret**. Test-takers will have to draw on their scientific knowledge.
- 3. Most of the questions are **moderately complex** and focus on the application of scientific concepts like bias, validity, reliability or hypothesis in authentic scenarios.
- 4. Test-takers will be presented with a variety of sources and test-questions types.

**	
Navigate the assessment	From the eight descriptions below, select four that are characteristics of scien
estions	Relies primarily on evidence
O Question 1 O Question 2	Relies primarily on feelings and opinions
O Question 3	Requires working alone to keep findings secret
O Question 4 O Question 5	☐ Depends on interactions with a community of people
O Question 6	Aims to prove the existence of the supernatural
O Question 7 O Question 8	Aims to investigate and explain the natural world
O Question 9	Is subject to change when there are new discoveries
O Question 10 O Question 11	Stays constant even when new contradictory evidence is presented
O Question 12	
Question 13	
Question 14	
Question 15	

Researchers wanted to compare the nutritional value of conventional eggs, organic eggs, and free-run eggs.

- Conventional eggs are laid by hens in small cages and typically cost less to purchase than organic or free-run eggs.
- Free-run eggs are laid by hens that live in an environment where they have access to the outdoors and their movement is not restricted by small cages.
- Organic eggs are laid by free-run hens that are given food that is grown without synthetic fertilizers or pesticides and does not contain chemical additives, such as hormones or drugs.

The researchers purchased two cartons each of several different types of eggs from 14 brands at grocery stores across the Greater Toronto Area. The research team sent the eggs to an accredited food-science laboratory to test levels of cholesterol, protein, and omega-3 fatty acid, as well as vitamins A, D, and E.

-based on CBC Marketplace, 2021

Question 5

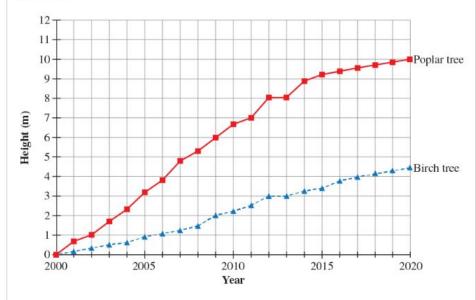


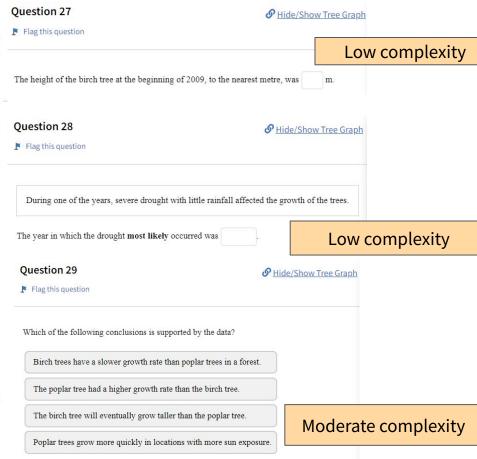


Determine whether each action researchers could take below would reduce or increase bias in the experiment.

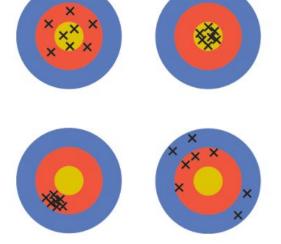
Actions Researchers Could Take	Reduces Bias	Increases Bias
Purchase all of the eggs for the study at the same grocery store in Toronto.		
Purchase and test a larger number of eggs from different cities across Canada.		
Pay the researchers a bonus, provided by one of the organic-egg producers if the results of the study are favourable.		
Do not let the laboratory testers know which eggs are conventional, organic, or free-run until after they do the tests.		

A poplar tree seedling and a birch tree seedling were planted on opposite sides of a home. At the beginning of each year, the homeowner recorded the height of each tree in metres (m).





Target boards are often used as an analogy to help illustrate the relationship between reliability and validity, which are important aspects of a scientific investigation. The goal of anyone using a target board is to hit the centre circle of the board. Four different target boards are shown below, and the pattern of the hits (×) on each board represents a different combination of reliability and validity.



Question 4



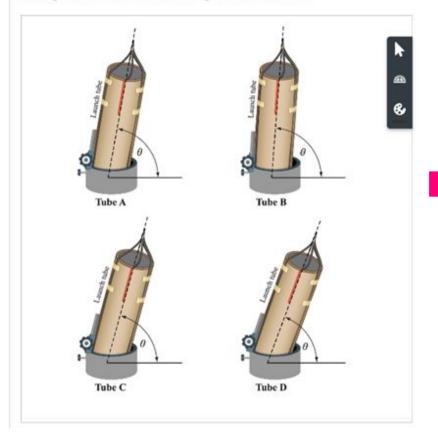
Flag this question

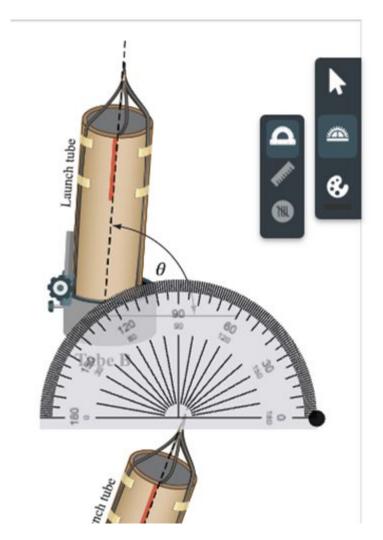
Match each target board with the most accurate description of the hits on the board.

Target Board	Description	
××××	Reliable and valid	
	Reliable and invalid	
	Unreliable and valid	
	Unreliable and invalid	

Pyrotechnicians are responsible for the creation of fireworks displays. To create a particular pattern in a fireworks display, the fireworks tube should be at a 75° angle from the ground and have an inner diameter of 48 millimetres (mm).

The diagrams below show four different angles of a fireworks tube.





How to support learners



Active learning: Do and discuss science

Most of the CAEC science outcomes require the application of knowledge through real-life scenarios and scientific investigations. Use real-life examples to make linkages with the assessed science topics. Focus on the listed scientific concepts and processes in the CAEC outcomes.

Suggested resources are in the full report

Explicit instruction

In addition, test-takers need more specific skills and knowledge to respond to test questions.

- Practise using a protractor and ruler.
- Practise analyzing and interpreting scientific information from tables, graphs, and diagrams.
- Review the Workplace Hazardous Materials Information System (WHMIS 2015) and its pictograms.
- Review the metric system (i.e., Système International d'unités) for all measures and conversions.

Featured resource to get you started

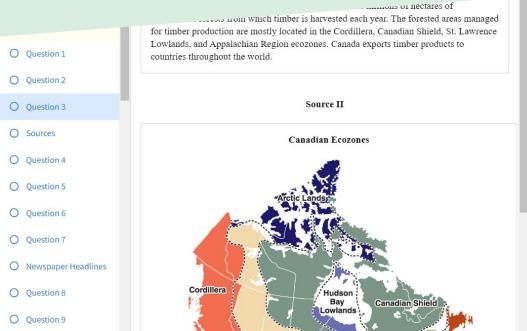


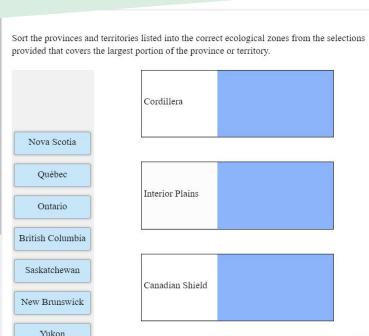
<u>Science News Explores</u> is a comprehensive online science learning publication with articles and features written by experienced science journalists.

- Help learners understand and apply key scientific concepts using the <u>comprehensive list of concepts</u>.
 Here is an example for <u>hypothesis</u>. Each entry includes a brief explanatory text and audio narration.
- Review the <u>collection of experiments</u> that you could conduct with adult learners. Look for experiments
 of interest to learners or connected to a theme. Integrate discussions about scientific inquiry and the
 nature of science.
- Teach learners how to read and interpret "data, graphs, visualizations and more" using the section
 Analyse this!
- Organize a theme or topic using more in-depth articles called <u>Explainers</u>.



Social studies





Social studies skills, knowledge and strategy demands

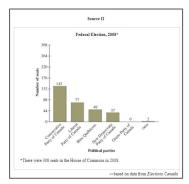


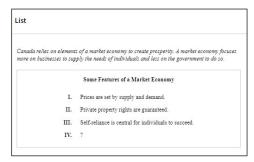
- Test-takers are presented with a variety of sources to read and interpret, along with a variety of test-questions types.
- 2. All topics, content and perspectives are **focused on Canada**.
- Most of the questions are moderately complex and focus on the application of concepts associated with the four main topics.
- 4. Some questions require additional social studies knowledge to respond (e.g., test-takers need to be able to identify all provinces and territories to respond to a different question).

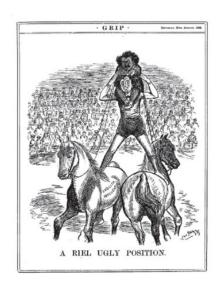
Variety of source texts

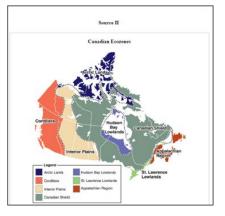
- Thematic maps of Canada
- 2. Contemporary and historical cartoons
- 3. News headlines
- 4. Articles
- 5. List of features/concepts
- 6. Graphic narratives
- 7. Information posters
- 8. Diagrams
- 9. Lists
- 10. Graphs
- 11. Charts
- 12. Tables



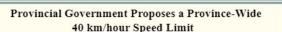








One of the sources, an article, has a high average readability level (grade 14.7)





Tanya Swift
Pivot-News
Correspondent

Published May 30, 2023

Roads can be dangerous for drivers and pedestrians alike. Faced with increased accident numbers and rising insurance costs, the provincial government has proposed a new bill to limit speed to 40 km/h in all residential areas, except for playground and school zones, which are already 30 km/h. The intent of the bill is to reduce accidents, conserve fuel, and encourage bicycle and pedestrian traffic on city streets.

Cyclists are eager for the bill, as lower speed limits will make using alternative forms of commuting safer and more attractive. They also believe lower speeds and less fuel consumption will offer environmental benefits.

For years, insurance companies have sought this change. They argue the proposed bill will ensure fewer fatalities and will benefit all policy holders by reducing insurance claims and overall policy costs.

Critics say there is a large difference in accident rates between larger urban and smaller rural centres. Residents of smaller towns, where accident rates are lower, do not believe this bill should apply to their communities.

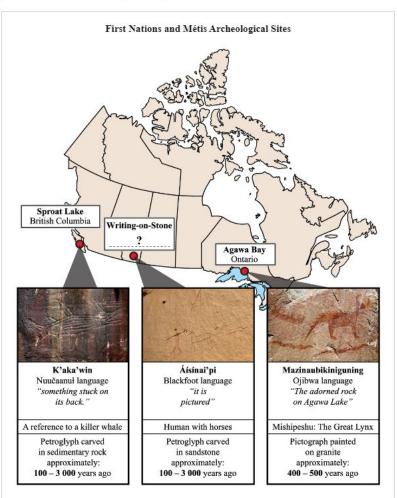
According to vehicle owners, new car safety features, such as object warning systems, make slower speeds unnecessary. Drivers claim the speed limit reduction will see police officers occupied with issuing speeding tickets rather than focusing on other priorities in their

communities.

Related Headlines

- Pivot-News: Expanding bike lanes on upcoming municipal agenda.
- TNL: Auto dealers set to increase new car repair costs.
- ZipMedia: Playground construction to be expanded in the new year.
- Shuffle News: Rural road construction delayed.

For generations, First Nations and Métis have created images with stone at numerous sacred places across the land that is present day Canada.



Which of the following provinces is "Writing-on-Stone" located in?

Saskatchewan

Manitoba

Alberta

British Columbia

Low complexity

Select the most appropriate conclusion that can be drawn from the source.

Rock art images have a uniform style used by First Nations people.

Rock art confirms First Nations people practiced a nomadic lifestyle.

Modern rock art represents aspects of the lives of First Nations people.

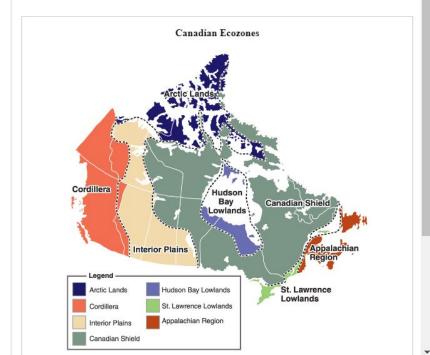
Archeology is one way to confirm the ancient presence of First Nations people.

Moderate complexity

Source I

In Canada, nearly half of the land is forested. There are millions of hectares of commercial forests from which timber is harvested each year. The forested areas managed for timber production are mostly located in the Cordillera, Canadian Shield, St. Lawrence Lowlands, and Appalachian Region ecozones. Canada exports timber products to countries throughout the world.

Source II

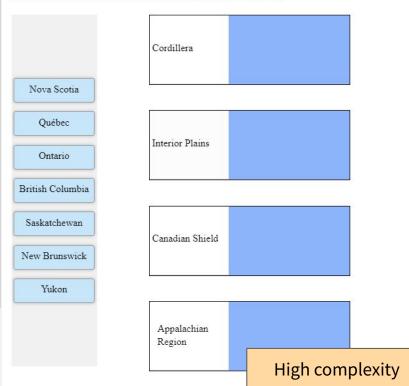


Question 3





Sort the provinces and territories listed into the correct ecological zones from the selections provided that covers the largest portion of the province or territory.



How to support learners



Active learning

Classroom discussions, informal debates, mock elections, quizzes and hands-on activities using maps will help test-takers engage with and develop a deeper understanding of the main topics and specific outcomes. Focus the activities on the four main topics addressed by the outcomes.

- 1. Citizenship and government
- 2. Economics and economic systems
- 3. Geography and the environment
- 4. Historical and contemporary Canada.

Suggested resources are in the full report

Explicit instruction

As many CAEC questions require the test-taker to engage with more visual/graphic prompts, resources that support the development of visual literacy and document analysis will be needed.

An excellent teaching resource is the <u>document</u> <u>analysis worksheets</u> from the US National Archives.

In addition, social studies has numerous listed outcomes within the four main topics. Note the details of these outcomes focusing on the listed concepts, terms and actions.