

Grade 6



Criterion-Referenced Competency Tests

CRCT



Study



Guide



Reading
English/Language Arts
Mathematics
Science
Social Studies



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Using the CRCT Study Guide

This Study Guide focuses on the knowledge and skills that are tested on the Georgia Criterion-Referenced Competency Tests (CRCT). It is designed for teachers to use with their students and for parents to use with their children. Go to www.gadoe.org/ to find further information about and support for the CRCT.



Use the following section of this guide, *About the CRCT*, for an overview of the CRCT and for test-taking strategies to review with your students.

- The content tested on the CRCT is based on the Georgia Performance Standards, which describe what all students should know, understand, and be able to do.



The chapters of this guide are organized by subject. In each chapter you can explore the skills needed to succeed in a specific, tested domain (grouping of similar content standards). The subject chapters include a snapshot of each domain, instructional **Activities** that address covered skills, and a **Practice Quiz** with annotated **Solutions** to help assess student progress.

Overview of the CRCT

What is the CRCT?

The CRCT is a series of state-mandated achievement tests for students in Grades 1 through 8. In Grades 3 through 8, the subject areas of Reading, English/Language Arts, Mathematics, Science, and Social Studies are covered.

What does the CRCT measure?

The CRCT measures how well students have acquired the knowledge and skills covered by the state curriculum for their grade levels. A new statewide curriculum, known as the Georgia Performance Standards (GPS), sets academic standards and expectations for all students in Georgia's public schools. The CRCT corresponds to the new standards.

The tests accomplish the following:

- Ensure that students are learning
- Provide data to teachers, schools, and school districts so they can make better instructional decisions
- Measure accountability, including Adequate Yearly Progress (AYP) as measured by the federal No Child Left Behind Act

CRCT results measure the academic achievement of students, classes, schools, school systems, and the state. This information can be used to identify individual student strengths and weaknesses or, more generally, to measure the quality of education throughout Georgia.

How are CRCT questions scored?

The CRCT currently uses only selected-response (multiple-choice) questions. There are four choices for each question, labeled A, B, C, and D.

Students are not compared to each other. Each student is measured on his or her achievement in meeting the standards. Scores are reported according to three performance levels: Does Not Meet the Standard, Meets the Standard, and Exceeds the Standard. For more information, go to the website www.gadoe.org/ci_testing.aspx?PageReq=CI_TESTING_CRCT and click the link for "2009 CRCT Score Interpretation Guide."

Since the spring of 2006, performance on the reading portion of the CRCT has been linked to the Lexile scale. Visit www.gadoe.org/lexile.aspx for more information on this national reading measure.

Preparing for the CRCT

Test-Taking Strategies

**Weeks
Before
the Test**

The following are study skills and test-taking tips to share with students:

Keep on top of material as you learn it in school. Don't leave everything until the last minute!

Ask questions in class when you don't understand something.

Set academic goals for the upcoming weeks and months (short and long term).

Choose a quiet place to work that is free of distractions.

Find out as much as you can about the test.

Build in time to review what you learned in your last study session.

Divide assignments into smaller pieces. It's easier to remember information this way.

Take breaks! Studying for a long time nonstop is not productive.

Consider reviewing materials with others after you've studied on your own. This helps reinforce what you already know and reminds you of things you've forgotten.

Actively take notes while you read. This forces you to think about what you are reading.

Try sample test questions for practice.

At the end of each study session, evaluate what you have accomplished.

Preparing for the CRCT

Day Before the Test

Get a good night's rest.

If you are feeling nervous, talk to a teacher or parent.

Remember that this test is only one measure of your knowledge.

Eat a good breakfast before the test; it will give you energy to stay alert.

During the Test

Remind students of the following strategies to use during the test:

Relax by taking slow, deep breaths.

Make sure you understand the directions. If you are not sure, ask the teacher for clarification.

Read each question carefully.

When you use scratch paper, make sure that you copy the problem correctly from the test onto your paper.

You can underline and make marks on your test to help you while you work, but the only answers that will be scored are those in the correct place on your answer sheet.

Try to come up with your own answer before seeing the choices. This will help in choosing the best answer choice available.

Eliminate answer choices that you know cannot be right.

Leave a question blank if you are unsure of the answer, then return to it at the end.

Manage your time. Don't let the pace of others make you nervous. However, don't spend too much time on one question.

Be sure to answer all of the questions.

Review your answers when you have finished the test.

Try to stay calm during the test. Remember, this is a chance for you to show what you know.

Related Links

Below are links to important resources that contain information related to the CRCT.

Georgia Performance Standards:
www.georgiastandards.org/

CRCT Content Descriptions:
www.gadoe.org/ci_testing.aspx?PageReq=CI_TESTING_CRCT

GPS Frameworks:
www.georgiastandards.org/

Lexile Framework for Reading:
www.gadoe.org/lexile.aspx

Best practices in education indicate that teachers should first model new skills for students. Next, teachers should provide opportunities for guided practice. Only then should teachers expect students to successfully complete an activity independently.

The activities in this guide are no exception. They are designed to be used by teachers and parents to help students with the skills on the Georgia CRCT.

Since different students have different strengths and needs, the activities in this study guide can be scaffolded for students who need more support, extended to challenge advanced students, or presented as is (with appropriate modeling) for grade-level students.



Reading

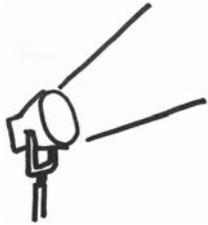
When reading a text closely, students in Grade 6 work carefully to discern the author's perspective and the particular facts and details that support it. The students read thoughtfully and purposefully, constantly checking for understanding of the author's intent and meaning, so that the interpretation will be sound.

These Reading activities focus on some of the concepts that are assessed on the Grade 6 CRCT Reading domains. These domains are as follows:

- 1 Reading Skills and Vocabulary Acquisition**
- 2 Literary Comprehension**
- 3 Information and Media Literacy**



Activities



1 Reading Skills and Vocabulary Acquisition

Georgia Performance Standards ELA6R2, ELA6RC3, and ELA6RC4

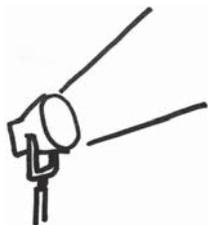
The Reading Skills and Vocabulary Acquisition domain addresses what students do to become confident, strong readers. Grade 6 students need to know what to do when they encounter unfamiliar words and words that have multiple meanings. To accomplish this task, Grade 6 readers must learn to use context clues (figure out the meaning of words from surrounding sentence and paragraph), word parts (examine prefixes, suffixes, and root words), and reference texts (look up words in a dictionary or thesaurus).

The following activities develop skills in this domain:

- To help students learn to determine the meanings of unfamiliar words using context clues, students should create *Literary Word Banks*. As they read, students “deposit” unfamiliar words in the first of three columns of their “banks.” In the second column, students guess the word meanings in the context of the surrounding sentences and paragraphs. In the third column, students write down the dictionary definitions of the words. On another page students should write new sentences using the words. They should also draw illustrations of these new vocabulary words to display.
- To help students learn common word parts (prefixes, roots, and suffixes) and strategies for figuring out unfamiliar words, students should make charts of common prefixes, suffixes, and root words. On their charts they should write common prefixes such as *trans-* and *re-*. Beneath these terms, students should list words with similar word parts. For example, working with the prefix *im-*, students might list words such as *impossible*, *impatient*, *important*, and *immobile*.
- To help students understand how to use context clues for words with multiple meanings, students should be given a list of ten words with multiple meanings such as *intimate*, *invalid*, *refuse*, *draft*, *gross*, *might*, *rank*, *sole*, *season*, and *conduct*. Next, students write two sentences using the same word in multiple ways. For example, students are given the word *address*. They then write two sentences: *Please send the package to my mailing address* and *The President delivers a monthly address to the nation*. Students should use a dictionary as a reference for this activity, as needed.



Activities



2 Literary Comprehension

Georgia Performance Standard ELA6R1

The Literary Comprehension domain addresses students' ability to read closely in order to understand and interpret what they have read. Grade 6 students are expected to know and analyze literary elements such as plot, setting, characterization, tone, and theme. They should be familiar with figurative language such as simile, metaphor, hyperbole, and personification, and with the effects of sound devices, such as onomatopoeia, alliteration, and rhyme schemes.

The following activities develop skills in this domain:

- To help students understand characterization (the ways authors portray characters), students should choose characters from stories and role-play them. Students should represent the characters as fully as possible; they should dress in costumes and describe the characters' motivations and experiences. To prepare for this task, students should list each character's traits and find quotations from the story that provide evidence of these traits. Students should also write diary entries from the perspectives of their characters. This activity will help them get to know their characters and better understand the characters' "voices" (the way their characters speak).
- To help students understand the significance of setting (time and place of a story), students should write about places that have been important to them. As a warm up, students should read or listen to stories with clear descriptive passages about their settings. Then, using descriptive and sensory details, students should write about their own special places. These descriptions should include at least two senses.
- To help students identify and appreciate sensory language, read aloud excerpts of stories with sensory details and poems. As students listen to the works being read aloud, students should close their eyes and create pictures in their heads. Then, students should draw or describe, in writing, what they pictured. To further develop sensory and poetic language skills, students should practice naming paper paint chip samples that are readily available at hardware stores. For example, yellow could be called "burnt sun."
- To help students understand the concept of theme, students should examine several familiar fables such as *The Tortoise and the Hare* or one of the West African Anansi tales. Students could also use Greek myths such as *The Odyssey* and *The Myth of Icarus*. In order to refresh their memories, students should recount the plot details and narrative sequence of the stories. Next, students should discuss ways the protagonists change during the tales and the lessons they learn. Finally, students should discuss the central ideas, or themes, of the tales.



Activities



3 Information and Media Literacy

Georgia Performance Standards ELA6R1, ELA6RC2, and ELA6LSV2

Information and Media Literacy refers to the skills required to comprehend and analyze a wide range of informational texts, such as essays, newspaper articles, textbooks, and reference materials. Students in Grade 6 need to recognize and analyze different aspects of these texts, including textual and graphic features, organizational structures, main ideas and supporting details, theme, author's purpose, as well as techniques of persuasion. In addition, students need to know how to follow multi-step instructions.

The following activities develop skills in this domain:

- To help students learn to follow directions and methodically create and complete a series of steps for an end product, prepare a food item together by following a recipe, step-by-step.
- To distinguish opinion writing from factual writing, students should first examine a list of statements about a topic with which they are familiar. Then they should decide which statements are facts and which are opinions. Students should also extract examples of opinions and facts from newspaper articles they read. Finally, they should compare statements included in an editorial from a newspaper to an informational news article in the same newspaper.
- To help students understand persuasive language and the concept of author's purpose, students should choose a controversial topic and write two different paragraphs, one in support of it and the other against it.



Practice Quiz



Genre: Fiction

Read the passage below and answer the questions that follow.

Surviving Middle School

Anna was concerned. In a few short weeks, she would be starting middle school. At first, she hadn't worried about it too much. As the summer went on, though, she thought about it more and more. In previous years, Anna had always been a little excited about going back to school. However, this year school seemed like a treacherous jungle full of unknown dangers, and she was standing just on the edge of it. Her mom smiled and told her not to worry. She told Anna that it might seem difficult at first, but in time, she'd get used to it. Anna wasn't so sure. It seemed like she would *never* be ready for middle school, not in a million years!

With just a week to go before the first day of school, Anna had to go with her parents to a barbecue thrown by their neighbors, the Kleins. As she stood in the Kleins' backyard, she found herself thinking about everything that she had heard about middle school. What if her classes were too hard? What if she couldn't keep up with the homework? Plus, she had never had to change rooms for different classes before. She just knew that she would somehow end up lost or in the wrong class, and that everyone would laugh at her. Anna was sure that no one else felt the way that she did.

"Hey," she heard someone say. It was Eric Klein, her next-door neighbor. He was helping his parents by carrying dirty plates into the kitchen. She wondered if he felt like she did about the upcoming year. *No*, she thought to herself, *he never worries about anything*. Eric had always seemed calm and confident about everything—nothing ever seemed to faze him.

"I can't believe summer's over," he said, a note of disgust in his voice. Anna was surprised. Eric rarely ever complained. Today, though, he looked as unhappy as she felt.

Just then Eric's mother walked over to them, leading a man by the arm. Anna didn't recognize him and wondered who he was.

"Kids," Ms. Klein said enthusiastically, "this is Mr. Harrison. He is the new English teacher at Westlake. He just moved in to the Costas' old house."

"Nice to meet you both," Mr. Harrison said. Anna and Eric both mumbled hello.

Ms. Klein smiled at Mr. Harrison. "Eric is so worried about the school year," she said, frowning slightly. "Middle school is such a big change."

"Mom!" Eric said quickly, clearly annoyed. "I'm not worried," he said, turning red.



Anna tried not to laugh, but she couldn't keep from letting out a small snort.

Mr. Harrison gave a quick laugh and then jumped in. "Actually, I'm kind of nervous, too," he said. "It's a new school—new students, new teachers to work with." He paused. "Plus, I have a horrendous sense of direction. I know I'm going to spend the first couple of months getting lost. I guess I'd better keep my cell phone with me."

Anna laughed. The joke wasn't especially funny, but she laughed anyway. For the first time in weeks, she felt better. If other people were nervous about the school year, too, even someone like Eric, then she wasn't alone. If even teachers were anxious before the school year started, then maybe what she was going through wasn't that unusual. Anna smiled to herself. Maybe it wouldn't be so bad after all.

1 What is the MAIN conflict in the story?

- A Anna is sad about the end of summer.
- B Anna is nervous about meeting her neighbors.
- C Anna is worried about the upcoming school year.
- D Anna is unhappy about having to go to a barbecue.

2 What is the MAIN setting in the story?

- A in a kitchen
- B in a hallway
- C in a backyard
- D in a classroom

3 Which sentence BEST shows that the story takes place in the present day?

- A In a few short weeks, she would be starting middle school.
- B He was helping his parents by carrying dirty plates into the kitchen.
- C "He just moved in to the Costas' old house."
- D "I guess I'd better keep my cell phone with me."

4 What type of figurative language is used in the sentence and why?

However, this year school seemed like a treacherous jungle full of unknown dangers, and she was standing just on the edge of it.

- A simile, to show how Anna is feeling
- B hyperbole, to show what Anna is thinking
- C simile, to show where Anna will be going to school
- D hyperbole, to show how dangerous school is for Anna



- 5 **Why does the author MOST LIKELY include the phrase *not in a million years* in the sentence?**

Anna wasn't so sure. It seemed like she would *never* be ready for middle school, not in a million years!

- A to show that Anna is funny
- B to explain why Anna is tired
- C to suggest that Anna is patient
- D to emphasize how Anna is nervous

- 6 **Why does the author MOST LIKELY include this sentence from the story?**

"I'm not worried," he said, turning red.

- A to illustrate that Eric is hot
- B to explain why Eric is scared
- C to show that Eric is embarrassed
- D to demonstrate why Eric is concerned

- 7 **Which of these BEST describes how Anna feels at the end of the story?**

- A excited
- B relieved
- C confused
- D impressed

- 8 **Which of these BEST states the theme of the story?**

- A Adjusting to unfamiliar situations can be fun.
- B Meeting people in a new town can be interesting.
- C Spending time with friends and neighbors can be enjoyable.
- D Knowing that others share your problems can be comforting.

- 9 **What is the meaning of the word *faze* as it is used in the sentence?**

Eric had always seemed calm and confident about everything—nothing ever seemed to faze him.

- A relax
- B bother
- C interest
- D persuade



10 **Based on the sentences, what is the meaning of *horrendous*?**

“Plus, I have a horrendous sense of direction. I know I’m going to spend the first couple of months getting lost.”

- A terrible
- B unusual
- C valuable
- D practical



Solutions

Number	Correct Answer	Explanation
1	C	<p><i>Identifies and analyzes the elements of setting, characterization, plot, and the resolution of the conflict of a story or play: internal/external conflicts. (ELA6R1e(ii))</i></p> <p>The correct answer is Choice (C) Anna is worried about the upcoming school year. There are many places in the passage that show that Anna is worried about the new school year, such as when she states, "...school seemed like a treacherous jungle..." Choice (A) is incorrect because there is no mention that Anna is sad about the end of summer. Choices (B) and (D) are incorrect since Anna expresses no sadness or unhappiness about meeting her neighbors at the barbecue.</p>
2	C	<p><i>Identifies and analyzes the elements of setting, characterization, plot, and the resolution of the conflict of a story or play: internal/external conflicts. (ELA6R1e(ii))</i></p> <p>The correct answer is Choice (C) in a backyard. In the second paragraph, the second sentence begins, "As she stood in the Kleins' backyard..." Choices (A), (B), and (D) are incorrect, as they are settings that are not part of this story.</p>
3	D	<p><i>Relates a literary work to historical events of the period. (ELA6R1c)</i></p> <p>The correct answer is Choice (D) "I guess I'd better keep my cell phone with me!" Since cell phones are a fairly new invention, this answer is the most indicative of the setting in the present day. Choices (A), (B), and (C) are incorrect because middle school, dirty dishes, and moving homes are not new and could have happened at another time.</p>



Number	Correct Answer	Explanation
4	A	<p><i>Identifies and analyzes sensory details and figurative language. (ELA6R1a)</i></p> <p>The correct answer is Choice (A) simile, to show how Anna is feeling. A <i>simile</i> compares two unlike things using the words <i>like</i> or <i>as</i>. In this sentence, the school is being compared to a jungle because Anna fears going to a new school. Choices (B) and (D) are incorrect because a <i>hyperbole</i> is an extreme exaggeration for effect. While the figurative language may be helping to express what Anna is thinking, (B) is incorrect because it is not a hyperbole and (D) is incorrect because it is not telling how dangerous school will literally be. Choice (C) is incorrect because the simile is not stating that Anna will actually attend school in the jungle.</p>
5	D	<p><i>Responds to and explains the effects of sound, figurative language, and graphics in order to uncover meaning in literature: figurative language (i.e., simile, metaphor, hyperbole, personification). (ELA6R1h(ii))</i></p> <p>The correct answer is Choice (D) to emphasize how Anna is nervous. The saying “not in a million years” is a hyperbole, or exaggeration; it is meant to show that no matter how long Anna waits, she won’t be ready for middle school. Choices (A), (B), and (C) are incorrect since the phrase does not show how funny, tired, or patient Anna is.</p>
6	C	<p><i>Identifies and analyzes the author’s use of dialogue and description. (ELA6R1b)</i></p> <p>The correct answer is Choice (C) to show that Eric is embarrassed. Eric blushes because he feels embarrassed. Choices (A), (B), and (D) are not accurate descriptions.</p>



Number	Correct Answer	Explanation
7	B	<p><i>Identifies and analyzes elements of setting, characterization, plot, and the resolution of the conflict of a story or play: internal/external conflicts. (ELA6R1e(i))</i></p> <p>The correct answer is Choice (B) relieved. Anna is <i>relieved</i> when she finds out that both Eric and Mr. Harrison are also nervous about the new school year. Choices (A), (C), and (D) are incorrect, as they do not describe her feelings accurately.</p>
8	D	<p><i>Applies knowledge of the concept that theme refers to the message about life and the world that the author wants us to understand, whether it is implied or stated. (ELA6R1d)</i></p> <p>The correct answer is Choice (D) Knowing that others share your problems can be comforting. Anna feels comforted that Eric and Mr. Harrison share her nervousness about the new school year. Choice (A) is incorrect because Anna demonstrates in the story that changes can be difficult and not fun. Choices (B) and (C) are incorrect because the passage isn't mostly about being new in a town or enjoying time spent with friends and neighbors.</p>
9	B	<p><i>Determines the meaning of unfamiliar words by using word, sentence, and paragraph clues. (ELA6R2a)</i></p> <p>The correct answer is Choice (B) bother. The second part of the sentence is a contrast to the first part. Therefore, being fazed by something is the opposite of being calm and confident. Choices (A), (C), and (D) are inaccurate since <i>faze</i> does not mean <i>relax, interest, or persuade</i>.</p>
10	A	<p><i>Determines the meaning of unfamiliar words by using word, sentence, and paragraph clues. (ELA6R2a)</i></p> <p>The correct answer is Choice (A) terrible. The second sentence gives a clue to the meaning of <i>horrendous</i>. Because Mr. Harris expects to get lost frequently in the first couple of months, readers know his sense of direction must be very bad. <i>Horrendous</i>, like <i>terrible</i>, is synonymous with very bad. Choices (B), (C), and (D) don't make sense in the context of the sentence.</p>



Chapter 2

English/Language Arts

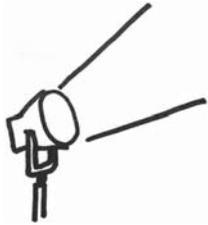
Students entering Grade 6 encounter new experiences and challenges in English/Language Arts as they enter middle school. They continue to develop skills in oral and written language, while developing their own voices and style. They analyze and edit their own writing following the basic conventions of Standard English. They also focus on understanding the purposes of research and using a variety of analytical research skills.

The English/Language Arts activities focus on some of the concepts that are assessed on the Grade 6 CRCT English/Language Arts domains. These domains are as follows:

- 1 Grammar/Sentence Construction**
- 2 Research/Writing Process**



Activities



1 Grammar/Sentence Construction

Georgia Performance Standard ELA6C1

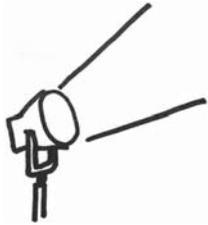
Within the Grammar/Sentence Construction domain, students recognize and use the eight main parts of speech and the basic parts of sentences (subjects, verbs, objects, etc.). They demonstrate understanding of simple, compound, complex, and compound-complex sentences, and they are able to punctuate a variety of sentence types correctly. Students are also able to spell grade-level words in context, correct sentence fragments and run-ons, and correctly apply rules of capitalization.

The following activities develop skills in this domain:

- To become familiar with the four different categories of verbs, students create a graphic verb organizer. They will write these four column headings: Active (Transitive), Active (Intransitive), Linking, and State of Being. In the second row, just below each column heading, students will write the definition. In the third row, students should make up a sentence giving an example of the verb category. They should check to be sure that the verb in the example agrees with the subject of the sentence.
- To focus attention on different types of pronouns and their correct use, partners can conduct a *Favorite Things* silent interview. Instead of asking questions, partners write four questions, beginning each with a different interrogative pronoun. For instance, a student might write, *What sport do you like best?* and *Who is your favorite singer?* Students exchange interview questions and write their answers in full sentences. Then they work together to locate all pronouns in the questions and answers, and they decide whether each is a personal, possessive, demonstrative, reflexive, or indefinite pronoun. They also need to make sure that each pronoun agrees with its antecedent.
- To develop skills in detecting and correcting sentence fragments and run-on sentences, students will prepare a script for a two-minute mock podcast. Point out that the final script must contain only complete sentences. These sentences may be simple, compound, or complex, but they may not include sentence fragments or run-on sentences. Students should proofread the script for correct sentence structure, punctuation, capitalization, and spelling.
- For practice using correct capitalization, invite students to write the title and lyrics to the first verse of a favorite song. Students should check the title and lyrics carefully to be sure that their work follows the standard rules of capitalization.



Activities



② Research/Writing Process

Georgia Performance Standards ELA6W1, ELA6W2, ELA6W3, and ELA6W4

For the writing process, students analyze the organizational structure of paragraphs, choose appropriate transitions between paragraphs, passages, and ideas, and select appropriate closing sentences. They also determine appropriate topic sentences, supporting evidence, and details. Students identify extraneous information and details and reorganize sentences to improve clarity. Finally, students analyze the features of various types of electronic texts (electronic bulletin boards, databases, keyword searches, etc.).

The following activities develop skills in this domain:

- To give practice in selecting appropriate transitional words and phrases, students will examine a one-page, informational article of an appropriate reading level. After the first reading, students go back to the beginning and read the article again, this time focusing on the transitions used in compound and complex sentences. They can copy each transition on a separate index card and label it according to how it has been used (for example, *to show contrast* or *to show cause or effect*).
- In order to become familiar with different organizational patterns and how each is used in writing, students will do some role playing with the fable, *The Boy Who Cried Wolf*. Taking the role of the shepherd boy, students will make up a paragraph to answer each of the following questions:
 - *What events happened, in order, just before you saw the wolf?* (Sequence)
 - *Did the wolf look like a big dog? Tell the similarities and differences.* (Compare/Contrast)
 - *Why did the townspeople eventually ignore the alarm call?* (Cause/Effect)
 - *Describe the steps you think it would take to regain the townspeople's trust.* (Process)
- For practice analyzing the relationship between main idea and supporting details in a variety of genres, provide three different types of articles from which the statement of main idea has been deleted: a descriptive article, an informational article, and a persuasive article. Students will read each article and infer its main idea. Then they explain how each detail helped them figure out the main ideas.



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- For practice in judging the effectiveness of supporting details, students develop a *Top Ten* list of details to develop a paragraph with this main idea: *Our state is a great place to live*. Students list ten facts, descriptive sentences, quotations, or other ideas that support the main idea. They should arrange these ideas in order of importance, from least to most. For extra practice, they can write out the paragraph, making sure that they use appropriate transitional words or phrases between the supporting details.



Practice Quiz



- 1 **Which word in the sentence is a preposition?**

I am sitting between my uncle and my sister.

- A sitting
- B between
- C my
- D uncle

- 2 **Which sentence uses an intransitive verb?**

- A He ate his apple first.
- B Tamara is reading quietly.
- C She wants a new book for a reward.
- D Amy and Wendy have yellow raincoats.

- 3 **What part of speech is the underlined word in the sentence?**

She brings a pencil to every class.

- A verb
- B noun
- C adjective
- D preposition

- 4 **Which sentence is a compound sentence?**

- A Did you read the story, or were the children asleep?
- B Read us a story from our favorite book of folk tales.
- C The children were ready for bed and a bedtime story.
- D Before bedtime tonight, can you read the children a story?

- 5 **Where should the comma be placed in the sentence?**

Do not forget to open the window Paul.

- A after *not*
- B after *forget*
- C after *open*
- D after *window*

- 6 **Which sentence has a capitalization error?**

- A Last winter was colder than expected.
- B The Doctor spoke to our class yesterday.
- C My mother and I enjoy cooking meals together.
- D Our social studies class is studying the U.S. Constitution.



7 **Which sentence uses a demonstrative pronoun?**

- A Open the door carefully.
- B These berries are so sour.
- C Our homework keeps us busy.
- D Those are the ones I like the most.

8 **Which transition word BEST connects the two sentences?**

Remember to finish your homework. _____ you cannot go outside to play.

- A When,
- B Instead,
- C Usually,
- D Otherwise,

9 **Which sentence is unrelated to the paragraph?**

¹One of my favorite books is *The Sweet Kingdom*. ²It is about a king who loves anything that is made with sugar. ³He insists that everyone in his kingdom eat chocolate. ⁴I returned the book to my school's library yesterday.

- A sentence 1
- B sentence 2
- C sentence 3
- D sentence 4

10 **Which would be the BEST way to contact a possible employer?**

- A e-mailing the hiring director of a company
- B searching a database of employers in the state
- C posting a question on a job-related electronic bulletin board
- D entering the keyword *employer* into an Internet search engine



Solutions

Number	Correct Answer	Explanation
1	B	<p><i>Identifies and uses prepositional phrases (preposition, object of the preposition, and any of its modifiers). (ELA6C1a(vii))</i></p> <p>The correct answer is Choice (B) between. <i>Between</i> is a preposition that shows location. Choice (A) is a verb; Choice (C) is a possessive adjective; and Choice (D) is a noun.</p>
2	B	<p><i>Identifies and uses verbs—action (transitive/intransitive), linking, and state-of-being. (ELA6C1a(iv))</i></p> <p>The correct answer is Choice (B) Tamara is reading quietly. The verb <i>reading</i> is followed by an adverb, not a direct object, in this sentence. The verbs in Choices (A), (C), and (D) are transitive; all have direct objects.</p>
3	B	<p><i>Recognizes basic parts of a sentence (subject, verb, direct object, indirect object, predicate noun, predicate adjective). (ELA6C1b)</i></p> <p>The correct answer is Choice (B) noun. <i>Pencil</i> is a noun. Choice (A) verb is the word <i>brings</i>. Choice (C) is the word <i>every</i>. Choice D is the word <i>to</i>.</p>
4	A	<p><i>Identifies and writes simple, compound, complex, and compound-complex sentences, avoiding fragments and run-ons. (ELA6C1c)</i></p> <p>The correct answer is Choice (A) Did you read the story, or were the children asleep? This sentence is made up of two simple sentences joined with the coordinating conjunction <i>or</i>. Choice (B) is a simple sentence with two prepositional phrases. Choice (C) has a prepositional phrase with a compound object. Choice (D) is a simple sentence beginning with a prepositional phrase.</p>
5	D	<p><i>Demonstrates appropriate comma and semicolon usage (compound and complex sentences, appositives, words in direct address). (ELA6C1d)</i></p> <p>The correct answer is Choice (D) after window. The comma is used to set off a word of direct address. Choices (A), (B), and (C) are incorrect because commas are not needed for any other reason in the sentence.</p>



Number	Correct Answer	Explanation
6	B	<p><i>Produces final drafts that demonstrate accurate spelling and the correct use of punctuation and capitalization. (ELA6C1f)</i></p> <p>The correct answer is Choice (B) The Doctor spoke to our class yesterday. The word <i>doctor</i> should not be capitalized here because it is not part of a doctor’s name, such as Doctor Smith. Choices (A), (C), and (D) all follow the guidelines for correct capitalization.</p>
7	D	<p><i>Identifies and uses pronouns—personal, possessive, interrogative, demonstrative, reflexive, and indefinite. (ELA6C1a(ii))</i></p> <p>The correct answer is Choice (D) Those are the ones I like the most. The demonstrative pronoun is <i>those</i>. Choices (A), (B), and (C) do not have pronouns.</p>
8	D	<p><i>Uses appropriate structures to ensure coherence (e.g., transition elements). (ELA6W1d)</i></p> <p>The correct answer is Choice (D) Otherwise. In this sentence, the word <i>otherwise</i> is used as a conjunction; it connects both parts of the sentence. It also shows a cause-and-effect relationship between “finishing homework” and “playing outside.” Choices (A), (B), and (C) would make the sentence illogical.</p>
9	D	<p><i>Excludes extraneous details and inconsistencies. (ELA6W2e)</i></p> <p>The correct answer is Choice (D) sentence 4. The paragraph tells what <i>The Sweet Kingdom</i> is about. <i>Sentence 4</i> doesn’t tell anything about what happens in the story. Choices (A), (B), and (C) give details that relate directly to <i>The Sweet Kingdom</i>.</p>



Number	Correct Answer	Explanation
10	A	<p><i>Uses organizational features of electronic text (e.g., bulletin boards, databases, keyword searches, e-mail addresses) to locate relevant information. (ELA6W3a)</i></p> <p>The correct answer is Choice (A) e-mailing the hiring director of a company. This would put the prospective employee in contact with a specific person. Choices (B) and (D) would yield too many results that would be hard to narrow down. Choice (C) would not necessarily put the prospective employee in touch with employers.</p>



Mathematics

By the end of Grade 6, students will understand the four arithmetic operations as they relate to positive rational numbers; convert between and compute with different forms of rational numbers; understand the concept of ratio and solve problems using proportional reasoning; understand and use line and rotational symmetry; determine surface area and volume of solid figures; use variables to represent unknown quantities in formulas, algebraic expressions, and equations; utilize data to make predictions; and determine the probability of given events.

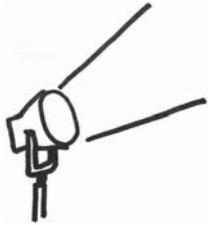
The Mathematics activities focus on some of the concepts that are assessed on the Grade 6 CRCT Math domains. These domains are as follows:

- 1 Number and Operations**
- 2 Measurement**
- 3 Geometry**
- 4 Algebra**
- 5 Data Analysis and Probability**

Mathematical Process Skills are integrated throughout the domains. These are skills used to acquire and apply content knowledge.

Mathematical Process Skills refer to students' dexterity in applying concepts and skills in the context of authentic problems and understanding concepts rather than merely following a sequence of procedures. Process skills are used to acquire and apply content knowledge. Process skills involve solving problems that arise in Mathematics and in other contexts; investigating, developing, and evaluating mathematical arguments; communicating mathematically; making connections among mathematical ideas and to other content areas; and representing mathematical ideas in multiple ways.

Activities



1 Number and Operations

Georgia Performance Standard M6N1

Within the Number and Operations domain, students will learn the meaning of the four arithmetic operations as related to positive rational numbers and will use these concepts to solve problems. Students will apply factors and multiples, including decomposing numbers into their prime factorization and determining the greatest common factor (GCF) and least common multiple (LCM) for a set of numbers. They will add and subtract fractions and mixed numbers with unlike denominators and multiply and divide general fractions and mixed numbers. Students will be able to use fractions, decimals, and percents interchangeably and solve problems using them.

The following activities develop skills in this domain:

- To apply factoring skills, students should find possible perimeters of different rectangles and prisms, given their area or volume. Students should use the perimeter, area, and volume formulas and focus on the application of factors in finding the possible dimensions of:
 - A rectangle with area 24 in^2
 - A rectangle with area 80 in^2
 - A rectangle with area 120 in^2
 - A prism with volume 24 in^3
 - A prism with volume 120 in^3
 - A prism with volume 145 in^3
- Help students gain confidence in adding, subtracting, multiplying, and dividing mixed numbers, converting within a system, and using proportional relationships by shopping for ingredients and adjusting a recipe. This *Summer Slushy* recipe will create one bowl of slushy to serve about twenty people.

Summer Slushy

5 cups water

$1 \frac{1}{2}$ cups sugar

4 ripe bananas, peeled

48-oz can unsweetened pineapple juice

$1 \frac{1}{2}$ pints frozen orange juice concentrate, thawed

$\frac{3}{4}$ pint frozen lemonade concentrate, thawed

$2 \frac{1}{4}$ quarts ginger ale

If you are short by $1 \frac{1}{4}$ cups of ginger ale but still want to make the slushy using this recipe, how much of each of the other ingredients should be used to maintain the proportions of the recipe?



Students will practice mixed-number multiplication by calculating how much of each ingredient to buy in order to make five bowls of slushy for an upcoming parent night event and seven bowls for the year-end graduation celebration.

Students will practice mixed-number division by finding how much of each ingredient they need to buy to make five bowls or seven bowls using these container sizes:

2-cup boxes of sugar

32-oz cans of pineapple juice

$\frac{3}{4}$ -pint containers of juice concentrates

$\frac{1}{4}$ -quart cans of ginger ale

- Students will apply real-world urban planning skills, design park playground areas, and determine the least common multiple (LCM) of pairs of numbers.

Distribute rulers, pencils, and two sheets of $\frac{1}{4}$ -inch grid paper to each student (grid paper can be downloaded from a number of Internet websites).

Students will design two possible plans for a new playground using the materials provided and the following assignment from a local municipality:

- Use a different sheet of grid paper for each playground plan.
- Each square on the grid represents one square yard.
- The playground will include different sections for swings, water play, slides, sandboxes, jump rope, and picnic tables.
- All sections of the playground will be rectangles.
- Each section, on both plans, will have the same but smallest possible area.

- The swings section will be designed in rows of 3 or 4 square yards.
- The water play section will be designed in rows of 4 or 5 square yards.
- The slides section will be designed in rows of 5 or 6 square yards.
- The sandbox section will be designed in rows of 7 or 4 square yards.
- The jump rope section will be designed in rows of 2 or 9 square yards.
- The picnic table section will be designed in rows of 3 or 4 square yards.

List on the board or chart paper the two possible areas for each section of the playground. Students will discover that each section not only has the same area as requested but that they have applied the LCM. For example, the swings section is made up of 4 rows of 3 yards or 3 rows of 4 yards, both 12 square yards in total.

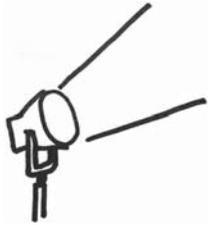
Students will continue their urban planning and applying greatest common factor (GCF) to answer the municipality’s following request. Equal numbers of square yards of certain sections of the playground are to be painted the greatest possible number of colors.

- *How many colors will be used for the swings and slides sections?*
 - *How many colors will be used for the jump rope and picnic table sections?*
 - *How many colors will be used for the water play and sandbox sections?*
- In order to gain practice converting between decimals, fractions, and percents, students will use given values to find an unknown amount. The three pizzas listed in the chart are of equal size. The size of each slice is shown as a portion of a whole pizza. Students should use the information in the chart to determine the size of each unlisted portion. They should then use these results to determine which slice is largest.

Pizza Number	Slice One	Slice Two	Slice Three	Slice Four
1	$\frac{1}{4}$	0.28	23%	
2	$\frac{1}{8}$	0.165	50%	
3	$\frac{2}{5}$	0.045	0.40%	



Activities



2 Measurement

Georgia Performance Standards M6M1, M6M2, M6M3, and M6M4

The Measurement domain addresses students' ability to convert between units within one system of measurement (customary or metric) by using proportional relationships. Students will use appropriate units of measure for finding length, perimeter, area, and volume and will express each quantity using the appropriate unit. Students will measure length to the nearest half, fourth, eighth, and sixteenth of an inch. Students will select, use, compare, and contrast units of measure for perimeter, area, and volume. Students will determine the volume of fundamental solid figures, including right rectangular prisms, cylinders, pyramids, and cones. Students will determine the formulas for the volume of fundamental solid figures and use them to compute volume using appropriate units of measure. Students will estimate the volume of simple geometric solids and solve application problems involving the volume of fundamental solid figures. Students will determine the surface area of solid figures, including right rectangular prisms and cylinders. Students will find the surface area of right rectangular prisms and cylinders using manipulatives and constructing nets or compute it using formulas. Students will estimate the surface areas of simple geometric solids, and solve application problems involving the surface area of right rectangular prisms and cylinders.

The following activities develop skills in this domain:

- Students will build upon their knowledge of area, determine the formula for finding the volume of fundamental solid figures, and compute the volumes using appropriate units of measure.

Distribute to each student a rectangle of construction paper or cardboard that measures 2 in. x 4 in. Assist students in recalling that the formula for the area of a rectangle is $l \times w$. Then, students will determine the area of the given rectangle.

Next, inform the class that the formula for the volume of some solid figures, such as a rectangular prism can be determined by building upon the area formula.

Show the class (prepared beforehand) a stack of 2 in. x 4 in. rectangles with a height of 2 in. Elicit suggestions for how the volume of this rectangular prism can be determined. Guide the discussion so that students see a rectangular prism as a stack of rectangular planes. Students will use the formula $l \times w$ and amend it to include the third dimension of height, thus producing the formula $l \times w \times h$. Students will suggest other possible ways to write the formula. Guide the discussion towards $l \times w$ actually being the base (B) of the rectangular prism. Students will see that the formula can be written



as $B \times h$. Record on the board or chart paper the correct formula for the volume of a rectangular prism: $V = B \times h$. Finally, students will compute the volume of the rectangular prism.

Next, show the class a drawing or a solid model of a pyramid that has a base of 2 in. \times 4 in., and a height of 2 in. State that exactly *three* of these pyramids would fit into the preceding rectangular prism. Students will make suggestions for the formula for the volume of the pyramid. Guide the discussion towards $V = \frac{1}{3}B \times h$ and record this formula on the board or chart paper. Finally, students will compute the volume of the pyramid.

Students will explore cylinders and cones. Distribute to each student a circle of construction paper or cardboard with a diameter of 4 in. Students will recall the formula for the area of a circle (πr^2) and determine the area of the circle.

Next, inform the class that the formula for the volume of a cylinder can be determined by building upon the area formula.

Show the class (prepared beforehand) a stack of 4-in. diameter circles that has a height of 2 in. Elicit suggestions for how the volume of this cylinder can be determined. Guide the discussion so that students see a cylinder as a stack of circles. Students will use the formula πr^2 and amend it to include the third dimension of height, thus producing the formula $\pi r^2 \times h$. Record this formula on the board or chart paper. Finally, students will compute the volume of the cylinder.

Next, show the class a drawing or a solid model of a cone that has a base of a 4-in. diameter circle and a height of 2 in. State that exactly *three* of these cones would fit into the preceding cylinder. Students will make suggestions for the formula for the volume of the pyramid. Guide the discussion towards $V = \frac{1}{3}\pi r^2 \times h$. Record this formula on the board or chart paper. Finally, students will compute the volume of the cone.

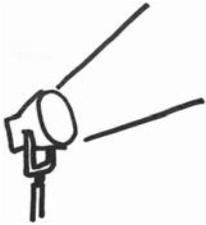
- In order to develop the link between the dimensions of an object and the units needed to describe its size, give students a piece of string, a piece of paper, and a box (or another combination of multidimensional objects). Students should:
 - Describe in their own words how the objects differ spatially
 - List which measurements will apply to the object
 - Explain why the other measurements do not apply to the object (e.g., why we can't talk about the area of a string or the volume of a piece of paper)



- Surface area and volume are common measures used for solids. To apply both surface area and volume measures, students should choose the cylindrical water storage container that will meet Williamsburg’s water storage needs, as outlined in the activity below:
 - The new water storage system Williamsburg is installing must have a capacity (volume) of at least 125π cubic meters. The town would like to keep the surface area of the container as small as possible to minimize the cost of paneling. Which tank should the town choose and why? Be sure to give details comparing the various options.
 - Tank One: radius 8 m, height 3 m
 - Tank Two: radius 8 m, height 2 m
 - Tank Three: radius 3 m, height 8 m
 - Tank Four: radius 3 m, height 3 m
 - Tank Five: radius 7 m, height 2 m
 - Tank Six: radius 7 m, height 3 m
- In order to practice converting within a measurement system, students should find the solution to this riddle:

*As I was traveling to St. Ives,
I passed a man with seven wives,
And every wife had seven sacks,
And every sack had seven hams,
And every ham weighed seven kilograms,
Grams, hams, sacks, wives,
How many milligrams of ham were traveling to St. Ives?*

Activities



3 Geometry

Georgia Performance Standards M6G1 and M6G2

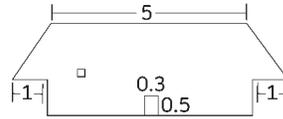
Within the Geometry domain, students develop their understanding of plane figures. They will determine and use lines of symmetry and investigate rotational symmetry, including degrees of rotation. They will use the concepts of ratio, proportion, and scale factor to demonstrate the relationships between similar plane figures. Students will interpret and sketch simple scale drawings and solve problems involving them. They will also further develop their understanding of solid figures. Students will compare and contrast right prisms and pyramids, as well as cylinders and cones. They will interpret and sketch front, back, top, bottom, and side views of solid figures. Lastly, students will construct nets for prisms, cylinders, pyramids, and cones.

The following activities develop skills in this domain:

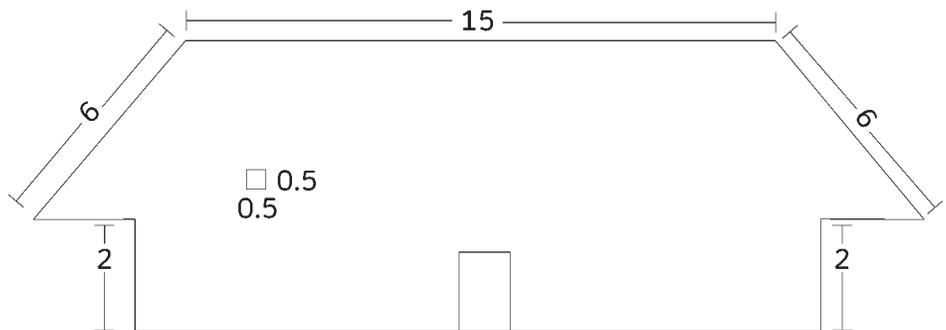
- Students will further develop their understanding of solid figures by creating a solid-figure mobile constructed from nets. Show the students a cardboard cereal box and review how it is made up of six rectangular faces. Guide the discussion so that students see and name the top, bottom, front, back, and two sides. Break down the cereal box, opening it up at the place it is glued together, so that there is now one piece of flattened cardboard. Show the students how the six faces are connected. Explain that the flattened cardboard is called a net and that nets can be folded up to make a three-dimensional solid. Provide each student with an empty cereal box or another container that is a rectangular prism. Students will break down the boxes into flat, two-dimensional pieces. Allow students to refold these pieces to observe and reinforce the definition of a net. Next, students will trace their nets onto pieces of construction or chart paper. Review how their nets are actually made up of connected rectangles. Students will cut out new nets, fold them into rectangular prisms, and tape them to keep their solid-figure form for the mobile. Provide students with rulers and construction paper. They will create several additional rectangular-solid nets of various sizes. Students will attach all of their figures, by string or thread, to a hanger or straw to create their mobile. Additional mobiles can be made from other solid figures' nets. For example, some chocolate boxes are constructed from triangular prism nets of three rectangles and two triangles and oatmeal containers are examples of cylinders, whose nets are two circles and a rectangle.
- Symmetry is a fundamental concept that is used often to simplify problems in math and the natural sciences. To develop a sense of reflective symmetry, students should look for and draw any lines of symmetry on a variety of objects, such as the letters of the alphabet and polygons, such as isosceles and scalene triangles, trapezoids, hexagons, irregular quadrilaterals, and circles. After finding lines of symmetry, students should strengthen their two-dimensional spatial sense by creating plane figures that have:
 - Vertical symmetry



- Horizontal symmetry
 - More than one kind of symmetry
 - No symmetry
- To develop a sense of rotational symmetry, students will work with regular polygons using these steps:
- 1** Draw and cut out an equilateral triangle, a square, a regular pentagon, a regular hexagon, and a regular octagon.
 - 2** For each figure, trace an outline of it on a separate piece of paper and, without moving it, place a thumbtack through the center.
 - 3** Rotate the figure once, and count and record the number of times the cutout matches the tracing.
 - 4** Calculate the degree of rotation (degrees the figure must rotate to match the tracing).
 - 5** After performing steps 2–4 for all figures, students should explain in their own words the meaning of rotational symmetry.
- Similarity is a geometric concept that links ratios and proportion with objects in the real world. An example of this can be found in scaled drawings of a house.



Similar Houses



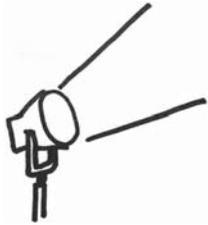


Students should first find the corresponding sides in the two figures, then calculate the ratio of corresponding sides using given lengths. Finally, they should find any missing lengths of sides, doors, and windows using the ratio of corresponding sides.

- Visualizing three-dimensional objects from different perspectives helps students develop spatial-reasoning skills. To develop this ability, students should draw a variety of objects—regular and irregular—from different perspectives. If building blocks are available, students should make a series of block towers of different heights and draw them from front, back, left, and right. Drawing common objects (stapler, phone, computer mouse, jar) from different perspectives will also develop spatial-reasoning skills. An Internet search for “spatial reasoning” or “drawing blocks from different perspectives” will give useful information about tools.



Activities



4 Algebra

Georgia Performance Standards M6A1, M6A2, and M6A3

The Algebra domain addresses relationships between varying quantities, specifically, students' understanding of the concept of ratio and its use in representing quantitative relationships. They will analyze and describe patterns arising from mathematical rules, tables, and graphs. Students will use manipulatives or draw pictures to solve problems involving proportional relationships. They will use proportions ($a/b = c/d$) to describe relationships and solve problems, including percent problems. They will describe and graph proportional relationships of the form $y = kx$ and describe characteristics of the graphs. They will solve problems using the relationships $y = kx$ for one of the variables, given the other two, and use proportional reasoning to solve problems. Students will also evaluate algebraic expressions, including those with exponents, and solve simple one-step equations using each of the four basic operations.

The following activities develop skills in this domain:

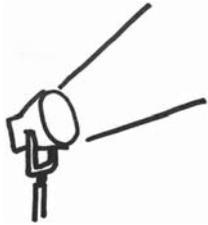
- Proportional equations, equations of the form $y = kx$, are used to model situations where quantities vary directly. To gain familiarity and flexibility with the use of these equations, students should find how much soda each guest at Jane's party can have by following the steps outlined below:
 - 1 The total cost for the soda Jane buys for her party is \$12.60. The total Jane paid is given by $c = (1+t)p$, where c is the total cost, t is the tax rate of 0.05, and p is the price before tax. Find the price of the soda before tax.
 - 2 Each bottle of soda was \$1.50. The total price Jane pays is $p = \$1.50b$, where p is the price before tax and b is the number of bottles. Use your answer from Step 1 to find the number of bottles of soda Jane purchased.
 - 3 There are 2.5 liters of soda in each bottle Jane purchased. $l = 2.5b$ gives the total liters she purchased, where l = total liters and b = number of bottles. Use your answer from Step 2 to find how many liters she bought.
 - 4 Jane has 90 friends coming to the party and she wants to serve each guest the same amount of soda. Find how much she should serve each guest using the equation $l = sf$, where l is the total number of liters of soda she has, f is the number of friends coming, and s is the serving each friend gets.
- Finding and using percents is a frequently used algebraic skill. For a real-world application of this concept, students should imagine they are running a music store and calculate a variety of discounts, taxes, percent increases, and percent decreases. Students will use the following information to answer the questions.
 - A CD costs \$16.50. *How much will it cost if you are given a 14% discount?*
 - A customer is buying a portable CD player that costs \$65.00, and the state



- tax is 5%. *How much does the customer owe?*
- Your sales were \$4,500 in July and \$4,650 in August. *By what percent did your sales increase from July to August?*
 - Your costs were \$4,650 in August and \$2,940 in September. *By what percent did your costs decrease from August to September?*
- Evaluating algebraic expressions is a key skill that supports the development of algebraic thinking and problem solving. One use of substituting values into expressions is finding the centrifugal force on Jeff’s race car while he makes a turn.
- 1** When Jeff’s race car makes a turn it produces what is called a centrifugal force that attempts to push the car out of its turn. This force depends on the mass of the car and the radius of the turn.
 - 2** The mass of Jeff’s car is equal to $4T + 2S + R + E + B$ where $T = 75$ kg is the mass of one tire, $S = 42.5$ kg is the mass of one seat, $R = 5$ kg is the mass of the radio, $E = 245$ kg is the mass of the engine, and $B = 1450$ kg is the mass of the body of the car. Use the equation and the values given to find the mass of Jeff’s car.
 - 3** There are eight lanes on the racetrack, and the radius of the turn depends on what lane you are in. If N is the lane number, the radius of the turn is equal to $80 - 4N$. If Jeff makes the turn in the 5th lane, find the radius of his turn.
 - 4** The force pushing Jeff’s car outward is given by $\frac{MV^2}{R}$ when M = the mass of his car and R = the radius of his turn. If $V = 200$ km per hour, find the force pushing Jeff’s car outward. (NOTE: Don’t worry about the units.)
- Understanding when to use proportions, how to set up proportion equations, and how to solve proportion equations are important skills in Grade 6. Students should practice these steps with the following activity.
- 1** Students should estimate the height of the school flagpole.
 - 2** Students should stand a meter stick on the ground and measure the length of the shadow it casts.
 - 3** While the flagpole is much higher than the meter stick, the proportion between the flagpole (f) and its shadow (fs), and between the meter stick (m) and its shadow (ms) is the same.
 - 4** Students should use this concept to create the equation $\frac{f}{fs} = \frac{m}{ms}$.
 - 5** The unknown variable in the equation is the flagpole (f).
 - 6** Student should solve for the length of the flagpole (f).



Activities



5 Data Analysis and Probability

Georgia Performance Standards M6D1 and M6D2

Within the Data Analysis and Probability domain, students will pose questions, collect data, represent and analyze the data, and interpret results. They will form questions that can be answered using data collected from samples, or by conducting experiments. They will use data to construct frequency distributions, frequency tables, and graphs. They will choose among pictograms, histograms, bar graphs, line graphs, circle graphs, and line plots to be consistent with the nature of the data (categorical or numerical). Students will use tables and graphs to examine the variation that occurs within a group and between groups. They will relate data analysis to the context of the questions posed. Students will use experimental and theoretical probability, understand the nature of sampling, and make predictions from investigations. Students will determine and use a ratio to represent the theoretical probability of a given event. They will predict the probability of a given event through trials, and discover that experimental probability approaches theoretical probability when the number of trials is large.

The following activities develop skills in this domain:

- Finding the likelihood of an event occurring (given that all outcomes are equally likely) is a key skill in determining probability. To develop this skill, students should determine the probabilities of choosing a red shirt in the following situation:

Step One: A drawer starts with only 1 red shirt.

Step Two: 4 red shirts and 5 white shirts are added.

Step Three: 3 red shirts and 3 white shirts are added.

Step Four: 3 red shirts and no white shirts are added.

Step Five: No red shirts and 3 white shirts are added.

Students should explain in their own words:

- What the probability of 1 in Step One means
 - What the probability of $\frac{1}{2}$ in Step Two means
 - Why the probability of choosing a red shirt did not change in Step Three
 - Why the probability of choosing a red shirt increased in Step Four
 - Why the probability of choosing a red shirt decreased in Step Five
- Samples are used to estimate answers to real-life questions in all levels of statistical analysis. To understand how sampling works, students should estimate the percentage of vowels in this passage of *The Declaration of Independence*, using the percentage of vowels in:

- The first line
- The first two lines
- The first four lines

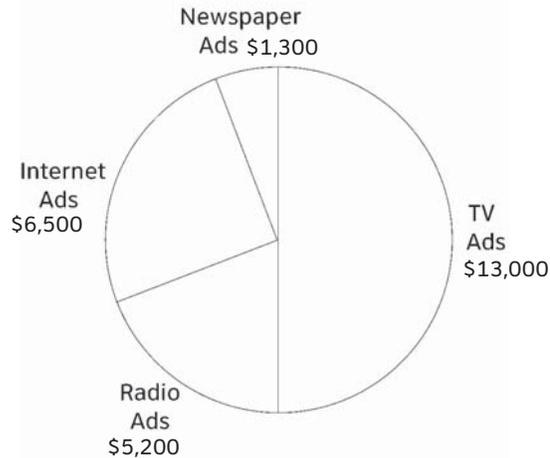
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W	I	T	H		A	N	O	T	H	E	R		A	N	D		T	O	
A	S	S	U	M	E		A	M	O	N	G		T	H	E		P	O	W
E	R	S		O	F		T	H	E		E	A	R	T	H	,		T	H
E		S	E	P	A	R	A	T	E		A	N	D		E	Q	U	A	L
S	T	A	T	I	O	N		T	O		W	H	I	C	H		T	H	E
L	A	W	S		O	F		N	A	T	U	R	E		A	N	D		O
F		N	A	T	U	R	E	'	S		G	O	D		E	N	T	I	T
L	E		T	H	E	M	,		A		D	E	C	E	N	T		R	E
S	P	E	C	T		T	O		T	H	E		O	P	I	N	I	O	N
S		O	F		M	A	N	K	I	N	D		R	E	Q	U	I	R	E
S		T	H	A	T		T	H	E	Y		S	H	O	U	L	D		D
E	C	L	A	R	E		T	H	E		C	A	U	S	E	S		W	H
I	C	H		I	M	P	E	L		T	H	E	M		T	O		S	E
P	A	R	A	T	I	O	N	—	T	.	J	E	F	F	E	R	S	O	N

Students should explain, in their own words, why it makes sense that the estimate should get closer to the true percentage as the number of lines sampled increases.



- To practice analyzing data using circle graphs, students will find the ratios of various quantities measured in the graph below:
Students will use ratios to answer these questions:

Big Bear Teddy Bear Advertising Costs



- 1 How many times as much money did Big Bear spend on TV ads than on radio ads?
 - 2 What fraction of the amount that they spent on Internet ads did they spend on newspaper ads? How many times as much money did Big Bear spend on newspaper ads than on Internet ads?
 - 3 How many times as much money did Big Bear spend on TV ads than on newspaper and Internet ads combined?
 - 4 If you used the percentages spent on the different forms of advertisements, would your answers to questions 1–3 be any different? Explain your answer.
- The link between experimental and theoretical probability is fundamental to most applications of probability theory. Students should establish that the experimental probability of an event will approach the event’s theoretical probability as the number of trials increases. To see this, students should roll a number cube 50 times and record the number of 2s and the number of even numbers in the tables below:

After...	A 2 turned up...	Experimental probability of rolling a 2	Theoretical probability of rolling a 2	Difference between experimental probability and theoretical probability
10 trials				
25 trials				
50 trials				

After...	An even number turned up...	Experimental probability of rolling an even number	Theoretical probability of rolling an even number	Difference between experimental probability and theoretical probability
10 trials				
25 trials				
50 trials				

If this activity is being done in a classroom setting, the point can be strengthened by combining all of the students' results on the board. For instance, if there are 20 students in class, the table below could be used to combine results:

After...	An even number turned up...	Experimental probability of rolling an even number	Difference between experimental probability and theoretical probability
200 trials			
500 trials			
1000 trials			

Students should state, in their own words, what happens to the experimental probability as the number of trials increases.



Practice Quiz



- 1 **The weight of a new truck is 1,500 kg.**

What is the weight of the truck in grams?

- A 150
- B 15,000
- C 1,500,000
- D 150,000,000

- 2 **In Laverne's class, $\frac{4}{5}$ of the students ride the bus to school.**

What percent of the students in her class ride the bus to school?

- A 20%
- B 25%
- C 45%
- D 80%

- 3 **Dottie needs to learn a total of 24 vocabulary words. She has learned 75% of the words.**

How many of her vocabulary words did she learn so far?

- A 3
- B 6
- C 18
- D 21

- 4 **A square has a perimeter of 36 inches.**

What is the perimeter in feet?

- A 1 foot
- B 3 feet
- C 9 feet
- D 12 feet

- 5 **Mike has a cube. The length of each side is 4.8 cm.**

Which of these is the BEST estimate of the surface area of Mike's cube?

- A 25 cm²
- B 60 cm²
- C 75 cm²
- D 150 cm²



- 6 **Carlos made a scale model of his house. The actual width is 30 feet, and the actual length is 45 feet.**

If the model has a width of 6 inches, what is the length of his model?

- A 4 inches
- B 5 inches
- C 7 inches
- D 9 inches

- 7 **A Grade 6 class has 15 boys and 12 girls.**

What is the ratio of boys to girls in the class?

- A 4:5
- B 5:4
- C 4:9
- D 5:9

- 8 **A cookie factory produces 325 cookies per hour. On average, 30 are broken.**

At this rate, if they produce 4,550 cookies, how many can they expect to be broken?

- A 214
- B 280
- C 420
- D 492

- 9 **A student randomly chooses one pen from a box containing 1 black, 3 red, and 6 blue pens.**

What is the probability that the student chooses a blue pen?

- A $\frac{1}{6}$
- B $\frac{2}{3}$
- C $\frac{6}{10}$
- D $\frac{6}{4}$

- 10 **Melanie likes to race miniature cars. Every five seconds, she records the total distance her car travels.**

Which graph would BEST represent this type of data?

- A bar graph
- B circle graph
- C line plot
- D line graph



Solutions

Number	Correct Answer	Explanation
1	C	<p><i>Students will convert from one unit to another within one system of measurement (customary or metric) by using proportional relationships. (M6M1)</i></p> <p>The correct answer is Choice (C) 1,500,000. Since there are 1,000 grams in a kilogram, multiply $1,500 \text{ kg} \times 1,000$ to get $1,500,000$ grams. Choice (A) is incorrect because 150 is the result of dividing 1,500 by 10 rather than multiplying by 1,000. Choice (B) is correct because 15,000 is the result of multiplying 1,500 by 10 instead of 1,000. Choice (D) is incorrect because $150,000,000$ is the result of multiplying by 100,000 instead of 1,000.</p>
2	D	<p><i>Use fractions, decimals, and percents interchangeably. (M6N1f)</i></p> <p>The correct answer is Choice (D) 80%. To find the answer, write the proportion $\frac{4}{5} = \frac{x}{100}$. Multiply both the numerator and denominator by 20: $\frac{4}{5} \times \frac{20}{20} = \frac{80}{100}$, so 80% is correct. Choice (A) is incorrect because it is the percent of students who do <i>not</i> ride the bus to school and may result from misreading the problem. Choices (B) and (C) are incorrect, and indicate that the student is unsure how to convert fractions to decimals or percents.</p>
3	C	<p><i>Solve problems involving fractions, decimals, and percents. (M6N1g)</i></p> <p>The correct answer is Choice (C) 18. To find the answer, write a proportion: $\frac{x}{24} = \frac{75}{100}$. To make the problem easier to solve, reduce $\frac{75}{100}$ to $\frac{3}{4}$. Solve $\frac{x}{24} = \frac{3}{4}$ by multiplying the numerator and denominator by 6: $\frac{3}{4} \times \frac{6}{6} = \frac{18}{24}$, so $x = 18$. Alternatively, find $\frac{3}{4}$ of 24: $\frac{3}{4} \times \frac{24}{1} = \frac{72}{4} = 18$. Choice (A) is incorrect, and seems to indicate a combination of misreading and calculation error. Choice (B) is incorrect, because 6 is the number of words she has <i>not</i> learned, and suggests the student misread the problem. Choice (D) is incorrect: 21 is not 75% of 24, and would seem to indicate a calculation error.</p>



Number	Correct Answer	Explanation
4	B	<p><i>Students will convert from one unit to another within one system of measurement (customary or metric) by using proportional relationships. (M6M1)</i></p> <p>The correct answer is Choice (B) 3 feet. There are 12 inches in 1 foot, so set up a proportion: $\frac{12 \text{ in}}{1 \text{ ft}} = \frac{36 \text{ in}}{x \text{ ft}}$. Cross multiply and get $12x = 36$ and then solve for $x = 3 \text{ feet}$. Choice (A) is incorrect, and results from finding the perimeter in yards rather than feet. Choice (C) is incorrect and represents the length of each side of the square in inches. Choice (D) is incorrect and suggests that the student chose it because 12 is the number of inches in one foot.</p>
5	D	<p><i>Estimate the surface areas of simple geometric solids. (M6M4c)</i></p> <p>The correct answer is Choice (D) 150 cm². Since the answer will be an estimate, round 4.8 to 5. Then using the surface area formula $2(5 \times 5) + 2(5 \times 5) + 2(5 \times 5)$ or 150 cm². Choice (A) is incorrect and the area of one side of the cube. Choice (B) is the incorrect result of adding the sides within the surface area formula, $2(5 + 5) + 2(5 + 5) + 2(5 + 5)$. Choice (C) is incorrect and the result of incorrectly excluding the 2s from the formula for surface area.</p>
6	D	<p><i>Solve problems involving scale drawings. (M6G1e)</i></p> <p>The correct answer is Choice (D) 9 inches. Use a proportion to solve the problem: $\frac{30}{45} = \frac{6}{x}$. To make the problem easier to solve, reduce $\frac{30}{45}$ to $\frac{2}{3}$. Then cross multiply to get $2x = 18$. Divide both sides by 2 to get $x = 9$. Choice (A) is incorrect and is the result of setting up the proportion incorrectly as $\frac{30}{45} = \frac{x}{6}$. Choice (B) is incorrect because it is the scale factor used, not the length of the model. Choice (C) is incorrect and is the result of estimating 45 divided by the given value of 6.</p>



Number	Correct Answer	Explanation
7	B	<p><i>Students will understand the concept of ratio and use it to represent quantitative relationships. (M6A1)</i></p> <p>The correct answer is Choice (B) 5:4. The ratio of boys to girls can be written as the fraction $\frac{15}{12}$. Reduce the fraction by dividing both the numerator and denominator by 3 to get $\frac{5}{4}$. Then write it as a ratio, 5:4. Choice (A) is incorrect and results from finding the ratio of girls to boys. Choice (C) is incorrect and results from finding the ratio of girls to the total number of students. Choice (D) is incorrect and results from finding the ratio of boys to the total number of students.</p>
8	C	<p><i>Use proportions (a/b = c/d) to describe relationships and solve problems, including percent problems. (M6A2c)</i></p> <p>The correct answer is Choice (C) 420. To find the answer, write a proportion: $\frac{30}{325} = \frac{x}{4550}$. To make the problem easier to solve, reduce $\frac{30}{325}$ to $\frac{6}{65}$. Cross multiply to get $27,300 = 65x$. Divide both sides by 65 to get $x = 420$. Choices (A) and (D) are incorrect and suggest the student is unsure how to solve the problem. Choice (B) is incorrect and could be a calculation error.</p>
9	C	<p><i>Determine, and use a ratio to represent, the theoretical probability of a given event. (M6D2b)</i></p> <p>The correct answer is Choice (C) $\frac{6}{10}$. There are a total of 10 pens and 6 of them are blue. Choice (A) is incorrect because it shows 1 blue pen chosen from the 6 blue pens. Choice (B) is incorrect because it shows the portion of non-blue pens to blue pens. Choice (D) is incorrect because it shows the ratio of blue pens to non-blue pens.</p>

Number	Correct Answer	Explanation
10	D	<p><i>Choose appropriate tables and graphs to be consistent with the nature of the data (categorical or numerical). Graphs should include pictographs, histograms, bar graphs, line graphs, circle graphs, and line plots. (M6D1c)</i></p> <p>The correct answer is Choice (D) line graph. <i>Line graphs</i> are best used to view changes in numbers over time, such as the increase in the distance a car has traveled. Choice (A) is incorrect. <i>Bar graphs</i> are useful for comparing sizes of groups, but are not ideal for viewing trends or changes over time. Choice (B) is incorrect, because <i>circle graphs</i> are useful for comparing percentages and visualizing proportional amounts of a whole, not for viewing trends. Choice (C) is incorrect. <i>Line plots</i> are useful for viewing the distribution of numerical data that falls into ranges, which is not what Melanie is interesting in seeing.</p>





Chapter 4

Science

Students in Grade 6 will study Earth Science concepts through an inquiry-based approach. They will investigate how Earth's surface is formed, recognize the significant role of water in Earth processes, and how the distribution of land and oceans affects climate and weather. Students then go beyond the study of Earth to explore current scientific views of the Solar System and the universe, and how those views evolved. Students are also expected to describe various sources of energy, their uses, and conservation.

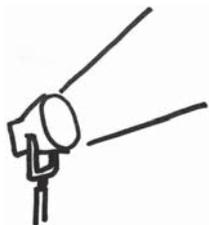
The Science activities focus on some of the concepts that are assessed on the Grade 6 CRCT Science domains. These domains are as follows:

- 1 Astronomy**
- 2 Hydrology and Meteorology**
- 3 Geology**

The *Characteristics of Science* skills are integrated throughout the domains. These skills are co-requisites for understanding the content of each science domain.

Characteristics of Science refer to understanding the process skills used in the learning and practice of science. These skills include testing a hypothesis, record keeping, using correct safety procedures, using appropriate tools and instruments, applying math and technology, analyzing data, interpreting results, and communicating scientific information. *Characteristics of Science* also refer to understanding how science knowledge grows and changes and the processes that drive those changes.

Activities



1 Astronomy

Georgia Performance Standards S6E1 and S6E2

Grade 6 students are expected to have knowledge of and scientific theories of the Solar System and universe and should understand how these have changed. This includes describing gravity as the force that shapes and drives the universe. Students will identify the Solar System's place in the Milky Way Galaxy. They will investigate different models and theories found in astronomy. Students should understand that objects in the Solar System move in a regular and predictable manner. Those motions explain such familiar phenomena as days, years, phases of the Moon, eclipses, and the Solar System's place in the Milky Way Galaxy. Students will understand how gravity keeps planets, comets, and asteroids in their orbits and how scientists have developed different models (geocentric, heliocentric) and theories (Big Bang theory and the Nebular Hypothesis) over time.

The following activities develop skills in this domain:

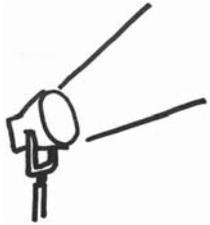
- To demonstrate the composition of the Solar System, students will compare and contrast planets by doing research at a local library or on the Internet. First, students should create a simple chart that lists each planet's size, distance from the Sun, type of atmosphere, ability to support life, and whether it is an inner or outer planet. Then students will use the information in their chart to play a game of *Guess My Planet*. Choose one planet. The students will then ask yes or no questions about the planet such as, *Is the planet farther from the Sun than Earth?* Based on the answers to their questions, students should eliminate planets until they are able to determine the correct planet.
- To help students understand that the tilt of Earth affects climate, not Earth's distance from the Sun, place thermometers in two hollow toilet paper tubes. Point one tube toward the Sun at a 90° angle and the other tube at a 45° angle. Students should record the temperatures in the two tubes at different times during the day. Using the results of the experiment, students should be able to answer such questions as:
 - *Was there any difference between the two tubes? If so, at what times are the differences the largest?*
 - *Which tube received the Sun's rays at an angle most similar to the angle that the Sun hits the United States during the winter?*
 - *Which tube received the Sun's rays at an angle most similar to the angle that the Sun hits Earth at the equator?*
 - *Using the results, explain how the angle of Earth affects the climate at different times of the year.*



- Students will better understand eclipses via this simple demonstration using a flashlight as the Sun, a basketball as Earth, and an orange as the Moon. Students will rotate the Moon around Earth to find the point at which the Sun, Moon, and Earth are aligned, and the light from the Sun (flashlight) is blocked by the Moon to create a *solar eclipse*. Students should also find the alignment that causes the shadow of Earth to block the Moon, creating a *lunar eclipse*. Students should then draw the alignment that creates each type of eclipse and write a paragraph explaining the causes of each.



Activities



2 Hydrology and Meteorology

Georgia Performance Standards S6E3, S6E4, and S6E6

Within this domain, students should understand the important role that water plays in wind systems, weather patterns, and weather events. This includes tornados, hurricanes, and thunderstorms. They should understand the causes of waves, tides, and currents. They are also expected to know that water covers most of Earth and be able to describe the topography of the ocean. Finally, students will identify renewable and nonrenewable resources.

The following activities develop skills in this domain:

- To understand the distribution of water on Earth, in its various forms and sources, students should create a visual representation of proportions that uses areas or volumes. First, students will hypothesize as to the proportion of Earth's water that exists as liquid (oceans, lakes and rivers, groundwater), solid (glaciers, ice floes), and gas (water vapor). Students will record their conjectured estimates. Using library resources, websites (.edu, .gov, .org), textbooks, or other grade-appropriate reading materials, students will check and, if necessary, adjust their estimates. Next, students will create a visual model, using the correct proportions, of Earth's water that shows the percentage of each type or source of water. For example, students may use graph paper and colored markers to represent the area of different amounts (e.g., on a 10-square by 10-square piece of graph paper, each of the 100 squares can represent one percent of Earth's water). Students could also fill labeled containers with different volumes of clear or colored water in proportion to actual volumes on Earth. Next, students will explain their models and, as a class, discuss the importance of protecting freshwater sources. Using the following steps, students will conclude the activity by writing a position paper about water conservation.

Step 1

Create an introduction. Clearly present the main idea of your position paper.

Step 2

Explain your view. Tell why you are taking the position you've chosen. Provide evidence to support your opinion. Make your audience understand why you think the way you do.

Step 3

Pick a problem that someone against your views would bring up and then present a counter-argument. Give the reasoning behind your counter-argument, including why your ideas are better.

Step 4

End with a concluding paragraph. Restate and summarize the main ideas of



your position. Make sure that you rewrite your ideas so that you're not just repeating your introduction.

- To better understand that land and water absorb heat at unequal rates, students will conduct a data-collecting investigation. Provide equal volumes of sand and water, two containers of equal volume (use containers, such as paper cups, that will not affect the results by absorbing heat themselves), lamps with incandescent bulbs of equal watts, thermometers, and a two-column chart in which to keep track of data. Students will prepare the investigation as follows:
 - Fill the containers. One with water and the other with the sand.
 - Place the thermometers in each container. Ensure that the thermometer in the sand is not placed so deeply that it cannot be read.
 - Place the lamps over the containers so that the heat source will warm the sand and water. Make sure that the lamps are equidistant from their respective containers.

Students will record the starting temperatures of the sand and water and place the two substances under the lamps. They will then record the temperature every two minutes for the next twenty minutes. Next, students should turn off the lamps and repeat the procedure. The activity continues with students graphing, analyzing, and explaining their results. Students' explanations should include the observation that sand heats up more quickly than water and also loses heat more quickly. As a class, discuss the following analysis questions. The teacher will use class and individual responses to determine conceptual understanding:

- *Imagine that you plan to swim in warm ocean water. When would be the best time of year to do this at a Georgia beach?*
 - *What do you think causes the wind to blow?*
 - *If you were at the beach at mid-afternoon on a bright, warm, sunny day, would the wind be blowing from the land or from the ocean? Explain your answer.*
 - *How would the unequal heating of land and water surfaces affect wind systems?*
- To explain how climate affects the formation of hurricanes, students will create a mock public service announcement about hurricanes. Assign students to groups of three or four. In preparation for this activity, each group will research and record answers to the following questions:
 - *When is the typical hurricane season?*
 - *What parts of the Northern Hemisphere have the highest occurrences of hurricanes? Can you explain why?*
 - *How are hurricanes classified?*
 - *What causes hurricanes to form?*
 - *Pick one major hurricane of the past three years and discuss its effects*

on human life.

– *How does global warming affect hurricanes?*

After completely answering the questions, groups will create three- to five-minute mock public service announcements about hurricanes. They should practice the announcements, and then present them to their classmates. At the end of their announcement, each group should take questions from the audience. The activity will conclude with students writing short essays about what they have learned and how the information could directly affect their lives. For example, students might describe how their families could be better prepared if they know when hurricanes are likely to occur; how the negative impact of future hurricanes upon human lives could be decreased knowing the history of past hurricanes; or how the things they do to reduce global warming may affect hurricanes and the hurricane season.

Teachers will assess conceptual understanding from each student's preparation materials, information presented during the public service announcement, and answers to audience questions.



Activities



3 Geology

Georgia Performance Standards S6E5 and S6E6

Students studying Geology in Grade 6 will investigate how Earth's surface is formed. They should know the layers of Earth, describe processes that change Earth, and explain the physical effects of these processes. They should describe the formation of rocks and fossils and the composition of soil. They should also explain how human activity causes erosion and describe methods of conservation.

The following activities develop skills in this domain:

- To better understand the processes that form metamorphic, sedimentary, and igneous rock, students will use baking to demonstrate how these processes work. For safety purposes, students should be monitored at all times when working in the kitchen. For sedimentary rocks, students will make a simple granola recipe. Oats, nuts, raisins, canola oil, and maple sugar should be combined in a bowl and then pressed onto a baking sheet. The ingredients represent the composition of sedimentary rock, and the pressing demonstrates how sedimentary rocks are formed over thousands of years due to pressure. For igneous rocks, students will make a simple caramel from sugar and water. Heat the solution to boiling for four minutes. When completed, the adult should pour the caramel into a greased baking pan. After cooling, the caramel will represent igneous rock, which has formed from melted rock that has solidified. Finally, students should select a favorite cake recipe to model how metamorphic rock forms. The cake represents how different ingredients, when heated and under pressure, have a new composition, similar to how rocks under extreme heat and pressure become metamorphic rocks. After completing the exercise, students will create a chart for the three types of rocks. The chart should include drawings, names, and examples for each of the three processes. Students should also use the chart to compare the processes observed in the activity with descriptions of the formation of different types of rock found on the Internet or in a textbook.
- Students will identify renewable and nonrenewable resources important to human survival, from a teacher-guided discussion. As a class, create a poster showing how renewable resources can be replaced and conserved in a short period of time and how nonrenewable resources, such as oil and coal, can take millions of years to replace. Finally, students should create poster board bumper stickers to promote the conservation of natural resources.

Students will explore how nonrenewable energy resources (such as petroleum, coal, peat, and natural gas) are created. First, each student will use prior knowledge and record their answers to the following questions, which have been posted on the board or chart paper:

- *What was the original material that was changed to form fossil fuel?*
- *Where did the energy to make this material come from?*
- *What caused it to change?*
- *How long did these changes take?*
- *Where and how can fossil fuels be found and obtained?*
- *Why should we conserve fossil fuels?*

Students will then use grade-level appropriate library materials, websites (.edu, .gov, .org), or classroom resources and make posters describing what they have learned.

Conclude the activity with a class discussion of nonrenewable energy sources, comparing and contrasting student-researched information, and revisiting the preceding six questions. The discussion will include that, although the materials may be similar, changes have taken different amounts of time, are found in different locations, and are obtained by various methods.

- Students can better understand the causes of tectonic plate movements by creating and observing a model of Earth’s mantle and crust. Fill a clear cooking pot, heat-proof canning jar, or heat-resistant glass measuring cup with water and place it over low to medium heat on a stovetop or hot plate. Once the water has heated, add several drops of food dye near one side of the pot. Distribute a hand out, similar to the following one, on which students will record their observations, their educated guesses, and conclusions:

Geology: Tectonic plates

My observations of the movement of the dye:

My observation of the movement of the foam pieces:

What I think the model represents

The heat source:

The water:

The foam pieces:

I believe that Earth’s crust moves because

Students will observe the dye moves due to convection currents in the water. Have students break up several disposal cups or plates made of foamed polystyrene and place the flat pieces on top of the water. Students will observe what happens to the foam crust. Next, ask students to make educated guesses about what each part of the model represents. (The heat source represents Earth’s core; the water represents the mantle; and the foamed polystyrene pieces represent the crust.) The class will have



a discussion regarding what makes the tectonic plates of Earth's crust move.
(Convection currents in the mantle drive the motion of the tectonic plates.)



Practice Quiz



- 1 **A student is looking at a current model of the Solar System. Which of these BEST describe the model she sees?**
 - A A geocentric model, which means Earth is the center of the Solar System.
 - B A heliocentric model, which means Earth is the center of the Solar System.
 - C A geocentric model, which means the Sun is the center of the Solar System.
 - D A heliocentric model, which means the Sun is the center of the Solar System.

- 2 **In Georgia, summer occurs in July and winter occurs in January. Which of these BEST describe the difference between January and July?**
 - A Earth is closer to the Sun in July than in January.
 - B Earth is closer to the Sun in January than in July.
 - C The Northern Hemisphere is tilted toward the Sun in July.
 - D The Northern Hemisphere is tilted toward the Sun in January.

- 3 **Which of these is the MOST LIKELY cause of tides?**
 - A gravitational pull of Jupiter
 - B gravitational pull of the Moon
 - C movement of water in the ocean
 - D wind near the surface of the ocean

- 4 **Which of these BEST describes how the air temperature of the ocean compares to the air temperature of land next to the ocean?**
 - A The land will be cooler than the ocean at noon and at midnight.
 - B The land will be warmer than the ocean at noon and at midnight.
 - C The land will be warmer than the ocean at noon and cooler than the ocean at midnight.
 - D The land will be cooler than the ocean at noon and warmer than the ocean at midnight.

- 5 **A student is studying the layers of Earth. Which of these layers is the MOST dense?**
 - A crust
 - B mantle
 - C outer core
 - D inner core



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- 6 **Which of these BEST describes how an igneous rock forms?**
A cooling of magma
B weathering of other rocks
C colliding of tectonic plates
D pressing together of smaller rocks
- 7 **A student is making a poster about conserving nonrenewable resources. Which of these resources should she put on her poster?**
A wind
B sunlight
C oak trees
D natural gas
- 8 **Which of these will be the Moon phase during the solar eclipse?**
A full Moon
B new Moon
C first quarter
D third quarter
- 9 **A new shopping mall is being built. Many plants are removed from the area while construction is completed. Which of these describes the MOST LIKELY effect of removing the plants from the area?**
A The population of animals nearby will increase.
B More soil will be washed away during heavy rains.
C Animals in the area that used to feed on plants will now eat other animals.
D The soil will have more nutrients to grow new plants after the mall is finished.
- 10 **Which of these features is MOST LIKELY to affect a planet's ability to support life?**
A the distance of the planet from the Sun
B the number of moons that orbit the planet
C the presence of water on the planet
D the gases that make up the planet's atmosphere

Solutions

Number	Correct Answer	Explanation
1	D	<p><i>Relate the Nature of Science to the progression of basic historical scientific models (geocentric, heliocentric) as they describe our solar system, and the Big Bang theory as it describes the formation of the universe. (S6E1a)</i></p> <p>The correct answer is Choice (D) This model is a heliocentric model, which means the Sun is the center of the Solar System. Scientific observation has confirmed the Copernican theory of a heliocentric universe. Choices (A) and (C) are incorrect because the heliocentric model is the currently accepted model of the Solar System. Choice (B) is incorrect because the Sun is at the center of our Solar System.</p>
2	C	<p><i>Relate the tilt of the Earth to the distribution of sunlight throughout the year, and its effect on climate. (S6E2c)</i></p> <p>The correct answer is Choice (C) The Northern Hemisphere is tilted toward the Sun in July. When a hemisphere is tilted toward the Sun, it receives more direct sunlight and becomes warmer. Choices (A) and (B) are incorrect because Earth's distance from the Sun does not change significantly throughout the year. Choice (D) is incorrect because the Northern Hemisphere is tilted away from the Sun in January.</p>
3	B	<p><i>Explain the causes of waves, currents, and tides. (S6E3d)</i></p> <p>The correct answer is Choice (B) gravitational pull of the Moon. Tides are caused by the gravitational interaction between the Moon and Earth. Choice (A) is incorrect because the <i>gravitational pull of Jupiter</i> has no impact on the tides. Choices (C) and (D) are incorrect because both <i>movement of water in the ocean</i> and <i>wind near the surface of the ocean</i> have no discernible effect on tides.</p>



Number	Correct Answer	Explanation
4	C	<p><i>Demonstrate that land and water absorb and lose heat at different rates, and explain the resulting effects on weather patterns. (S6E4a)</i></p> <p>The correct answer is Choice (C) The land will be warmer than the ocean at noon and cooler than the ocean at midnight. Land warms up faster in the Sun and cools off faster at night. Choice (A) and (D) are incorrect because land will gain more heat than water by noon. Answer (B) is incorrect because land will lose more heat than water by midnight.</p>
5	D	<p><i>Compare and contrast the Earth's crust, mantle, and core, including temperature, density, and composition. (S6E5a)</i></p> <p>The correct answer is Choice (D) inner core. The <i>inner core</i> of the Earth is densest, consisting of nickel and iron. Choices (A), (B), and (C) are incorrect because the <i>crust, mantle, and outer core</i> are not as dense as the inner core.</p>
6	A	<p><i>Classify rocks by their process of formation. (S6E5c)</i></p> <p>The correct answer is Choice (A) cooling of magma. Igneous rocks are formed when melted rock, called magma, cools and becomes solid. Choice (B) is incorrect because <i>weathering of rocks</i> has no relationship to the formation of rocks; it is a part of erosion. Choice (C) is incorrect because it describes metamorphic rock formation. Choice (D) is incorrect because it describes sedimentary rock formation.</p>
7	D	<p><i>Identify renewable and nonrenewable resources. (S6E6b)</i></p> <p>The correct answer is Choice (D) natural gas. <i>Natural gas</i> is created over millions of years from organic material. Choices (A), (B), and (C) are incorrect because they are renewable resources.</p>

Number	Correct Answer	Explanation
8	B	<p><i>Explain the alignment of the Earth, moon, and sun during solar and lunar eclipses. (S6E2b)</i></p> <p>The correct answer is Choice (B) new Moon. A new Moon is required in order for a solar eclipse to occur. Choices (A), (C), and (D) are incorrect because a solar eclipse can only occur during the new Moon phase.</p>
9	B	<p><i>Explain the effects of human activity on the erosion of the Earth's surface. (S6E5i)</i></p> <p>The correct answer is Choice (B) More soil will be washed away during heavy rains. Roots of plants hold soil in place and keep erosion from occurring when it rains. Choice (A) is incorrect because changes to the animals' natural habitat will cause a decrease in animal population rather than an increase. Choice (C) is incorrect because habitat changes do not lead to major dietary changes, such as from plant-eating to meat-eating. Choice (D) is incorrect because there will be fewer nutrients in the soil due to fewer plants decaying (less organic matter) in the soil.</p>
10	C	<p><i>Compare and contrast the planets in terms of:</i></p> <ul style="list-style-type: none"> – Size relative to the Earth – Surface and atmospheric features – Relative distance from the sun – Ability to support life (S6E1c) <p>The correct answer is Choice (C) the presence of water on the planet. Water must be present for life to exist on a planet. Choices (A), (B), and (D) may or may not affect a planet's ability to support life.</p>



Chapter 5

Social Studies

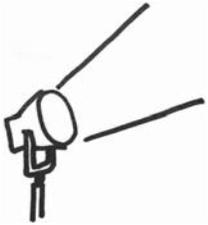
Beginning in Grade 6, students will start to focus their studies on the world outside of the United States. They will study the cultures, geographies, economics, and histories of Latin America and the Caribbean, Canada, Europe, and Australia. All four of the domains (Geography, Government/Civics, Economics, and History) are integrated into each region with a special emphasis placed on Geography. In the Geography domain, students will see the correlation between human and physical geography and each region's development. They will examine reasons for population distribution in each region and also the effect that geography has on the culture developed by people. In the Government/Civics domain, students will be introduced to various types of governments—many of which are different from what is established in the United States. They will see how governments distribute power and also how citizens participate in the political process. Through their study in the Economics domain, students will be introduced to the economies of each region and analyze their effectiveness in relation to overall standard of living. They will also evaluate the effectiveness of investments in both human capital and capital goods. In the History domain, students will explore the milestone events of each region's past, beginning with European exploration and ending at the present day. They will be able to make connections between events in history and a region's current conditions.

The Social Studies activities focus on some of the topics that are assessed on the Grade 6 CRCT Social Studies domains. These domains are as follows:

- 1 Geography**
- 2 Government/Civics**
- 3 Economics**
- 4 History**



Activities



1 Geography

Georgia Performance Standards SS6G1, SS6G2, SS6G3, SS6G4, SS6G5, SS6G6, SS6G7, SS6G8, SS6G9, SS6G10, SS6G11, SS6G12, SS6G13, and SS6G14

While studying Geography in Grade 6 Social Studies, students will be introduced to both the physical and human characteristics of Latin America and the Caribbean, Canada, Europe, and Australia. They will be asked to locate specific topographical features (mountain ranges, deserts, bodies of water, etc.) along with major countries in the region on a world map. They will also evaluate the causes and effects of various environmental issues such as deforestation, pollution, desertification, acid rain, and the impact of nuclear power plant disasters. Students will be able to explain why people choose to live in specific areas based on climate, natural resource distribution, and physical geographic locations. Students will also be able to describe various cultural characteristics of a region.

The following activities develop skills in this domain:

Latin America-SS6G1a, b; Canada-SS6G5a; Europe-SS6G8a, b; Australia-SS6G12a

- Students will successfully locate selected world features and countries. First, students will complete an individual study map with a partner and then demonstrate their geographic knowledge in a class game, *Where in the World Is...?* Distribute blank outline maps of the world. Students will work with a partner to mark the following locations:

Latin America and the Caribbean: Amazon River, Caribbean Sea, Gulf of Mexico, Pacific Ocean, Panama Canal, Andes Mountains, Sierra Madre Mountains, Atacama Desert, Bolivia, Brazil, Colombia, Cuba, Haiti, Mexico, Panama, and Venezuela

Canada: St. Lawrence River, Hudson Bay, Atlantic Ocean, Pacific Ocean, the Great Lakes, Canadian Shield, and the Rocky Mountains

Europe: Danube River, Rhine River, English Channel, Mediterranean Sea, European Plain, the Alps, Pyrenees, Ural Mountains, Iberian Peninsula, Scandinavian Peninsula, Belgium, France, Germany, Italy, Poland, Russia, Spain, Ukraine, and United Kingdom

Australia: Great Barrier Reef, Coral Sea, Ayers Rock, and Great Victoria Desert

Before playing the game, allow students, pairs, or groups time to review and study their completed maps.

Where in the World Is...?



- Write each of the above locations on separate slips of paper.
- Hang two outline wall maps of the world on the board—one for each team.
- Divide the class into two teams.
- Have a person from each team come up to their wall map.
- Draw a slip, and tell the two students to imagine that a person from their class is in this particular location.
- Tell them the name of the place. Then, when you ask *Where in the world is (student’s name)?*, they will each immediately go to their team’s map and mark the location.
- Check their answers. If they are both correct, they both earn a point.
- If a team is incorrect, subtract a point from that team’s score.
- Continue playing the game until all features and countries have been correctly identified.

Numerous plays of the game, throughout the year, will assist students in reviewing their knowledge of geographic locations.

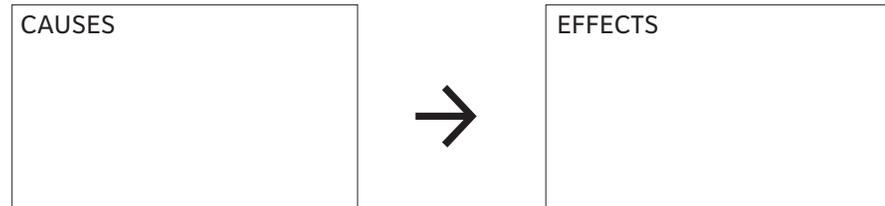
Latin America-SS6G2a; Canada-SS6G7a; Europe-SS6G9a

- Students will more easily recognize the major environmental concerns of Latin America, Europe, and Canada by examining the causes and effects of one of the following: air pollution in Mexico City, Mexico, the destruction of the rainforest in Brazil, oil-related pollution in Venezuela, acid rain and pollution of the Great Lakes, the extraction of natural resources on the Canadian Shield, the depletion of timber resources in Canada, acid rain in Germany, air pollution in the United Kingdom, or the nuclear disaster in Chernobyl, Ukraine. They will use the following questions to guide their research:
 - *How have location (e.g., at the base of mountains), population (e.g., overcrowding), and/or industrialization (e.g., factories) contributed to the problem?*
 - *How have human needs (e.g., lumber, power, transportation) contributed to the problem?*
 - *How has the issue impacted humans (e.g., health issues, contamination of drinking water)?*
 - *How has the issue impacted the environment (e.g., land contamination, air quality)?*
 - *How has the issue affected wildlife (e.g., vegetation, aquatic life)?*
 - *How has the issue affected buildings and monuments?*
 - *How has the issue affected neighboring countries?*



Next, students will create a poster similar to the one below. They will draw or find pictures that illustrate the causes and effects of the environmental issue.

ENVIRONMENTAL ISSUE



Finally, students will write a one-page paper on the environmental issue. The paper will examine the causes and effects of the issue, as well as draw generalizations and present ideas about how to more effectively deal with the issue.

*Latin America-SS6G3a, b; Canada-SS6G6a, b; Europe-SS6G10a, b;
Australia-SS6G13a, b*

- Students will better understand how location, climate, and natural resources affect population distribution and trade by completing a country information chart and making comparisons with other countries.

Assign pairs of students one of the following pairs of countries:

- Mexico and Venezuela
- Brazil and Cuba
- United Kingdom and Russia
- Germany and Italy



Distribute a chart similar to the chart that follows:

Assigned Country	Location	Climate	Natural Resources	Where People Live	How People Trade

Pairs will decide who is assigned which country. Then, students will use age-appropriate Internet resources, library reference materials, grade-appropriate texts, atlases (including population density maps, climate maps, natural resources maps, and physical maps), and almanacs to complete their charts. After the research is completed, pairs will come together and share their information. The discussion will focus on how each student believes location, climate, and natural resources affect where people live and how they trade. Pairs will collectively write a short essay about their findings and share their conclusions with the class. Allow time for the class to discuss similarities and differences in the findings of pairs that were assigned the same countries. Conclude the activity with a discussion about Canada and Australia. Share with the class the location, climate, and natural resources of each country. The class will suggest how the information would affect where people live and how it would impact trade in each country.

Latin America-SS6G4a, b and SS6H2a, b

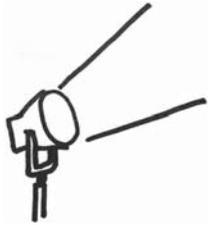
- Students will understand and be able to describe the cultural characteristics of people who live in Latin America by preparing a display of pictures and words on poster board or chart paper. Students will work independently or in small groups to select pictures and words cut from used magazines and newspapers that reflect the blending of ethnic groups, the languages, and the religions of Latin America. Students or groups will share their displays with classmates or family members, who will ask questions of the student artists. Students will be able to answer the following questions about the culture of Latin America:



-
- *What impact did European colonization and the African slave trade have on Latin American ethnic groups?*
 - *What languages are spoken in Latin America?*
 - *Where are those languages spoken?*
 - *What influence did the Spanish and Portuguese have on the language and religions of Latin America?*



Activities



2 Government/Civics

Georgia Performance Standards SS6CG1, SS6CG2, SS6CG3, SS6CG4, SS6CG5, SS6CG6, and SS6CG7

In the Government/Civics domain, Grade 6 students will learn about the various types of governments established in Latin America and the Caribbean, Canada, Europe, and Australia. They will be introduced to the ways that these governments distribute power and the ways that citizens are allowed to participate (or not participate) in the political process. Students should already be familiar with the democratic form of government in the United States. Through this course of study they'll gain an understanding of the other types of democratic systems that are established in these regions.

The following activities develop skills in this domain:

Latin America-SS6CG1a; Europe-SS6CG4a; Australia-SS6CG6a

- Students will better comprehend how governments distribute power through a teacher-directed mini-lesson and by playing *Facts Identification Bingo*. Define the terms *federal*, *unitary*, and *confederation*. Explain and describe how governments distribute power in each system. Prepare for the game by making fact cards, including anything mentioned in the lesson, for each power distribution method. Make at least eight cards for each government system. Each student will create a 5 x 5 bingo card similar to the one that follows:



Sample Bingo Card

		FREE		

Distribute to each student twenty-five colored paper tiles to be used as markers. (For each play of the game, one marker is placed on the “FREE” space). Students will create their cards by randomly writing the words *federal*, *unitary*, and *confederation* eight times each until all spaces are filled. The goal is to get bingo: five markers either across the row, diagonally through the center, or down a column.

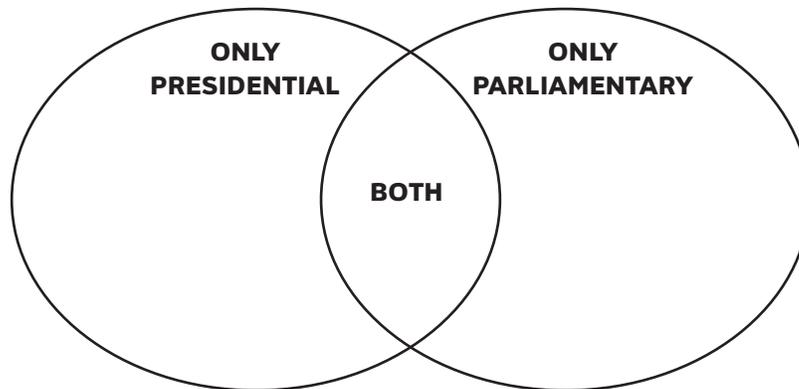
To play the game, draw the top card from the pile and read a fact. The students will place a marker on the appropriate square on their cards. For example, if you read “This type of government is a union of states for a common purpose,” the students should put a marker on one of their “confederation” squares. Keep reading the fact cards until someone yells out “bingo!” Check that there is indeed a winner by reading through the facts and having the student identify which fact belonged to each word in the bingo line. This will ensure that he or she matched the correct term with the correct fact, as well as provide review time. To play additional rounds, students can keep their own cards, rotate their cards around the room, or distribute them randomly.

This activity and the bingo game can also be adapted for oligarchic, autocratic, and democratic forms of citizen participation or the two predominant forms of democratic governments.



Latin America-SS6CG1c; Europe-SS6CG4c; Australia-SS6CG6c

- Students will better comprehend the two different types of democracies (parliamentary and presidential) by designing informational posters and completing a Venn diagram similar to the one below:



Group students into pairs to research the two predominant forms of democratic governments. Pairs will decide who will research which type and use library resources, grade-appropriate texts, and age-appropriate Internet sites to gather facts. First, each student will complete one half of the diagram. Then, the pair will come back together to examine their entries and complete the overlap with common facts.

Conduct a class review and create a composite diagram. First, draw a large Venn diagram on the board. Students will make suggestions for the completion of the class diagram with facts from their own research or charts. The activity will conclude with students designing a poster that features facts about each type of democracy in pictures. Students will use their own drawings and current event pictures from newspapers, magazines, and Internet printouts. Display the Venn diagrams and posters in a school Democracy Exhibit.



Latin America-SS6CG2a; Canada-SS6CG3a; Europe-SS6CG5a; Australia-SS6CG7a

- Students will better understand the structures of different national governments by completing a chart similar to the following:

	Form of leadership	How the leader is selected	Role of the citizen in terms of voting rights and personal freedoms
Brazil			
Mexico			
Cuba			
Canada			
United Kingdom			
Germany			
Russia			
Australia			

Students will work in groups to complete the chart doing necessary research to fill in the appropriate information for each country. Once every group has completed its chart, the class will discuss the results of each group’s research.

Following the discussion, allow individuals, pairs, or groups time to review and study their charts prior to playing a class game. To set up the game, write questions about each of the countries on 3 x 5 cards. Use facts, such as the examples below, from the charts students created:

- *Australia is a parliamentary democracy. How is the leader selected?*
- *Brazil has a presidential democracy, and Cuba has a dictator. In which country do citizens have more voting rights and personal freedoms?*

Write the answers on the backs of the cards. To play the game, divide the class into two teams. A student from each team will come to the front of the class. Choose a card from the stack, and read the question aloud. Each player will write a short answer to the question on the chalkboard or chart paper. A point is awarded to each team that correctly answers the question. Continue with the game until all students have had a chance to play. Charts will be used throughout the year for review.

Europe-SS6CG5b

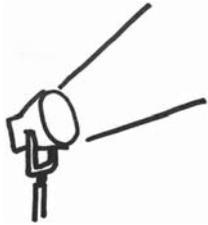


-
- Students will gain a basic understanding of the European Union through research, participation in a classroom discussion, and composition of a response paper. Divide the class into groups, or have students research individually. Write the following questions on an appropriate number of note cards and distribute to the class. You may decide to assign more than one question to a group or individual.
 - *Which countries are members of the European Union?*
 - *Why did the European Union form?*
 - *What things changed when the European Union formed?*
 - *What are the positives of the European Union?*
 - *What are the negatives of the European Union?*
 - *How do the nations of Europe now relate to each other economically?*
 - *How did the nations of Europe relate to each other, economically, before the formation of the European Union?*
 - *How do the nations of Europe now relate to each other politically?*
 - *How did the nations of Europe relate to each other, politically, before the formation of the European Union?*
 - *How do the nations of Europe now relate to each other in military defense?*
 - *How did the nations of Europe relate to each other, in military defense, before the formation of the European Union?*
 - *How has the formation of the European Union affected the rest of the world?*
 - *What is the Euro and what is its purpose?*

Students will find the answers to their questions using appropriate Internet sites, library resources, grade-level texts, current events articles, and other age-appropriate reading materials. Guide a class discussion of the thirteen questions and allow students to present their findings. Encourage students to ask questions regarding the purposes, successes, and failures of the European Union. Record the findings on a “European Union” poster or the chalkboard. Conclude the activity with each student writing a short essay that describes the European Union and explains why he or she thinks it is a good or bad idea.



Activities



3 Economics

Georgia Performance Standards SS6E1, SS6E2, SS6E3, SS6E4, SS6E5, SS6E6, SS6E7, SS6E8, SS6E9, and SS6E10

The main purpose of the Economics domain of Grade 6 Social Studies is to help students gain an in-depth understanding of the economic systems found in the regions of Latin America and the Caribbean, Canada, Europe, and Australia. As students analyze the three different types of economic systems (traditional, command, and market), they will realize that most countries have a mixed economy—a combination of the latter two systems. Students will gain an appreciation for the importance of voluntary trade and its effect on a nation's economy. They'll see the effects of actions that both hinder and encourage free trade such as tariffs, quotas, embargoes, specialization, and currency exchange. As they analyze the economies in these regions, they'll see the importance of investing in both human capital and capital goods as a way to increase a country's GDP. The students will also have the opportunity to explore individual financial situations by analyzing the components of a successful personal money management system.

The following activities develop skills in this domain:

Latin America-SS6E1a, b, c; Europe-SS6E5a, b, c; Australia-SS6E8a, b, c

- Students will gain a better understanding of worldwide economic systems by participating in a class discussion, completing research about one of nine countries, and working with the class to determine where countries belong on an economic continuum. Review the three types of economic systems: traditional, command, and market. Emphasize the fact that most countries have a mixture of both command and market economies. Review the following three economics questions:
 - *Who decides what goods are produced?*
 - *Who decides how goods are produced?*
 - *Who decides for whom goods are produced?*

Following the discussion, assign groups one of the following countries to research: Mexico, Venezuela, Brazil, Cuba, Canada, the United Kingdom, Russia, Germany, and Australia.

Groups will use the results of their research to determine where their country should be placed on an economic continuum.





Have one representative of each group go up to the board and place the name of the country on the continuum where the group believes it belongs. Each group should provide support for the placement of its country (the government makes most decisions about what to produce, or individuals make most decisions about how goods are produced). Once all countries have been placed on the continuum, the discussion should conclude with an emphasis that placement on the continuum is determined by the answers to the three economic questions: *Who decides what goods are produced? Who decides how goods are produced? and Who decides for whom goods are produced?*

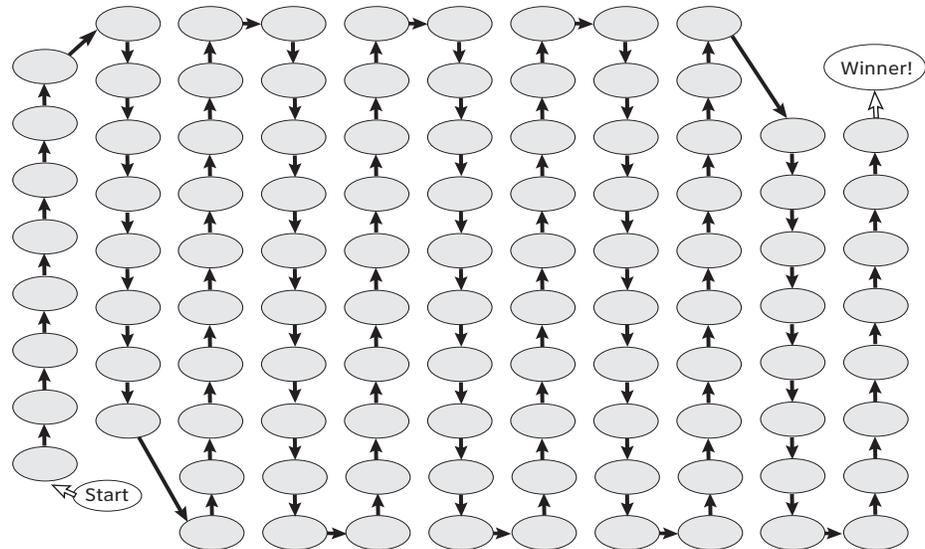
Latin America-SS6E2a, b, d; Europe-SS6E6a, b; Australia-SS6E9a, b, c

- Students will understand the benefits of and barriers to voluntary trade by creating and playing a board game. Begin by having students work with a partner to research real-world examples of tariffs, quotas, embargoes, specialization, and currency exchanges. They will come up with at least three examples of each. Have the partners write each example on its own 3 x 5 card. Instruct them to write the words *tariff, quota, embargo, specialization, or currency exchange* on one side of the card, and a real-world example on the other side of the card.

Once the students are finished making their cards, pair up partners to make small groups of four students. The small groups will place their cards in a stack with the real-world examples facing up. Give each group a game board, similar to the following, and four different colored paper tiles to use as markers.



What Helps and Hurts Voluntary Trade?



Now, each group is ready to play the board game. The purpose of the game is to understand that certain factors help free trade, while other factors hurt it. Have the students decide who will go first, second, third, and fourth by rolling a numbered cube, drawing straws, or picking a number. Each student will take a turn choosing a card from the stack. One student will read the example and decide if it is an example of a tariff, quota, embargo, specialization, or currency exchange. The answer can be checked by reading the back of the card. If the student gets it right, he or she and another player will move on the game board according to the rules below. If the student gets it wrong, he or she and the other players will remain on their current spaces. Since tariffs, quotas, and embargoes are barriers to trade, the student will not move forward on the game board if he or she chooses this type of card, but may cause another player to move backward. Specialization and currency exchange will allow a player to move forward.

Rules

- Specialization—move forward 3 spaces
- Currency Exchange—move forward 4 spaces
- Tariff—stay in place, but move another player back 1 space
- Quota—stay in place, but move another player back 2 spaces
- Embargo—stay in place, but cause another player to miss his or her next turn



The first student to reach the “Winner!” circle wins the game. When the game is finished, have the students sort the cards and place their own cards in an envelope. This allows the game to be used repeatedly throughout the year with different groups of four.

*Latin America-SS6E3a, b and SS6G4c; Europe-SS6E7a, b and S6G11c;
Australia-SS6E10a, b and SS6G14b*

- As a class, discuss and define the words that make up the term GDP: *gross*, *domestic*, and *product*. Next, share the definition of GDP as “the value of all the goods and services produced by a nation during a certain time period.” Discuss with the students the term GDP per capita. Illustrate on the board how this figure is determined (country’s GDP ÷ country’s population). Figure GDP per capita for several countries to show the difference in economic levels of both developed and developing nations. Explain that GDP per capita is the approximate amount of income that each person in the country would have in a given year if the country’s income was distributed equally. Reinforce the concept that this number is not reflective of the actual income that each person in the country makes because income is never divided equally within a country. Illustrate this by showing that the United States had a GDP per capita of \$46,000 in the year 2006. However, some people made much more than this and others made much less. Explain that GDP per capita helps economists understand the economic situation of people in a particular country. Allow the class time to brainstorm what they believe would cause a nation’s GDP to increase or decrease. Guide brainstorming to include references to investments in both human capital and capital goods. List the students’ suggestions on chart paper or the chalkboard.

Now, assign students partners and have each pair of students role play as Economic Advisors to a country from this list: Canada, Cuba, Brazil, United Kingdom, Germany, Russia, Australia, and Haiti. Partners will gather information about their country from the CIA World Factbook (www.cia.gov/library/publications/the-world-factbook/). In addition to reading the Economy Overview for their country, partners should find three specific pieces of information: GDP per capita (PPP), Investment (gross fixed), and Literacy Rate.

Explain how the literacy rate is one indication of investment in human capital and how the figure listed in the CIA World Factbook as Investment (gross fixed) shows what percentage of the GDP is being invested in capital (e.g., factories, machinery, technology) and raw materials in order to produce more goods. Partners will discuss how investment in human capital and investment in capital goods has affected the GDP of their country.



They will gather information about additional factors that may have affected the GDP of their country from the Economy Overview.

Once partners have completed their research, they will share their findings with the class. Hand out a chart, similar to the one below, to students. The chart should be blank except for the country names and the column headings.

Country	GDP per Capita	Literacy Rate	Investment in Capital Goods and Raw Material (%of GDP)
Canada			
Australia			
Germany			
Russia			
Cuba			
Brazil			
Haiti			

Students will take notes on the chart while partners are presenting their findings. Students will then discuss and analyze the completed chart. Highlight how investment in human capital and capital goods usually increases the GDP. Students will look at specific countries and try to explain exceptions. Although Russia has one of the highest literacy rates and invests in capital goods, it does not have the highest GDP per capita. (Students who researched Russia should be able to point out that corruption needs to be eliminated in order for GDP per capita to increase.) Students will discuss what countries like Haiti and Cuba need to do to increase GDP per capita. (Haiti is included to illustrate the lower end of world economies and is not assessable on the CRCT in Economics.)

Once the presentations are finished, each student will write a letter to his or her chosen government. The letter should explain how the government could improve its current economic situation by improving the education and training of its workforce, building more factories, purchasing machinery, using modern technology, or other measures. Students should use information from their own research as well as information from the class presentations to reinforce their suggestions.



Latin America-SS6E3c; Europe-SS6E7c; Australia-SS6E10c

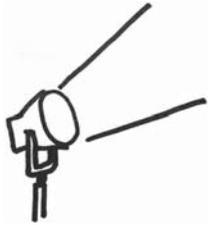
- Students will better understand the role of natural resources in a country’s economy by completing a group research activity, participating in a class discussion, and writing an individual essay. Divide the class into ten groups. Assign each group one of the following countries: Mexico, Venezuela, Brazil, Cuba, Canada, the United Kingdom, Russia, Germany, Italy, and Australia. Have the groups complete the appropriate row of a chart similar to the following chart for their country by using age-appropriate Internet sites (such as www.cia.gov/library/publications/the-world-factbook/), grade-level texts, and age-appropriate reading materials. Each student should have his or her own chart to complete. Once the groups have completed their research, have them share their findings with the class. As the groups make presentations, the rest of the class will complete the blank rows of their individual charts.

Country	Top Five Imports	Top Five Exports
Mexico		
Venezuela		
Brazil		
Cuba		
Canada		
United Kingdom		
Russia		
Germany		
Italy		
Australia		

Now, spend some time discussing this information with the class. Students will brainstorm why a country would need to import some things and export others. Make sure they understand that the presence or lack of natural resources in a country often determines this. For example, one country might have a lot of oil but very little arable land for farming. That means they must import food products and sell their oil to other countries. Once students understand this concept, give them time to compare the countries in their charts. Students will then write a short essay explaining which of these countries would be good trading partners and why.



Activities



4 History

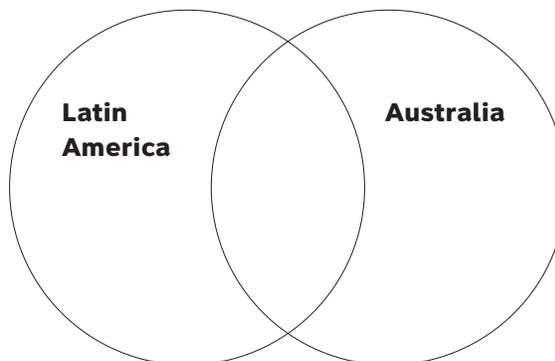
Georgia Performance Standards SS6H1, SS6H2, SS6H3, SS6H4, SS6H5, SS6H6, SS6H7, SS6H8, and SS6H9

In previous grades, students spent most of their time focusing on United States history. In the Grade 6 course of study, students will be introduced to milestone events and achievements in Latin America and the Caribbean, Canada, Europe, and Australia beginning with European colonization (approximately 1400s) and ending with the present day. The primary goal of the History domain is for students to gain an understanding of the major events and important people of each region who have shaped the modern era. The presentation of these people and events should take a cause-and-effect course of instruction rather than a chronological approach. This will help students see how specific events in history have influenced each region's people, government, language, and culture over time.

The following activities develop skills in this domain:

Latin America-SS6H1b and SS6H2b; Australia-SS6H9b

- To help students understand the impact that European exploration and colonization had on Latin America and Australia, students will conduct research and create a Venn diagram. Organize students into pairs. One person in each pair should be assigned Latin America and the other assigned Australia. Students will use textbooks, library resources, and age-appropriate Internet sites to determine the effect that European exploration and colonization had on their region. Pairs will come together to share findings and then work together to create a Venn diagram, similar to the one below, that compares the effects of European exploration and colonization of the two regions:





Conclude the activity with a class discussion about the similarities and differences of the effects of European exploration and colonization on the two regions.

Latin America-SS6H2c

- Completing study charts to compare and contrast independence movements in Mexico, Haiti, and Venezuela will help students understand the historic roots of independence movements. First, students will find age-appropriate Internet sites, periodical articles, and grade-appropriate reading materials that highlight reasons for and against independence. Next, as students read, they will complete a chart similar to the one below:

	Who led the independence movement?	What were the reasons for the independence movement?	From what country was independence gained?	What people were for the independence movement?	What people were against the independence movement?	What was the outcome of the independence movement?
Mexico						
Haiti						
Venezuela						

Finally, students will role play, as characters from the appropriate time period, and debate the pros and cons of independence.

Europe-SS6H6a, b, c

- Students will better understand European colonization by becoming ambassadors from European nations, explaining their country’s motives and impact on various world regions. Divide the class into groups or allow students to work individually. Assign each group or student one of the following countries: Portugal, Spain, England, or France. Provide each group or student with a blank map of the world. Students will research the following questions using library resources, grade-level appropriate texts, and age-



appropriate Internet sites:

- *Why did my country become involved in exploration?*
- *Why did my country want to colonize in other lands?*
- *What areas of the world did my country explore and colonize?*
 (Students will use the blank world map to shade in these areas.)
- *What were the reasons for exploring and colonizing some regions and not others?*

Students will use their research and create a poster that describes all the facts about their country’s colonization of other countries. The poster should include a world map that is shaded to indicate the parts of the world colonized by their country. Groups or individual ambassadors will present their findings to the class. As the reports are given, students will complete their world map by using differently colored pencils, markers, or crayons to shade in areas colonized by different countries. They will also complete a chart, similar to the one below. Students will use the chart and map as study and review guides.

Why did countries explore and colonize?

	Religious reasons	If yes, why?	Obtain natural resources or riches	If yes, why?	Trade and trade routes	If yes, why?
Portugal	Y/N		Y/N		Y/N	
Spain	Y/N		Y/N		Y/N	
England	Y/N		Y/N		Y/N	
France	Y/N		Y/N		Y/N	

Europe-SS6H7a

- To help students better understand major developments following WWI, they will create and play a game entitled *Conflict and Change*. First, lead a brief overview discussion about each of the following topics (emphasizing that the dominant theme following WWI was conflict and change):
 - The Russian Revolution
 - The Treaty of Versailles
 - Worldwide depression
 - The rise of Nazism



Assign students one of the four topics. Students will use age-appropriate Internet sites, grade-level texts, and library resources to gather information about their topic. Next, students assigned the same topic will group to create a set of fact cards. Distribute 3 x 5 cards to each group, reminding them that each card should have a different fact written on it.

Additionally cards will be coded, in small letters beneath the fact with “RR” for the Russian Revolution, “TV” for the Treaty of Versailles, “WD” for worldwide depression, or “N” for the rise of Nazism. For example:

- Placed a heavy financial burden upon the nations that started the war–TV
- Paved the way for the formation of the USSR–RR
- International trade declined by half–WD
- Promised to restore honor to the German people–N

The game can be played in different ways:

- Gather all of the cards. Randomly select and read the fact. A student will suggest which topic the fact belongs with and explain why.
- Gather all of the cards. Randomly select and read the fact. A student will suggest why the fact represents a conflict, a change, or possibly both.
- Gather all of the cards. Randomly select and read the fact. A student will suggest the consequence (outcome or result) of the fact.
- Play the variations with three teams of students. Allow team members to confer before answering.
- Allow students to make sets of cards. Students play in pairs. Taking turns, one student reads the fact and the other identifies the correct topic. If correct, the student gets the card. If incorrect, the card is replaced in the center of the deck. The player with the most cards when the deck is depleted wins.



Practice Quiz



- 1 **How did the English colonization of Australia affect the Aborigines?**
 - A It led to the discovery of gold, which made the Aborigines wealthy.
 - B It resulted in an outbreak of disease, which reduced the Aborigine population.
 - C It made the land difficult to farm, which caused the Aborigines to have less food.
 - D It introduced a new system of laws, which made it easier for the Aborigines to own land.

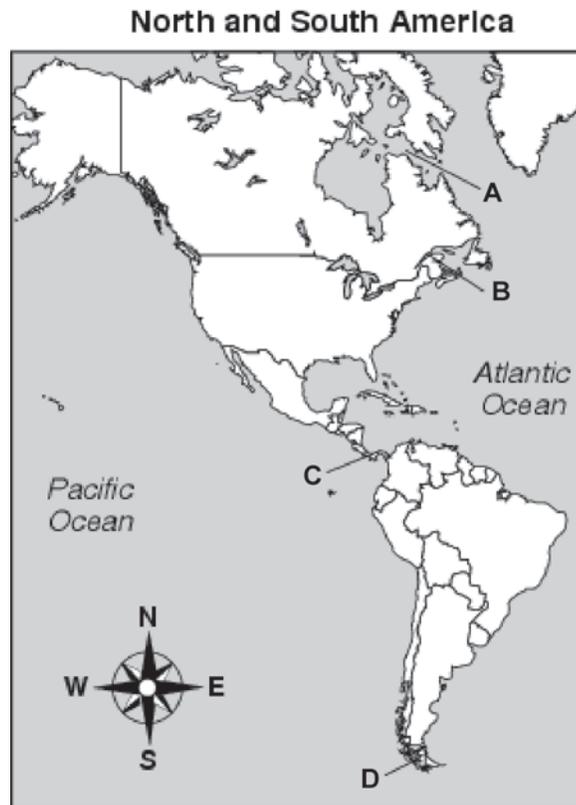
- 2 **Why do some people in Quebec want independence from Canada?**
 - A Quebec's schools are better.
 - B Quebec's culture is different.
 - C Quebec's standard of living is higher.
 - D Quebec's industries export more goods.

- 3 **Which of these led to the end of the Cold War?**
 - A the Treaty of Versailles
 - B the colonization of Africa
 - C the bombing of Hiroshima
 - D the collapse of the Soviet Union

- 4 **Which environmental consequence resulted from the Chernobyl disaster?**
 - A Glaciers began to melt.
 - B Radiation polluted the area.
 - C Rain forests were destroyed.
 - D Oil was spilled into the ocean.



5 Which letter points to the location of the Panama Canal?



- A A
- B B
- C C
- D D



6 **Look at the maps below.**

Russia Population Density



Russia Climate



Why do few people live in the central northern region of Russia?

- A There is little fresh water.
- B The summers are hot and humid.
- C The weather is extremely cold.
- D There are long rainy seasons.

7 **Cuba has a dictatorship, and Brazil has a presidential democracy.**

How are these countries different from each other?

- A In Cuba, the head of government has unlimited power.
- B In Brazil, the head of government is appointed for life.
- C In Cuba, more citizens protest against the government.
- D In Brazil, all newspapers are owned by the government.



- 8 **What role did Pizarro play in the history of Latin America?**
- A He led a small Spanish force to defeat the Inca Empire.
 - B He conquered the Aztecs by creating alliances with their enemy.
 - C He led a revolt that resulted in Haitian independence from France.
 - D He started a nationalist movement in Argentina by appealing to the working class.
- 9 **Why is Australia more of a market economy than a command economy?**
- A It has very few trading partners.
 - B Farmers grow crops for themselves only.
 - C The government decides how to distribute services.
 - D Consumers determine which goods should be produced.
- 10 **Why would a country make investments in human capital?**
- A to decrease the population
 - B to increase unemployment
 - C to decrease natural resources
 - D to increase the gross domestic product (GDP)



Solutions

Number	Correct Answer	Explanation
1	B	<p><i>Explain the impact of European colonization of Australia in terms of diseases and weapons on the indigenous peoples of Australia. (SS6H9b)</i></p> <p>The correct answer is Choice (B) It resulted in an outbreak of disease, which reduced the Aborigine population. Diseases that were introduced by Europeans devastated the native populations of Australia, mainly because natives had no immunity to the diseases. Choice (A) is incorrect because gold was discovered by British explorers during the 1800s, but the discovery did not make the Aborigines rich. It made the British wealthier. Choice (C) is incorrect because the Aborigines were not a farming society; they acquired food by hunting, gathering, and changing location seasonally to follow herds. Choice (D) is incorrect because eventually a new system of laws was introduced, making it more difficult for Aborigines to own land.</p>
2	B	<p><i>Describe Quebec's independence movement. (SS6H5a)</i></p> <p>The correct answer is Choice (B) Quebec's culture is different. Quebec has a mostly French-speaking population while the rest of Canada speaks English. Other aspects of its culture are also different from the rest of Canada. Choice (A) is incorrect because the quality of education in Quebec is similar to the other provinces in Canada. Choice (C) is incorrect because the standard of living in other provinces is similar to that of Quebec. Choice (D) is incorrect because there are other provinces that export more than Quebec.</p>



Number	Correct Answer	Explanation
3	D	<p><i>Explain how the collapse of the Soviet Union led to the end of the Cold War and German reunification. (SS6H7c)</i></p> <p>The correct answer is Choice (D) the collapse of the Soviet Union. The Cold War was a period of tension between countries who had differing political ideologies, namely the United States (democracy) and the Soviet Union (communism). Thus, when the Soviet Union collapsed in 1990, there were no longer two rivaling ideologies and the Cold War ended. Choice (A) is incorrect because the Treaty of Versailles ended World War I not the Cold War. Choice (B) is incorrect because the colonization of Africa had nothing to do with the Cold War but rather led to civil wars amongst rival tribes within the continent. Choice (C) is incorrect because the bombing of Hiroshima was an event that led to the end of World War II.</p>
4	B	<p><i>Explain the major concerns of Europeans regarding the issues such as acid rain in Germany, air pollution in the United Kingdom, and the nuclear disaster in Chernobyl, Ukraine. (SS6G9a)</i></p> <p>The correct answer is Choice (B) Radiation polluted the area. The explosion sent up a plume of radioactive material that polluted a vast area in the surrounding countries. Choice (A) is incorrect because the radioactive cloud caused by the explosion did not cause glaciers to melt. Choice (C) is incorrect because dangerous levels of radioactive material did not reach any rain forests. Choice (D) is incorrect because the pollution caused by this disaster came from a cloud of radioactive material and no oil was spilled in relation to this disaster.</p>
5	C	<p><i>Locate on a world and regional political-physical map: Amazon River, Caribbean Sea, Gulf of Mexico, Pacific Ocean, Panama Canal, Andes Mountains, Sierra Madre Mountains, and Atacama Desert. (SS6G1a)</i></p> <p>The correct answer is Choice (C) C. This choice points directly to the country of Panama. Choice (A) is incorrect because A points to the Hudson Strait. Choice (B) is incorrect because B points to the St. Lawrence Seaway. Choice (D) is incorrect because D points to the Strait of Magellan.</p>



Number	Correct Answer	Explanation
6	C	<p><i>Compare how the location, climate, and natural resources of the United Kingdom and Russia affect where people live and how they trade. (SS6G10a)</i></p> <p>The correct answer is Choice (C) The weather is extremely cold. As the first map shows, there are few people who live in the central northern part of Russia. The second map shows that the temperatures in this region are extremely cold. When both are compared, the students can deduce that climate is the reason for low population. Choice (A) is incorrect because neither map indicates the presence nor absence of sources of fresh water. Choice (B) is incorrect because the climate map indicates that the weather is cold, not hot. Choice (D) is incorrect because the climate map does not indicate that there are large degrees of precipitation.</p>
7	A	<p><i>Compare the federal-republican systems of the Federative Republic of Brazil (Brazil) and the United Mexican States (Mexico) to the dictatorship of the Republic of Cuba (Cuba), distinguishing the form of leadership and the role of the citizen in terms of voting and personal freedoms. (SS6CG2a)</i></p> <p>The correct answer is Choice (A) In Cuba, the head of the government has unlimited power. Dictators are not bound by the will of the people. They can (and often) do whatever they like. They can raise taxes, change laws to favor themselves or specific groups of people, control the media, etc. Choice (B) is incorrect because in a presidential democracy the leader is elected (not appointed) by the people through free elections. The president does not stay in for life but rather serves a term of a specified period of time. Choice (C) is incorrect because under Cuba's dictatorship, there is very little freedom of expression and the people are probably not allowed to freely assemble to express these views as they would be in a presidential democracy. Choice (D) is incorrect because in a free society—which is found in a presidential democracy—the press would not be controlled by the government but would instead be free to publish opposing viewpoints of the people.</p>



Number	Correct Answer	Explanation
8	A	<p><i>Describe the encounter and consequences of the conflict between the Spanish and the Aztecs and Incas and the roles of Cortes, Montezuma, Pizarro, and Atahualpa. (SS6H1a)</i></p> <p>The correct answer is Choice (A) He lead a small Spanish force to defeat the Inca Empire. With an army of about 200 soldiers, Pizarro met the Incan ruler, Atahualpa, who arrived with several thousand unarmed men. The Spaniards waited in ambush, crushed the Incan force with far superior weapons (guns, cannons, etc.), and kidnapped Atahualpa. Pizarro later killed Atahualpa, which demoralized the remaining Incan forces and convinced them to retreat. Choice (B) is incorrect because it was Hernando Cortes who conquered the Aztecs, not Francisco Pizarro. Choice (C) is incorrect because it was Toussaint L’Ouverture who led the Haitian independence movement. Choice (D) is incorrect because Pizarro founded Peru. Peru did not establish a sense of nationalism in Argentina.</p>
9	D	<p><i>Describe the economic system used in Australia. (SS6E8c)</i></p> <p>The correct answer is Choice (D) Consumers determine which goods should be produced. Choice (A) is incorrect because in a market economy, a country has numerous trading partners. Choice (B) is incorrect because in a market economy, farmers grow crops for distribution to others. Choice (C) is incorrect because the government manages distribution in a command economy, rather than a market economy.</p>



Number	Correct Answer	Explanation
10	D	<p><i>Explain the relationship between investment in human capital (education and training) and gross domestic product (GDP). (SS6E7a)</i></p> <p>The correct answer is Choice (D) to increase gross domestic product (GDP). When a country educates and trains its people, the workforce is better equipped for professional and more technical jobs. These types of jobs usually have a much higher pay than jobs that require limited skills. Choice (A) is incorrect because a country would not decide to educate and train their people (which is what investment in human capital means) just to have their population decrease in size. Choice (B) is incorrect because a country would not choose to educate and train their people with the goal of increasing the number of unemployed persons. Choice (C) is incorrect because a country would not educate and train their people for the purpose of having fewer natural resources. There isn't a correlation between investing in human capital and increasing or decreasing the amount of natural resources that a country possesses.</p>
