

Washington Alternate Assessment System

# Extensions to the Grade-level Expectations (GLEs)



**Randy I Dorn**  
State Superintendent  
of Public Instruction

**High School**

**Fall 2009**

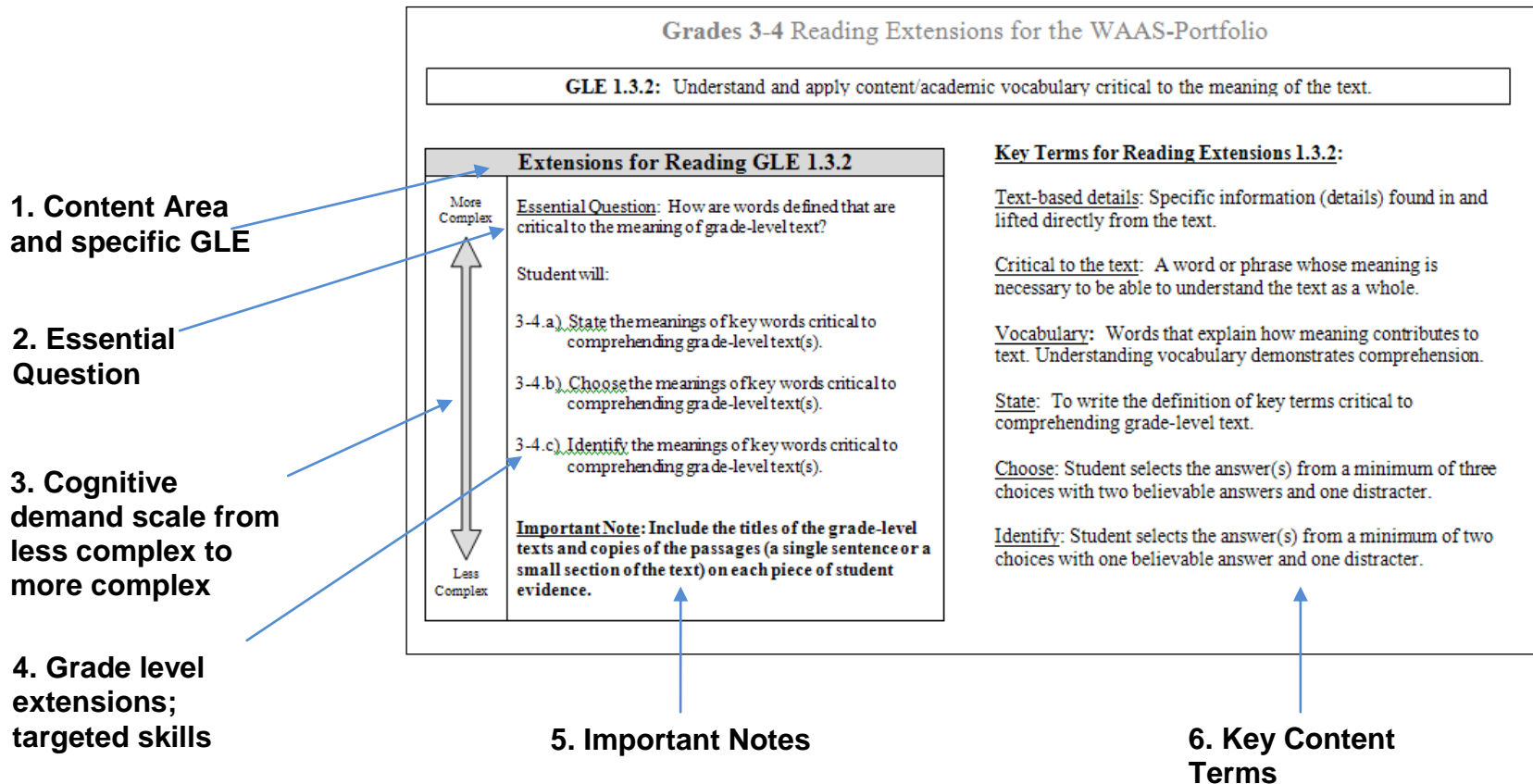
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This document contains the 2009-2010 Extensions to the Reading, Writing, Mathematics and Science GLEs. The Extensions were developed in the collaboration of general education content specialists and special education teachers who work with children who have significant cognitive disabilities.

A GLE Extension is a standard that directly corresponds to a general education benchmark and that has been carefully constructed to capture student performance at a lower level of complexity. The GLE Extensions were developed with careful consideration to the overall intent, concepts and skills inherent in their corresponding general education standards. An essence statement, written for each of the chosen standards, captured that intent. The essence statements evolved into Essential Questions which guide teacher planning for student learning and performance. Finally, the GLE Extensions are organized on a cognitive demand scale from more to less complex and include important specific content notes and key vocabulary. Teachers of students with significant cognitive disabilities use these extensions to build their Alternate Assessment the WAAS-Portfolio. The Extensions serve as the targeted skills or goals from which student performance is determined.

This Extensions resource contains the EALRs, Components, GLEs, student evidence of learning, and the GLE Extensions.



# Reading HS

## High School Reading Extensions for the WAAS-Portfolio

High School EALR Structure with GLEs	<b>EALR 1</b>	The student understands and uses different skills and strategies to read.
	<b>Component 1.3</b>	<p><b>Build vocabulary through wide reading.</b></p> <p><b>GLE 1.3.2:</b> Understand and apply content/academic vocabulary critical to the meaning of the text, including vocabularies relevant to different contexts, cultures, and communities.</p> <ul style="list-style-type: none"> <li>• Integrate new vocabulary from informational/expository text and literary/narrative text, including text from a variety of cultures and communities (ex. <i>salon</i> as a historical reference to political gatherings as opposed to a beauty salon) into written and oral communication.</li> <li>• Explain the meaning of content-specific vocabulary words (ex. regeneration, isolationism, emancipation, polarized.)</li> <li>• Select, from multiple choices, the meaning of a word identified in the text.</li> <li>• Transfer knowledge of vocabulary learned in content areas to comprehend other grade-level informational/expository text and literary/narrative text (ex., the concept of <i>parallel</i> in mathematics to understand parallelism.)</li> </ul>
	<b>EALR 2</b>	The student understands the meaning of what is read.
	<b>Component 2.1</b>	<p><b>Demonstrate evidence of reading comprehension.</b></p> <p><b>GLE 2.1.3:</b> Apply comprehension monitoring strategies during and after reading: determine importance using theme, main idea, and supporting details in grade-level informational/expository text and/or literary/narrative text.</p> <ul style="list-style-type: none"> <li>• State both literal and/or inferred main ideas and provide supporting text-based details.</li> <li>• State the theme/message and supporting details in culturally relevant literary/narrative text.</li> <li>• Choose, from multiple choices, a title that best fits the selection and provide details from the text to support the choice.</li> <li>• Select, from multiple choices, a sentence that best shows the theme or main idea of a story, poem, or selection.</li> <li>• Organize theme, main idea and supporting details into a self-created graphic organizer to enhance text comprehension.</li> </ul> <p><b>GLE 2.1.5:</b> Apply comprehension monitoring strategies for informational and technical materials, complex narratives, and expositions: synthesize ideas from selections to make predictions and inferences.</p> <ul style="list-style-type: none"> <li>• Make inferences based on implicit and explicit information drawn from prior knowledge and text; provide justification for inferences.</li> <li>• Make predictions and inferences about an author's beliefs and cite text-base evidence to support prediction/inference (ex., find text passages that support an inference that the author advocates economic change).</li> <li>• Read several accounts of the same event and make inferences about the impact each would have on the reader (ex., discuss the emotional impact of a journal entry by a soldier's parent, a letter from a Union or Confederate soldier, and a newspaper article describing a Civil War battle).</li> <li>• Select, from multiple choices, a prediction, inference, or assumption that could be made from the text.</li> <li>• Organize information to support a prediction or inference in a self-created graphic organizer.</li> </ul> <p><b>GLE 2.1.7:</b> Apply comprehension monitoring strategies for informational and technical materials, complex narratives, and expositions: determine importance and summarize the text.</p> <ul style="list-style-type: none"> <li>• Create an informational summary that includes an introductory statements, main ideas, and supporting text-based details; makes connections among the key ideas from the entire text; uses own words in an objective voice; is accurate to the original text; avoids interpretation or judgment; and uses an organizational pattern that supports the author's intent.</li> <li>• Create a literary summary that includes an introduction stating the theme and/or author's message supported by text-based evidence; use own words in an objective voice; is accurate to the original text.</li> <li>• Select, from multiple choices, a sentence that best summarizes the story or selection.</li> <li>• Organize summary information for informational/expository text, and/or literary/narrative text into a self-created graphic organizer to enhance text comprehension.</li> </ul>

# High School Reading Extensions for the WAAS-Portfolio

**GLE 1.3.2:** Understand and apply content/academic vocabulary critical to the meaning of the text, including vocabularies relevant to different contexts, cultures, and communities.

## Extensions for Reading GLE 1.3.2

More  
Complex

Essential Question: How are words defined that are critical to the meaning of grade-level text?

Student will:

HS.a) State the meanings of key words critical to comprehending grade-level text(s).

HS.b) Choose the meanings of key words critical to comprehending grade-level text(s).

HS.c) Identify the meanings of key words critical to comprehending grade-level text(s).

**Important Note: Include the titles of the grade-level texts and copies of the passages (a single sentence or a small section of the text) on each piece of student evidence.**

Less  
Complex

## **Key Terms for Reading Extensions 1.3.2:**

Text-based details: Specific information (details) found in and lifted directly from the text.

Critical to the text: A word or phrase whose meaning is necessary to be able to understand the text.

Vocabulary: Words that explain how meaning contributes to text. Understanding vocabulary demonstrates comprehension.

State: To write the definition of key terms critical to comprehending grade-level text.

Choose: Student selects the answer(s) from a minimum of three choices with two believable answers and one distracter.

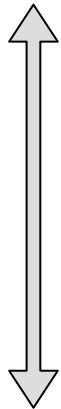
Identify: Student selects the answer(s) from a minimum of two choices with one believable answer and one distracter.

## High School Reading Extensions for the WAAS-Portfolio

**GLE 2.1.3:** Apply comprehension monitoring strategies during and after reading: determine importance using theme, main idea, and supporting details in grade-level informational/expository text and/or literary/narrative text.

### Extensions for Reading GLE 2.1.3

More  
Complex



Less  
Complex

Essential Question: What is the main idea of the text?

Student will:

HS.a) State the main idea and support it with 2 text-based details from a grade-level text.

HS.b) Choose the main idea and support it with 2 text-based details from a grade-level text.

HS.c) Identify the main idea and support it with 2 text-based details from a grade-level text.

**Important Note: Include the title of the grade-level text on each piece of student evidence.**

### **Key Terms for Reading Extensions 2.1.3:**

**Main idea:** Main idea is a central thought of the text. Main idea is not “plant.” A main idea would include the central thought about plants like, “Plants are important for survival.” Main ideas are written in sentences.

**Text-based details:** Specific information (details) found in and lifted directly from the grade-level text.

**State:** To write the main idea and its supporting text-based details.

**Choose:** Student selects the answer(s) from a minimum of three choices with two believable answers and one distracter.

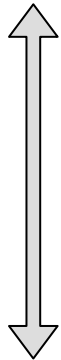
**Identify:** Students selects the answer(s) from a minimum of two choices with one believable answer and one distracter.

# High School Reading Extensions for the WAAS-Portfolio

**GLE 2.1.5:** Apply comprehension monitoring strategies for informational and technical materials, complex narratives, and expositions: synthesize ideas from selections to make predictions and inferences.

## Extensions for Reading GLE 2.1.5

More  
Complex



Less  
Complex

Essential Question: What might happen next in a story?

Student will:

HS.a) State a prediction and support it with 2 text-based details from a grade-level text.

HS.b) Choose a prediction and support it with a text-based detail from a grade level text.

HS.c) Identify 1 prediction from a grade-level text.

**Important Note: Include the title of the grade-level text on each piece of student evidence.**

### Key Terms for Reading Extensions 2.1.5:

Text-based details: Specific information (details) found in and lifted directly from the grade-level text.

Prediction: To foretell what might happen in text. Prediction is based on textual clues and/or a reader's prior experiences.

State: To write a prediction and its supporting details.

Choose: Student selects the answer(s) from a minimum of three choices with two believable answers and one distracter.

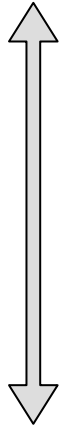
Identify: Students selects the answer(s) from a minimum of two choices with one believable answer and one distracter.

## High School Reading Extensions for the WAAS-Portfolio

**GLE 2.1.7:** Apply comprehension monitoring strategies for informational and technical materials, complex narratives, and expositions: determine importance and summarize the text.

### Extensions for Reading GLE 2.1.7

More  
Complex



Less  
Complex

Essential Question: What text-based details should be used to summarize text?

Student will:

HS.a) Summarize a grade-level text with 3 text-based details.

HS.b) Choose 2 text-based details that summarize a grade-level text.

HS.c) Identify 1 text-based detail that summarizes a grade-level text.

**Important Note: Include the title of the grade-level text on each piece of student evidence.**

### Key Terms for Reading Extensions 2.1.7:

Text-based details: Specific information (details) found in and lifted directly from the text.

Summary: A synthesis of the important ideas in a text.

Summarize: Writing the most important ideas from a text.

Choose: Student selects the answer(s) from a minimum of three choices with two believable answers and one distracter.

Identify: Students selects the answer(s) from a minimum of two choices with one believable answer and one distracter.

# Writing HS

## Compiling a Writing Portfolio 2009 - 2010

If GLE 1.1.1 (generating ideas and planning writing) is chosen then GLE1.2.1 must also be chosen. Similarly then GLE 3.1.1 (elaborating) is chosen, then GLE 3.1.2 (organization) must also be chosen.

These combinations are found below in the **Writing GLE Extension Quick Check.**

### Grade High School (10 – 12)

Use together { 1.1.1 Analyzes and selects effective strategies for generating ideas and planning writing  
1.2.1 Analyses task and composes multiple drafts when appropriate.

Use together { 3.1.1 Analyzes ideas, selects a manageable topic, and elaborates using specific, relevant details and/or examples.  
3.1.2 Analyzes and selects effective organizational structures.

## High School Writing Extensions for the WAAS-Portfolio

High School EALR Structure with GLEs	<b>EALR 1</b>	The student understands and uses a writing process.
	<b>Component 1.1</b>	<p><b>Pre-writes to generate ideas and plan writing.</b></p> <p><b>GLE 1.1.1:</b> Analyzes and selects effective strategies for generating ideas and planning writing.</p> <ul style="list-style-type: none"> <li>• Gathers, analyzes, <u>synthesizes</u>, and organizes information from a variety of sources (ex., interviews, websites, books, field notes).</li> <li>• Maintains a log or journal (electronic or handwritten) to collect and explore ideas; records observations, dialogues, and/or descriptions for later use as a basis for informational, persuasive, or <u>literary writing</u>.</li> <li>• Uses <u>prewriting</u> stage to generate ideas, determine purpose, analyze <u>audience</u>, select form, research background information, formulate a thesis, and organize text.</li> </ul> <p><b>Note:</b> The reading aloud of well written, language-rich multicultural literature is an ongoing practice throughout all grades. It not only simulates ideas, but it also provides students with examples of exemplary learning.</p>
	<b>Component 1.2</b>	<p><b>Produces draft(s).</b></p> <p><b>GLE 1.2.1:</b> Analyzes task and composes multiple drafts when appropriate.</p> <ul style="list-style-type: none"> <li>• Refers to prewriting plan.</li> <li>• Drafts according to audience, purpose, and time.</li> <li>• Drafts by hand and/or electronically.</li> <li>• Assesses draft and/or feedback, decides if multiple drafts are necessary, and justifies decision.</li> </ul>
	<b>EALR 3</b>	The student writes clearly and effectively.
	<b>Component 3.1</b>	<p><b>Develops ideas and organizes writing.</b></p> <p><b>GLE 3.1.1:</b> Analyzes ideas, selects a manageable topic, and elaborates using specific, relevant details and/or examples.</p> <ul style="list-style-type: none"> <li>• Presents a manageable thesis while maintaining a consistent focus in an individualized and purposeful manner (ex., "Obtaining a driver's license should not be tied to grades in school.")</li> <li>• Selects specific details relevant to the topic to extend ideas or develop elaboration (ex., quotations, data, reasons, and multiple examples that build on each other).</li> <li>• Uses personal experiences, observations, and/or research from a variety of sources to support opinions and ideas (ex., relevant data to support conclusions in math, science, social studies; appropriate researched information to explain or persuade; contrasting points of view to support a hypothesis or argument).</li> <li>• Integrates the elements of character, setting and plot to create a convincing fictional world.</li> </ul> <p><b>GLE 3.1.2:</b> Analyzes and selects effective organizational structures.</p> <ul style="list-style-type: none"> <li>• Writes unified, cohesive paragraphs (ex., repetition of key terms; parallel structure).</li> <li>• Selects from a variety of opening strategies and composes an engaging introduction (ex., vivid, detailed description; historical/cultural background; contrasting situation).</li> <li>• Selects from a variety of ending/conclusion strategies and composes an effective conclusion that is more than a repetition of the introduction (ex., prediction, anecdote, and question).</li> <li>• Uses transitional words and phrases between paragraphs to signal emphasis or show logical relationships among ideas (ex., in fact ..., consequently ..., as a result ..., on the other hand ...).</li> <li>• Determines effective sequence between and within paragraphs by using transitions to emphasize points in an argument or show logical connections (ex., inasmuch as ..., possibly ..., therefore ...).</li> <li>• Selects and uses effective organizational patterns as determined by purpose:             <ul style="list-style-type: none"> <li>~ varied placement of thesis for effect/~ persuasion using comparisons (ex., all similarities grouped together and all differences grouped together)/~ explanations (ex., scientific report pattern: introduction with hypothesis, materials and methods, data, conclusions)/~ narrative (ex., story within a story)</li> </ul> </li> <li>• Emphasizes key ideas through appropriate use of text features (ex., headings, diagrams, graphs, bullets, blank space).</li> </ul>

## High School Writing Extensions for the WAAS-Portfolio

**GLE 1.1.1:** Analyzes and selects effective strategies for generating ideas and planning writing.

### Extensions for Writing GLE 1.1.1

More  
Complex



**Essential Question:** What strategies are used for planning writing?

Student will:

HS.a) Select and record ideas for a 3 paragraph essay.

HS.b) Use pictures or symbols to record ideas for a 3 paragraph essay.

HS.c) Use objects to record ideas for a 3 paragraph essay.

**Important Note 1:** These GLE Writing Extensions from 1.1.1 must be used with GLE Writing Extensions from 1.2.1.

**Important Note 2:** The same topic must be used for both 1.1.1 and 1.2.1

Less  
Complex

### Key Terms for Writing Extensions 1.1.1:

**Paragraph:** At a minimum, a paragraph consists of 2 related sentences.

**Sentence:** At a minimum, a sentence consists of a noun and a verb.

**Select:** Choose ideas for an essay

**Record:** Write the ideas for an essay. Writing ideas could be recorded in a graphic organizer or a list from brainstorm.

# High School Writing Extensions for the WAAS-Portfolio

**GLE 1.2.1:** Analyzes task and composes multiple drafts when appropriate.

## Extensions for Writing GLE 1.2.1

More  
Complex



Essential Question: How are pre-write ideas used to produce a draft of an essay?

Student will:

- HS.a) Write a draft of an essay with 3 or more paragraphs.
- HS.b) Use pictures or symbols to produce a draft of an essay with 3 or more paragraphs.
- HS.c) Use objects to produce a draft of an essay with 3 or more paragraphs.

**Important Note 1:** These GLE Writing Extensions from 1.2.1 must be used with the pre-write plan constructed from GLE Writing Extensions in 1.1.1.

**Important Note 2:** The same topic must be used for both 1.1.1 and 1.2.1

Less  
Complex



## Key Terms for Writing Extensions 1.2.1:

Sentence: At a minimum, a sentence consists of a noun and a verb.

Paragraph: At a minimum, a paragraph consists of 2 related sentences.

Draft: A first or preliminary form of any writing. Maybe use graphic organizer, outline, or text in paragraphs, etc

Produce: Organize related materials together for an essay.

## High School Writing Extensions for the WAAS-Portfolio

**GLE 3.1.1:** Analyzes ideas, selects a manageable topic, and elaborates using specific, relevant details and/or examples.

### Extensions for Writing GLE 3.1.1

More  
Complex



**Essential Question:** How are details selected to elaborate on essay topics?

Student will:

HS.a) State 2 or more details that elaborate on the topic of a 3 paragraph essay.

HS.b) Choose 2 or more details that elaborate on the topic of a 3 paragraph essay.

HS.c) Identify 2 or more details that elaborate on the topic of a 3 paragraph essay.

**Important Note:** These GLE Writing Extensions from 3.1.1 **must be used** with GLE Writing Extensions from 3.1.2.

**Important Note 2:** The same topic must be used in 3.1.1 and 3.1.2

Less  
Complex



### **Key Terms for Writing Extensions 3.1.1:**

**Elaborate:** Add details that build on one another. For example, reasons, facts, anecdotes, explanations. Elaboration requires sentences.

**Paragraph:** At a minimum, a paragraph consists of 2 related sentences.

**Sentence:** At a minimum, a sentence consists of a noun and a verb.

**State:** To write the details that elaborate on the topic.

**Choose:** Student selects the answer(s) from a minimum of three choices with two believable answers and one distracter.

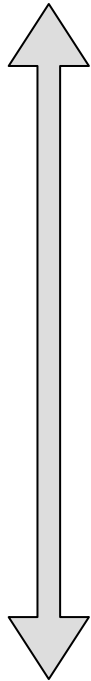
**Identify:** Student selects the answer(s) from a minimum of two choices with one believable answer and one distracter.

## High School Writing Extensions for the WAAS-Portfolio

**GLE 3.1.2:** Analyzes and selects effective organizational structures.

### Extensions for Writing GLE 3.1.2

More  
Complex



Less  
Complex

Essential Question: How are paragraphs organized?

Student will:

HS.a) Write and label the introduction for a 3 paragraph essay constructed from the topic and details from 3.1.1.

HS.b) Choose and label the introduction for a 3 paragraph essay constructed from the topic and details from 3.1.1.

HS.c) Identify and label the introduction for a 3 paragraph essay constructed from the topic and details from 3.1.1.

**Important Note:** These GLE Writing Extensions from 3.1.2 must be used with GLE Writing Extensions from 3.1.1.

**Important Note 2:** The same topic must be used in 3.1.1 and 3.1.2

### Key Terms for Writing Extensions 3.1.2:

Introduction: The beginning of an essay that grabs the reader's attention and provides a lead-in to the essay's main idea.

Paragraph: At a minimum, a paragraph consists of 2 related sentences.

Sentence: At a minimum, a sentence consists of a noun and a verb.

Choose: Student selects the answer(s) from a minimum of three choices with two believable answers and one distracter.

Identify: Student selects the answer(s) from a minimum of two choices with one believable answer and one distracter.

# Mathematics HS

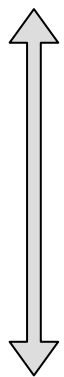
## High School Mathematics Extensions for the WAAS-Portfolio

<b>HS EALR Structure with GLEs</b>	<b>EALR 1</b>	The student understands and applies the concepts and procedures of mathematics.	
		<b>Component 1.2</b>	<b>Understand and apply the concepts and procedures from measurement.</b>
			<p><b>GLE 1.2.1:</b> Understand the relationship between change in one or two linear dimension(s) and corresponding change in perimeter, area, surface area and volume.</p> <ul style="list-style-type: none"> <li>• Determine and/or describe the impact of a change in two linear dimensions on perimeter, area, surface area, and/or volume.</li> <li>• Describe how changes in one or more linear dimensions affect perimeter, area, and/or volume in real world situations.</li> <li>• Determine the change in one or more linear dimensions given a change in perimeter, area, surface area, and/or volume.</li> </ul>
		<b>Component 1.3</b>	<b>Understand and apply concepts and procedures from geometric sense.</b>
			<p><b>GLE 1.3.3:</b> Use geometric properties to determine and plot points on a coordinate grid.</p> <ul style="list-style-type: none"> <li>• Determine geometric properties of two-dimensional objects using coordinates on a grid.</li> <li>• Determine the location of a set of points that satisfy given conditions.</li> <li>• Represent real life situations on a coordinate grid or describes the location of a point that satisfies given conditions.</li> <li>• Use tools and technology to draw objects on a coordinate grid based on given properties.</li> <li>• Write ordered pairs to describe the locations of points or objects on a coordinate grid.</li> </ul>
		<b>Component 1.5</b>	<b>Understand and apply concepts and procedures from algebraic sense.</b>
	<p><b>GLE 1.5.1:</b> Apply knowledge of patterns or sequences to represent linear functions and/or exponential functions.</p> <ul style="list-style-type: none"> <li>• Represent, extend, or create a pattern or sequence between sets of numbers representing a linear function.</li> <li>• Identify, extend, or create a geometric sequence or pattern.</li> <li>• Translate among equivalent numerical, graphical, and algebraic forms of a linear function.</li> <li>• Create a pattern that has the same rule as a given pattern.</li> <li>• Describe or represent linear and exponential patterns in words or algebraic symbols.</li> </ul>		

## High School Mathematics Extensions for the WAAS-Portfolio

**GLE 1.2.1:** Understand the relationship between change in one or two linear dimension(s) and corresponding change in perimeter, area, surface area and volume.

### Extensions for Mathematics GLE 1.2.1

<p>More Complex</p>  <p>Less Complex</p>	<p>Essential Question: How is the volume of a rectangular prism or the area rectangles computed?</p> <p>Student will:</p> <p>HS. a) Compute and compare the volumes of 2 rectangular prisms.</p> <p>HS. b) Compute and compare the areas of 2 rectangles.</p> <p>HS. c) Compare the volumes of 2 rectangular prisms.</p> <p>HS. d) Compare the areas of 2 rectangles.</p>
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### Key terms for Math Extensions 1.2.1:

Rectangle: A quadrilateral with four right angles; a parallelogram with right angles.

Rectangular prism: A solid 3-dimensional object which has six faces that are rectangles.

Volume: The amount of space, measured in cubic units, that an object or substance occupies.

Area: The number of unit squares that can be contained within an area. It is usually stated in a standard unit like square meter, square foot, or square inch.

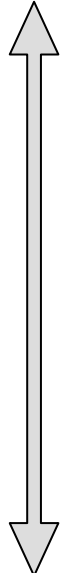
Measurable Attributes: Length, time, money, weight, mass, capacity, temperature

Compute: To determine by calculating the volume and/or area.

Compare: To examine similarities and differences from the computations of the rectangular prisms or rectangles.

## High School Mathematics Extensions for the WAAS-Portfolio

**GLE 1.3.3:** Use geometric properties to determine and plot points on a coordinate grid.

Extensions for Mathematics GLE 1.3.3	
 <p>More Complex</p> <p>Less Complex</p>	<p>Essential question: How do coordinates and coordinate grids apply in real world situations?</p> <p>Student will:</p> <p>HS.a) Plot the route traveled on a <b>map</b> when given 3 ordered pairs.</p> <p>HS.b) State 3 ordered pairs when given specific places on a <b>map</b>.</p> <p>HS.c) Choose 3 ordered pairs when given specific places on a <b>map</b>.</p> <p>HS.d) Identify 3 specific places on a <b>map</b> when given ordered pairs.</p> <p><b>Important Note: Each piece of student evidence <u>must include a map with a coordinate grid.</u></b></p>

### Key terms for Math Extensions 1.3.3:

Map: A representation of the features of an area such as the earth, showing forms, sizes and relationships. (A map is not a grid with random objects placed on it.)

Coordinate grid: A pattern of regularly spaced horizontal and vertical lines on a plane that is used to locate points.

Ordered Pair: Two numbers used to locate points on a coordinate grid. The first element indicates distance along the x-axis (horizontal) and the second indicates distance along the y-axis (vertical).

Plot: Drawing a line from one place to another on a map showing a direct path.

State: To write the ordered pair when given a specific place on a map.

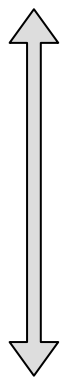
Choose: Student selects the answer(s) from a minimum of three choices with two believable answers and one distracter.

Identify: Student selects the answer(s) from a minimum of two choices with one believable and one distracter.

## High School Mathematics Extensions for the WAAS-Portfolio

**GLE 1.5.1:** Apply knowledge of patterns or sequences to represent linear functions and/or exponential functions.

### Extensions for Mathematics GLE 1.5.1

More Complex  Less Complex	<p>Essential Question: How are linear functions used in real life applications?</p> <p>Student will:</p> <p>HS.a) State the equations to linear patterns.</p> <p>HS.b) Graph linear patterns.</p> <p>HS.c) Extend linear patterns.</p> <p><b>Important Note: Each piece of student evidence must include at least 3 missing variables.</b></p>
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### Key terms for Math Extensions 1.5.1:

Linear Pattern: Two variables that change at a constant rate.

Variable: A quantity that can change or that may take on different values.

Equation: A mathematical sentence with an equal (=) sign. The left side of the equal sign has the same value as the right side.  $6 + 4 = 10$  is an equation.  $8 + y = 14$  is another equation.

State: To write the equations to linear patterns.

Graph: To represent visually a system of data connections.

Extend: To add on; to expand.

# Science Grade 10

## Grade 10 Science Extensions for the WAAS-Portfolio

High School EALR Structure with GLEs	<b>EALR 2</b>	<b>INQUIRY:</b> The student knows and applies the skills, processes, and nature of scientific inquiry.
	<b>Component 2.1</b>	<p><b>Investigating Systems:</b> Develop the knowledge and skills necessary to do scientific inquiry.</p> <p><b>GLE 2.1.2:</b> Understand how to plan and conduct systematic and complex scientific investigations.</p> <ul style="list-style-type: none"> <li>• Make a hypothesis about the results of an investigation that includes a prediction with a cause-effect reason.</li> <li>• Generate a logical plan for, and conduct, a systematic and complex scientific controlled investigation with the following attributes:                             <ul style="list-style-type: none"> <li>○ hypothesis (prediction with cause-effect reason)</li> <li>○ appropriate materials, tools, and available computer technology</li> <li>○ controlled variables</li> <li>○ one manipulated variable</li> <li>○ responding (dependent) variable</li> <li>○ gather, record, and organize data using appropriate units, charts, and/or graphs</li> <li>○ multiple trials</li> <li>○ experimental control condition when appropriate</li> <li>○ additional validity measures</li> </ul> </li> <li>• Generate a logical plan for a simple field investigation with the following attributes:                             <ul style="list-style-type: none"> <li>○ Identify multiple variables</li> <li>○ Select observable or measurable variables related to the investigative Question</li> </ul> </li> <li>• Identify and explain safety requirements that would be needed in an investigation</li> </ul>
	<b>EALR 1</b>	<b>SYSTEMS:</b> The student knows and applies scientific concepts and principles to understand the properties, structures, and changes in physical, earth/space, and living systems.
	<b>Component 1.1</b>	<p><b>Properties: Understand how properties are used to identify, describe, and categorize substances, materials, and objects and how characteristics are used to categorize living things.</b></p> <p><b>GLE 1.1.2:</b> Apply an understanding of directions, speed, and acceleration when describing the linear motion of objects.</p> <ul style="list-style-type: none"> <li>• Describe the linear motion (speed, direction, and acceleration) of an object over a given time interval relative to Earth or some other object (ex., as a car accelerates onto a freeway the car speeds up from 30 km/hr to 90 km/hr in 10 sec.)</li> <li>• Determine and explain the average speed of an object over a given time interval when the object is moving in a straight line.</li> </ul>
	<b>Component 1.2</b>	<p><b>Structures: Understand how components, structures, organizations, and interconnections describe systems.</b></p> <p><b>GLE 1.2.1:</b> Analyze how systems function, including the inputs, outputs, transfers, transformations, and feedback of a system and its subsystems.</p> <ul style="list-style-type: none"> <li>• Describe the function of a system's parts or subsystems.</li> <li>• Explain inputs, outputs, transfers, transformations, and feedback of matter, energy, and information in a system.</li> <li>• Explain the interconnections between a system's parts or subsystems.</li> </ul>
	<b>Component 1.3</b>	<p><b>Changes: Understand how interactions within and among systems cause changes in matter and energy.</b></p> <p><b>GLE 1.3.10:</b> Analyze the living and nonliving factors that affect organisms in ecosystems.</p> <ul style="list-style-type: none"> <li>• Describe how matter and energy are transferred and cycled through ecosystems (i.e., Matter and energy move from plants to herbivores/omnivores to carnivores and decomposers.)</li> <li>• Compare different ecosystems in terms of the cycling of matter and flow of energy.</li> <li>• Describe how population changes cause changes in the cycle of matter and the flow of energy in ecosystems.</li> <li>• Describe the living and nonliving factors that limit the size and affect the health of a population in an ecosystem.</li> </ul>

## Grade 10 Science Extensions for the WAAS-Portfolio

**GLE 2.1.2:** Understand how to plan and conduct systematic and complex scientific investigations.

Extensions for Science GLE 2.1.2	
<div style="display: flex; flex-direction: column; align-items: center;"> <div style="margin-bottom: 10px;">More Complex</div> <div style="margin-bottom: 10px;">↑</div> <div style="margin-bottom: 10px;">↓</div> <div style="margin-top: 10px;">Less Complex</div> </div>	<p><u>Essential Question:</u> How are scientific questions answered?</p> <p>Student will:</p> <p>HS.a) Describe a specific scientific investigation.</p> <p>HS.b) Order the steps to a specific scientific investigation.</p> <p>HS.c) Identify the steps to a specific scientific investigation.</p> <p><b>Important Note 1:</b> Grades 8 and 10 scientific investigations <u>must use hypothesis (If...then...because...)</u></p> <p><b>Important Note 2:</b> A scientific investigation <u>must include the steps of the investigation labeled as question, hypothesis, materials and procedures.</u></p> <p><b>Important Note 3:</b> Scientific investigation, GLE 2.1.2, <u>must be one of the two targeted skills in each science portfolio.</u> GLE 2.1.2 is mandatory for all students grades 5, 8, and 10.</p>

### Key Terms for Science GLE 2.1.2:

Scientific investigation: **At a minimum,** a high school scientific process includes the following:

- 1) Question
- 2) Hypothesis
- 3) Materials
- 4) Procedures

**Note:** Other steps to the scientific process may be included (Grade 10 Investigation Step Explanation on next page) however the above steps **MUST** be included.

Hypothesis: The prediction portion of the hypothesis must answer the given Question including the effect of the manipulated variable on the responding variable. A hypothesis must give a related reason for the prediction. **Note:** Grade 8 and 10 students must use hypothesis and not prediction.

Order: Sequence the steps to the scientific process.

Identify: Students selects the answer(s) from a minimum of two choices with one believable answer and one distracter.

Describe: To write about a specific scientific investigation.

## Grade 10 Science Extensions for the WAAS-Portfolio

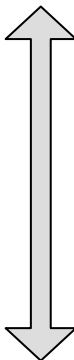
### High School Investigation Step Explanation

Investigation Step		Description of Step
Question		A Question, typically provided by the teacher, containing the manipulated variable and the responding variable. <i>What is the effect of soil particle size (sand, gravel, rocks) on the amount of earth material that moves when water is added to the hill model?</i>
Hypothesis	Prediction	The prediction portion of the hypothesis must answer the given Question including the effect of the manipulated variable on the responding variable. <i>More sand will move down the hill model than the rocks...</i>
	Prediction Reason	A hypothesis must give a cause-effect reason for the prediction. <i>For example: ... because the smaller particles are more easily moved by the running water.</i>
Materials		A list of the minimum materials needed to perform the procedure. <i>Example: sand, water, rocks, gravel, hill model, bucket, and a beaker.</i>
<b>Procedure - The written or diagrammed procedure is evaluated as follows:</b>		
Controlled Variable		At least two controlled variables are identified or implied in the procedure or the materials list. <i>Example: amount of water poured, slope of hill model, amount of earth materials, etc.</i>
Manipulated Variable		Only one manipulated variable is identified or implied in the procedure or data table (if given). The manipulated variable must have at least three conditions to be credited. <i>Example: Soil particle size</i>
Responding Variable		The responding variable is identified or implied in the procedure or data table (if given). <i>Example: Amount of earth material.</i>
Record Measurements		The procedure states or implies measurements are recorded periodically or gives a data table.
Trials are Repeated		More than one trial for all conditions is planned, or implied in a data table, to measure the responding variable.
Experimental Control Condition		Only credited for complicated systems: The procedure includes an additional setup in which the manipulated variable is not changed and the responding variable is measured for each condition in the experimental setup(s). <i>Example: On the hill model adding the different earth materials one at a time to see the effect without adding water.</i>
Extra Validity Measure		The procedure includes a validity measure not included in the scenario investigation (e.g. more controlled variables, better measuring technique, increased sample size, control for sample bias). <i>Examples: Monitor how fast the water is poured, making sure that all the earth materials are dry before adding to the model.</i>
Logical Steps		The steps of the procedure are detailed enough to repeat the procedure effectively (examples of illogical steps: no ending time indicated; states <i>Set up as diagrammed</i> , but diagram is inadequate; recording vague data or results).

## Grade 10 Science Extensions for the WAAS-Portfolio

**GLE 1.1.2:** Apply an understanding of directions, speed, and acceleration when describing the linear motion of objects.

### Extensions for Science GLE 1.1.2

<p>More Complex</p>  <p>Less Complex</p>	<p><b>Essential Question:</b> What is the direction or speed of an object that is moving in linear motion?</p> <p>Student will:</p> <p>HS.a) Measure and record the speed of an object in linear motion.</p> <p>HS.b) Choose the direction of an object moving along a straight line.</p> <p>HS.c) Identify the direction of an object moving along a straight line.</p>
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### **Key Terms for Science Extensions 1.1.2:**

**Linear motion:** Movement along a straight line.

**Speed:** Distance traveled divided by time.

**Measure:** Use measuring tools to gather information about size, length, width or height.

**Record:** Write the measurement in a graphic organizer, list, spreadsheet, Word document, etc.

**Direction:** The route, path or track of an object. For example, the lava moved down the hill.

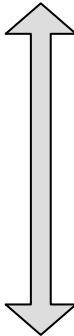
**Choose:** Student selects the answer(s) from a minimum of three choices with two believable answers and one distracter.

**Identify:** Student selects the answer(s) from a minimum of two choices with one believable answer and one distracter.

## Grade 10 Science Extensions for the WAAS-Portfolio

**GLE 1.2.1:** Analyze how systems function, including the inputs, outputs, transfers, transformations, and feedback of a system and its subsystems.

### Extensions for Science GLE 1.2.1

<p>More Complex</p>  <p>Less Complex</p>	<p><u>Essential Question:</u> How do multiple systems and subsystems interact with each other?</p> <p>Student will:</p> <p>HS.a) Explain the connections between a system and its subsystem.</p> <p>HS.b) Choose the function(s) of a system's parts or subsystems.</p> <p>HS.c) Identify the connection between a system and its subsystem.</p>
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### Key Terms for Science Extensions 1.2.1:

System: Parts working together to perform a function.

Subsystem: A secondary, dependent or less important system.

Connection: Having an association or relationship. For example, key board to the computer system; car system to the engine subsystem.

Function: Purpose or role of a system's parts.

Explain: 1)Name it 2) give a detail 3) add a reason for the connection between a system and its subsystem.

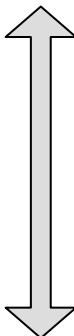
Choose: Student selects the answer(s) from a minimum of three choices with two believable answers and one distracter.

Identify: Student selects the answer(s) from a minimum of two choices with one believable answer and one distracter.

## Grade 10 Science Extensions for the WAAS-Portfolio

**GLE 1.3.10:** Analyze the living and nonliving factors that affect organisms in ecosystems.

### Extensions for Science GLE 1.3.10

More Complex		<b>Essential Question:</b> How do living and nonliving factors affect organisms in ecosystems?
Less Complex		<b>Student will:</b>  HS.a) Describe the living or non-living factors that affect organisms in an ecosystem.  HS.b) Choose the living or non-living factors that limit the size or health of a population in an ecosystem.  HS.c) Identify the living or non-living factors that limit the size or health of a population in an ecosystem.

### **Key Terms for Science GLE 1.3.10:**

**Organisms:** An individual form of life such as a plant, animal, or bacterium.

**Ecosystems:** A natural unit consisting of all plants, animals and microorganisms in an area. The unit functions together with all the non-living physical factors of the environment.

**Factor:** An element that contributes to a particular result.

**Describe:** To write about the living or non-living factors that affect organisms in an ecosystem.

**Identify:** Student selects the answer(s) from a minimum of two choices with one believable answer and one distracter.