

Entry Points – Grade 10

ELA

Common Core Crosswalk with DC CAS-Alt Entry Points

August 2012

ELA	Tenth Grade						
DC Strand	DC Standard*	Essential and Prioritized Skill	Entry Point Less Complex	Entry Point More Complex	Entry Point Most Complex	CC Strand	CC Matched Standard
Language Development	10.LD-V.9 Distinguish between the denotative and connotative meaning of words and interpret the connotative power of words.	Distinguish between the literal and figurative meaning of words.	<ul style="list-style-type: none"> ◆ Given a definition of a word, identify the word. ◆ Identify the denotative meaning of a word (e.g., choose the appropriate object from a choice of three when asked for the meanings of a word). ◆ Identify the connotative meaning of a word. 	<ul style="list-style-type: none"> ◆ Given a word, identify the figurative and literal meanings of the word used in the context of a passage and illustrate the feeling. ◆ Given a word in context, identify the emotions or feelings of the word as used in the passage. 	<ul style="list-style-type: none"> ◆ Given a word used in the context of a passage, compare the literal and figurative meaning of a word. ◆ Given a word used in the context of a passage, identify implied meaning of the word and determine if the implied meaning is negative or positive. 	Language	9-10.L.5 Demonstrate understanding of figurative language, word relationships, and nuances in word meanings.
Literary Text	10.LT-F4 Analyze such elements in fiction as foreshadowing, flashbacks, suspense, and irony.	Analyze literary techniques of fiction.	<ul style="list-style-type: none"> ◆ Match the definition to the correct literary technique (e.g., flashbacks, foreshadowing, suspense, or irony). ◆ Identify flashbacks in a text. ◆ Distinguish between flashbacks and foreshadowing from a given literary text. 	<ul style="list-style-type: none"> ◆ Given passages from familiar literary text, classify the passage based on the literary technique used (e.g., foreshadowing/flashback). ◆ Describe how foreshadowing is used in a text. ◆ Describe how irony is used in a text. ◆ Determine the correct use of irony in a given passage dramatic, situational, and verbal). ◆ Paraphrase an example of foreshadowing from a given literary text. 	<ul style="list-style-type: none"> ◆ Evaluate whether the suspense in a story worked. ◆ Compare two examples of irony to determine which one is more powerful. ◆ Analyze the author's use of irony in a given literary work (e.g., how is the Scarlet Letter ironic?) ◆ Create a graphic organizer that illustrates the effect of foreshadowing. ◆ Justify your choice of the most suspenseful event(s) in a given text. 	Reading: Literature	9-10.R.L.5 Analyze how an author's choices concerning how to structure a text, order events within it (e.g., parallel plots), and manipulate time (e.g., pacing, flashbacks) create such effects as mystery, tension, or surprise.

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DC Strand	DC Standard*	Essential and Prioritized Skill	Entry Point Less Complex	Entry Point More Complex	Entry Point Most Complex	CC Strand	CC Matched Standard
Literary Text	10.LT-F5 Explain how narrator's point of view affects tone, characterization, and plot.	Explain how narrator's point of view affects tone, characterization, and plot.	<ul style="list-style-type: none"> ◆ Identify characteristics of text written in 1st person (e.g., "I", "we" focus on feelings, limited point of view, etc.). ◆ Define point of view. ◆ Identify characteristics of text written in 3rd person. ◆ Identify the tone (the words the author uses to convey his attitude about the subject) of the literary text. ◆ Identify the plot of a literary text. ◆ Identify the characters and their traits from a literary text. 	<ul style="list-style-type: none"> ◆ Indicate whether a selection in written in 1st or 3rd person. ◆ Given various passages from familiar texts, determine the point of view for each. ◆ Locate key words in a selection that assist in the determination of the narrator's point of view (1st or 3rd person). ◆ Match the narrator's point of view to a familiar story. 	<ul style="list-style-type: none"> ◆ Describe how point of view (first or third person) affects the tone of a piece. ◆ Explain how point of view (1st or 3rd person) effects the characterization of a piece. ◆ Explain how the point of view (1st or 3rd person) affects the plot of a story. ◆ Compare how two different narrators (1st or 3rd person) affects the plot of a story. ◆ Compare how two different narrators (1st or 3rd person) would describe the same character. ◆ Given selections of the narrator's point of view (1st or 3rd person); describe how they affect the plot (e.g. by selecting the description of a choice of 3). 	Reading: Literature	11-12.R.L.3 : Analyze the impact of the author's choices regarding how to develop and relate elements of a story or drama (e.g., where a story is set, how the action is ordered, how the characters are introduced and developed).

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DC Strand	DC Standard*	Essential and Prioritized Skill	Entry Point Less Complex	Entry Point More Complex	Entry Point Most Complex	CC Strand	CC Matched Standard
Literary Text	10.LT-S10 Analyze the author's use of figurative language, including personification, symbolism, simile, metaphor, hyperbole, allusion, and imagery in a poetry selection.	Identify and explain the poet's use of figurative language.	<ul style="list-style-type: none"> ◆ Distinguish between types of figurative language. ◆ Match definitions to the correct type of figurative language (e.g., simile, metaphor, symbolism, irony, personification, imagery). 	<ul style="list-style-type: none"> ◆ Draw a picture illustrating the figurative and literal meaning of a metaphor. ◆ Identify different forms of figurative language (metaphors, symbolism, irony) in poems. ◆ Given a poem, describe the poets use of figurative language. 	<ul style="list-style-type: none"> ◆ Analyze how hyperbole (exaggeration to express strong emotion or to create a comic effect), effects a poem's purpose. ◆ Given several choices explain the poet's use of symbolism. ◆ Identify personification and explain how it helps the poem make its point (giving human characteristics to non human things, such as the tree wept). ◆ Answer questions to analyze the poet's use of figurative language. 	Reading: Literature	9-10.R.L.4 Determine the meaning of words and phrases as they are used in the text, including figurative and connotative meanings; analyze the cumulative impact of specific word choices on meaning and tone (e.g., how the language evokes a sense of time and place; how it sets a formal or informal tone).
Literary Text	10.LT-T3 Analyze the way in which the theme or meaning of a selection represents a view or comment on life, providing textual evidence for the identified theme.	Analyze theme as it relates to real life situations, supported with text evidence.	<ul style="list-style-type: none"> ◆ Given a passage with a familiar text with a single theme the student will identify the theme. ◆ Recognize that theme is the point of the story. ◆ Identify the theme of a story (e.g., After reading or listening to a theme based story, identify a picture depicting the theme from a choice of 2). 	<ul style="list-style-type: none"> ◆ Match each theme to its appropriate story. ◆ Classify passages by theme using a graphic organizer. ◆ Given examples of text, identify dual themes (e.g., life/death, love/hate, society/individual, known/unknown) or single themes (e.g., love, friendship, adventure). 	<ul style="list-style-type: none"> ◆ Compare the theme (a word or phrase of a given passage to the student's life and support it with text (Text to Self). ◆ Given a passage from a grade level literary text that can be modified to illustrate the theme (love, envy and Coming of Age) student will compare a theme of a text with a universal view on life and support it with text. 	Reading: Literature	9-10.R.L.2 : Determine a theme or central idea of a text and analyze in detail its development over the course of the text, including how it emerges and is shaped and refined by specific details; provide an objective summary of the text.

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DC Strand	DC Standard*	Essential and Prioritized Skill	Entry Point Less Complex	Entry Point More Complex	Entry Point Most Complex	CC Strand	CC Matched Standard
Informational Text	10.IT-A.9 Analyze the logic and use of evidence in an author's argument.	Analyze logic and use evidence an author uses.	<ul style="list-style-type: none"> ◆ Given a sentence, identify if the statements is true or false. ◆ Identify evidence that supports the premise. ◆ Identify the author's argument by choosing the correct argument summary from a choice of 2. ◆ Identify references in an argument. ◆ Look up references from an argument. 	<ul style="list-style-type: none"> ◆ Given a passage, identify whether an argument is true or false. ◆ Define circular reasoning or linear reasoning (e.g., use a graphic organizer to illustrate the difference between circular reasoning and linear reasoning). ◆ Given a passage or text, identify the evidence used in the author's argument and list evidence to support the argument. ◆ Determine whether references are from a trusted source or not (e.g., a scientific organization vs. Joe Schmoe's blog). 	<ul style="list-style-type: none"> ◆ Given a passage, or text, determine if the author's argument is valid or invalid (e.g., identifying specific sentences as fact or opinion and then determining if the argument is more fact than opinion). ◆ Given a passage or text, identify common fallacy such as intentional fallacy, biological fallacy such as intentional fallacy or circular reasoning (e.g., biological fallacy-all women are better nurturers than men because they are able to give birth; circular reasoning-the sky is blue because it is blue). 	Reading: Informational Text	9-10.R.1.6 Determine an author's point of view or purpose in a text and analyze how an author uses rhetoric to advance that point of view or purpose.
Informational Text	10.IT-E2 Explain the author's stated (or implied) purpose(s) for writing expository text.	Explain the author's purpose (stated or implied) in expository text.	<ul style="list-style-type: none"> ◆ List details found in an expository text. ◆ Answer questions of who, what, where, when, and how in relation to expository text. ◆ Identify as expository or not expository text. ◆ Identify the three main purposes of writing (to entertain, to persuade, to inform) (e.g., via the use of objects, pictures, symbols, or words). 	<ul style="list-style-type: none"> ◆ Identify the author's purpose of expository text (newspapers, magazines, maps, schedules, pamphlets, etc.) ◆ Make an outline of the author's purpose and supporting details of an expository text. ◆ Match excerpts writing to the purposes (inform, persuade or entertain). 	<ul style="list-style-type: none"> ◆ Summarize an expository text by stating the author's purpose and identifying the important details from journals, newspapers, booklets, etc. (to inform, to persuade, or to entertain). ◆ Given a list of statements decide which 3 statements support an author's purpose in an expository text. ◆ Generate 3-5 statements that support an author's purpose in a given expository text. ◆ Given an expository text, explain the author's purpose. 	Reading: Informational Text	9-10.R.1.6 Determine an author's point of view or purpose in a text and analyze how an author uses rhetoric to advance that point of view or purpose.

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DC Strand	DC Standard*	Essential and Prioritized Skill	Entry Point Less Complex	Entry Point More Complex	Entry Point Most Complex	CC Strand	CC Matched Standard
Informational Text	10.IT-E5 Make relevant inferences by synthesizing concepts and ideas from a single reading selection.	Make relevant inferences based on the text.	<ul style="list-style-type: none"> ◆ Predict what will happen next a text. ◆ Answer who-what questions about informational text to make inferences. 	<ul style="list-style-type: none"> ◆ Given informational text, compare known information to unknown information through the use of a graphic organizer and pre-reading activities. ◆ Use relevant inferences based on information from the text to relate to life experiences (text to self). 	<ul style="list-style-type: none"> ◆ Make inferences based on the text. ◆ Identify the evidence used to make a specific inference about the text. 	Reading: Informational Text	9-10.R.I.1 : Cite strong and thorough textual evidence to support analysis of what the text says explicitly as well as inferences drawn from the text.

CONTENT Reading/ELA
 STRAND Language Development

Grade 10			
Learning Standards as written			Essential and Prioritized Skill
Language Development	10LD-V9	Distinguish between the denotative and connotative meanings of words, and interpret the connotative power of words.	◆ Distinguish between the literal and figurative meaning of words
Less Complex		Possible Entry Points	More Complex
<u>The student will:</u>		<u>The student will:</u>	<u>The student will:</u>
Language Development	<ul style="list-style-type: none"> ◆ Given a definition of a word, identify the word ◆ Identify the denotative meaning of a word (e.g., choose the appropriate object from a choice of three when asked for the meaning of a word) ◆ Identify the connotative meaning of a word 	<ul style="list-style-type: none"> ◆ Given a word, identify the figurative and literal meanings of the word used in the context of a passage and illustrate the feeling ◆ Given a word in context, identify the emotion or feeling of the word as used in the passage. 	<ul style="list-style-type: none"> ◆ Given a word used in the context of a passage, compare the literal and figurative meaning of a word ◆ Given a word used in the context of a passage, identify implied meaning of the word and determine if the implied meaning is negative or positive

General Education Example: Students watch televised political advertisements, pointing out which words have denotative meanings and which ones have connotative meanings per their own interpretation. Students describe how the connotative words affected their overall opinion of the message and the effects those words had on the persuasiveness of the message (e.g., does it make the message stronger; was the connotation negative, therefore knnning you against the message?).

CONTENT Reading/ELA
STRAND Literary Text

Grade 10			
Learning Standards as written			Essential and Prioritized Skill
Literary Text	10LT-T3	Analyze the way in which the theme or meaning of a selection represents a view or comment on life, providing textual evidence for the identified theme.	<ul style="list-style-type: none"> Analyze theme as it relates to real life situations, supported with text evidence.
Less Complex		Possible Entry Points	More Complex
<u>The student will:</u>		<u>The student will:</u>	<u>The student will:</u>
Literary Text	<ul style="list-style-type: none"> Given a passage with a familiar text with a single theme the student will identify the theme. Recognize that theme is the point of the story. Identify the theme of a story (e.g., After reading or listening to a theme based story, identify a picture depicting the theme from a choice of 2.) 	<ul style="list-style-type: none"> Match each theme to its appropriate story. Classify passages by theme using a graphic organizer. Given examples of text, identify dual themes (e.g., life/death, love/hate, society/individual, known/unknown) or single themes (e.g., love, friendship, adventure) 	<ul style="list-style-type: none"> Compare the theme (a word or phrase of a given passage to the student's life and support it with text (Text to Self). Given a passage from a grade level literary text that can be modified to illustrate the theme (love, envy and Coming of Age) student will compare a theme of a text with a universal view on life and support it with text.

General Education Example: Students read Macbeth to analyze the theme of power or gender. They read Go Tell it on the Mountain by James Baldwin to analyze the theme of the role of the church (and more specifically religion and subcultures).

CONTENT Reading/ELA
STRAND Literary Text

Grade 10			
Learning Standards as written			Essential and Prioritized Skill
Literary Text	10LT-F4	Analyze such events in fiction such as foreshadowing, flashbacks, suspense, and irony.	◆ Analyze literary techniques of fiction
Less Complex		Possible Entry Points	More Complex
The student will:		The student will:	The student will:
Literary Text	<ul style="list-style-type: none"> ◆ Match the definition to the correct literary technique (e.g., flashbacks, foreshadowing, suspense or irony) ◆ Identify flashbacks in a text ◆ Distinguish between flashbacks and foreshadowing from a given literary text. 	<ul style="list-style-type: none"> ◆ Given passages from familiar literary text, classify the passage based on the literary technique used (e.g., foreshadowing/flashback) ◆ Describe how foreshadowing is used in a text ◆ Describe how irony is used in a text ◆ Determine the correct use of irony in a given passage (dramatic, situational and verbal) ◆ Paraphrase an example of foreshadowing from a given literary text. 	<ul style="list-style-type: none"> ◆ Evaluate whether the suspense in a story worked ◆ Compare two examples of irony to determine which one is more powerful ◆ Analyze the author's use of irony in a given literary work (e.g., how is the Scarlet Letter ironic?) ◆ Create a graphic organizer that illustrates the effect of foreshadowing ◆ Justify your choice of the most suspenseful event(s) in a given text

General Education Example: Students analyze elements of foreshadowing and flashbacks in The Scarlet Letter. How are these devices useful in books where the narrative (plot) is essential to the state of mind of the characters?

CONTENT Reading/ELA
STRAND Literary Text

Grade 10			
Learning Standards as written			Essential and Prioritized Skill
Literary Text	10LT-F5	Explain how a narrator's point of view affects tone, characterization, and plot (e.g., Harper Lee's <i>To Kill a Mockingbird</i> or Richard Wright's <i>Native Son</i>).	◆ Explain how narrator's point of view affects tone, characterization, and plot
Less Complex		Possible Entry Points	More Complex
<u>The student will:</u>		<u>The student will:</u>	<u>The student will:</u>
Literary Text	<ul style="list-style-type: none"> ◆ Identify characteristics of text written in 1st person (e.g., "I", "we" focus on feelings, limited point of view, etc.) ◆ Define point of view ◆ Identify characteristics of text written in 3rd person ◆ Identify the tone (the words the author uses to convey his attitude about the subject) of the literary text. ◆ Identify the plot of the a literary text ◆ Identify the characters and their traits from a literary text 	<ul style="list-style-type: none"> ◆ Indicate whether a selection is written in 1st or 3rd person ◆ Given various passages from familiar texts, determine the point of view for each. ◆ Locate key words in a selection that assist in the determination of the narrator's point of view (1st or 3rd person) ◆ Match the narrator's point of view to a familiar story. 	<ul style="list-style-type: none"> ◆ Describe how point view (first or third person) affects the tone of a piece. ◆ Explain how point of view (1st or 3rd person) effects the characterization of a piece ◆ Explain how the point of view (1st or 3rd person) affects the plot of a story ◆ Compare how two different narrators (1st or 3rd person) would describe the same character ◆ Given selections of the narrator's point of view (first or third person); describe how they affect the plot (e.g. by selecting the description of a choice of 3).

General Education Example: Students analyze the impact of the narrator in Ernest Hemingway's *After the Storm* (first person) and Nathaniel Hawthorne's *Scarlet Letter* (third person).

CONTENT Reading/ELA
 STRAND Literary Text

Grade 10			
Learning Standards as written			Essential and Prioritized Skill
Literary Text	10LT-S10	Analyze the author's use of figurative language, including personification, symbolism, simile, metaphor, hyperbole, (a poetry selection).	◆ Identify and explain the poet's use of figurative language.
Less Complex		Possible Entry Points	More Complex
<u>The student will:</u>		<u>The student will:</u>	<u>The student will:</u>
Literary Text	<ul style="list-style-type: none"> ◆ Distinguish between types of figurative language. ◆ Match definitions to the correct type of figurative language (e.g., simile, metaphor, symbolism, irony, personification, imagery) 	<ul style="list-style-type: none"> ◆ Draw a picture illustrating the figurative and literal meaning of a metaphor ◆ Identify different forms of figurative language (metaphors, symbolism, irony) in poems ◆ Given a poem, describe the poet's use of figurative language 	<ul style="list-style-type: none"> ◆ Analyze how hyperbole (exaggeration to express strong emotion or to create a comic effect), effects a poem's purpose. ◆ Given several choices explain the poet's use of symbolism ◆ Identify personification and explain how it helps the poem make its point (giving human characteristics to non human things, such as the tree wept). ◆ Answer questions to analyze the poet's use of figurative language

General Education Example: Students read several selections from Robert Frost and identify the many types of figurative language evident in his poetry. For example, students read "Devotion" (metaphor), "Mending Wall" (simile and apostrophe), "Stopping by Woods" (symbol, synecdoche, and hyperbole), and "The Road Not Taken" (irony and symbol).

CONTENT Reading/ELA
 STRAND Informational Text

Grade 10			
Learning Standards as written			Essential and Prioritized Skill
Informational Text	10IT-E2	Explain the authors stated or implied purpose(s) for writing expository text.	◆ Explain the author's purpose (stated or implied) in expository text.
Less Complex		Possible Entry Points	More Complex
<u>The student will:</u>		<u>The student will:</u>	<u>The student will:</u>
Informational Text	<ul style="list-style-type: none"> ◆ List details found in an expository text ◆ Answer questions of who, what, where, when, and how in relation to expository text ◆ Identify as expository or not expository texts ◆ Identify the three main purposes of writing (to entertain, to persuade, to inform) (e.g., via the use of objects, pictures symbols, or words) 	<ul style="list-style-type: none"> ◆ Identify the author's purpose of expository text (newspapers, magazines, maps, schedules, pamphlets, etc.) ◆ Make an outline of the author's purpose and supporting details of an expository text ◆ Match excerpts writing to the purposes (inform, persuade or entertain) 	<ul style="list-style-type: none"> ◆ Summarize an expository text by stating the author's purpose and identifying the important details from journals, newspapers, booklets, etc. (to inform, to persuade or to entertain) ◆ Given a list of statements decide which 3 statements support an author's purpose in an expository text ◆ Generate 3-5 statements that support an author's purpose in a given expository text ◆ Given an expository text, explain the author's purpose.

General Education Example: After reading a piece of historical nonfiction, such as When Justice Failed: The Fred Korematsu Story by Steven A. Chin about the internment of Japanese Americans during World War II, students describe the author's purpose for writing.

DC CAS-Alt

CONTENT Reading/ELA

STRAND Informational Text

Grade 10			
Learning Standards as written			Essential and Prioritized Skill
Informational Text	10IT-E5	Make relevant inferences by synthesizing concepts and ideas from a single reading selection.	◆ Make relevant inferences based on the text
Less Complex		Possible Entry Points	More Complex
	<u>The student will:</u>	<u>The student will:</u>	<u>The student will:</u>
Informational Text	Given informational text: <ul style="list-style-type: none"> ◆ Predict what will happen next in a text ◆ Answer who - what questions about informational text to make inferences 	<ul style="list-style-type: none"> ◆ Given informational text, compare known information to unknown information through the use of a graphic organizer and pre-reading activities. ◆ Use relevant inferences based on information from the text to relate to life experiences (text to self) 	Given informational text: <ul style="list-style-type: none"> ◆ Make inferences based on the text ◆ Identify the evidence used to make a specific inference about the text

DC CAS-Alt

CONTENT Reading/ELA

STRAND Informational Text

Grade 10				
Learning Standards as written			Essential and Prioritized Skill	
Informational Text	10IT-A9	Analyze the logic and use of evidence in an author's argument.	♦ Analyze logic and use evidence an author uses.	
Less Complex		Possible Entry Points		More Complex
The student will:		The student will:		The student will:
Informational Text	<ul style="list-style-type: none"> ♦ Given a sentence, identify if the statements is true or false ♦ Identify evidence that support s the premise ♦ Identify the author's argument by choosing the correct argument summary from a choice of 2 ♦ Identify references in an argument ♦ Look up references from an argument 	<ul style="list-style-type: none"> ♦ Given a passage, identify whether an argument is true or false ♦ Define circular reasoning or linear reasoning (e.g., use a graphic organizer to illustrate the difference between circular reasoning and linear reasoning) ♦ Given a passage or text, identify the evidence used in the author's argument and list evidence to support the argument ♦ Determine whether references are from a trusted source or not (e.g., a scientific organization vs. Joe Schmoe's blog) 	<ul style="list-style-type: none"> ♦ Given a passage or text, determine if the author's argument is valid or invalid (e.g., identifying specific sentences as fact or opinion and then determining if the argument is more fact than opinion) ♦ Given a passage or text, identify common fallacy such as intentional fallacy, biological fallacy such as intentional fallacy or circular reasoning (e.g., biological fallacy—all women are better nurturers than men because they are able to give birth; circular reasoning the sky is blue because it is blue) 	

General Education Example: Students evaluate articles by judging the references, the author's presentation of facts and opinions, and the date of publication.

Entry Points – Grade 10

Mathematics

Mathematics	High School						
DC Strand	DC Standard*	Essential and Prioritized Skill	Entry Point Less Complex	Entry Point	Entry Point More Complex	CCSS Strand	CCSS Best Aligned Standard
Patterns, Relations & Algebra	Al.P.5 Demonstrate an understanding of the relationship between various representations of a line. Determine a line's slope and x- and y-intercepts from its graph or from a linear equation that represents the line.	Translate various representations of a line and demonstrate an understanding of line's slope.	*Identify the different types of slope (zero, positive, negative and undefined) <ul style="list-style-type: none"> • Match ordered pairs of the point in the coordinate plane. • Locate the x and y axis on a graph 	*Determine which ordered pair is described by the given line (e.g., from a set of 3 sets of ordered pairs, choose the pair that is represented). <ul style="list-style-type: none"> • Determine which line is described by the given points. • Define slope (match to definition) • Define intercept (match to definition) 	*Use task analysis to determine the slope of the line from a linear equation and/or from its graph. <ul style="list-style-type: none"> • Determine a line's slope from a graph and its x and y intercepts • Graph a line from a two sets of ordered pairs 	Ratios and Proportional Relationships Expressions and Equations	7.RP.2b Identify the constant of proportionality (unit rate) in tables, graphs, equations, diagrams, and verbal descriptions of proportional relationships. 7.RP.2a Decide whether two quantities are in a proportional relationship, e.g., by testing for equivalent ratios in a table or graphing on a coordinate plane and observing whether the graph is a straight line through the origin 8.EE.5 Graph proportional relationships, interpreting the unit rate as the slope of the graph. Compare two different proportional relationships represented in different ways. For example, compare a distance-time graph to a distance-time equation to determine which of two moving objects has greater speed
Patterns, Relations & Algebra	Al.P.8 Add, subtract, and multiply polynomials with emphasis on 1st- and 2nd-degree polynomials.	Add, subtract, and multiply polynomials	*Identify numbers, exponents, or symbols within a polynomial equation <ul style="list-style-type: none"> • Distinguish between like and unlike terms 	*Add polynomials (combine like terms) <ul style="list-style-type: none"> • Subtract polynomials • Solve an equation that includes an exponent ($4 + 32$). • Solve for an exponent 	*Multiply polynomials (Use laws of exponents) <ul style="list-style-type: none"> • Add, subtract and multiply polynomials • Add, subtract and multiply 2nd degree polynomials 	Arithmetic with Polynomials and Rational Expressions A	A.APR.1 Understand that polynomials form a system analogous to the integers, namely, they are closed under the operations of addition, subtraction, and multiplication; add, subtract, and multiply polynomials.

Patterns, Relations & Algebra	<p>AI.P.9 Demonstrate facility in symbolic manipulation of polynomial and rational expressions by rearranging and collecting terms, factoring [e.g., $a^2 - b^2 = (a + b)(a - b)$, $x^2 + 10x + 21 = (x + 3)(x + 7)$, $5x^4 + 10x^3 - 5x^2 = 5x^2(x^2 + 2x - 1)$], identifying and canceling common factors in rational expressions, and applying the properties of positive integer exponents.</p>	<p>Apply knowledge of symbolic manipulation by using factors and positive integer exponents to simplify polynomials and rational expressions.</p>	<p>*Identify numbers, exponents or symbols in a polynomial equation</p> <ul style="list-style-type: none"> • Identify the factors of a number • Select from an array the factors of a given number 	<p>*Match factors to the corresponding polynomials</p> <ul style="list-style-type: none"> • Identify common factors of a polynomial in a rational expression 	<p>*Identify and cancel out common factors in rational expressions</p> <ul style="list-style-type: none"> • Simplify an equation that includes an exponent ($4 + 32$) • Simplify an equation that requires factorization 	Seeing Structure in Expressions	<p>A.SSE.1. Interpret expressions that represent a quantity in terms of its context.</p> <p>a. Interpret parts of an expression, such as terms, factors, and coefficients.</p> <p>b. Interpret complicated expressions by viewing one or more of their parts as a single entity. For example, interpret $P(1+r)^n$ as the product of P and a factor not depending on P.</p> <p>A.SSE. 2. Use the structure of an expression to identify ways to rewrite it. For example, see $x^4 - y^4$ as $(x^2)^2 - (y^2)^2$, thus recognizing it as a difference of squares that can be factored as $(x^2 - y^2)(x^2 + y^2)$.</p>
Patterns, Relations & Algebra	<p>AI.P.13 Solve equations and inequalities, including those involving absolute value of linear expressions (e.g., $x - 2 > 5$), and apply to the solution of problems.</p>	Solve equations and inequalities	<p>*Distinguish between the six inequality symbols.</p> <ul style="list-style-type: none"> • Match absolute value to various representations <p>*Sort the different graphs of inequality (i.e., $<$, \leq, $>$, and \geq)</p>	<p>*Identify whether or not a given graph is a solution of an inequality.</p> <ul style="list-style-type: none"> • Match the inequalities represented by a number sentence to corresponding graphs. 	<p>*Solve equations and/or inequalities</p> <ul style="list-style-type: none"> • Graph equation and/or inequality. 	Equations and Expressions	<p>7.EE.4b b. Solve word problems leading to inequalities of the form $px + q > r$ or $px + q < r$, where p, q, and r are specific rational numbers. Graph the solution set of the inequality and interpret it in the context of the problem. For example: As a salesperson, you are paid \$50 per week plus \$3 per sale. This week you want your pay to be at least \$100. Write an inequality for the number of sales you need to make, and describe the solutions.</p>

Patterns, Relations & Algebra	AI.P.14 Solve everyday problems (e.g., compound interest and direct and inverse variation problems) that can be modeled using linear or quadratic functions. Apply appropriate graphical or symbolic methods to the solution.	Apply appropriate graphical or symbolic methods to solve problems that can be modeled using linear or quadratic functions.	<p>*Define a linear function</p> <ul style="list-style-type: none"> • Identify the salient features of a linear function • Identify a quadratic function from a choice of 3 	<p>*Match a word problem to the correct function table or linear equation</p> <ul style="list-style-type: none"> • Translate a word problem that can be modeled with linear or quadratic methods into an equation 	<p>*Solve a compound interest problem using appropriate graphical methods</p> <ul style="list-style-type: none"> • Using a function table to solve linear functions • Complete a function table to represent word problems 	Functions	8.F.4 Construct a function to model a linear relationship between two quantities. Determine the rate of change and initial value of the function from a description of a relationship or from two (x, y) values, including reading these from a table or from a graph. Interpret the rate of change and initial value of a linear function in terms of the situation it models, and in terms of its graph or a table of values.
Patterns, Relations & Algebra	AI.P.15 Solve everyday problems (e.g., mixture, rate, and work problems) that can be modeled using systems of linear equations or inequalities. Apply algebraic and graphical methods to the solution.	Apply graphical and algebraic methods to solve systems of linear equations and inequalities.	<p>*Solve a problem involving a specified unknown</p> <ul style="list-style-type: none"> • Identify an inequality by locating (circling, marking, pointing to) the salient features of inequalities • Given an array of systems of linear equations and systems of linear inequalities, sort into correct groups. 	<p>*Use task analysis to solve a work problem using a function table (Dewayne takes 2 hours to paint the fence, Shannon takes 1 hour. How long do they take together?)</p> <ul style="list-style-type: none"> • Use task analysis to solve a rate problem • Use task analysis to solve a mixture problem 	<p>*Apply graphical methods to solve systems of linear equations and/or inequalities.</p> <ul style="list-style-type: none"> • Apply algebraic methods to solve systems of linear equations and/or inequalities. 	Functions	8.F.2 Compare properties of two functions each represented in a different way (algebraically, graphically, numerically in tables, or by verbal descriptions). For example, given a linear function represented by a table of values and a linear function represented by an algebraic expression, determine which function has the greater rate of change.

Algebra I	<p>AI.D.1 Select, create, and interpret an appropriate graphical representation (e.g., scatter plot, table, stem-and-leaf plots, circle graph, line graph, and line plot) for a set of data, and use appropriate statistics (e.g., mean, median, range, and mode) to communicate information about the data. Use these notions to compare different sets of data.</p>	<p>Interpret graphical representations of data using statistics to compare data.</p>	<p>*Locate information on a circle graph</p> <ul style="list-style-type: none"> • Locate information on a mathematical table • Define the mean • Match terms mean, median and mode with correct definitions 	<p>*Calculate the mean of a given set of numbers</p> <ul style="list-style-type: none"> • Create a stem and leaf plot from a list of two digit numbers. • Match a circle graph to the correct data 	<p>*Compare and contrast data from two different graphical representations</p> <ul style="list-style-type: none"> • Using a graphical representation, identify which data to use and then calculate the mean • Find data on a graph and calculate the mean • Interpret the mean after looking at a line graph (e.g., given a line graph, identify the mean) 	<p>Interpreting Categorical and Quantitative Data</p>	<p>S-ID.2 Use statistics appropriate to the shape of the data distribution to compare center (median, mean) and spread (interquartile range, standard deviation) of two or more different data sets.</p>
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Geometry	G.G.3 Apply properties of sides, diagonals, and angles in special polygons; identify their parts and special segments (e.g., altitudes, midsegments); determine interior angles for regular polygons.	Apply properties of sides, diagonals, and angles in special polygons (including being able to calculate interior angles, identify parts and special segments)	*Identify sides and angles in triangles <ul style="list-style-type: none"> • Sort polygons by the number of sides. • Define polygon 	*Given one angle in an equilateral triangle, determine the measure of the other angles. <ul style="list-style-type: none"> • Identify the different parts of a polygon (sides, interior/exterior angles, diagonals and/or altitudes). • Classify polygons with similar parts (e.g., interior angles of 90 degrees, diagonals of similar length, etc.) • List three angles that could make up a triangle the sum equals 180 degrees). 	*Calculate the third angle of a triangle given the other two angles. <ul style="list-style-type: none"> • Determine which sides are equal given an isosceles triangle (e.g., from an array of different types of triangles find two sides of one of these triangles that are of equal length) • Use properties of sides, angles and diagonals of polygons to solve problems (e.g., if a square is bisected by a diagonal, do the two resulting shapes have equal or unequal sides). 	Geometry-Congruence	G-CO 10. Prove theorems about triangles. Theorems include: measures of interior angles of a triangle sum to 180°; base angles of isosceles triangles are congruent; the segment joining midpoints of two sides of a triangle is parallel to the third side and half the length; the medians of a triangle meet at a point. G-CO 11. Prove theorems about parallelograms. Theorems include: opposite sides are congruent, opposite angles are congruent, the diagonals of a parallelogram bisect each other, and conversely, rectangles are parallelograms with congruent diagonals.
Geometry	G.G.15 Use the properties of special triangles (e.g., isosceles, equilateral, 30°-60°-90°, 45°-45°-90°) to solve problems.	Apply the knowledge of special triangles (isosceles and equilateral) to solve problems	*Identify a triangle regardless of their difference in size and shape. <ul style="list-style-type: none"> • Distinguish between isosceles, equilateral, and right triangles. 	*Classify triangles by the number of equal sides. <ul style="list-style-type: none"> • Classify triangles by the number of equal angles. 	*Given one angle in an equilateral triangle determine the measure of the third. <ul style="list-style-type: none"> • Calculate the measure of one acute angle in a right triangle when the other acute angle is given. • Determine the measurements of the sides and/or angles of special triangles using their properties. 	Geometry-Congruence	G-CO 10. Prove theorems about triangles. Theorems include: measures of interior angles of a triangle sum to 180°; base angles of isosceles triangles are congruent; the segment joining midpoints of two sides of a triangle is parallel to the third side and half the length; the medians of a triangle meet at a point.

Geometry	G.G.20 Draw the results and interpret transformations on figures in the coordinate plane such as translations, reflections, rotations, scale factors, and the results of successive transformations. Apply transformations to the solution of problems.	Analyze and apply transformations such as translation, reflections, rotations, and scale factors to solve problems.	*Identify a reflection, translation, rotation and /or dilation (e.g., given a figure and an array of transformations, select the one that is a reflection, rotation, translation, and/or dilation). • Match a reflection and /or rotation (e.g., given a figure and an array of transformations, match the one that is a reflection and/or rotation).	*Match figures that are of the same shapes but of different sizes. • Classify shapes as reflections or rotations	*Using manipulatives, perform specified transformations that would result in the manipulative fitting into a template (e.g., complete a three dimensional puzzle). • Predict what shape will come next in a series of transformations. • Given three choices, select shapes that come next in the series of rotations, translations, and/or reflections (e.g., Given a patterned series, select from an array the figure that could come next).	Geometry-Congruence	G-CO.1 Know precise definitions of angle, circle, perpendicular line, parallel line, and line segment, based on the undefined notions of point, line, distance along a line, and distance around a circular arc. G-CO.2. Represent transformations in the plane using, e.g., transparencies and geometry software; describe transformations as functions that take points in the plane as inputs and give other points as outputs. Compare transformations that preserve distance and angle to those that do not (e.g., translation versus horizontal stretch). G-CO.3 Given a rectangle, parallelogram, trapezoid, or regular polygon, describe the rotations and reflections that carry it onto itself. G-CO.4. Develop definitions of rotations, reflections, and translations in terms of angles, circles, perpendicular lines, parallel lines, and line segments. G-CO.5. Given a geometric figure and a rotation, reflection, or translation, draw the transformed figure using, e.g., graph paper, tracing paper, or geometry software. Specify a sequence of transformations that will carry a given figure onto another.
Geometry	G.G.21 Demonstrate the ability to visualize solid objects and recognize their projections, cross sections, and graph points in 3-D.	Recognize/evaluate projections, cross sections, or graph points in 3-D.	*Identify 2-D objects from a selection of 2D & 3D objects • Identify 3-D objects from a selection of 2D & 3D objects. • Identify the properties of 2 dimensional objects.	*Define a projection. • Match a solid object with a 3-D representation of that object • Distinguish between a 2 vs. 3 dimensional object	*Evaluate by matching solid objects with its projection. • Evaluate by matching solid objects with its cross section. • Evaluate by matching solid objects with the correct graph.	Geometry-Geometric Measurement and Dimension	G-GMD.4. Identify the shapes of two-dimensional cross-sections of three-dimensional objects, and identify three-dimensional objects generated by rotations of two-dimensional objects.

Geometry	G.G.22 Find and use measures of perimeter, circumference, and area of common geometric figures such as parallelograms, trapezoids, circles, and triangles.	Apply measures of perimeter, circumference, and area of common geometric figures.	<p>*Choose the right tool to measure an object</p> <ul style="list-style-type: none"> • Define perimeter • Define area. • Define circumference 	<p>*Find the perimeter of a square, rectangle (e.g., given the formula, use task analysis to determine the perimeter of a rectangle and choose the correct answer from 3 possible choices).</p> <ul style="list-style-type: none"> • Find the circumference of a circle. • Use tiles or other manipulatives to determine the area of a given rectangles, and/or squares. • Use task analysis to determine the area of a circle 	<p>*Use perimeter to solve a problem (e.g., Use perimeter formula to calculate the size of a rug needed to cover the floor.)</p> <ul style="list-style-type: none"> • Given choices, determine whether to use area or perimeter to solve a problem and calculate it. 	Measurement and Data	4.MD.3 Apply the area and perimeter formulas for rectangles in real world and mathematical problems. For example, find the width of a rectangular room given the area of the flooring and the length, by viewing the area formula as a multiplication equation with an unknown factor.
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CONTENT: Mathematics

STRAND: Patterns, Relations, & Algebra

Grade 10

Learning Standards as written

Patterns, Relations, & Algebra A1.P.5 Demonstrate an understanding of the relationship between various representations of a line. Determine a line's slope and x- and y-intercepts from its graph or from a linear equation that represents the line.

Essential and Prioritized Skill

◆ Translate various representations of a line and demonstrate an understanding of line's slope.

Less Complex

The student will:

- ◆ Identify the different types of slope (zero, positive, negative and undefined)
- ◆ Match ordered pairs of the point in the coordinate plane.
- ◆ Locate the x and y axis on a graph

Possible Entry Points

The student will:

- ◆ Determine which ordered pair is described by the given line (e.g., from a set of 3 sets of ordered pairs, choose the pair that is represented).
- ◆ Determine which line is described by the given points.
- ◆ Define slope (match to definition)
- ◆ Define intercept (match to definition)

More Complex

The student will:

- ◆ Use task analysis to determine the slope of the line from a linear equation and/or from its graph.
- ◆ Determine a line's slope from a graph and its x and y intercepts
- ◆ Graph a line from a two sets of ordered pairs

General Education Example

Example: What is the slope of the line with equation $3x + 4y = 12$.

Example: Find the equation for the line that contains the points (5, 3) and (7, 4). Where does the line intersect the y-axis? What is the slope of the line?

CONTENT: Mathematics

STRAND: Patterns, Relations, and Algebra

Grade 10		
<p>Learning Standards as written Patterns, AI.P.8 Relations, and Algebra</p>	<p>Add, subtract, and multiply polynomials with emphasis on 1st- and 2nd-degree polynomials.</p>	<p>Essential and Prioritized Skill</p> <ul style="list-style-type: none"> ◆ Add, subtract, and multiply polynomials
Less Complex	Possible Entry Points	More Complex
<p><u>The student will:</u></p> <ul style="list-style-type: none"> ◆ Identify numbers, exponents, or symbols within a polynomial equation ◆ Distinguish between like and unlike terms 	<p><u>The student will:</u></p> <ul style="list-style-type: none"> ◆ Add polynomials (combine like terms) ◆ Subtract polynomials ◆ Solve an equation that includes an exponent ($4 + 3^2$). ◆ Solve for an exponent 	<p><u>The student will:</u></p> <ul style="list-style-type: none"> ◆ Multiply polynomials (Use laws of exponents) ◆ Add, subtract and multiply polynomials ◆ Add, subtract and multiply 2nd degree polynomials

General Education Example

Example: Simplify the following expression: $(3x + 1)(x - 2) + (4x + 1)$.

CONTENT: Mathematics

STRAND: Patterns, Relations, & Algebra

Grade 10

Learning Standards as written

Patterns, Relations, and Algebra AI.P.9 Demonstrate facility in symbolic manipulation of polynomial and rational expressions by rearranging and collecting terms, factoring [e.g., $a^2 - b^2 = (a + b)(a - b)$, $x^2 + 10x + 21 = (x + 3)(x + 7)$, $5x^4 + 10x^3 - 5x^2 = 5x^2(x^2 + 2x - 1)$], identifying and canceling common factors in rational expressions, and applying the properties of positive integer exponents.

Essential and Prioritized Skill

◆ Apply knowledge of symbolic manipulation by using factors and positive integer exponents to simplify polynomials and rational expressions.

Less Complex

The student will:

- ◆ Identify numbers, exponents or symbols in a polynomial equation
- ◆ Identify the factors of a number
- ◆ Select from an array the factors of a given number

Possible Entry Points

The student will:

- ◆ Match factors to the corresponding polynomials
- ◆ Identify common factors of a polynomial in a rational expression

More Complex

The student will:

- ◆ Identify and cancel out common factors in rational expressions
- ◆ ***Simplify an equation that includes an exponent ($4 + 3^2$)***
- ◆ Simplify an equation that requires factorization

CONTENT: Mathematics
STRAND: Patterns, Relations, & Algebra

Grade 10

Learning Standards as written

Patterns, Relations and Algebra
 AI.P.13 Solve equations and inequalities, including those involving absolute value of linear expressions (e.g., $|x - 2| > 5$), and apply to the solution of problems.

Essential and Prioritized Skill

- ◆ Solve equations and inequalities

Less Complex

The student will:

- ◆ Distinguish between the six inequality symbols.
- ◆ Match absolute value to various representations
- ◆ Sort the different graphs of inequality (i.e., $<$, \leq , $>$, and \geq)

Example: Solve for x: $5x - 2 \leq -3(x - 2) + x$.

Possible Entry Points

The student will:

- ◆ Identify whether or not a given graph is a solution of an inequality.
- ◆ Match the inequalities represented by a number sentence to corresponding graphs.

More Complex

The student will:

- ◆ Solve equations and/or inequalities
- ◆ Graph equation and/or inequality.

CONTENT: Mathematics

STRAND: Patterns, Relations, and Algebra

Grade 10

Learning Standards as written

Patterns, Relations, and Algebra AI.P.14 Solve everyday problems (e.g., compound interest and direct and inverse variation problems) that can be modeled using linear or quadratic functions. Apply appropriate graphical or symbolic methods to the solution.

Essential and Prioritized Skill

Apply appropriate graphical or symbolic methods to solve problems that can be modeled using linear or quadratic functions.

Less Complex

The student will:

- ◆ Define a linear function
- ◆ Identify the salient features of a linear function
- ◆ Identify a quadratic function from a choice of 3

Possible Entry Points

The student will:

- ◆ Match a word problem to the correct function table or linear equation
- ◆ Translate a word problem that can be modeled with linear or quadratic methods into an equation

More Complex

The student will:

- ◆ Solve a compound interest problem using appropriate graphical methods
- ◆ Using a function table to solve linear functions
- ◆ Complete a function table to represent word problems

General Education Example

Example: One business telephone service has a fixed monthly cost of \$3 per month and then 4 cents per minute for long-distance calls. A second service has no fixed monthly cost but the long-distance calls cost 16 cents per minute. Which service is a better choice? When? (The monthly costs are equal if the company uses 2,500 minutes each month.)

Example: A train travels at 30 miles per hour for one mile. How fast must the train go in the next mile in order to average 60 miles per hour for the full two miles? (Note: This is a tricky problem.)

CONTENT: Mathematics

STRAND: Algebra

Grade 10

Learning Standards as written

Patterns, Relations, and Algebra AI.P.15 Solve everyday problems (e.g., mixture, rate, and work problems) that can be modeled using systems of linear equations or inequalities. Apply algebraic and graphical methods to the solution.

Essential and Prioritized Skill

- ◆ Apply graphical and algebraic methods to solve systems of linear equations and inequalities.

Less Complex

The student will:

- ◆ Solve a problem involving a specified unknown
- ◆ Identify an inequality by locating (circling, marking, pointing to) the salient features of inequalities
- ◆ Given an array of systems of linear equations and systems of linear inequalities, sort into correct groups.

Possible Entry Points

The student will:

- ◆ Use task analysis to solve a work problem using a function table (Dewayne takes 2 hours to paint the fence, Shannon takes 1 hour. How long do they take together?)
- ◆ Use task analysis to solve a rate problem
- ◆ Use task analysis to solve a mixture problem

More Complex

The student will:

- ◆ Apply graphical methods to solve systems of linear equations and/or inequalities.
- ◆ Apply algebraic methods to solve systems of linear equations and/or inequalities.

General Education Example

Example: Mary drove to work on Monday at 40 mph and arrived 5 minutes late. She left at the same time on Friday, drove at 45 mph, and arrived 3 minutes early. How far does Mary drive to work?

Example: Amtrak sells two types of tickets for train service between Boston and Washington, D.C. Tickets for the (really fast) Acela Express sell for \$176. Tickets for the (really slow) regular train sell for \$91. How many of each type of ticket must Amtrak sell each day if the net revenue for the day must be at least \$44,750? What if you add the constraint that the company must sell at least twice as many regular tickets as Acela tickets?

Example: Sketch a graph of the values of x and y that satisfy both of the following inequalities: $3x + 2y \geq 3$ and $-2x + y \geq 5$.

CONTENT: Mathematics

STRAND: Algebra I

Grade 10

Learning Standards as written

Algebra I AI.D.1

Select, create, and interpret an appropriate graphical representation (e.g., scatter plot, table, stem-and-leaf plots, circle graph, line graph, and line plot) for a set of data, and use appropriate statistics (e.g., mean, median, range, and mode) to communicate information about the data. Use these notions to compare different sets of data.

Essential and Prioritized Skill

- ◆ Interpret graphical representations of data using statistics to compare data.

Less Complex

The student will:

- ◆ Locate information on a circle graph
- ◆ Locate information on a mathematical table
- ◆ Define the mean
- ◆ Match terms mean, median and mode with correct definitions

Possible Entry Points

The student will:

- ◆ Calculate the mean of a given set of numbers
- ◆ Create a stem and leaf plot from a list of two digit numbers.
- ◆ Match a circle graph to the correct data

More Complex

The student will:

- ◆ Compare and contrast data from two different graphical representations
- ◆ Using a graphical representation, identify which data to use and then calculate the mean
- ◆ Find data on a graph and calculate the mean
- ◆ Interpret the mean after looking at a line graph (e.g., given a line graph, identify the mean)

General Education Example - See following page

DC CAS-Alt
Grade 10 Algebra 1: Al.D.1 (continued)

Example: According to the 1990 U.S. Census, 27.2% of State X residents over the age of 25 had graduated from a 4-year college. In a circle graph representing all state residents over the age of 25, about how many degrees should be in the sector representing these 4-year college graduates?

Example: The math teacher wants to show his class their grades on a test. Here is a list of the scores:

50, 54, 70, 70, 72, 72, 72, 76, 80, 81, 86, 86, 90, 90, 92, 95, 100

Which of the following types of graphs would give the best picture of the data: scatter plot, stem-and-leaf plot, or a line plot? Pick your favorite and make it.

What is the median score for the class? What is the mean score?

Example: A class of 25 students is asked to determine approximately how much time the average student spends on homework during a one-week period. Each student is to ask one of his/her friends for the information, making sure that no one student is asked more than once. The number of hours spent on homework per week are as follows:

*8, 0, 25, 9, 4, 19, 25, 9, 9, 8, 0, 8, 25, 9, 8, 7, 8, 3, 7, 8, 5,
3, 25, 8, 10*

(a) Find the mean, median, and mode for these data. Explain or show how you found each answer.

(b) Based on this sample, which measure (or measures) that you found in part (a) best describes the typical student? Explain your reasoning.

(c) Describe a sampling procedure that would have led to more representative data.

CONTENT: Mathematics
STRAND: Geometry

Grade 10

Learning Standards as written

Geometry G.G.3 Apply properties of sides, diagonals, and angles in special polygons; identify their parts and special segments (e.g., altitudes, midsegments); determine interior angles for regular polygons.

Essential and Prioritized Skill

◆ Apply properties of sides, diagonals, and angles in special polygons (including being able to calculate interior angles, identify parts and special segments)

Less Complex	Possible Entry Points	More Complex
<u>The student will:</u>	<u>The student will:</u>	<u>The student will:</u>
<ul style="list-style-type: none"> ◆ Identify sides and angles in triangles ◆ Sort polygons by the number of sides. ◆ Define polygon 	<ul style="list-style-type: none"> ◆ Given one angle in an equilateral triangle, determine the measure of the other angles. ◆ Identify the different parts of a polygon (sides, interior/exterior angles, diagonals and/or altitudes). ◆ Classify polygons with similar parts (e.g., interior angles of 90 degrees, diagonals of similar length, etc.) ◆ List three angles that could make up a triangle the sum equals 180 degrees). 	<ul style="list-style-type: none"> ◆ Calculate the third angle of a triangle given the other two angles. ◆ Determine which sides are equal given an isosceles triangle (e.g., from an array of different types of triangles find two sides of one of these triangles that are of equal length) ◆ Use properties of sides, angles and diagonals of polygons to solve problems (e.g., if a square is bisected by a diagonal, do the two resulting shapes have equal or unequal sides).

General Education Example

Example: Find the interior angles of a regular pentagon.

(See also G.G.2, G.G.4)

Example: How is the measure of the interior angles in a regular polygon related to the number of sides in the polygon?

CONTENT: Mathematics

STRAND: Geometry

Grade 10

Learning Standards as written

Geometry G.G.15 Use the properties of special triangles (e.g., isosceles, equilateral, 30°-60°-90°, 45°-45°-90°) to solve problems.

Essential and Prioritized Skill

◆ Apply the knowledge of special triangles (isosceles and equilateral) to solve problems

Less Complex

Possible Entry Points

More Complex

The student will:

- ◆ Identify a triangle regardless of their difference in size and shape.
- ◆ Distinguish between isosceles, equilateral, and right triangles.

The student will:

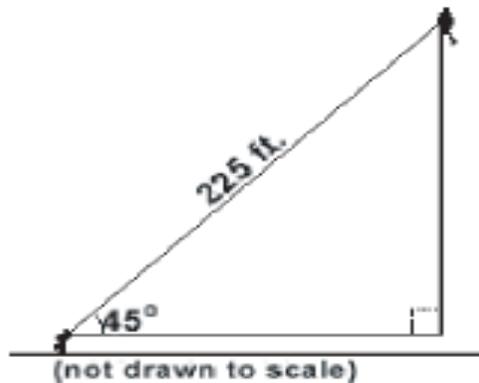
- ◆ Classify triangles by the number of equal sides.
- ◆ Classify triangles by the number of equal angles.

The student will:

- ◆ Given one angle in an equilateral triangle determine the measure of the third.
- ◆ Calculate the measure of one acute angle in a right triangle when the other acute angle is given.
- ◆ Determine the measurements of the sides and/or angles of special triangles using their properties.

General Education Example

Example: Use the diagram below to answer the following question.



It is believed that the best angle to fly a kite is 45°. If you fly a kite at this angle and let out 225 feet of string, approximately how high above the ground will the kite be?

CONTENT: Mathematics

STRAND: Geometry

Grade 10

Learning Standards as written

Geometry G.G.20

Draw the results and interpret transformations on figures in the coordinate plane such as translations, reflections, rotations, scale factors, and the results of successive transformations. Apply transformations to the solution of problems.

Essential and Prioritized Skill

- ◆ Analyze and apply transformations such as translation, reflections, rotations, and scale factors to solve problems.

Less Complex

Possible Entry Points

More Complex

The student will:

- ◆ Identify a reflection, translation, rotation and /or dilation (e.g., given a figure and an array of transformations, select the one that is a reflection, rotation, translation, and/or dilation).
- ◆ Match a reflection and /or rotation (e.g., given a figure and an array of transformations, match the one that is a reflection and/or rotation).

The student will:

- ◆ Match figures that are of the same shapes but of different sizes.
- ◆ Classify shapes as reflections or rotations

The student will:

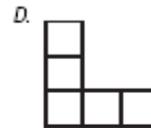
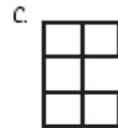
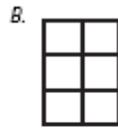
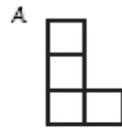
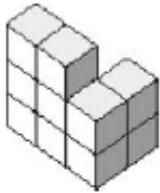
- ◆ Using manipulatives, perform specified transformations that would result in the manipulative fitting into a template (e.g., complete a three dimensional puzzle).
- ◆ Predict what shape will come next in a series of transformations.
- ◆ Given three choices, select shapes that come next in the series of rotations, translations, and/or reflections (e.g., Given a patterned series, select from an array the figure that could come next).

General Education Example - See following page

DC CAS-Alt

Grade 10 Geometry: G.G.20 (continued)

Example: Use the given figure to answer the question below.

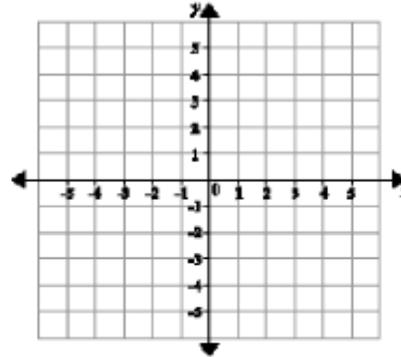


Which diagram could not possibly show how the figure looks when it is viewed directly from above?

Example: You may want to use the following coordinate plane to help answer the question.

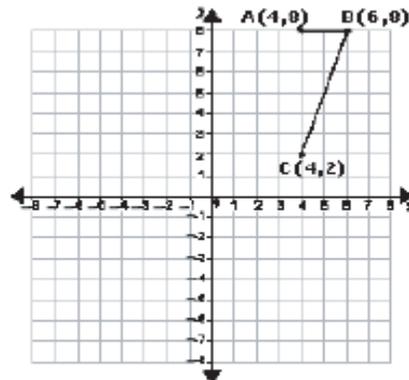
As the result of a transformation, the image of the point $(-1,3)$ is $(-3,1)$.
This is an example of a reflection across the

- A. line $y = x$
- B. line $y = -x$
- C. x -axis
- D. y -axis



Example: Suppose that the figure ABC is reflected over the y -axis.
What are the coordinates of the image of point A ?

- A. $(4, -8)$
- B. $(-4, 8)$
- C. $(-8, 4)$
- D. $(8, -4)$



CONTENT: Mathematics

STRAND: Geometry

Grade 10		
Learning Standards as written	Essential and Prioritized Skill	
Geometry G.G.21 Demonstrate the ability to visualize solid objects and recognize their projections, cross sections, and graph points in 3-D.	♦ Recognize/evaluate projections, cross sections, or graph points in 3-D.	
Less Complex	Possible Entry Points	More Complex
<p><u>The student will:</u></p> <ul style="list-style-type: none"> ♦ Identify 2-D objects from a selection of 2D & 3D objects ♦ Identify 3-D objects from a selection of 2D & 3D objects. ♦ Identify the properties of 2 dimensional objects. 	<p><u>The student will:</u></p> <ul style="list-style-type: none"> ♦ Define a projection. ♦ Match a solid object with a 3-D representation of that object ♦ Distinguish between a 2 vs. 3 dimensional object 	<p><u>The student will:</u></p> <ul style="list-style-type: none"> ♦ Evaluate by matching solid objects with its projection. ♦ Evaluate by matching solid objects with its cross section. ♦ Evaluate by matching solid objects with the correct graph.

CONTENT: Mathematics

STRAND: Geometry

Grade 10

Learning Standards as written

Geometry G.G.22 Find and use measures of perimeter, circumference, and area of common geometric figures such as parallelograms, trapezoids, circles, and triangles.

Essential and Prioritized Skill

- ◆ Apply measures of perimeter, circumference, and area of common geometric figures.

Less Complex

The student will:

- ◆ Choose the right tool to measure an object
- ◆ Define perimeter
- ◆ Define area.
- ◆ Define circumference.

Possible Entry Points

The student will:

- ◆ Find the perimeter of a square, rectangle (e.g., given the formula, use task analysis to determine the perimeter of a rectangle and choose the correct answer from 3 possible choices).
- ◆ Find the circumference of a circle.
- ◆ Use tiles or other manipulatives to determine the area of a given rectangles, and/or squares.
- ◆ Use task analysis to determine the area of a circle

More Complex

The student will:

- ◆ Use perimeter to solve a problem (e.g., Use perimeter formula to calculate the size of a rug needed to cover the floor.)
- ◆ Given choices, determine whether to use area or perimeter to solve a problem and calculate it.

General Education Example

Example: The endpoints of the chord of circle O are A and B , two vertices of a triangle. The third vertex, C , can be located anywhere along the dashed arc. If you locate the vertex so that it forms a triangle that has the largest possible area, which of the following must be true?

- A. $AB = BC = AC$
- B. $AC < BC$
- C. $AC > BC$
- D. $AC = BC$



Entry Points – Grade 10

Science - Biology

CONTENT Science

STRAND Cell Biology and Biochemistry

Grade HS			
Learning Standards as written			Essential and Prioritized Skill
Cell Biology	B.2.2	Compare and contrast the general anatomy and constituents of prokaryotic cells and their distinguishing features: Prokaryotic cells do not have a nucleus, and eukaryotic cells do. Know that prokaryotic organisms are classified in the Eubacteria and Archaeobacteria Kingdoms and that organisms in the other four kingdoms have eukaryotic cells.	Compare and contrast anatomy of prokaryotic and eukaryotic cells
Less Complex		Possible Entry Points	More Complex
<u>The student will:</u>		<u>The student will:</u>	<u>The student will:</u>
Cell Biology and Biochemistry	<ul style="list-style-type: none"> ◆ Define prokaryotic and eukaryotic cells ◆ Identify prokaryotic and eukaryotic cells ◆ Label a drawing/picture of a prokaryotic or eukaryotic cell 	<ul style="list-style-type: none"> ◆ Classify cells as prokaryotic or eukaryotic ◆ Explain the differences between prokaryotic and eukaryotic cells using key terms ◆ Label the similarities and/or differences between the prokaryotic and eukaryotic cells 	<ul style="list-style-type: none"> ◆ Using technology (e.g., switches, computers, cards, etc.) compare and contrast organisms that have prokaryotic or eukaryotic cells ◆ Distinguish the similarities and differences between prokaryotic and eukaryotic cells (using a graphic organizer)

CONTENT Science

STRAND Cell Biology and Biochemistry

Grade HS			
Learning Standards as written			Essential and Prioritized Skill
Cell Biology	B.3.3	Demonstrate that most cells function best within a narrow range of temperature and pH; extreme changes usually harm cells by modifying the structure of their macromolecules and, therefore, some of their functions.	<ul style="list-style-type: none"> ◆ Demonstrate that most cells function best within a narrow range of tolerances (temperature and pH)
Less Complex		Possible Entry Points	More Complex
<u>The student will:</u>		<u>The student will:</u>	<u>The student will:</u>
Cell Biology and Biochemistry	<ul style="list-style-type: none"> ◆ Define pH, acid (substance that has a low pH level), base (substance that has a high pH level), solution, and temperature ◆ Identify the tools used to measure pH levels (pH scale, pH meter, and litmus paper) and temperature 	<ul style="list-style-type: none"> ◆ Describe how varying temperatures affect human cellular functions ◆ Compare how different pH levels affect cell function 	<ul style="list-style-type: none"> ◆ Demonstrate how the environment affects cell function (e.g., use pH strips to demonstrate how pH levels affect cells) ◆ Compare and contrast how varying pH levels affect different cell functions and identify optimum pH levels

CONTENT Science

STRAND Cell Biology and Biochemistry

Grade HS			
Learning Standards as written			Essential and Prioritized Skill
Cell Biology	B.3.7	Recognize and describe that cellular respiration is important for the production of adenosine triphosphate (ATP), which is the basic energy source for cell metabolism.	<ul style="list-style-type: none"> Recognize and describe cellular respiration and the production of ATP
Less Complex		Possible Entry Points	More Complex
The student will:		The student will:	The student will:
Cell Biology and Biochemistry	<ul style="list-style-type: none"> Define respiration (taking in oxygen and releasing carbon dioxide), cellular respiration (chemical process by which the mitochondria produce energy for the cell), mitochondria (organelle that breakdowns food molecules to produce ATP- the battery of the cell that stores energy), and/or metabolism (activities of living things, e.g., reproduction, respiration, eating, etc.) Match the terms respiration, cellular respiration, ATP, mitochondria, and/or metabolism to the correct definition Explain the basic function of photosynthesis (to make food) 	<ul style="list-style-type: none"> Classify various metabolic activities or uses of energy (growth, reproduction, respiration, etc.) Identify the vital metabolic functions that require ATP energy (e.g., digestion, circulation, reproduction, growth, etc.) 	<ul style="list-style-type: none"> Compare (using a graphic organizer) the relationship between cellular respiration and ATP Describe the role of ATP in metabolism Explain how cells get energy from cellular respiration Describe how the products of photosynthesis are used in cellular respiration to produce ATP (e.g., describe how the glucose is broken down into carbon compounds, ATP, and other energy carriers during the citric acid cycle)

CONTENT Science

STRAND Cell Biology and Biochemistry

Grade HS			
Learning Standards as written			Essential and Prioritized Skill
Cell Biology	B.4.3	Describe the organelles that plant and animal cells have in common (e.g., ribosomes, golgi bodies, endoplasmic reticulum) and some that differ (e.g., only plant cells have chloroplasts and cell walls).	Compare and contrast plant cell organelles and animal cell organelles
Less Complex		Possible Entry Points	More Complex
<u>The student will:</u>		<u>The student will:</u>	<u>The student will:</u>
Cell Biology and Biochemistry	<ul style="list-style-type: none"> ◆ Define or identify the commonly found organelles (wall, no wall, chloroplast, membrane, cytoplasm, nucleus) in plants and/or animal cells ◆ Label the diagrams of a plant and animal cells 	<ul style="list-style-type: none"> ◆ Distinguish between plant and animals cells ◆ Using a graphic organizer classify organelles (wall, no wall, chloroplast, membrane, cytoplasm, nucleus) commonly found in plant and animal cells 	<ul style="list-style-type: none"> ◆ Using a Venn Diagram compare and contrast plant and animal cell organelles (wall, no wall, chloroplast, membrane, cytoplasm, nucleus) ◆ Identify the similarities and differences in plant cell organelles and animal cell organelles

CONTENT Science

STRAND Cell Biology and Biochemistry

Grade HS			
Learning Standards as written			Essential and Prioritized Skill
Cell Biology	B.4.4	Describe that the work of the cell is carried out by structures made up of many different types of large (macro) molecules that it assembles, such as proteins, carbohydrates, lipids, and nucleic acids.	<ul style="list-style-type: none"> Describe cellular construction of macromolecules and the jobs of these structures (reproduction, respiration, etc.)
Less Complex		Possible Entry Points	More Complex
The student will:		The student will:	The student will:
Cell Biology and Biochemistry	<ul style="list-style-type: none"> Define proteins, carbohydrates, lipids, and/or nucleic acids Define cell function and/or cell structure 	<ul style="list-style-type: none"> Identify the types of macromolecules (lipids, carbohydrates, and nucleic acids) and the function they serve Describe the characteristics of macromolecules 	<ul style="list-style-type: none"> Describe why the body needs macromolecules (lipids, carbohydrates, and nucleic acids) Illustrate cell structure and identify how each molecule contributes to cell function

CONTENT Science

STRAND Genetics and Evolution

Grade HS			
Learning Standards as written			Essential and Prioritized Skill
Genetics	B.7.2	Explain how hereditary information is passed from parents to offspring in the form of “genes,” which are long stretches of DNA consisting of sequences of nucleotides. Explain that in eukaryotes, the genes are contained in chromosomes, which are bodies made up of DNA and various proteins.	<ul style="list-style-type: none"> ◆ Explain how hereditary information is passed via genes
Less Complex		Possible Entry Points	More Complex
The student will:		The student will:	The student will:
Genetics and Evolution	<ul style="list-style-type: none"> ◆ Identify that inherited characteristics are called “traits” ◆ Identify characteristics that are inherited (passed down from parents) 		<ul style="list-style-type: none"> ◆ Explain the role of offspring, genes, DNA, and chromosomes in the heredity process ◆ Identify the relationship between offspring and heredity ◆ Explain that genes are passed from parent to offspring ◆ Explain that sexual reproduction leads to offspring with traits similar to each parent ◆ Explain that asexual reproduction results in offspring identical to the parent
	<ul style="list-style-type: none"> ◆ Describe the relationship between genes and chromosomes ◆ Use manipulatives to demonstrate the relationship between genes and chromosomes ◆ Use manipulatives to show the relationship between DNA and chromosomes ◆ Describe the structure of chromosomes and explain how hereditary information is passed to offspring in genes ◆ Identify and describe similarities and differences among multiple offspring of the same parents (plant or animal) ◆ Explain that the cell contains genes that are responsible for characteristics that are passed down from parent to offspring 		

CONTENT Science

STRAND Genetics and Evolution

Grade HS			
Learning Standards as written			Essential and Prioritized Skill
Genetics	B.7.5	Differentiate between the functions of mitosis and meiosis. Mitosis is a process by which a cell divides into each of two daughter cells, each of which has the same number of chromosomes as the original cell. Meiosis is a process of cell division in organisms that reproduce sexually, during which the nucleus divides eventually into four nuclei, each of which contains half of the usual number of chromosomes.	<ul style="list-style-type: none"> ◆ Differentiate between mitosis and meiosis
Less Complex		Possible Entry Points	More Complex
<u>The student will:</u>		<u>The student will:</u>	<u>The student will:</u>
Genetics and Evolution	<ul style="list-style-type: none"> ◆ Define mitosis, meiosis, and daughter cells ◆ Identify graphic representations of mitosis and meiosis ◆ Recognize that cells become old and need to be replaced ◆ Recognize that cells reproduce 	<ul style="list-style-type: none"> ◆ Describe each step of mitosis or meiosis (using technology or models) ◆ Explain that mitosis is the division of body cells ◆ Explain that meiosis is the division of sex cells (egg, sperm, etc.) ◆ Determine what kind of cells divide through the process of mitosis and/or meiosis. 	<ul style="list-style-type: none"> ◆ Differentiate between mitosis and meiosis using a graphic organizer ◆ Illustrate or model mitosis and meiosis ◆ Compare and contrast mitosis and meiosis (e.g., using a Venn Diagram)

CONTENT Science

STRAND Genetics and Evolution

Grade HS			
Learning Standards as written			Essential and Prioritized Skill
Genetics	B.8.2	Explain how the genetic information in DNA molecules provides the basic form of instructions for assembling protein molecules and that this mechanism is the same for all life forms.	<ul style="list-style-type: none"> ◆ Explain that DNA molecules instruct assembly of protein molecules in all life forms
Less Complex		Possible Entry Points	More Complex
The student will:		The student will:	The student will:
Genetics and Evolution	<ul style="list-style-type: none"> ◆ List parts of a DNA molecule (bases- Adenine (A), Guanine (G), Thymine (T) and Cytosine (C), sugar, and phosphate) ◆ Identify DNA and protein molecules 	<ul style="list-style-type: none"> ◆ Explain the relationship between DNA molecules and protein molecules (using a graphic organizer to show/explain the relationship) ◆ Label or color code the parts of a DNA molecule 	<ul style="list-style-type: none"> ◆ Distinguish between a DNA molecule and a protein molecule (using pictures or models) ◆ Describe the make-up of a DNA molecule (sugar made up of hydrogen and protein bases that is a spiral helix)

CONTENT Science

STRAND Genetics and Evolution

Grade HS			
Learning Standards as written			Essential and Prioritized Skill
Genetics	B.8.3	Understand and explain that specialization of cells is almost always due to different patterns of gene expression, rather than differences in the genes themselves.	<ul style="list-style-type: none"> Understand and explain the specialization of cells
Less Complex		Possible Entry Points	More Complex
<u>The student will:</u>		<u>The student will:</u>	<u>The student will:</u>
Genetics and Evolution	<ul style="list-style-type: none"> Describe cell specialization List different types of cells found in the body (e.g., nerve, muscle, and blood) 	<ul style="list-style-type: none"> Determine that organs of the body have specialized cells (matching, graphic organizer, picture, etc.) Explain the function of specialized cells (nerve, muscle, and blood.) 	<ul style="list-style-type: none"> Use drawings or models to compare the relationship of specialized cells and organs of the body Describe the specific function or job of the cells (e.g., blood cells, muscle cells, nerve cells, etc.)

CONTENT Science

STRAND Genetics and Evolution

Grade HS			
Learning Standards as written			Essential and Prioritized Skill
Genetics	B.9.2	Explain the mechanisms of genetic mutations and chromosomal recombinations, and when and how they are passed on to offspring.	◆ Explain that genetic mutations can cause a genetic disorder
Less Complex		Possible Entry Points	More Complex
<u>The student will:</u>		<u>The student will:</u>	<u>The student will:</u>
Genetics and Evolution	<ul style="list-style-type: none"> ◆ Define genetic disorders as a result of genetic mutation ◆ Identify some genetic disorders based on characteristics (Down Syndrome, Cystic Fibrosis, Hemophilia, etc.) 	<ul style="list-style-type: none"> ◆ Explain how and when genetic disorders are passed to offspring, using pictorial representation and technology ◆ Given various diseases and disorders, classify as either genetic or non-genetic (using technology or pictorial representation) ◆ Identify how DNA can change or mutate 	<ul style="list-style-type: none"> ◆ Describe how genetic disorders are caused by genetic mutations (using technology, film, etc.) ◆ Explain how mutations can be harmful or beneficial by using pictorial representations and technology/films (flower, fruits with no seeds, etc.)

CONTENT Science

STRAND Genetics and Evolution

Grade HS			
Learning Standards as written			Essential and Prioritized Skill
Genetics	B.9.3	Explain how the sorting and recombination of genes in sexual reproduction result in a vast variety of potential allele combinations in the offspring of any two parents.	<ul style="list-style-type: none"> ◆ Explain how sexual reproduction results in variety
Less Complex		Possible Entry Points	More Complex
<u>The student will:</u>		<u>The student will:</u>	<u>The student will:</u>
Genetics and Evolution	<ul style="list-style-type: none"> ◆ Define the terms allele /number of allele found in both male and females, (part of the gene that determines traits; every sperm and egg has 23) sexual reproduction (coming together of a sperm and egg which produces a gamete), gamete (the union of a sperm and egg) ◆ List the components of sexual reproduction (sperm, egg, and gamete) ◆ Identify organisms that reproduce sexually (using pictorial representation) 	<ul style="list-style-type: none"> ◆ List and describe the components of sexual reproduction (sperm, egg, and gamete) ◆ Describe how traits of an offspring depend on the combination of dominant and recessive alleles 	<ul style="list-style-type: none"> ◆ Summarize the types of organisms that carry out sexual reproduction using a graphic organizer to describe the sperm (male), egg (female), and gamete of human offspring ◆ Explain how sexual reproduction leads to variation in offspring ◆ Identify single-gene traits and describe all possible genotypic and phenotypic combinations (e.g., choose two traits that follow simple Mendelian inheritance rules)

CONTENT Science

STRAND Biology

Biology			
Learning Standards as Written			Essential and Prioritized Skill
Multicellular Organisms: Plants and Animals	B.12.3	Explain that during the process of photosynthesis, plants release oxygen into the air.	Understand the process of photosynthesis.
Less Complex		Possible Entry Points	More Complex
<u>The student will:</u>		<u>The student will:</u>	<u>The student will:</u>
<ul style="list-style-type: none"> Define photosynthesis. Match the terms oxygen, photosynthesis, carbon dioxide, energy to the correct definition. 		<ul style="list-style-type: none"> List what plants need to carry out photosynthesis. Label a basic photosynthesis diagram. 	<ul style="list-style-type: none"> Describe the process of photosynthesis. Create a diagram of photosynthesis.

Grade			
Learning Standards as Written			Essential and Prioritized Skill
Multicellular Organisms: Plants and Animals	B.13.1	Identify the roles of plants in the ecosystem: Plants make food and oxygen, provide habitats for animals, make and preserve soil, and provide thousands of useful products for people (e.g., energy, medicines, paper, and resins).	Identify the roles of plants in the ecosystems.
Less Complex		Possible Entry Points	More Complex
<u>The student will:</u>		<u>The student will:</u>	<u>The student will:</u>
<ul style="list-style-type: none"> Define ecosystem. List three organisms found in an ecosystem. 		<ul style="list-style-type: none"> Identify products that are derived from plants. List three ways animals depend on plants. 	<ul style="list-style-type: none"> Identify the role that plants play in an ecosystem. Identify what specific plants do in two different ecosystems.

CONTENT Science

STRAND Biology

Biology			
Learning Standards as Written			Essential and Prioritized Skill
Multicellular Organisms: Plants and Animals	B.14.1	Explain the major systems of the mammalian body (digestive, respiratory, reproductive, circulatory, excretory, nervous, endocrine, integumentary, immune, skeletal, and muscular) and how they interact with each other.	Explain three major systems of the mammalian body.
Less Complex		Possible Entry Points	More Complex
<u>The student will:</u>		<u>The student will:</u>	<u>The student will:</u>
	<ul style="list-style-type: none"> Recognize three major systems of the body. Identify body systems used for breathing, moving, and eating. 	<ul style="list-style-type: none"> Using a diagram, label three major systems of the mammalian body. Match three major systems of the body with their functions. 	<ul style="list-style-type: none"> Using a Venn Diagram, compare two of the major systems of the body. Describe how two major systems of the body interact with each other.