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Sample, Mary

June 4, 2020

Grade 9

TESTING REPORT

MAP GROWTH

SPRING 2019-2020

Summary

TEST	RIT SCORE	RANGE	PERCENTILE	TYPICAL OF
Growth: Language 2-12 CCSS 2010 V2	224	222–226	60	>11th Grade Spring
Growth: Math 6+ CCSS 2010 V2	241	238–244	65	>11th Grade Spring
Growth: Reading 6+ CCSS 2010 V3	239	236–242	85	>11th Grade Spring
Growth: Science 9-12: for use with NGSS 2013	230	227–233	87	>10th Grade Spring

Lexile Range	1355L–1505LL

Definitions

RIT Score: The student's overall score on the test.

RIT Range: If a student took the test again relatively soon, the score would fall within this range about 68% of the time.

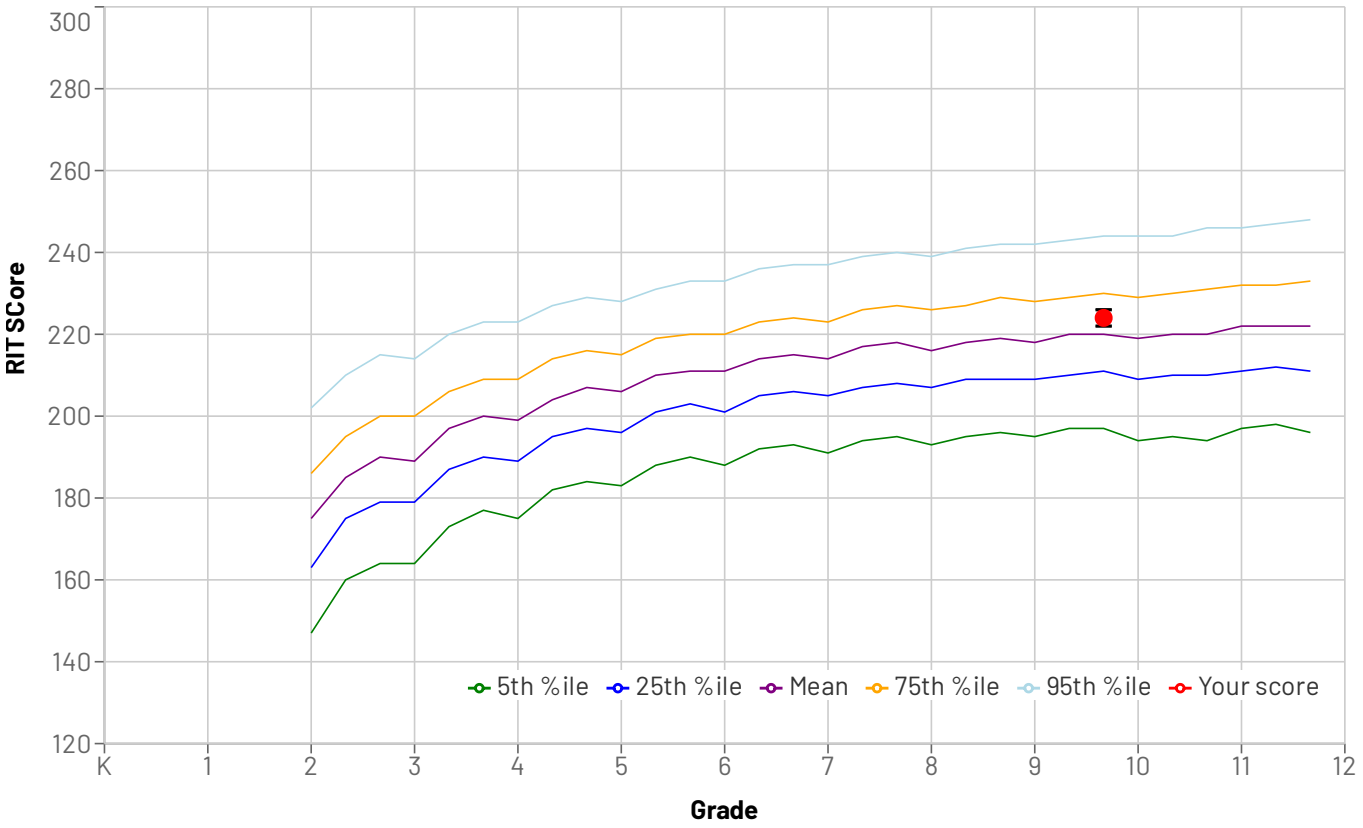
Percentile Rank: The percentage of students in the national norms group for this grade, subject, and test administration season that this student's score equaled or exceeded.

Typical of: This is the grade level and test session at which the 50th percentile of the national norms group is approximately equal to the student's score.

Lexile Range: A score (displayed as a 150-point range) resulting from a correlation between NWEA's RIT score and the Lexile scale that helps identify reading material that is at an appropriate difficulty level for an individual student. More information about the Lexile framework may be found: https://lexile.com

To investigate the colleges where your child's score might take them, check out NWEA's College Explorer Tool.

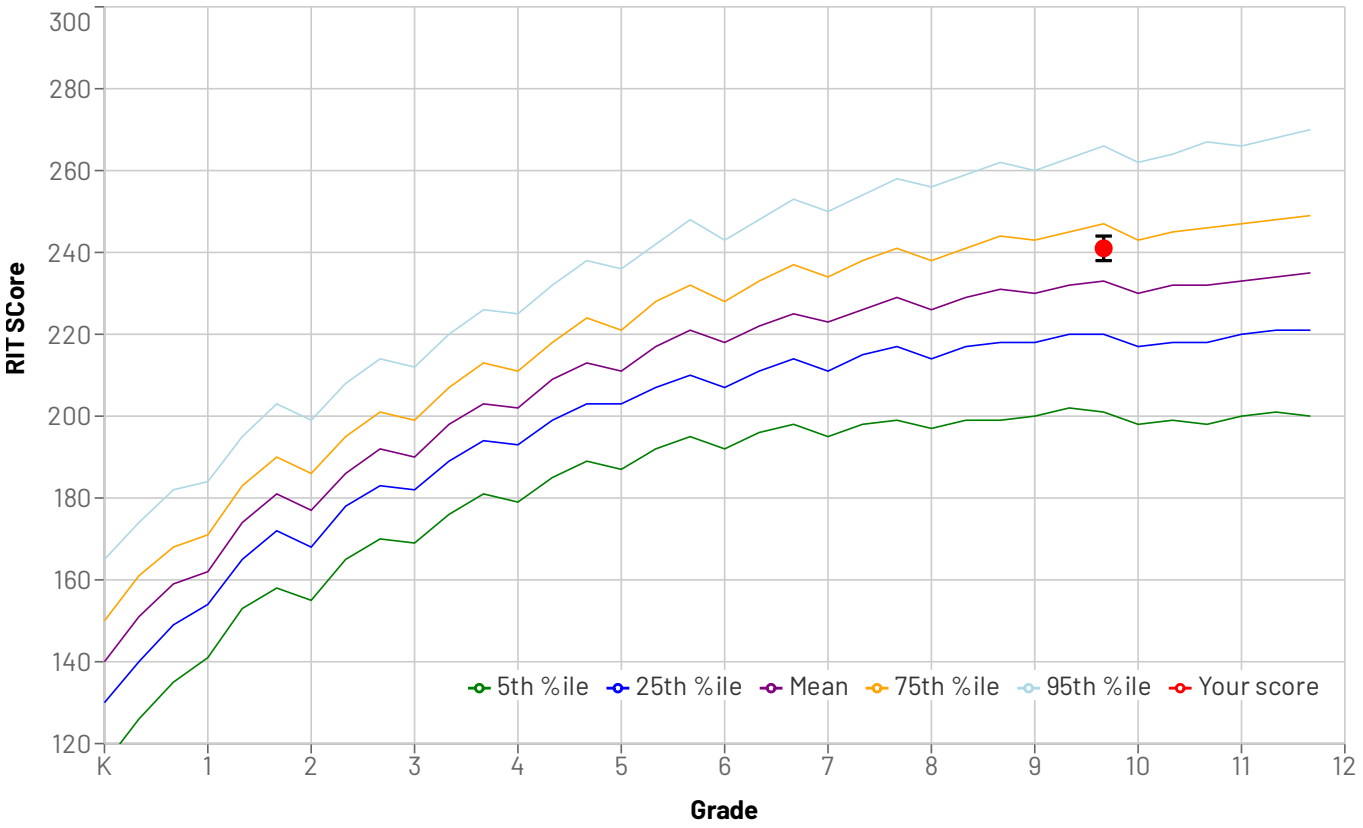
Language Usage



TEST	RIT SCORE	RANGE	PERCENTILE	TYPICAL OF
Growth: Language 2-12 CCSS 2010 V2	224	222–226	60	>11th Grade Spring

SECTION	RIT SCORE	RELATIVE TO AVERAGE
Writing: Write, Revise Texts for Purpose and Audience	226	High-Average
Language: Understand, Edit for Grammar, Usage	221	Average
Language: Understand, Edit for Mechanics	224	Average

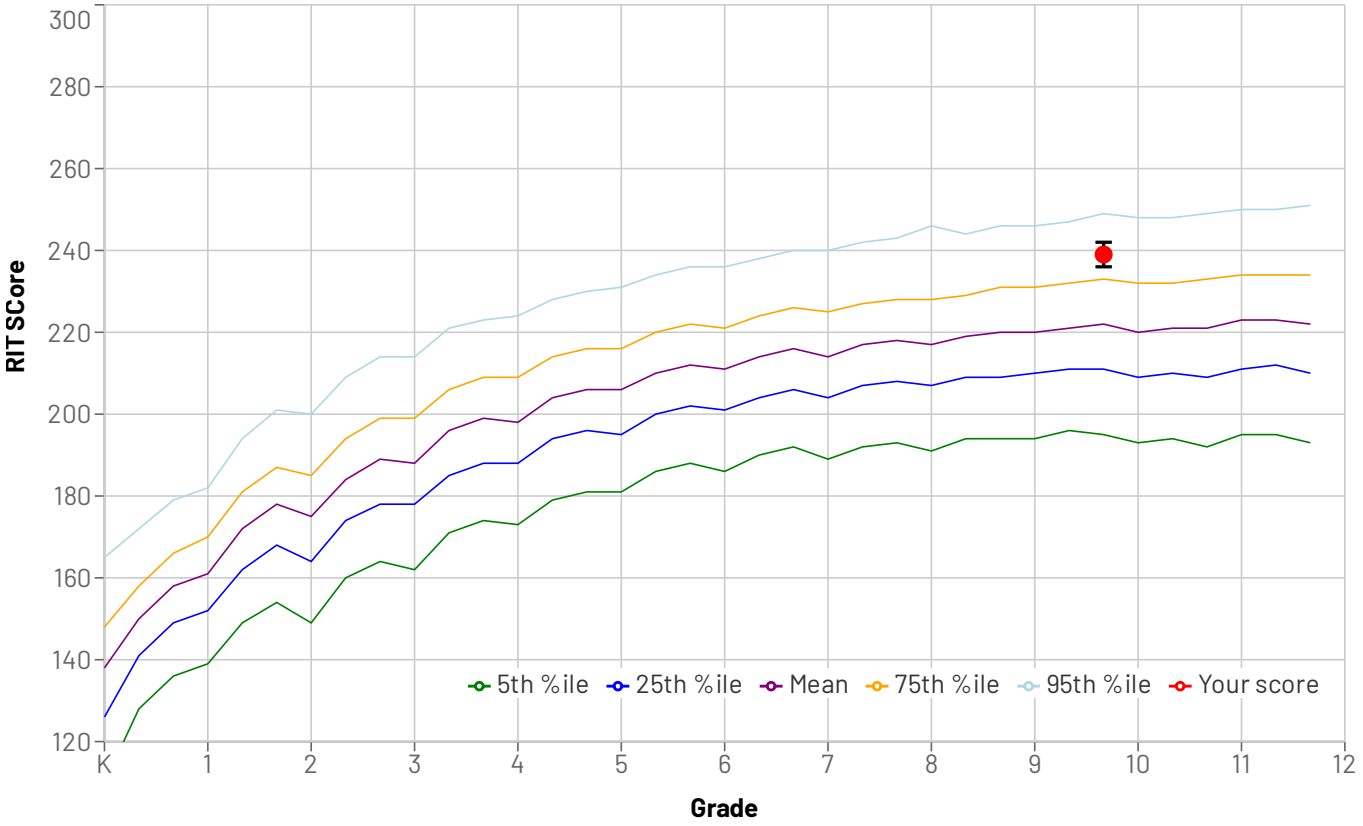
Mathematics



TEST	RIT SCORE	RANGE	PERCENTILE	TYPICAL OF
Growth: Math 6+ CCSS 2010 V2	241	238–244	65	>11th Grade Spring

SECTION	RIT SCORE	RELATIVE TO AVERAGE
Operations and Algebraic Thinking	239	High-Average
The Real and Complex Number Systems	249	High-Average
Geometry	240	High-Average
Statistics and Probability	236	Average

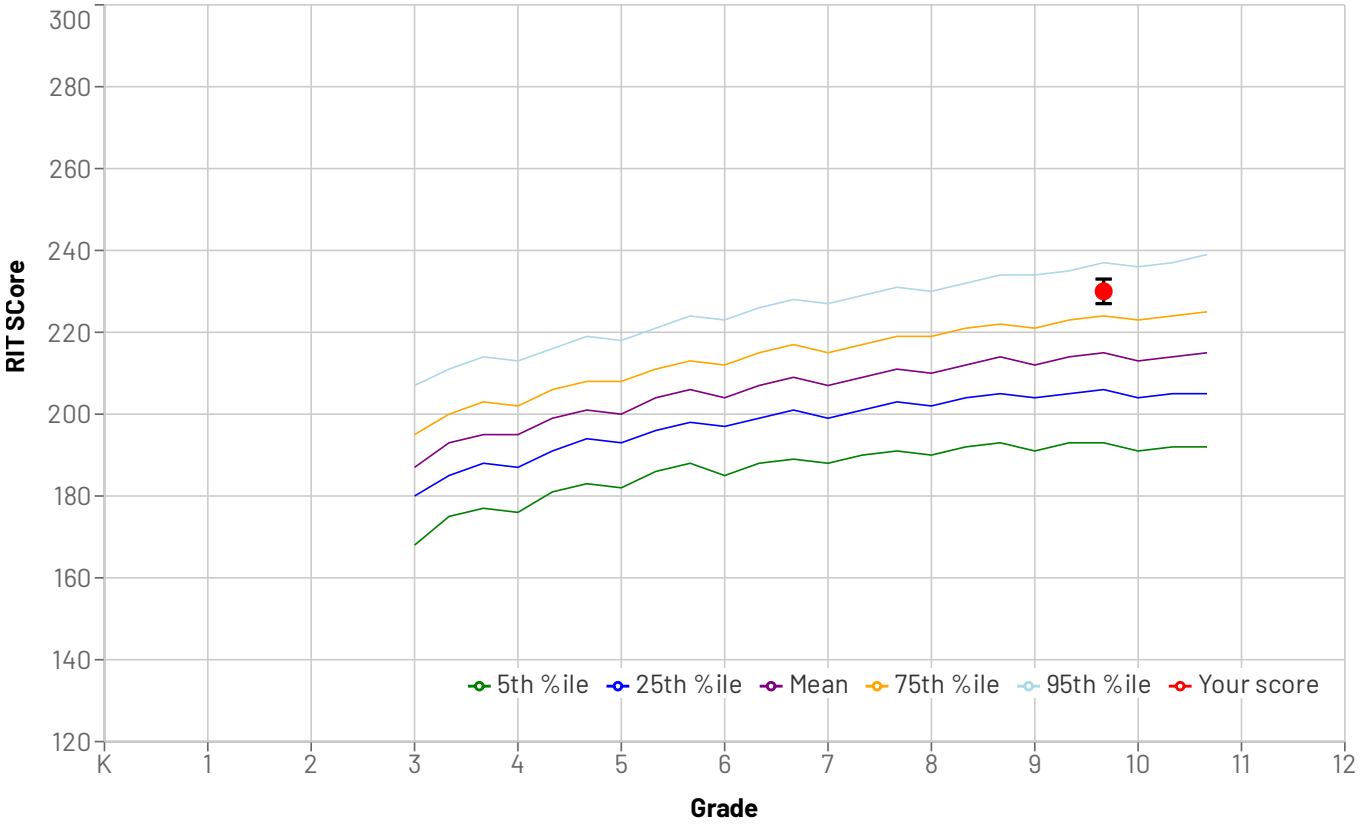
Reading



TEST	RIT SCORE	RANGE	PERCENTILE	TYPICAL OF
Growth: Reading 6+ CCSS 2010 V3	239	236–242	85	>11th Grade Spring

SECTION	RIT SCORE	RELATIVE TO AVERAGE
Literary Text: Key Ideas and Details	240	High
Literary Text: Language, Craft, and Structure	239	High
Informational Text: Key Ideas and Details	232	High-Average
Informational Text: Language, Craft, and Structure	240	High
Vocabulary: Acquisition and Use	243	High

Science - General Science



TEST	RIT SCORE	RANGE	PERCENTILE	TYPICAL OF
Growth: Science 9-12: for use with NGSS 2013	230	227–233	87	>10th Grade Spring

SECTION	RIT SCORE	RELATIVE TO AVERAGE
Life Science	234	High
Physical Science	228	High
Earth and Space Science	227	High-Average

Learning Goals

The remainder of this report is an excerpt from NWEA's Learning Continuum that details the skills and concepts that are in the range of where your child performed on the MAP Growth test.

The "Reinforce" column shows skills and concepts where your child where your child was answering test items correctly about 75% of time and may need reinforcement to build consistent proficiency and confidence). The "Develop" column contains skills and concepts your child was answering correctly about 50% of the time (their zone of proximal development, or ZPD). The "Introduce" column has skills and concepts students were answering correctly about 25% of the time and may require additional scaffolding or pre-teaching. Each column is a range of 10 RIT points.

To continue growing at the same average rate as your child's academic peers, your child would need to increase their **Language Usage** RIT score by **2 points** on the Spring 2020–2021 MAP assessment. To increase their percentile ranking, we would recommend setting a goal of **2–10 points** over the next year.

To continue growing at the same average rate as your child's academic peers, your child would need to increase their **Mathematics** RIT score by **2 points** on the Spring 2020–2021 MAP assessment. To increase their percentile ranking, we would recommend setting a goal of **2–10 points** over the next year. Users of Khan Academy may find MAP to Khan Academy helpful.

To continue growing at the same average rate as your child's academic peers, your child would need to increase their **Reading** RIT score by **2 points** on the Spring 2020–2021 MAP assessment. To increase their percentile ranking, we would recommend setting a goal of **2–11 points** over the next year.

MAP GROWTH LANGUAGE USAGE LEARNING STATEMENTS

WRITING: WRITE, REVISE TEXTS FOR PURPOSE AND AUDIENCE

Reinforce these skills & concepts	Develop these skills & concepts	Introduce these skills & concepts
Drafting		
Determines appropriate closure for narrative or fictional writing	Determines logical first or last sentence in a draft	
Determines logical first or last sentence in a draft	Maintains logical organization while drafting	
Determines where to begin a new paragraph in writing		
Determines which details belong together to form paragraphs		
Logically orders steps in a process		
Maintains logical organization while drafting		
Organizes ideas logically in a paragraph		
Organizes sentences into the correct sequence		
Determines which details will support a topic in informational writing	Determines which details will support a topic in informational writing	
Recognizes how to develop ideas into paragraphs	Paraphrases or summarizes source material	
Understands paraphrasing and summarizing	Recognizes how to develop ideas into paragraphs	
Uses a given technique to develop character in narrative writing	Uses a given technique to develop character in narrative writing	
Identifies details needed to accomplish writing objective	Uses details to provide context for vocabulary words used in writing	
Uses details to provide context for vocabulary words used in writing		
Revises a sentence to improve clarity	Revises for precise word choice	

Revises for precise word choice	Revises writing for clearer description or imagery	
Revises writing for clearer description or imagery	Revises writing for consistent voice or tone	
Revises writing for consistent voice or tone		
Revises writing to eliminate unnecessary or redundant language		
		Determines logical first or last sentence in a draft
		Uses details to provide context for vocabulary words used in writing
Introductions, Transitions, Conclusions		
Adds a concluding sentence as final support for an argument	Adds a concluding sentence as final support for an argument	
Adds a concluding sentence to summarize or reinforce the main idea of a paragraph	Adds a concluding sentence to summarize or reinforce the main idea of a paragraph	
Adds a transition sentence to connect or clarify the logical sequence of events	Adds a transitional word, phrase, or sentence to clarify cause and effect among ideas	
Adds a transitional word, phrase, or sentence to clarify cause and effect among ideas	Determines appropriate openings for narrative or fictional writing	
Determines appropriate closure for narrative or fictional writing	Determines logical first or last sentence in a draft	
Determines appropriate openings for narrative or fictional writing	Determines the type of conclusion necessary to achieve a particular goal	
Determines logical first or last sentence in a draft	Recognizes transitional words or phrases	
Organizes paragraphs into a clear order of events using transitions and logical sequencing	Revises a conclusion to achieve a particular writing goal	
Recognizes transitional words or phrases	Uses a conclusion that achieves a particular writing goal or purpose	
Revises a concluding sentence or section to better summarize, restate, or reinforce a claim or main idea	Uses a strong opening statement in a persuasive letter or essay	

Revises a conclusion to achieve a particular writing goal

Revises to strengthen the closure of narrative or fictional writing

Uses a conclusion that achieves a particular writing goal or purpose

Uses a strong opening statement in a persuasive letter or essay

Uses a transitional phrase to give examples or intensify ideas

Uses a transitional word or phrase to connect contrasting ideas

Uses the appropriate transitional word or phrase to indicate a shift in setting

Uses the appropriate transitional word or phrase to indicate a time shift or sequence of events

Uses transitional words or phrases to show cause and effect

Uses a transitional phrase to give examples or intensify ideas

Uses a transitional word or phrase to connect contrasting ideas

Uses a transitional word or phrase to restate or summarize ideas in writing

Uses the appropriate transitional word or phrase to indicate a shift in setting

Uses transitional words or phrases to show cause and effect

Determines the type of conclusion necessary to achieve a particular goal

Adds a concluding sentence as final support for an argument

Adds a concluding sentence to summarize or reinforce the main idea of a paragraph

Determines appropriate openings for narrative or fictional writing

Determines logical first or last sentence in a draft

Uses a transitional phrase to give examples or intensify ideas

Uses a transitional word or phrase to connect contrasting ideas

Uses a transitional word or phrase to set up a summary or conclusion

		Uses transitional words or phrases to show cause and effect
Main Ideas, Topic Sentence, Supporting Details		
Determines an appropriate topic for a persuasive essay	Evaluates which sentence will best serve as the topic sentence for a given subject	
Determines which details belong together to form paragraphs	Organizes main ideas and supporting details logically in an outline	
Determines which graphic representation best supports the meaning of the writing		
Evaluates which sentence will best serve as the topic sentence for a given subject		
Organizes main ideas and supporting details logically in an outline		
Uses the best topic sentence for a given paragraph or set of supporting details		
Determines the type of details that will support a topic or thesis in expository writing	Determines the type of details that will support a topic or thesis in expository writing	
Determines which details will support a topic in informational writing	Determines which details will support a topic in informational writing	
Determines which graphic representation best supports the meaning of the writing	Evaluates literary writing to determine how best to advance or support a central idea	
Evaluates literary writing to determine how best to advance or support a central idea	Provides details that develop literary elements in writing	
Provides details that develop literary elements in writing	Recognizes content that does not belong in an expository draft	
Recognizes a sentence that does not belong in a narrative draft	Recognizes how to develop ideas into paragraphs	
Recognizes content that does not belong in an expository draft	Uses supporting detail in anticipation of counterargument or reader's concern	
Recognizes how to develop ideas into paragraphs		

Uses supporting detail in anticipation of counterargument or reader's concern		
		Evaluates which sentence will best serve as the topic sentence for a given subject
		Determines the type of details that will support a topic or thesis in expository writing
		Uses supporting detail in anticipation of counterargument or reader's concern
Organizing Writing		
Determines where to begin a new paragraph in writing	Identifies the organizational strategy used in a draft	
Identifies the organizational strategy used in a draft	Maintains logical organization while drafting	
Logically orders steps in a process	Recognizes when cause/effect is the most effective organizational form to develop writing	
Maintains logical organization while drafting	Recognizes when chronological order or sequencing is the most effective organizational form to develop writing	
Organizes ideas logically in a paragraph	Recognizes when comparison and contrast is the most effective organizational form to develop writing	
Organizes paragraphs into a clear order of events using transitions and logical sequencing		
Organizes sentences into the correct sequence		
Recognizes when cause/effect is the most effective organizational form to develop writing		
Recognizes when chronological order or sequencing is the most effective organizational form to develop writing		
Recognizes when comparison and		

contrast is the most effective organizational form to develop writing	
Reorders sentences to improve organization	
Recognizes when comparison and contrast is the most effective organizational form to develop writing	
Recognizes when problem-solution is the most effective organizational form to develop writing	
Prewriting	
Determines an appropriate topic for a persuasive essay	Generates a topic based on task and purpose
Determines an appropriate topic for an expository paragraph	Organizes main ideas and supporting details logically in an outline
Identifies the genre or organizational pattern most appropriate to a given graphic organizer	Uses the most appropriate graphic organizer to plan writing
Organizes main ideas and supporting details logically in an outline	
Understands the purposes of different graphic organizers	
Uses an appropriate prewriting strategy for a given purpose	
Uses notes to plan research supporting an argument	
Uses the most appropriate graphic organizer to plan writing	
Determines an appropriate topic for an expository paragraph	Determines an appropriate topic for an expository paragraph
Develops research questions likely to generate multiple points of view	Develops research questions likely to generate multiple points of view
Evaluates notes for relevance of topic and details	
Recognizes the purpose of research	
Determines an effective rhetorical	Determines an effective rhetorical

strategy for a given purpose	strategy for a given purpose	
Determines the purpose of a planned piece of writing	Evaluates notes for relevance of topic and details	
Evaluates notes for relevance of topic and details	Identifies the genre or organizational pattern most appropriate to a given graphic organizer	
Identifies the genre or organizational pattern most appropriate to a given graphic organizer		
Understands the purposes of different graphic organizers		
Uses an appropriate prewriting strategy for a given purpose		
		Determines an appropriate topic for an expository paragraph
		Develops research questions likely to generate multiple points of view
		Determines an effective rhetorical strategy for a given purpose
Research Questions, Sources, Thesis Statement		
Determines an effective thesis statement for an argumentative essay	Determines an effective thesis statement for an argumentative essay	
	Determines an effective thesis statement for an expository essay or report	
Develops research questions likely to generate multiple points of view	Develops research questions likely to generate multiple points of view	
Evaluates research questions	Evaluates research questions	
Evaluates sources	Evaluates sources	
Gathers information from sources to answer research questions	Gathers information from sources to answer research questions	
Recognizes and avoids plagiarism	Paraphrases or summarizes source material	
Understands characteristics of primary and secondary sources	Recognizes and avoids plagiarism	

Understands paraphrasing and summarizing	Understands characteristics of primary and secondary sources	
		Determines an effective thesis statement for an argumentative essay
		Understands the function of a thesis statement
		Develops research questions likely to generate multiple points of view
		Evaluates research questions
		Evaluates sources
		Gathers information from sources to answer research questions
		Understands characteristics of primary and secondary sources
		Determines an effective thesis statement for an expository essay or report
Revising		
Adds a transition sentence to connect or clarify the logical sequence of events	Evaluates writing to identify a weakness that requires revision	
Evaluates writing to identify a weakness that requires revision	Revises a conclusion to achieve a particular writing goal	
Reorders sentences to improve organization		
Revises a concluding sentence or section to better summarize, restate, or reinforce a claim or main idea		
Revises a conclusion to achieve a particular writing goal		
Revises order of steps in a process to improve clarity		
Revises the organization of a paragraph to improve clarity		
Revises to strengthen the closure of narrative or fictional writing		

Evaluates literary writing to determine how best to advance or support a central idea	Evaluates literary writing to determine how best to advance or support a central idea	
Recognizes a sentence that does not belong in a narrative draft	Recognizes content that does not belong in an expository draft	
Recognizes content that does not belong in an expository draft	Revises writing for clearer description or imagery	
Revises for precise word choice		
Revises writing for clearer description or imagery		
Revises writing to address the audience consistently		
		Evaluates writing to identify a weakness that requires revision
		Revises for precise word choice
		Revises writing for clearer description or imagery
Writing Forms: Genres		
Determines appropriate openings for narrative or fictional writing	Determines appropriate openings for narrative or fictional writing	
Identifies the genre or organizational pattern most appropriate to a given graphic organizer	Identifies persuasive writing as most effective for a given purpose	
Revises order of steps in a process to improve clarity	Understands the process used to construct persuasive arguments	
Recognizes the purpose of research	Understands the process used to construct persuasive arguments	
Understands characteristics of research reports		
Understands the process used to construct persuasive arguments		
Understands characteristics of descriptive writing	Understands characteristics of descriptive writing	
Determines the purpose of a piece of writing	Determines the purpose of a piece of writing	
Evaluates the level of detail and information appropriate for a given	Identifies persuasive writing as most effective for a given purpose	

audience and purpose		
Identifies persuasive writing as most effective for a given purpose	Identifies the form of writing appropriate to audience and purpose	
Identifies the form of writing appropriate to audience and purpose	Identifies the genre or organizational pattern most appropriate to a given graphic organizer	
Identifies the genre or organizational pattern most appropriate to a given graphic organizer	Recognizes expository writing	
Recognizes expository writing	Recognizes narrative writing	
Recognizes narrative writing	Recognizes situations that require informal or formal tone	
Recognizes persuasive statements	Recognizes when the purpose of writing is to persuade	
Recognizes when the purpose of writing is to persuade	Understands characteristics of different forms of poetry	
Recognizes workplace writing	Understands characteristics of literary response	
Understands characteristics of different forms of poetry		
Understands characteristics of dramas and plays		
		Determines appropriate openings for narrative or fictional writing
		Understands the process used to construct persuasive arguments
		Understands characteristics of different forms of poetry
Writing Techniques: Argument, Counterargument		
Uses a strong opening statement in a persuasive letter or essay	Uses a strong opening statement in a persuasive letter or essay	
Uses notes to plan research supporting an argument		
Supports a position with appeals or evidence in persuasive writing	Supports a position with appeals or evidence in persuasive writing	
Supports claims with reasons or	Supports claims with reasons or	

evidence in argumentative writing	evidence in argumentative writing	
Uses supporting detail in anticipation of counterargument or reader's concern	Uses a rhetorical question in a persuasive argument	
	Uses in-text citations as evidence to support an argument	
	Uses supporting detail in anticipation of counterargument or reader's concern	
Supports a position with appeals or evidence in persuasive writing		
		Uses supporting detail in anticipation of counterargument or reader's concern
Writing Techniques: Rhetorical Strategies		
	Understands the process used to construct persuasive arguments	
Understands the process used to construct persuasive arguments	Understands the process used to construct persuasive arguments	
Uses language that appeals to emotion	Uses a rhetorical question in a persuasive argument	
	Uses in-text citations as evidence to support an argument	
	Recognizes when use of descriptive language is the most effective persuasive technique	
Determines an effective rhetorical strategy for a given purpose	Determines an effective rhetorical strategy for a given purpose	
Recognizes persuasive statements		
Recognizes principles of persuasion in writing		
		Understands the process used to construct persuasive arguments
		Recognizes when parallel structure is the most effective persuasive technique
		Understands the purpose of anecdotes

		Determines an effective rhetorical strategy for a given purpose
Citing Sources		
Understands what information is needed to correctly cite works	Understands what information is needed to correctly cite works	
Writing Techniques: Figurative and Descriptive Language		
Revises for precise word choice	Revises writing for clearer description or imagery	
Revises writing for clearer description or imagery		
Recognizes personification in writing	Recognizes personification in writing	
Revises for precise word choice	Revises for precise word choice	
Revises writing for clearer description or imagery	Revises writing for clearer description or imagery	
Revises writing to include language that conveys emotion	Understands how to form a metaphor	
Revises writing to include sensory details	Understands the meaning of idioms and colloquialisms in writing	
Uses irony in writing	Uses idioms and colloquialisms in writing	
Uses language that creates vivid description or imagery	Uses language that creates vivid description or imagery	
Uses precise verbs to convey specific actions	Uses metaphors in writing	
Uses precise words to convey meaning	Uses precise verbs to convey specific actions	
Uses sensory language in writing	Uses precise words to convey meaning	
Uses similes in writing	Uses sensory language in writing	
		Recognizes personification in writing
		Revises for precise word choice
		Revises writing for clearer description or imagery
		Understands how figurative language and poetic devices affect meaning

		Understands how to form a metaphor
		Uses language that creates vivid description or imagery
		Uses precise verbs to convey specific actions
		Uses precise words to convey meaning
Writing Techniques: Literary Elements		
Provides details that develop literary elements in writing	Develops details that support a theme in narrative poetry	
Uses a given technique to develop character in narrative writing	Provides details that develop literary elements in writing	
	Uses a given technique to develop character in narrative writing	
	Develops details that support a theme in narrative poetry	
Sentence Meaning		
Revises a sentence to improve clarity		
Writing Techniques: Literary and Poetic Devices		
Uses language that develops the mood of a poem	Recognizes alliteration in writing	
Uses onomatopoeia in poetry	Understands how to develop rhyme schemes in poetry	
	Uses alliteration in poetry	
	Uses foreshadowing in writing	
	Uses language that develops the mood of a poem	
	Uses onomatopoeia in poetry	
		Recognizes alliteration in writing
		Understands how figurative language and poetic devices affect meaning
		Uses alliteration in poetry
		Uses onomatopoeia in poetry
Writing Techniques: Point of View		

Develops point of view in narrative writing	Develops point of view in expository writing
	Develops point of view in narrative writing
Writing Techniques: Voice, Style, Tone, and Mood	
Chooses appropriate content-specific vocabulary for audience and purpose	Chooses appropriate content-specific vocabulary for audience and purpose
Maintains appropriate tone for purpose and audience	Identifies different diction levels of words
Recognizes the components of style	Maintains appropriate tone for purpose and audience
Revises writing for consistent voice or tone	Revises writing for consistent voice or tone
Revises writing to include language that conveys emotion	Understands that using sentence variety improves writing style
Understands that using sentence variety improves writing style	Uses language that maintains a formal style or tone
Uses language that conveys a specific mood	
Uses language that maintains a formal style or tone	
Determines the purpose of a piece of writing	Determines the purpose of a piece of writing
Evaluates the level of detail and information appropriate for a given audience and purpose	Maintains appropriate tone for purpose and audience
Maintains appropriate tone for purpose and audience	Recognizes situations that require informal or formal tone
Revises writing to address the audience consistently	

LANGUAGE: UNDERSTAND, EDIT FOR GRAMMAR, USAGE

Reinforce these skills & concepts	Develop these skills & concepts	Introduce these skills & concepts
Adjectives		
Chooses between adjectives and adverbs as modifiers	Forms comparative and superlative adjectives	
Chooses between the positive, comparative, and superlative forms of an adjective	Identifies adjectives	
Forms comparative and superlative adjectives		
Identifies adjectives		
Places adjectives in the correct order in a sentence		
Understands the meaning of comparative and superlative adjectives		
		Forms comparative and superlative adjectives
Adverbs		
Chooses between adjectives and adverbs as modifiers	Identifies adverbs	
Forms irregular comparative and superlative adverbs	Recognizes an adverb based on its function in a sentence	
Identifies adverbs		
Recognizes an adverb based on its function in a sentence		
Recognizes correct use of adverbs		
Recognizes when an adverb tells how much		
Uses comparative and superlative adverbs		
		Identifies adverbs
		Recognizes an adverb based on its function in a sentence
Agreement		

Recognizes correct pronoun-antecedent agreement

Understands correct use of pronouns in compound subjects

Uses appropriate helping verbs

Uses indefinite pronouns

Uses relative pronouns

Uses the future perfect verb tense

Uses the past tense form of an irregular verb

Uses the present perfect verb tense

Recognizes correct subject-verb agreement when a compound subject is joined by "and"

Recognizes correct subject-verb agreement when a compound subject is joined by "or" or "nor"

Recognizes correct subject-verb agreement when a modifying phrase is placed between the subject and verb

Recognizes correct subject-verb agreement when the subject is a collective noun

Recognizes errors in subject-verb agreement

Uses correct subject-verb agreement when a modifying phrase is placed between the subject and verb

Recognizes correct pronoun-antecedent agreement

Understands correct use of pronouns in compound subjects

Uses "we" to precede a noun in the subject position

Uses indefinite pronouns

Uses relative pronouns

Uses the past perfect form of an irregular verb

Recognizes correct subject-verb agreement when a compound subject is joined by "or" or "nor"

Recognizes correct subject-verb agreement when a modifying phrase is placed between the subject and verb

Recognizes correct subject-verb agreement when the subject is a relative pronoun

Uses correct subject-verb agreement when a modifying phrase is placed between the subject and verb

Recognizes correct pronoun-antecedent agreement

Understands correct use of "me" in a compound object

Understands correct use of pronouns in compound subjects

Recognizes correct subject-verb agreement when a compound

		subject is joined by "or" or "nor"
		Recognizes correct subject-verb agreement when a modifying phrase is placed between the subject and verb
		Uses correct subject-verb agreement when the subject is "either" or "neither"
Coordination, Subordination		
Uses the appropriate subordinating conjunction to combine clauses		
Editing and Proofreading		
Edits a passage for consistency of verb tense	Detects errors in pronoun use	
Edits for correct possessive pronoun use	Edits a passage for consistency of verb tense	
Edits for correct pronoun use throughout a passage	Edits for correct pronoun use throughout a passage	
Uses punctuation to correct run-on sentences		
		Detects errors in pronoun use
		Edits a passage for consistency of verb tense
		Edits for correct pronoun use throughout a passage
Frequently Confused Words		
Understands correct use of "accept/except"	Understands correct use of "accept/except"	
Understands correct use of "its/it's"	Understands correct use of "than/then"	
Understands correct use of "loose/lose"	Understands correct use of "their/there/they're"	
Understands correct use of "their/there/they're"	Understands correct use of "your/you're"	
Understands correct use of "to/too/two"		
Nouns		
Identifies nouns	Identifies abstract nouns	

Identifies proper nouns	Identifies collective nouns	
Recognizes nouns that have the same singular and plural forms	Identifies nouns	
Recognizes the difference between possessive and plural nouns	Identifies plural possessive nouns	
Recognizes the plural form of compound nouns	Recognizes the difference between possessive and plural nouns	
Recognizes the plural of nouns that end in -f	Recognizes the plural form of compound nouns	
Recognizes when a noun is possessive	Recognizes the plural of a noun based on a Latin or Greek root	
Recognizes when a noun is singular	Recognizes when a noun is possessive	
Uses plural possessive nouns	Uses plural possessive nouns	
Uses singular possessive nouns		
		Recognizes a gerund
		Uses plural possessive nouns

Prepositions, Conjunctions, Interjections		
Explains the function of an interjection in general	Explains the function of an interjection in general	
Identifies conjunctions	Identifies conjunctions	
Identifies interjections	Identifies prepositions	
Identifies prepositions	Uses correlative conjunctions in a passage	
Uses correlative conjunctions in a passage	Uses the appropriate conjunction to connect ideas	
Uses the appropriate subordinating conjunction to combine clauses	Uses the conjunctions "neither/nor" in a sentence	
Uses a preposition to link ideas in a sentence	Identifies a prepositional phrase among a group of phrases	
	Identifies a prepositional phrase in a sentence	
		Explains the function of an interjection in general
		Identifies prepositions
		Identifies a prepositional phrase

		among a group of phrases
		Identifies a prepositional phrase in a sentence

Pronouns		
Edits for correct possessive pronoun use	Detects errors in pronoun use	
Edits for correct pronoun use throughout a passage	Edits for correct pronoun use throughout a passage	
Forms reflexive pronouns	Identifies pronouns	
Identifies pronouns	Recognizes correct pronoun-antecedent agreement	
Identifies the antecedent of a pronoun	Recognizes interrogative pronouns	
Recognizes correct pronoun-antecedent agreement	Understands correct use of pronouns in compound subjects	
Recognizes interrogative pronouns	Understands pronoun number	
Revises to correct vague pronouns	Uses "we" to precede a noun in the subject position	
Understands correct use of pronouns in compound subjects	Uses indefinite pronouns	
Uses indefinite pronouns	Uses interrogative pronouns	
Uses relative pronouns	Uses relative pronouns	
		Detects errors in pronoun use
		Edits for correct pronoun use throughout a passage
		Recognizes correct pronoun-antecedent agreement
		Recognizes demonstrative pronouns
		Recognizes interrogative pronouns
		Recognizes vague pronoun use
		Understands correct use of "me" in a compound object
		Understands correct use of pronouns in compound subjects
		Understands the function of a nominative pronoun

		Understands the function of an objective pronoun
Revising		
Revises to correct vague pronouns		
Combines multiple sentences into one sentence with the same meaning	Combines multiple sentences into one sentence with the same meaning	
Combines sentences for concise expression	Combines sentences for concise expression	
Combines sentences to improve clarity or fluency	Combines sentences to improve clarity or fluency	
Maintains parallel structure within a sentence	Maintains parallel structure within a sentence	
Revises a run-on sentence	Revises a run-on sentence	
Revises a sentence to improve clarity	Revises to correct a dangling modifier	
Revises to correct a dangling modifier		
Revises to correct a misplaced modifier		
		Revises a passage for consistency of verb voice
		Combines sentences for concise expression
		Combines sentences to improve clarity or fluency
		Maintains parallel structure within a sentence
		Revises a run-on sentence
		Revises to correct a dangling modifier
Sentence Structure		
Understands the function of the direct object in a sentence		
Classifies an incomplete sentence as a fragment	Combines sentences for concise expression	
Combines sentences for concise	Recognizes a complex sentence	

expression		
Recognizes a compound sentence	Recognizes a run-on sentence	
Recognizes a run-on sentence	Recognizes a simple sentence	
Recognizes a simple sentence	Revises a run-on sentence	
Recognizes when run-on sentences are the main problem in a piece of writing	Understands that a run-on sentence should be divided into two or more sentences	
Revises a run-on sentence	Uses a complex sentence to expand meaning	
Understands that a run-on sentence should be divided into two or more sentences		
Uses a complex sentence to expand meaning		
Uses punctuation to correct run-on sentences		
		Identifies the indirect object in a sentence
		Combines sentences for concise expression
		Recognizes a complex sentence
		Revises a run-on sentence
Verbs		
Detects errors in formation of the past tense of irregular verbs	Edits a passage for consistency of verb tense	
Edits a passage for consistency of verb tense	Identifies present participle verbs	
Identifies present participle verbs	Recognizes an inappropriate shift in verb tense	
Recognizes an inappropriate shift in verb tense	Recognizes when a sentence uses active voice	
Recognizes past tense in a sentence	Understands how to use active voice	
Recognizes verbs that have the same present- and past-tense forms	Understands the meaning of past tense verbs	
Recognizes when a sentence uses active voice	Uses the indicative mood	

Understands the meaning of past tense verbs	Uses the past perfect form of an irregular verb	
Uses appropriate helping verbs	Uses the subjunctive mood	
Uses the future perfect verb tense		
Uses the past tense form of an irregular verb		
Uses the present perfect verb tense		
Uses the subjunctive mood		
		Edits a passage for consistency of verb tense
		Identifies past participle verbs
		Recognizes the infinitive form of a verb
		Revises a passage for consistency of verb voice
Clauses		
Recognizes a main clause	Recognizes that a subordinate clause is not a complete sentence	
Recognizes that a subordinate clause is not a complete sentence		
Modifiers		
Revises to correct a dangling modifier	Recognizes a misplaced modifier in a sentence	
Revises to correct a misplaced modifier	Revises to correct a dangling modifier	
		Recognizes a dangling modifier in a sentence
		Recognizes a misplaced modifier in a sentence
		Revises to correct a dangling modifier
Parallelism		
Maintains parallel structure within a sentence	Maintains parallel structure within a sentence	
Recognizes sentences with parallel structure	Recognizes sentences with parallel structure	
		Maintains parallel structure within a

		sentence
		Recognizes sentences with parallel structure
Phrases		
Recognizes that complete sentences must contain more than just phrases	Identifies a prepositional phrase among a group of phrases	
	Identifies a prepositional phrase in a sentence	
	Recognizes that complete sentences must contain more than just phrases	
		Identifies a prepositional phrase among a group of phrases
		Identifies a prepositional phrase in a sentence
Sentence Completeness		
Classifies an incomplete sentence as a fragment	Recognizes that a subordinate clause is not a complete sentence	
Combines subjects and predicates into complete sentences	Recognizes that complete sentences must contain more than just phrases	
Forms a complete compound sentence	Recognizes when a simple sentence is complete	
Identifies subject and predicate as the two main parts of a sentence		
Recognizes that a subordinate clause is not a complete sentence		
Recognizes that complete sentences must contain more than just phrases		
Recognizes when a complex sentence is complete		
Recognizes when a sentence needs a subject to be complete		
Recognizes when a simple sentence is complete		
Recognizes when an imperative sentence is complete		

Sentence Meaning		
Combines multiple sentences into one sentence with the same meaning	Combines multiple sentences into one sentence with the same meaning	
Combines sentences to improve clarity or fluency	Combines sentences to improve clarity or fluency	
Revises a sentence to improve clarity	Uses a complex sentence to expand meaning	
Uses a complex sentence to expand meaning		
Uses a preposition to link ideas in a sentence		
		Combines sentences to improve clarity or fluency

Sentence Types		
Classifies a sentence as declarative	Classifies a sentence as imperative	
Classifies a sentence as interrogative		
Recognizes when a sentence gives directions or a command		
		Classifies a sentence as imperative

Subject, Predicate		
Combines subjects and predicates into complete sentences	Identifies the complete predicate of a sentence	
Identifies the simple subject of a sentence	Identifies the simple predicate of a sentence	
Recognizes a sentence with a compound subject	Identifies the simple subject of a sentence	
	Recognizes a sentence with a compound subject	

Syntax		
Rearranges the word order of a sentence into an alternate form using correct syntax	Rearranges the word order of a sentence into an alternate form using correct syntax	
Recognizes inverted word order in a sentence		

LANGUAGE: UNDERSTAND, EDIT FOR MECHANICS

Reinforce these skills & concepts	Develop these skills & concepts	Introduce these skills & concepts
Apostrophes		
Recognizes errors in contraction formation	Recognizes errors in contraction formation	
Recognizes errors in the formation of possessives	Recognizes errors in the formation of possessives	
Understands that an apostrophe is needed to form a contraction	Uses an apostrophe to form a plural possessive	
Uses an apostrophe to form a plural possessive		
Uses an apostrophe to form a singular possessive		
		Recognizes errors in the formation of possessives
Brackets, Dashes, Hyphens, Ellipses, Parentheses		
Uses a hyphen in a sentence	Uses dashes in a sentence	
Uses parentheses in a sentence		
		Uses dashes in a sentence
Capitalization: First Word Rules		
Capitalizes the first word in the greeting/closing of a letter		
Capitalizes names of geographic locations	Capitalizes names of languages and nationalities	
Capitalizes names of languages and nationalities	Capitalizes names of organizations, schools, and businesses	
Capitalizes names of organizations, schools, and businesses	Capitalizes personal titles and positions	
Capitalizes personal titles and positions	Capitalizes proper names and abbreviated titles/suffixes	
Capitalizes proper names and abbreviated titles/suffixes	Capitalizes titles of books, songs, poems, and other works	
Capitalizes titles of books, songs, poems, and other works		
Capitalization: Quotations and Dialogue		

Uses correct capitalization in direct quotations	Uses correct capitalization in direct quotations	
		Uses correct capitalization in direct quotations
Colons, Semicolons		
Understands that a semicolon separates independent clauses connected by a conjunctive adverb	Understands that a colon introduces a list	
Uses a colon to introduce a list	Understands that a semicolon separates independent clauses	
	Understands that a semicolon separates independent clauses connected by a conjunctive adverb	
	Uses a colon to introduce a list	
	Uses a semicolon to separate independent clauses	
		Understands that a colon introduces a list
		Understands that a semicolon separates elements in a complex list
		Understands that a semicolon separates independent clauses
		Understands that a semicolon separates independent clauses connected by a conjunctive adverb
		Uses a semicolon to separate independent clauses
Commas		
Understands multiple rules for comma usage	Detects errors in comma use	
Uses a comma before the conjunction in a compound sentence	Understands multiple rules for comma usage	
Uses a comma to punctuate a geographic location	Uses a comma to set off an introductory phrase or clause	
Uses a comma to set off a tag question	Uses a comma to set off an introductory word	
Uses a comma to set off an introductory phrase or clause	Uses a comma to set off words of direct address	

Uses a comma to set off an introductory word	Uses commas to separate coordinate adjectives	
Uses a comma to set off words of direct address	Uses commas to separate items in a series	
Uses commas to separate items in a series	Uses commas to set off a nonrestrictive phrase or clause	
Uses commas to set off a nonrestrictive phrase or clause	Uses commas to set off an appositive	
Uses commas to set off an appositive		
		Understands multiple rules for comma usage
		Uses a comma to set off an introductory word
		Uses a comma to set off words of direct address
		Uses commas to set off a nonrestrictive phrase or clause
Editing and Proofreading		
Applies multiple capitalization rules	Applies multiple capitalization rules	
Detects capitalization errors in sentences	Detects capitalization errors in sentences	
	Detects errors in comma use	
Corrects spelling errors	Recognizes correct/incorrect spelling in the context of sentences	
Recognizes correct/incorrect spelling in the context of sentences		
		Applies multiple capitalization rules
Ending Punctuation		
Understands that a period punctuates a statement that contains an embedded question		
Uses an exclamation mark to punctuate a sentence		
Initials and Abbreviations		
Understands abbreviations in addresses	Understands abbreviations for professional titles	
Multiple Punctuation Rules		

Applies rules for multiple types of punctuation	Applies rules for multiple types of punctuation	
		Applies rules for multiple types of punctuation
Quotation Marks and Dialogue		
Punctuates dialogue using commas, end punctuation, and quotation marks	Punctuates dialogue using commas, end punctuation, and quotation marks	
Recognizes correct punctuation in divided quotations	Recognizes correct punctuation in divided quotations	
Recognizes proper placement of quotation marks in dialogue	Understands that quotation marks punctuate titles of poems, short stories, songs, and articles	
Understands that quotation marks punctuate titles of poems, short stories, songs, and articles	Uses quotation marks to set off dialogue	
Understands that quotation marks set off dialogue		
Uses quotation marks to set off dialogue		
		Understands that single quotation marks punctuate a quotation within a quotation
		Uses quotation marks to set off dialogue
Spelling: Affixes and Roots		
Identifies correct/incorrect spelling of a word ending in -ible or -able	Identifies correct/incorrect spelling of a word ending in -ible or -able	
Identifies correct/incorrect spelling of a word ending in -ion	Identifies correct/incorrect spelling of a word ending in -ous	
Identifies correct/incorrect spelling of a word ending in -ly		
Identifies correct/incorrect spelling of a word ending in -ous		
Identifies correct/incorrect spelling of a word with a Latin root		
Spelling: Commonly Misspelled Words		
Identifies correct/incorrect spelling of a double-consonant word	Identifies correct/incorrect spelling of a double-consonant word	

Identifies correct/incorrect spelling of calendar words	Identifies correct/incorrect spelling of commonly misspelled words	
Identifies correct/incorrect spelling of commonly misspelled words		
		Identifies correct/incorrect spelling of a double-consonant word
Spelling: Compound Words		
Identifies correct/incorrect spelling of a compound word		
Spelling: Patterns		
Identifies correct/incorrect spelling of words with irregular patterns	Identifies correct/incorrect spelling of words with irregular patterns	
Identifies correct/incorrect spelling of words with regular patterns		
Identifies correct/incorrect spelling of words with vowel pairs or diphthongs		
		Identifies correct/incorrect spelling of words with irregular patterns
Spelling: Plurals		
Identifies correct/incorrect spelling of a regular plural	Identifies correct/incorrect spelling of a regular plural	
Identifies correct/incorrect spelling of an irregular plural	Identifies correct/incorrect spelling of the plural form of a word ending in -ay, -ey, or -oy	
Identifies correct/incorrect spelling of the plural form of a word ending in a consonant plus y		
Identifies correct/incorrect spelling of the plural form of a word ending in -ay, -ey, or -oy		
		Identifies correct/incorrect spelling of a regular plural
Underlining		
Understands that underlining punctuates book titles	Understands that underlining punctuates book titles	
	Understands that underlining punctuates titles of plays	
		Understands that underlining punctuates magazine titles

Understands that underlining punctuates titles of plays

MAP GROWTH MATHEMATICS LEARNING STATEMENTS

OPERATIONS AND ALGEBRAIC THINKING

Reinforce these skills & concepts	Develop these skills & concepts	Introduce these skills & concepts
Algebraic Expressions		
Evaluates linear expressions at given values with variables involving negative rational numbers	Adds and subtracts polynomials	Adds and subtracts polynomials
Evaluates linear expressions at given values with variables involving positive rational numbers	Evaluates linear expressions at given values with variables involving negative rational numbers	Evaluates linear expressions at given values with variables involving negative rational numbers
Evaluates nonlinear expressions at given values with variables involving positive rational numbers	Evaluates linear expressions at given values with variables involving positive rational numbers	Evaluates linear expressions at given values with variables involving positive rational numbers
Generates equivalent linear expressions by combining like terms	Evaluates nonlinear expressions at given values with variables involving negative rational numbers	Evaluates nonlinear expressions at given values with variables involving negative rational numbers
Generates equivalent linear expressions by using the associative, commutative, and distributive properties, and by combining like terms	Evaluates nonlinear expressions at given values with variables involving positive rational numbers	Evaluates nonlinear expressions at given values with variables involving positive rational numbers
Generates equivalent linear expressions by using the associative, commutative, or distributive property	Factors polynomials using a difference of squares	Factors polynomials using a difference of squares
Translates between verbal and algebraic expressions	Factors quadratic trinomials	Factors quadratic trinomials
Writes linear expressions in one variable to represent real-world or mathematical contexts	Generates equivalent linear expressions by combining like terms	Generates equivalent linear expressions by combining like terms
	Generates equivalent linear expressions by using the associative, commutative, and distributive properties, and by combining like terms	Generates equivalent linear expressions by using the associative, commutative, and distributive properties, and by combining like terms
	Generates equivalent linear expressions by using the	Generates equivalent linear expressions by using the

	associative, commutative, or distributive property	associative, commutative, or distributive property
	Generates equivalent nonlinear expressions by combining like terms	Interprets equivalent linear expressions within a real-world context
	Multiples monomials	Interprets the coefficient in a linear expression within the context of a real-world relationship
	Multiplies a polynomial by a monomial	Interprets the variable in a linear expression within the context of a real-world relationship
	Multiplies two binomial expressions	Multiples monomials
	Translates between verbal and algebraic expressions	Multiplies a polynomial by a monomial
	Writes linear expressions in one variable to represent real-world or mathematical contexts	Multiplies two binomial expressions
		Simplifies rational expressions
Coordinate Geometry		
Plots points to represent solutions to real-world and mathematical problems		
Decimals: Represent and Solve Word Problems		
Represents multi-step word problems with expressions or equations and involving decimals with the same number of digits after the decimal point, including contexts involving money		
Exponential and Logarithmic Functions		
	Evaluates an exponential function for a given value in its domain to solve a real-world problem	Describes the effects of changes in parameters on exponential functions that represent real-world relationships
	Identifies the appropriate linear or exponential model that represents a real-world situation	Evaluates an exponential function for a given value in its domain to solve a real-world problem
	Understands that exponential models grow and decay by equal factors over equal intervals	Identifies the appropriate linear or exponential model that represents a real-world situation
		Understands that exponential

		models grow and decay by equal factors over equal intervals
		Writes exponential functions to represent real-world or mathematical problems
Exponents		
Evaluates numbers with whole-number bases and whole-number exponents	Represents a whole number as a power of a whole number	Evaluates numbers with negative integer bases and whole-number exponents
Represents a whole number as a power of a whole number	Uses properties of exponents to simplify numerical expressions involving negative integer exponents, including zero	Uses properties of exponents to simplify numerical expressions involving negative integer exponents, including zero
Uses properties of exponents to simplify numerical expressions involving whole-number exponents only	Uses properties of exponents to simplify numerical expressions involving whole-number exponents only	Uses properties of exponents to simplify numerical expressions involving whole-number exponents only
	Uses substitution to determine an unknown exponent in an equation	Uses substitution to determine an unknown exponent in an equation
Fractions: Represent and Solve Word Problems		
Represents and solves word problems involving division of whole numbers where the quotient is a fraction	Represents and solves word problems involving division of whole numbers where the quotient is a fraction	Represents and solves word problems involving division of whole numbers where the quotient is a fraction
Inequalities		
Determines whether a linear equation or inequality is true for a given value of the variable	Determines whether a linear equation or inequality is true for a given value of the variable	Represents an inequality in the form x>c or x<c on a number line given a real-world or mathematical context
Solves one-step linear inequalities with positive rational numbers	Solves one-step linear inequalities with negative rational numbers	Represents the solutions of a compound linear inequality on a number line
Writes a multi-step linear inequality in one variable to represent a real-world or mathematical context	Solves two-step linear inequalities	Represents the solutions of a one-step linear inequality on a number line
Writes a one-step linear inequality in one variable to represent a real-world or mathematical context	Writes a compound inequality to represent a real-world or mathematical context	Represents the solutions of a two-step linear inequality on a number line
Writes a two-step linear inequality in one variable to represent a real-world or mathematical context	Writes a linear inequality in two variables to represent a real-world or mathematical context	Solves multi-step linear inequalities
	Writes a linear inequality to represent a region on the coordinate	Solves one-step linear inequalities with negative rational numbers

	plane	
	Writes a multi-step linear inequality in one variable to represent a real-world or mathematical context	Solves two-step linear inequalities
	Writes a one-step linear inequality in one variable to represent a real-world or mathematical context	Writes a compound inequality to represent a real-world or mathematical context
	Writes a two-step linear inequality in one variable to represent a real-world or mathematical context	Writes a compound inequality to represent a set of real numbers shown on a number line
	Writes and solves a one-step linear inequality in one variable involving a real-world or mathematical context	Writes a multi-step linear inequality in one variable to represent a real-world or mathematical context
		Writes a multi-step rational inequality in one variable to represent a real-world or mathematical context
		Writes a one-step linear inequality in one variable to represent a real-world or mathematical context
		Writes a two-step linear inequality in one variable to represent a real-world or mathematical context
		Writes an inequality in the form x > c or x < c to represent a real-world or mathematical context
		Writes an inequality in the form x>c or x<c to represent a set of real numbers shown on a number line
		Writes and solves a one-step linear inequality in one variable involving a real-world or mathematical context
Linear Functions		
Compares the rate of change between two proportional relationships represented in different ways	Compares the rate of change between two proportional relationships represented in different ways	Compares the rate of change between two proportional relationships represented in different ways
Graphs a linear function of the form y = mx given a simple scenario	Graphs a linear function of the form y = mx given a simple scenario	Graphs the equation of a line in the form y = mx
Understands independent and dependent variables within a linear	Understands that the slope is the same between any two points on a	Understands that the slope is the same between any two points on a

context	line	line
Writes an equation in the form y = mx to represent the relationship between real-world quantities given a simple scenario	Writes an equation in the form y = mx to represent the relationship between real-world quantities given a graph	Writes the equation of a line in standard form given a table of values or two ordered pairs
Writes an equation in the form y = x + c to represent the relationship between real-world quantities given a table of values	Writes an equation in the form y = mx to represent the relationship between real-world quantities given a simple scenario	Writes the equation of a line in the form y = mx given a graph
Writes linear expressions in one variable to represent real-world or mathematical contexts	Writes an equation in the form y = mx to represent the relationship between real-world quantities given a table of values or two ordered pairs	Writes the equation of a line in the form y = mx given a table of values or two ordered pairs
	Writes linear expressions in one variable to represent real-world or mathematical contexts	
	Writes the equation of a line in standard form given a table of values or two ordered pairs	
Calculates the rate of change from a graph representing a real-world linear relationship	Calculates the initial value from a table or description of a real-world linear relationship	Calculates the initial value from a table or description of a real-world linear relationship
Calculates the rate of change from a table or description of a real-world linear relationship	Calculates the rate of change from a graph representing a real-world linear relationship	Calculates the rate of change from a table or description of a real-world linear relationship
Identifies the table of values given a graph of a linear relationship in the form y = mx + b	Calculates the rate of change from a table or description of a real-world linear relationship	Calculates the slope of a line given ordered pairs
Identifies the table of values given a verbal description of a nonproportional linear relationship	Compares the rate of change and intercepts between two nonproportional linear functions represented in different ways	Calculates the slope of a line on a graph
Interprets the meaning of the slope of a graph in a real□world linear relationship	Compares the rate of change and intercepts between two nonproportional linear functions represented in the same way	Compares the rate of change and intercepts between two nonproportional linear functions represented in different ways
Translates between the graph of a piecewise linear function and a verbal description of the real-world relationship	Graphs a linear function of the form y = mx + b given a table of values	Compares the rate of change and intercepts between two nonproportional linear functions represented in the same way
Writes an equation in the form y = mx + b to represent the relationship	Graphs the equation of a line in the form y = mx + b	Describes the effects that changes in the constant terms have on the

between real-world quantities given the slope and y-intercept		graphs of linear functions
Writes the equation of a line in the form y = mx + b given a table of values or two ordered pairs	Identifies an intercept of a graph of a linear function	Determines the y-intercept of a line given two points on the line
	Identifies the table of values given a graph of a linear relationship in the form y = mx + b	Graphs the equation of a line in the form y = mx + b
	Identifies the table of values given a verbal description of a nonproportional linear relationship	Illustrates the result of changes in the slope and y-intercept within a real-world linear relationship
	Interprets the meaning of the constant term in the equation y = mx + b within the context of a real-world linear relationship	Interprets the meaning of the constant term in the equation y = mx + b within the context of a real-world linear relationship
	Interprets the meaning of the slope of a graph in a real□world linear relationship	Interprets the meaning of the slope in the equation y = mx + b within the context of a real-world linear relationship
	Interprets the meaning of the y-intercept of a graph within the context of a real-world linear relationship	Interprets the meaning of the slope of a graph in a real□world linear relationship
	Translates between the graph of a linear function and a verbal description of the real-world relationship	Interprets the meaning of the y-intercept of a graph within the context of a real-world linear relationship
	Translates between the graph of a piecewise linear function and a verbal description of the real-world relationship	Translates between the graph of a piecewise linear function and a verbal description of the real-world relationship
	Writes an equation in the form y = mx + b to represent the relationship between real-world quantities given the slope and y-intercept	Understands that linear functions increase and decrease by equal differences over equal intervals
	Writes an equation in the form y = mx + b to represent the relationship between real-world quantities given a simple scenario	Writes an equation in the form y = mx + b to represent the relationship between real-world quantities given the slope and y-intercept
	Writes an equation in the form y = mx + b to represent the relationship between real-world quantities given a table of values or two ordered pairs	Writes an equation in the form y = mx + b to represent the relationship between real-world quantities given a table of values or two ordered pairs

	Writes an equation in the form y = mx + b to represent the relationship between real-world quantities given the slope and a point on the line	Writes an equation in the form y = mx + b to represent the relationship between real-world quantities given the slope and a point on the line
	Writes the equation of a line in the form y = mx + b given a graph	Writes the equation of a line in the form y = mx + b given a graph
	Writes the equation of a line in the form y = mx + b given a table of values or two ordered pairs	Writes the equation of a line in the form y = mx + b given a table of values or two ordered pairs
	Writes the equation representing transformations of linear functions, including the transformations y = af(x), y = f(ax), y = f(x – a), and y = f(x) + a	
Number Sentences/Equations/Equivalence		
Determines whether a linear equation or inequality is true for a given value of the variable	Determines whether a linear equation or inequality is true for a given value of the variable	Applies the simple interest formula to solve for the interest rate, principal, or time invested
Solves cubic equations by taking cube roots	Evaluates formulas or linear equations at given values for the variables	Determines the number of solutions of a linear equation in one variable
Solves multi-step linear equations with positive and negative rational numbers	Solves cubic equations by taking cube roots	Evaluates formulas or linear equations at given values for the variables
Solves one-step linear equations with negative rational numbers	Solves multi-step linear equations with positive and negative rational numbers	Identifies an ordered pair that is a solution to a two-variable equation
Solves one-step linear equations with positive rational numbers	Solves one-step linear equations with negative rational numbers	Solves literal equations
Solves quadratic equations in one variable using factoring, the quadratic formula, or other appropriate method	Solves one-step linear equations with positive rational numbers	Solves multi-step linear equations with positive and negative rational numbers
Solves quadratic equations in the form $x^2 = c$	Solves quadratic equations in one variable using factoring, the quadratic formula, or other appropriate method	Solves one-step linear equations with positive rational numbers
Solves two-step linear equations with negative rational numbers	Solves quadratic equations in the form $x^2 = c$	Solves quadratic equations in one variable using factoring, the quadratic formula, or other appropriate method

Solves two-step linear equations with positive rational numbers

Writes a one-step linear equation in one variable to represent a real-world or mathematical context

Writes and solves a two-step linear equation in one variable involving a real-world or mathematical context

Solves radical equations that lead to linear equations

Solves two-step linear equations with negative rational numbers

Solves two-step linear equations with positive rational numbers

Writes a multi-step linear equation in one variable to represent a real-world or mathematical context

Writes a two-step linear equation in one variable to represent a real-world or mathematical context

Writes and solves a multi-step quadratic equation in one variable involving a real-world or mathematical context

Writes and solves a one-step quadratic equation in the form $x^2 = c$ involving a real-world or mathematical context

Writes and solves a two-step linear equation in one variable involving a real-world or mathematical context

Writes and solves an exponential equation in one variable involving a real-world or mathematical context

Writes the equation of a vertical line given a graph

Describes a situation that can be represented by a given linear equation

Solves quadratic equations in the form $x^2 = c$

Solves radical equations that lead to linear equations

Solves rational equations

Solves two-step linear equations with negative rational numbers

Solves two-step linear equations with positive rational numbers

Writes a multi-step linear equation in one variable to represent a real-world or mathematical context

Writes a quadratic equation in one variable to represent a real-world or mathematical context

Writes and solves a multi-step linear equation in one variable involving a real-world or mathematical context

Writes and solves a multi-step quadratic equation in one variable involving a real-world or mathematical context

Writes and solves a one-step quadratic equation in the form $x^2 = c$ involving a real-world or mathematical context

Writes and solves a two-step linear equation in one variable involving a real-world or mathematical context

Writes and solves an exponential equation in one variable involving a real-world or mathematical context

Describes a situation that can be represented by a given linear equation

Numerical Expressions		
Applies the order of operations, with grouping symbols and excluding exponents, to simplify numerical expressions involving positive rational numbers	Applies the order of operations, with grouping symbols and whole-number exponents, to simplify numerical expressions involving both positive and negative rational numbers	Applies the order of operations, with grouping symbols and whole-number exponents, to simplify numerical expressions involving both positive and negative rational numbers
Applies the order of operations, with grouping symbols and with whole-number exponents, to simplify numerical expressions consisting of positive rational numbers	Applies the order of operations, with grouping symbols and with whole-number exponents, to simplify numerical expressions consisting of positive rational numbers	Applies the order of operations, with whole-number exponents and excluding grouping symbols, to simplify numerical expressions involving both positive and negative rational numbers
Applies the order of operations, without grouping symbols and with whole-number exponents, to simplify numerical expressions consisting of positive rational numbers	Applies the order of operations, without grouping symbols and with whole-number exponents, to simplify numerical expressions consisting of positive rational numbers	Applies the order of operations, without grouping symbols and with whole-number exponents, to simplify numerical expressions consisting of positive rational numbers
Applies the order of operations, without grouping symbols or whole-number exponents, to simplify numerical expressions involving both positive and negative rational numbers	Applies the order of operations, without grouping symbols or whole-number exponents, to simplify numerical expressions involving positive rational numbers	Applies the order of operations, without grouping symbols or whole-number exponents, to simplify numerical expressions involving positive rational numbers
Evaluates numerical expressions involving multiple operations with whole numbers and parentheses	Evaluates numerical expressions involving multiple operations with whole numbers, no parenthesis	Uses properties of exponents to simplify numerical expressions involving negative integer exponents, including zero
Represents descriptions of calculations with numerical expressions that include parentheses	Uses properties of exponents to simplify numerical expressions involving negative integer exponents, including zero	Uses properties of exponents to simplify numerical expressions involving whole-number exponents only
Uses properties of exponents to simplify numerical expressions involving whole-number exponents only	Uses properties of exponents to simplify numerical expressions involving whole-number exponents only	
Patterns/Sequences/Series		
Determines missing values in a function table representing a nonproportional relationship, given the rule	Determines missing values in a function table representing a nonproportional relationship, given the rule	
Determines missing values in a function table representing a	Determines missing values in a function table representing a	

nonproportional relationship, rule not given	nonproportional relationship, rule not given	
Analyzes and describes patterns without stating the rule	Determines the value of a term in a geometric sequence given a contextual situation	Determines the value of a term in a geometric sequence given a contextual situation
Creates or extends growing/shrinking shape patterns, given the rule	Determines the value of a term in an arithmetic sequence given a contextual situation	Determines the value of a term in an arithmetic sequence given a contextual situation
Creates or extends number patterns, given the rule	Writes an expression or formula for the nth term of an arithmetic sequence given a contextual situation	Writes an expression or formula for the nth term of an arithmetic sequence given a contextual situation
Determines the value of a term in a geometric sequence given a contextual situation		Writes an expression or formula for the nth term of an arithmetic sequence given a number sequence
Determines the value of a term in an arithmetic sequence given a contextual situation		
Piecewise/Absolute Value Functions		
Interprets the meaning of the average rate of change of a graph in a real-world piecewise relationship	Calculates the rate of change of a piecewise function over a given interval	Calculates the rate of change of a piecewise function over a given interval
Translates between the graph of a piecewise linear function and a verbal description of the real-world relationship	Translates between the graph of a piecewise linear function and a verbal description of the real-world relationship	Describes the effects of transformations on the graphs of absolute value functions, including the transformations $y = af(x)$, $y = f(ax)$, $y = f(x - a)$, and $y = f(x) + a$
		Graphs absolute value functions
		Translates between the graph of a piecewise linear function and a verbal description of the real-world relationship
Properties and Operations of Functions		
	Determines the input of a function given an output	Determines the range of a function
	Determines the range of a function	Distinguishes between linear and nonlinear functions given an equation, a graph, or a table of values
	Performs operations with functions	Performs operations with functions
Properties and Relationships of Operations		

Applies the distributive property of multiplication to whole numbers	Applies the distributive property of multiplication to whole numbers	
Quadratic Functions		
	Identifies the zeros of a quadratic function from a graph	Identifies the zeros of a quadratic function from a graph
Describes the effects that changes in the constant terms have on the graphs of quadratic functions	Describes the effects that changes in the constant terms have on the graphs of quadratic functions	Describes the effects that changes in the constant terms have on the graphs of quadratic functions
Writes a quadratic function given a table of values	Evaluates a quadratic function for a given value in its domain	Determines the maximum, minimum, y-intercept, or zeros of a quadratic function to solve real-world problems
	Identifies the vertex, intercepts, or axis of symmetry of a quadratic functiongivena graph	Determines the zeros of a quadratic function from a table of values
	Writes a quadratic function given a table of values	Evaluates a quadratic function for a given value in its domain
		Evaluates a quadratic function for a given value in its domain to solve a real-world problem
		Graphs quadratic functions
		Graphs transformations of quadratic functions, including the transformations $y = af(x)$, $y = f(ax)$, $y = f(x - a)$, and $y = f(x) + a$
		Identifies the table of values given a graph of a quadratic relationship
		Identifies the vertex, intercepts, or axis of symmetry of a quadratic functiongivena graph
		Writes a quadratic function given a table of values
		Writes the equation representing transformations of quadratic functions, including the transformations $y = af(x)$, $y = f(ax)$, $y = f(x - a)$, and $y = f(x) + a$
Radicals		
	Evaluates the square root of a perfect square	Evaluates the square root of a perfect square

Rate of Change/Slope		
Compares the rate of change between two proportional relationships represented in different ways	Compares the rate of change between two proportional relationships represented in different ways	Compares the rate of change between two proportional relationships represented in different ways
	Understands that the slope is the same between any two points on a line	Understands that the slope is the same between any two points on a line
Calculates the rate of change from a graph representing a real-world linear relationship	Calculates the rate of change from a graph representing a real-world linear relationship	Calculates the rate of change from a table or description of a real-world linear relationship
Calculates the rate of change from a table or description of a real-world linear relationship	Calculates the rate of change from a table or description of a real-world linear relationship	Calculates the rate of change of a piecewise function over a given interval
Interprets the meaning of the slope of a graph in a real□world linear relationship	Calculates the rate of change of a piecewise function over a given interval	Calculates the slope of a line given ordered pairs
	Compares the rate of change and intercepts between two nonproportional linear functions represented in different ways	Calculates the slope of a line on a graph
	Compares the rate of change and intercepts between two nonproportional linear functions represented in the same way	Compares the rate of change and intercepts between two nonproportional linear functions represented in different ways
	Interprets the meaning of the slope of a graph in a real□world linear relationship	Compares the rate of change and intercepts between two nonproportional linear functions represented in the same way
		Interprets the meaning of the slope in the equation y = mx + b within the context of a real-world linear relationship
		Interprets the meaning of the slope of a graph in a real□world linear relationship
Rational Functions		
		Evaluates a rational function for a given value in its domain
Rational Numbers: Solve Real-World and Mathematical Problems		
Solves real-world problems using appropriate problem-solving	Solves real-world problems using appropriate problem-solving	

strategies and evaluates the reasonableness of the solutions	strategies and evaluates the reasonableness of the solutions	
Scientific Notation		
Converts a number from scientific notation to standard form	Converts a number from standard form to scientific notation	Approximates very large and very small quantities using scientific notation
Converts a number from standard form to scientific notation	Determines the relative magnitude of two numbers expressed in scientific notation	Converts a number from standard form to scientific notation
	Multiplies and divides numbers expressed in scientific notation	Determines the relative magnitude of two numbers expressed in scientific notation
	Solves real-world problems with numbers expressed in scientific notation	Multiplies and divides numbers expressed in scientific notation
		Solves real-world problems with numbers expressed in scientific notation
System of Equations/Inequalities		
Solves a system of linear equations graphically	Identifies an ordered pair that is a solution to a system of linear inequalities	Identifies an ordered pair that is a solution to a system of linear inequalities
Writes and solves a system of linear equations involving a real-world or mathematical context	Solves a system of linear equations algebraically	Shows the steps to solve a system of linear equations using linear combinations
	Solves a system of linear equations graphically	Solves a system of equations with one linear and one quadratic equation algebraically
	Writes a system of linear equations to represent a real-world or mathematical context	Solves a system of linear equations algebraically
	Writes a system of linear inequalities to represent a real-world or mathematical context	Writes a system of linear equations to represent a real-world or mathematical context
	Writes and solves a system of linear equations involving a real-world or mathematical context	Writes a system of linear inequalities to represent a real-world or mathematical context
		Writes and solves a system of linear equations involving a real-world or mathematical context
Trigonometric Functions/Radian Measure		

		Converts between radians and degrees
Whole Numbers: Multiplication/Division		
Decomposes numbers to simplify whole-number multiplication		
Whole Numbers: Represent and Solve Word Problems		
Represents and solves word problems involving division of whole numbers where the quotient is a fraction	Represents and solves word problems involving division of whole numbers where the quotient is a fraction	Represents and solves word problems involving division of whole numbers where the quotient is a fraction
Represents multi-step word problems involving the four operations with expressions or equations, whole numbers	Represents multi-step word problems involving the four operations with expressions or equations, whole numbers	Represents multi-step word problems involving the four operations with expressions or equations, whole numbers

Reinforce these skills & concepts	Develop these skills & concepts	Introduce these skills & concepts
Absolute Value: Concepts/Properties		
	Understands that the distance between two integers on a number line is equal to the absolute value of the difference	
Evaluates numerical expressions involving absolute value		
Evaluates the absolute value of a number		
		Understands that the distance between two integers on a number line is equal to the absolute value of the difference
Capacity		
Completes complex conversions of customary units of capacity involving fractions, decimals, or more than two units	Completes conversions of metric units of capacity	
Completes conversions of metric units of capacity	Solves multi-step capacity word problems involving decimals or fractions and conversion of metric units	
Solves multi-step capacity word problems involving decimals or fractions and conversion of metric units		
		Completes conversions of metric units of capacity
Conversion of Units		
Completes complex conversions of customary units of capacity involving fractions, decimals, or more than two units	Completes conversions of metric units of capacity	
Completes complex conversions of customary units of length involving fractions, decimals, or more than two units	Completes conversions of metric units of length	

Completes complex conversions of customary units of weight involving fractions, decimals, or more than two units

Completes complex conversions of more than two units of time

Completes conversions of metric units of capacity

Completes conversions of metric units of length

Completes conversions of metric units of mass

Converts unit rates to solve real-world problems

Converts units of length between the customary and the metric systems

Converts units of speed

Solves multi-step capacity word problems involving decimals or fractions and conversion of metric units

Solves multi-step length word problems involving decimals or fractions and conversion of customary units

Solves multi-step length word problems involving whole numbers and conversion of customary units

Solves multi-step weight word problems involving whole numbers and conversion of customary units

Converts unit rates to solve real-world problems

Converts units of length between the customary and the metric systems

Converts units of speed

Solves multi-step capacity word problems involving decimals or fractions and conversion of metric units

Solves multi-step length word problems involving decimals or fractions and conversion of customary units

Solves multi-step length word problems involving whole numbers and conversion of customary units

Solves multi-step mass word problems involving whole numbers and conversion of metric units

Applies dimensional analysis to manipulate units in a real-world problem

		Completes conversions of metric units of capacity Converts unit rates to solve real-world problems Converts units of speed Applies dimensional analysis to manipulate units in a real-world problem
Coordinate Geometry		
Determines the coordinates of points in all four quadrants of a coordinate graph Determines the distance between two points with the same first or second coordinate Plots points in all four quadrants of a coordinate plane		
Decimals: Addition/Subtraction		
Adds and subtracts decimals with different number of digits after the decimal point, with regrouping		
Decimals: Compare/Order		
Compares decimals to the thousandths, with a different number of digits after the decimal point, using symbols Orders decimals to the thousandths, with a different number of digits after the decimal point		
Decimals: Multiplication/Division		
Divides decimals by decimals Multiplies decimals by decimals Multiplies decimals by multi-digit whole numbers Multiplies or divides decimals by 10, 100, or 1,000	Divides decimals by decimals Divides whole numbers by decimals	
		Divides decimals by decimals
Decimals: Represent and Solve Word Problems		
Solves multi-step word problems		

involving the four operations and decimals, including contexts involving money		
Solves one-step word problems involving addition and subtraction of decimals with a different number of digits after the decimal point		
Solves one-step word problems involving multiplication of multi-digit whole numbers and decimals to the hundredths, including contexts involving money		
Exponents		
Represents the value of digits in whole numbers using powers of 10 in exponential form	Converts between exponential and radical form	
Uses properties of exponents to simplify algebraic expressions involving whole-number exponents	Uses properties of exponents to simplify algebraic expressions involving whole-number exponents	
		Converts between exponential and radical form
		Uses properties of exponents to simplify algebraic expressions involving fractional exponents
		Uses properties of exponents to simplify algebraic expressions involving negative integer exponents, including zero
		Uses properties of exponents to simplify algebraic expressions involving whole-number exponents
Fractions: Addition/Subtraction		
Adds and subtracts fractions with denominators of 10 or 100	Adds and subtracts whole numbers, fractions, and/or mixed numbers with unlike denominators, with regrouping	
Adds and subtracts fractions with like denominators using a number line		
Adds and subtracts fractions with unlike denominators		
Adds and subtracts whole numbers,		

fractions, and/or mixed numbers with like denominators, with regrouping

Adds and subtracts whole numbers, fractions, and/or mixed numbers with unlike denominators, no regrouping

Adds and subtracts whole numbers, fractions, and/or mixed numbers with unlike denominators, with regrouping

Fractions: Equivalence
Writes equivalent fractions
Writes equivalent fractions for given points on a number line
Writes fractions in simplest form

Fractions: Multiple Operations
Simplifies complex fractions

Fractions: Multiplication/Division	
Divides fractions by fractions, results in simplest form	Divides fractions by fractions, results in simplest form
Divides fractions by mixed numbers, results in simplest form	Divides mixed numbers by fractions using models
Divides fractions by whole numbers, results in simplest form	Divides mixed numbers by fractions, results in simplest form
Divides mixed numbers by fractions using models	Divides mixed numbers by mixed numbers, results in simplest form
Divides mixed numbers by fractions, results in simplest form	Divides whole numbers by fractions, results in simplest form
Divides mixed numbers by mixed numbers, results in simplest form	Multiplies fractions by fractions, results in simplest form
Divides mixed numbers by whole numbers, results in simplest form	Multiplies mixed numbers by fractions, results in simplest form
Divides whole numbers by fractions using models	Multiplies mixed numbers by mixed numbers, results in simplest form
Divides whole numbers by fractions, results in simplest form	Understands that finding fractions of fractions is the same as finding their product
Divides whole numbers by mixed	Understands that multiplying a

numbers, results in simplest form

Multiplies fractions by fractions, results in simplest form

Multiplies mixed numbers by fractions, results in simplest form

Multiplies mixed numbers by mixed numbers, results in simplest form

Multiplies mixed numbers by whole numbers, results in simplest form

Understands the effect of multiplying whole numbers by fractions less than 1

whole number by a unit fraction is the same as dividing by the fraction's denominator

Fractions: Represent and Solve Word Problems

Solves multi-step word problems involving addition and subtraction of fractions with unlike denominators

Solves multi-step word problems involving whole numbers, fractions and/or mixed numbers

Solves one-step word problems involving addition and subtraction of fractions with unlike denominators

Solves one-step word problems involving addition and subtraction of mixed numbers with unlike denominators

Solves one-step word problems involving division of fractions or mixed numbers

Solves one-step word problems involving division of unit fractions by whole numbers

Solves one-step word problems involving division of whole numbers by fractions or mixed numbers

Solves one-step word problems involving division of whole numbers by unit fractions

Solves one-step word problems involving division of fractions or mixed numbers

Solves one-step word problems involving multiplication of fractions or mixed numbers

Solves one-step word problems involving multiplication of fractions or mixed numbers		
Solves one-step word problems involving multiplication of whole numbers and either fractions or mixed numbers		
		Solves one-step word problems involving division of fractions or mixed numbers
		Solves one-step word problems involving multiplication of fractions or mixed numbers
Fractions: Represent/Model		
Locates improper fractions on a number line	Locates mixed numbers on a number line	
Locates mixed numbers on a number line	Understands fractions as the division of the numerator by the denominator	
Locates non-unit proper fractions on a number line		
Understands fractions as the division of the numerator by the denominator		
Integers: Computation		
Adds and subtracts integers	Performs multiple operations with integers	
Multiplies and divides integers		
Performs multiple operations with integers		
Represents addition and subtraction of integers on a number line		
Understands subtracting an integer is the same as adding its opposite		
Length		
Completes complex conversions of customary units of length involving fractions, decimals, or more than two units	Completes conversions of metric units of length	
Completes conversions of metric	Converts units of length between	

units of length	the customary and the metric systems	
Converts units of length between the customary and the metric systems	Solves multi-step length word problems involving decimals or fractions and conversion of customary units	
Solves multi-step length word problems involving decimals or fractions and conversion of customary units	Solves multi-step length word problems involving whole numbers and conversion of customary units	
Solves multi-step length word problems involving whole numbers and conversion of customary units		
Numerical Expressions		
	Uses properties of radicals to simplify radical expressions	
		Simplifies numerical expressions involving sums and differences of radicals
		Uses properties of radicals to simplify radical expressions
Problem Solving with Units		
Solves multi-step capacity word problems involving decimals or fractions and conversion of metric units	Solves multi-step capacity word problems involving decimals or fractions and conversion of metric units	
Solves multi-step length word problems involving decimals or fractions and conversion of customary units	Solves multi-step length word problems involving decimals or fractions and conversion of customary units	
Solves multi-step length word problems involving whole numbers and conversion of customary units	Solves multi-step length word problems involving whole numbers and conversion of customary units	
Solves multi-step weight word problems involving whole numbers and conversion of customary units	Solves multi-step mass word problems involving whole numbers and conversion of metric units	
	Applies dimensional analysis to manipulate units in a real-world problem	
		Applies dimensional analysis to manipulate units in a real-world problem

Properties and Relationships of Operations		
Locates the additive inverse of a number on a number line	Understands that multiplying a whole number by a unit fraction is the same as dividing by the fraction's denominator	
Understands the additive inverse property	Understands that the product of two negative numbers is positive	
Understands the effect of multiplying whole numbers by fractions less than 1	Understands the additive inverse property	

Radicals		
	Converts between exponential and radical form	
	Uses properties of radicals to simplify radical expressions	
		Converts between exponential and radical form
		Simplifies numerical expressions involving sums and differences of radicals
		Uses properties of radicals to simplify radical expressions

Rates/Ratios/Proportions/Percents		
Calculates percents of numbers	Calculates percents of numbers	
Calculates simple interest	Calculates simple interest	
Calculates the percent one number is of another number	Calculates the percent one number is of another number	
Calculates the percent one number is of another number for percents greater than 100%	Calculates the percent one number is of another number for percents greater than 100%	
Calculates the whole when given a part and the percent	Calculates the whole when given a part and the percent	
Compares unit rates within a real-world context	Compares unit rates within a real-world context	
Converts between decimals and percents less than 100%	Converts unit rates to solve real-world problems	
Converts between percents and ratios expressed verbally or in the form a:b	Determines equivalent ratios	

Converts unit rates to solve real-world problems

Determines equivalent ratios

Determines the whole in a real-world percent problem given the part and the percent

Identifies the part-to-part ratio between two quantities

Identifies the part-to-whole ratio between two quantities

Solves for a missing value in a proportion by taking a cross product

Solves multi-step percent problems within a real-world or mathematical context

Solves one-step percent problems within a real-world or mathematical context

Solves real-world and mathematical problems using ratios or proportional reasoning

Solves real-world problems involving percent or fractional increase

Uses a given unit rate to solve a multi-step real-world problem

Uses a given unit rate to solve a one-step real-world problem

Uses ratios of decimals to calculate unit rates

Uses ratios of fractions to calculate unit rates

Uses ratios of whole numbers and decimals to calculate unit rates

Uses ratios of whole numbers to calculate unit rates

Identifies the part-to-whole ratio between two quantities

Solves for a missing value in a proportion by taking a cross product

Solves multi-step percent problems within a real-world or mathematical context

Solves one-step percent problems within a real-world or mathematical context

Solves real-world and mathematical problems using ratios or proportional reasoning

Solves real-world problems involving percent or fractional increase

Uses a given unit rate to solve a multi-step real-world problem

Uses ratios of fractions to calculate unit rates

Uses tables to represent real-world relationships described by a given ratio

Uses two given unit rates to solve a multi-step real-world problem

Writes a proportion to solve a real-world problem

Uses tables to represent real-world relationships described by a given ratio Uses two given unit rates to solve a multi-step real-world problem Writes a proportion to solve a real-world problem		
		Calculates simple interest Calculates the percent one number is of another number for percents greater than 100% Compares ratios within a real-world context Converts unit rates to solve real-world problems Solves for a missing value in a proportion by taking a cross product Solves real-world and mathematical problems using ratios or proportional reasoning Solves real-world problems involving percent or fractional increase Uses a given unit rate to solve a multi-step real-world problem Uses ratios of fractions to calculate unit rates Uses two given unit rates to solve a multi-step real-world problem Writes a proportion to solve a real-world problem Calculates simple interest
Rational Numbers: Compare/Order		
Compares and orders positive and negative rational numbers Writes or interprets verbal comparative statements for rational numbers within a real-world context	Compares and orders positive and negative rational numbers	
		Compares and orders positive and

		negative rational numbers
Rational Numbers: Computation		
Adds and subtracts rational numbers, including combinations of positive or negative fractions, decimals, and integers	Adds and subtracts rational numbers, including combinations of positive or negative fractions, decimals, and integers	
Multiplies rational numbers, including combinations of positive or negative fractions, decimals, and integers	Multiplies rational numbers, including combinations of positive or negative fractions, decimals, and integers	
		Divides rational numbers, including combinations of positive or negative fractions, decimals, and integers
		Multiplies rational numbers, including combinations of positive or negative fractions, decimals, and integers
Rational Numbers: Equivalence		
Converts between decimals and percents less than 100%		
Converts between percents and fractions with denominators other than 10 and 100		
Converts between percents and ratios expressed verbally or in the form a:b		
Converts between decimals and fractions with a denominator of 3	Converts fractions to decimals using long division	
Converts between decimals and fractions with a denominator of 8		
Converts between decimals and fractions with denominators of 10 or 100		
Converts between decimals and fractions with denominators of 2, 4, or 5		
Converts fractions to decimals using long division		
		Converts repeating decimals to fractions

Rational Numbers: Represent/Model		
Locates negative rational numbers on a number line		

Rational Numbers: Solve Real-World and Mathematical Problems		
Calculates simple interest	Calculates simple interest	
Determines the whole in a real-world percent problem given the part and the percent	Solves multi-step percent problems within a real-world or mathematical context	
Solves multi-step percent problems within a real-world or mathematical context	Solves one-step percent problems within a real-world or mathematical context	
Solves one-step percent problems within a real-world or mathematical context	Solves real-world problems involving percent or fractional increase	
Solves real-world problems involving percent or fractional increase		
Solves real-world problems involving the addition and subtraction of integers		
		Solves real-world problems involving percent or fractional increase

Real/Complex Numbers: Computation		
Adds and subtracts complex numbers	Adds and subtracts complex numbers	
		Adds and subtracts complex numbers
		Simplifies expressions involving the relation $i^2 = -1$

Real/Complex Numbers: Concepts/Properties		
Approximates the location of irrational numbers on a number line	Approximates the location of irrational numbers on a number line	
Approximates the value of an irrational number	Approximates the value of an irrational number	
Compares and orders real numbers	Compares and orders real numbers	
Determines whether a real number is rational or irrational	Determines whether a real number is rational or irrational	
		Approximates the location of irrational numbers on a number line

		Approximates the value of an irrational number Compares and orders real numbers Determines whether the value of a numerical expression is rational or irrational
Time		
Completes complex conversions of more than two units of time		
Weight/Mass		
Completes complex conversions of customary units of weight involving fractions, decimals, or more than two units Completes conversions of metric units of mass Solves multi-step weight word problems involving whole numbers and conversion of customary units	Solves multi-step mass word problems involving whole numbers and conversion of metric units	
Whole Numbers and Decimals: Rounding/Estimation		
Rounds decimals to any decimal place value		
Whole Numbers: Concepts/Properties		
Solves real-world problems involving the least common multiple	Determines least common multiples Solves real-world problems involving common multiples Solves real-world problems involving the least common multiple	Solves real-world problems involving common multiples Solves real-world problems involving the least common multiple
Whole Numbers: Multiplication/Division		
Divides whole numbers with more than four digits by two-digit divisors, with a remainder Solves multi-step multiplication and division word problems with whole numbers		

Whole Numbers: Place Value	
Decomposes whole numbers within 1,000 into hundreds, tens, and ones, in multiple ways	Understands that the same digit, moved one place to the left, now represents 10 times the value
Represents the value of digits in whole numbers using powers of 10 in exponential form	Understands that the same digit, moved one place to the right, now represents 1/10 the value
Understands that the same digit, moved one place to the left, now represents 10 times the value	
Understands that the same digit, moved one place to the right, now represents 1/10 the value	

GEOMETRY

Reinforce these skills & concepts	Develop these skills & concepts	Introduce these skills & concepts
Area		
Describes the effect on area when dimensions of a rectangle are changed	Describes the effect on area when dimensions of a rectangle are changed	
Determines the area of circles,given the formula	Describes the effect on area when dimensions of a triangle are changed	
Determines the area of figures composed of polygons	Determines the area of circles, formula not provided	
Determines the area of parallelograms, formula not provided	Determines the area of figures composed of polygons	
Determines the area of rectangles given the perimeter	Determines the area of figures composed of polygons and circles	
Determines the area of rectangles with fractional sides, formula not provided	Determines the area of parallelograms, formula not provided	
Determines the area of rectangles with whole-number sides, formula not provided	Determines the area of rectangles given the perimeter	
Determines the area of trapezoids, given the formula	Determines the area of rectangles with fractional sides, formula not provided	
Determines the area of triangles, formula not provided	Determines the area of trapezoids, formula not provided	
Determines the area of triangles,given the formula	Determines the area of triangles, formula not provided	
Determines the circumference given the area of a circle	Determines the area of triangles,given the formula	
Determines the perimeter of rectangles given the area	Determines the circumference given the area of a circle	
Determines the ratio between areas of scaled figures	Determines the perimeter of rectangles given the area	
Estimates the area of rectangles with whole-number sides, formula not provided	Determines the radius or diameter given the area of a circle	
Identifies the formula for the area of	Determines the ratio between areas	

a circle

Solves problems involving areas of figures composed of polygons within a real-world or mathematical context

Solves problems involving areas of rectangles within a real-world or mathematical context

Solves problems involving both area and perimeter of rectangles within a real-world or mathematical context

of scaled figures

Solves area word problems involving whole numbers and tiling rectangles with non-unit squares

Solves problems involving areas of figures composed of polygons within a real-world or mathematical context

Solves problems involving both area and perimeter of rectangles within a real-world or mathematical context

Solves real-world and mathematical problems involving areas of quarter circles, semicircles, or three-quarter circles

Describes the effect on area when dimensions of a rectangle are changed

Describes the effect on area when dimensions of a triangle are changed

Describes the effect on area when the perimeter of a rectangle is changed

Determines a base or the height, given the area of a trapezoid

Determines the area of circles, formula not provided

Determines the area of figures composed of polygons

Determines the area of figures composed of polygons and circles

Determines the area of parallelograms, formula not provided

Determines the area of trapezoids, formula not provided

Determines the area of triangles, formula not provided

Determines the circumference given the area of a circle

		Determines the perimeter of rectangles given the area Determines the ratio between areas of scaled figures Solves area word problems involving whole numbers and tiling rectangles with non-unit squares Solves problems involving areas of figures composed of polygons within a real-world or mathematical context Solves real-world and mathematical problems involving areas of quarter circles, semicircles, or three-quarter circles
Circles		
Writes the equation of a circle given the center and radius	Solves problems involving inscribed angles on a diameter Uses properties of central and inscribed angles to solve problems involving circles Writes the equation of a circle given the center and radius	
		Calculates the area of sectors given the measure of the central angle Solves problems involving inscribed angles on a diameter Uses properties of central and inscribed angles to solve problems involving circles Uses properties of chords to solve problems involving circles Writes the equation of a circle given a graph Writes the equation of a circle given the center and radius
Congruence		
Determines measures of corresponding angles in congruent figures Understands that rigid		

transformations preserve congruency		
		Identifies congruent triangles using AAS, ASA, SAS, or SSS
		Identifies the congruence postulate that proves two triangles are congruent
Conic Sections		
Writes the equation of a circle given the center and radius	Writes the equation of a circle given the center and radius	
		Writes the equation of a circle given a graph
		Writes the equation of a circle given the center and radius
Coordinate Geometry		
Determines the coordinates of missing vertices of geometric figures in the first quadrant given the coordinates of the other vertices	Determines the area of a triangle given the coordinates of the vertices	
Determines the coordinates of one endpoint of a line segment given the coordinates of the midpoint and the other endpoint	Determines the coordinates of one endpoint of a line segment given the coordinates of the midpoint and the other endpoint	
Determines the coordinates of the midpoint of a line segment	Determines the coordinates of the midpoint of a line segment	
	Determines the perimeter or area of a rectangle given vertices with the same first or second coordinate	
	Determines the distance between two points on the coordinate plane	
		Determines the area of a triangle given vertices with the same first or second coordinate
		Determines the coordinates of missing vertices of geometric figures in all four quadrants given the coordinates of the other vertices
		Determines the coordinates of one endpoint of a line segment given the

		coordinates of the midpoint and the other endpoint
		Determines the coordinates of the midpoint of a line segment
		Determines the slope of a line perpendicular to a given line
		Uses slopes to identify perpendicular lines
		Writes the equation of a line parallel to a given line
		Writes the equation of a line parallel to a line that passes through a given point
		Writes the equation of a line perpendicular to a line that passes through a given point
		Determines the distance between two points on the coordinate plane
Geometric Constructions		
		Identifies the geometric construction of an angle bisector
Geometric Proof/Logic/Inductive and Deductive Reasoning		
		Determines the conditions necessary to show that two lines are parallel
		Identifies the congruence postulate that proves two triangles are congruent
Identification and Classification of 2-D Shapes		
Identifies and names special triangles, such as acute, right, scalene, etc., given pictures		
Knows definitions of special triangles, such as acute, right, scalene, etc.		
Knows properties of special triangles, such as acute, right, scalene, etc.		
Perimeter/Circumference		
Determines the area of rectangles	Determines the area of rectangles	

given the perimeter	given the perimeter	
Determines the circumference given the area of a circle	Determines the circumference given the area of a circle	
Determines the circumference of circles, formula not provided	Determines the circumference of circles, formula not provided	
Determines the circumference of circles, given the formula	Determines the circumference of circles, given the formula	
Determines the perimeter of complex figures in which not all sides are labeled	Determines the perimeter of rectangles given the area	
Determines the perimeter of rectangles given the area	Determines the radius or diameter given the circumference of a circle	
Determines the radius or diameter given the circumference of a circle	Solves problems involving both area and perimeter of rectangles within a real-world or mathematical context	
Solves problems involving both area and perimeter of rectangles within a real-world or mathematical context	Solves problems involving perimeters of non-rectangular polygons within a real-world or mathematical context	
Solves problems involving perimeters of rectangles within a real-world or mathematical context	Solves problems involving perimeters of rectangles within a real-world or mathematical context	
		Describes the effect on area when the perimeter of a rectangle is changed
		Determines the circumference given the area of a circle
		Determines the circumference of circles, formula not provided
		Determines the perimeter of rectangles given the area
Points, Lines, Segments, Rays, and Angles		
Identifies perpendicular lines involving real-world objects	Identifies perpendicular lines	
Problem Solving with Units		
Solves elapsed time word problems involving either minutes crossing over an hour, or hours and/or minutes crossing over A.M. or P.M.	Solves area word problems involving whole numbers and tiling rectangles with non-unit squares	
Solves problems involving areas of	Solves problems involving areas of	

figures composed of polygons within a real-world or mathematical context	figures composed of polygons within a real-world or mathematical context	
Solves problems involving areas of rectangles within a real-world or mathematical context	Solves problems involving both area and perimeter of rectangles within a real-world or mathematical context	
Solves problems involving both area and perimeter of rectangles within a real-world or mathematical context	Solves problems involving perimeters of non-rectangular polygons within a real-world or mathematical context	
Solves problems involving perimeters of rectangles within a real-world or mathematical context	Solves problems involving perimeters of rectangles within a real-world or mathematical context	
Solves problems involving volumes of rectangular prisms within a real-world or mathematical context	Solves problems involving volumes of rectangular prisms within a real-world or mathematical context	
	Solves real-world and mathematical problems involving areas of quarter circles, semicircles, or three-quarter circles	
	Uses the net of a prism to solve surface area problems within a real-world or mathematical context	
		Solves area word problems involving whole numbers and tiling rectangles with non-unit squares
		Solves problems involving areas of figures composed of polygons within a real-world or mathematical context
		Solves problems involving surface areas of prisms within a real-world or mathematical context
		Solves real-world and mathematical problems involving areas of quarter circles, semicircles, or three-quarter circles
Pythagorean Theorem		
Uses the Pythagorean Theorem to calculate the length of a missing side of a right triangle	Determines the distance between two points on the coordinate plane	
	Uses the Pythagorean Theorem to calculate the length of a missing side	

	of a right triangle	
	Uses the Pythagorean Theorem to solve real-world or mathematical problems	
		Applies the converse of the Pythagorean Theorem to identify right triangles
		Determines the distance between two points on the coordinate plane
		Uses the Pythagorean Theorem to calculate the length of a missing side of a right triangle
		Uses the Pythagorean Theorem to solve real-world or mathematical problems
Rates/Ratios/Proportions/Percents		
Applies scale factors to solve problems involving scale drawings of geometric figures	Applies scale factors to solve problems involving scale drawings of geometric figures	
Applies scale factors to solve problems involving scale drawings, maps, and models	Applies scale factors to solve problems involving scale drawings, maps, and models	
Applies the concept of density to solve problems involving area and volume	Applies the concept of density to solve problems involving area and volume	
Determines scale factors in problems involving scale drawings of geometric figures		
		Applies scale factors to solve problems involving scale drawings of geometric figures
		Applies scale factors to solve problems involving scale drawings, maps, and models
Relationships involving Lines, Angles, and Polygons		
Calculates unknown angle measures using the properties of complementary, supplementary, and vertical angles	Applies the Triangle Inequality Theorem	
	Calculates unknown angle measures using the properties of	

	complementary, supplementary, and vertical angles	
Applies the Triangle Angle-Sum Theorem to determine the measure of an unknown angle	Applies the Triangle Angle-Sum Theorem to determine the measure of an unknown angle	
Recognizes that the sum of the interior angles of a triangle is 180 degrees	Applies the Triangle Exterior Angle Theorem to determine the measure of an unknown angle	
Solves problems by applying multiple properties of angles, including interior and exterior angles of triangles; complementary, supplementary, and vertical angles; and angles created by perpendicular lines or parallel lines cut by a transversal	Recognizes that the sum of the interior angles of a triangle is 180 degrees	
Solves problems involving parallel lines cut by a transversal	Solves problems by applying multiple properties of angles, including interior and exterior angles of triangles; complementary, supplementary, and vertical angles; and angles created by perpendicular lines or parallel lines cut by a transversal	
	Solves problems involving parallel lines cut by a transversal	
		Applies the Triangle Inequality Theorem
		Calculates unknown angle measures using the properties of complementary, supplementary, and vertical angles
		Determines the conditions necessary to show that two lines are parallel
		Solves problems by applying multiple properties of angles, including interior and exterior angles of triangles; complementary, supplementary, and vertical angles; and angles created by perpendicular lines or parallel lines cut by a transversal

		Solves problems involving parallel lines cut by a transversal
Similarity		
Applies scale factors to solve problems involving scale drawings of geometric figures	Applies scale factors to solve problems involving scale drawings of geometric figures	
Applies scale factors to solve problems involving scale drawings, maps, and models	Applies scale factors to solve problems involving scale drawings, maps, and models	
Determines scale factors in problems involving scale drawings of geometric figures		
Applies properties of similar figures to determine a perimeter	Applies properties of similar figures to determine a perimeter	
Applies properties of similar triangles to solve real-world problems involving indirect measurements	Applies properties of similar triangles to solve real-world problems involving indirect measurements	
Determines lengths of corresponding sides in similar figures	Applies similarity postulates to identify corresponding sides and angles	
Identifies similar triangles using SAS or SSS	Applies similarity postulates to solve for missing lengths and angles	
Identifies the proportion of corresponding sides of similar figures	Determines lengths of corresponding sides in similar figures	
	Identifies similar triangles using SAS or SSS	
		Applies scale factors to solve problems involving scale drawings of geometric figures
		Applies scale factors to solve problems involving scale drawings, maps, and models
		Applies properties of similar figures to determine a perimeter
		Applies similarity postulates to solve for missing lengths and angles
		Applies the geometric mean to solve for missing lengths and angles in

		triangles Applies the Triangle Proportionality Theorem Determines lengths of corresponding sides in similar figures Identifies similar triangles using AA Identifies similar triangles using SAS or SSS
Spatial Concepts and Symmetry		
Identifies and creates nets for prisms	Identifies 3-D shapes using cross-sections Identifies the cross-sections of 3-D shapes	Identifies the 3-D shape created when a 2-D shape is rotated around an axis Identifies the cross-sections of 3-D shapes Identifies the rotational or reflectional symmetry of a shape
Surface Area		
Determines the surface area of rectangular prisms or cubes, formula not provided	Determines the surface area of a prism given a net Determines the surface area of rectangular prisms or cubes, formula not provided Uses the net of a prism to solve surface area problems within a real-world or mathematical context	Determines the side length of a cube given the surface area Determines the surface area of rectangular prisms or cubes, formula not provided Determines the surface area of triangular prisms, formula not provided

		Solves problems involving surface areas of prisms within a real-world or mathematical context
Time		
Solves elapsed time word problems involving either minutes crossing over an hour, or hours and/or minutes crossing over A.M. or P.M.		
Transformations		
Describes a single transformation that will map one figure onto another on the coordinate plane	Describes a series of transformations that will map one figure onto itself on the coordinate plane	
Describes a single transformation that will map one figure onto itself, without the coordinate plane	Describes a single transformation that will map one figure onto another on the coordinate plane	
Describes the effects of dilation on lengths and angle measures	Describes a single transformation that will map one figure onto itself, without the coordinate plane	
Determines the coordinates of the vertices of a polygon after a dilation or a series of dilations	Describes a translation using coordinate notation	
Determines the coordinates of the vertices of a polygon after a reflection or a series of reflections	Describes the effects of dilation on lengths and angle measures	
Determines the coordinates of the vertices of a polygon after a rotation or a series of rotations	Determines the coordinates of the vertices of a polygon after a dilation or a series of dilations	
Determines the image of a polygon on a coordinate plane after a reflection or a series of reflections	Determines the coordinates of the vertices of a polygon after a reflection or a series of reflections	
Determines the image of a translation represented in coordinate notation	Determines the coordinates of the vertices of a polygon after a rotation or a series of rotations	
Performs a series of translations, reflections, and rotations, without the coordinate plane	Determines the image of a polygon on a coordinate plane after a reflection or a series of reflections	
Understands that rigid transformations preserve congruency	Determines the image of a polygon on a coordinate plane after a series of translations, reflections, or rotations	
		Applies the scale factor in a dilation

		to solve for unknown lengths Describes a single transformation that will map one figure onto itself, without the coordinate plane Describes a translation using coordinate notation Determines the coordinates of the vertices of a polygon after a dilation or a series of dilations Determines the coordinates of the vertices of a polygon after a reflection or a series of reflections Determines the image of a dilation represented in coordinate notation Determines the image of a polygon on a coordinate plane after a reflection or a series of reflections Identifies the center and scale factor used in a dilation represented in the coordinate plane Identifies the rotational or reflectional symmetry of a shape
Trigonometry		
Represents the tangent of an angle as a ratio of sides in a right triangle	Determines the measure of an acute angle in a right triangle using a trigonometric table Represents the cosine of an angle as a ratio of sides in a right triangle Represents the sine of an angle as a ratio of sides in a right triangle Represents the tangent of an angle as a ratio of sides in a right triangle Uses sine, cosine, or tangent to determine the length of a side in a right triangle	
		Determines the measure of an acute angle in a right triangle using a trigonometric table Represents the cosine of an angle as a ratio of sides in a right triangle

		Represents the sine of an angle as a ratio of sides in a right triangle
		Represents the tangent of an angle as a ratio of sides in a right triangle
		Uses sine, cosine, or tangent to determine the length of a side in a right triangle
Volume		
Determines the volume of a rectangular prism given a net	Describes the effect on volume when dimensions of a cylinder are changed	
Determines the volume of cylinders, given the formula	Describes the effect on volume when dimensions of a rectangular prism are changed	
Determines the volume of pyramids, given the formula	Determines the volume of cylinders, formula not provided	
Identifies units for measuring volume	Determines the volume of cylinders, given the formula	
Solves problems involving volumes of rectangular prisms within a real-world or mathematical context	Determines the volume of pyramids, given the formula	
	Determines the volume of spheres, given the formula	
	Solves problems involving volumes of rectangular prisms within a real-world or mathematical context	
		Describes the effect on volume when dimensions of a cylinder are changed
		Describes the effect on volume when dimensions of a rectangular prism are changed
		Determines the height of a cylinder given the volume and the radius or diameter
		Determines the radius or diameter of a cylinder given the volume and height
		Determines the radius or diameter of a sphere given the volume

Determines the volume of cylinders, formula not provided

Determines the volume of cylinders, given the formula

Determines the volume of pyramids, formula not provided

Determines the volume of pyramids, given the formula

Uses geometric modeling as a method to solve real-world problems with given physical or cost requirements

Reinforce these skills & concepts	Develop these skills & concepts	Introduce these skills & concepts
Bivariate Data		
Approximates the line of best fit on a scatter plot	Approximates the line of best fit on a scatter plot	Analyzes linear trends in scatter plots to make predictions
Constructs scatter plots of bivariate data	Compares two sets of bivariate data to draw conclusions	Describes data in a scatter plot, including the interpretation of outliers and clusters
Describes data in a scatter plot, including the interpretation of outliers and clusters	Constructs scatter plots of bivariate data	Describes the correlation or association between two variables, including the direction and strength of linear and nonlinear relationships
Describes the correlation or association between two variables, including the direction and strength of linear and nonlinear relationships	Describes data in a scatter plot, including the interpretation of outliers and clusters	Determines a pair of quantitative variables that has either a positive, negative, or zero correlation
Determines whether two quantitative variables have a positive linear, negative linear, or zero association	Describes the correlation or association between two variables, including the direction and strength of linear and nonlinear relationships	Determines relative frequencies in a two-way frequency table
Distinguishes between linear and nonlinear relationships in scatter plots	Determines a pair of quantitative variables that has either a positive, negative, or zero correlation	Determines whether two quantitative variables have a positive linear, negative linear, or zero association
	Determines relative frequencies in a two-way frequency table	Determines whether two quantitative variables have a positive or negative nonlinear association
	Determines whether two quantitative variables have a positive linear, negative linear, or zero association	Estimates the slope of a line of best fit
	Interprets the meaning of the slope or y-intercept of a line of best fit or regression line	Interprets the meaning of the slope or y-intercept of a line of best fit or regression line
Data Analysis		
Identifies the median, quartiles, extreme values, and outliers from a box plot	Identifies the median, quartiles, extreme values, and outliers from a box plot	Compares the means and medians of related data sets represented in histograms
Reads and interprets data from a	Solves word problems using data	Compares the medians of related

histogram	from line or dot plots with fractional scales	data sets represented numerically and in a line plot
Solves word problems using data from line or dot plots with fractional scales		Solves word problems using data from line or dot plots with fractional scales
		Represents the intersection, union, and complement of sets using a Venn diagram
Data Representation		
Constructs scatter plots of bivariate data	Constructs scatter plots of bivariate data	Represents data in histograms
Represents data in histograms	Represents data in histograms	
Measures of Center and Spread (Variability)		
Determines the mean of a data set	Determines a missing value in a data set when the mean is known	Compares the means and medians of related data sets represented in histograms
Determines the median of a data set that is not ordered	Determines how the measures of center are affected with the addition or deletion of a data value, including outliers	Compares the medians of related data sets represented numerically and in a line plot
Determines the median of a data set that is ordered	Determines the mean of a data set	Determines a missing value in a data set when the mean is known
Determines the range of a data set	Determines the median of a data set that is not ordered	Determines how the measures of center are affected with the addition or deletion of a data value, including outliers
Identifies the median, quartiles, extreme values, and outliers from a box plot	Determines the range of a data set	Determines the median of a data set that is not ordered
	Identifies the median, quartiles, extreme values, and outliers from a box plot	Determines the range of a data set
Populations/Random Processes		
Analyzes data from samples to make inferences about populations	Analyzes data from samples to make inferences about populations	Analyzes data from samples to make inferences about populations
Identifies a sampling method that produces the most representative sample	Identifies a sampling method that produces the most representative sample	Identifies a sampling method that produces the most representative sample
		Writes proportions to make inferences about populations

Probability		
Describes the likelihood of compound events occurring	Describes the likelihood of compound events occurring	Determines conditional probabilities of events without replacement
Determines experimental probabilities of simple events	Determines conditional probabilities of events without replacement	Determines experimental probabilities of simple events
Determines marginal probabilities using a two-way frequency table	Determines experimental probabilities of simple events	Determines joint probabilities using a two-way frequency table
Determines the probability of the complement of an event	Determines joint probabilities using a two-way frequency table	Determines probabilities of compound independent events
Determines theoretical probabilities of simple events	Determines probabilities of compound independent events	Determines probabilities using geometric models
Makes predictions based on experimental probabilities of simple events	Determines the probability of the complement of an event	Determines theoretical probabilities of simple events
Makes predictions based on theoretical probabilities of simple events	Determines theoretical probabilities of simple events	Makes predictions based on experimental probabilities of simple events
Understands the concept of independence in situations	Makes predictions based on experimental probabilities of simple events	
Writes proportions to make predictions based on experimental probabilities	Modifies sample space to change the probability of an event	
	Understands the concept of independence in situations	

Rates/Ratios/Proportions/Percents		
Writes proportions to make predictions based on experimental probabilities		Writes proportions to make inferences about populations

Sample Spaces		
Determines the sample space for more than two compound events using organized lists, tree diagrams, or charts	Determines the sample space for two compound events using organized lists, tree diagrams, or charts	
Determines the sample space for two compound events using organized lists, tree diagrams, or charts	Uses the Fundamental Counting Principle to determine the number of possible outcomes	
Uses the Fundamental Counting Principle to determine the number of possible outcomes		

MAP GROWTH READING LEARNING STATEMENTS

LITERARY TEXT: KEY IDEAS AND DETAILS

Reinforce these skills & concepts	Develop these skills & concepts	Introduce these skills & concepts
Characterization		
Analyzes dialogue to understand characters Analyzes how setting affects characters Analyzes the effect of characterization Explains character motivation Infers character feelings or thoughts Understands character relationships Understands how characters are developed or changed		
	Analyzes dialogue to understand characters	
Inferences, Conclusions, Predictions		
Draws conclusions from literary text Makes inferences about plot in literary text Makes inferences from poetry		
Plot		
Analyzes how setting contributes to plot Identifies climax in literary text Identifies problem/conflict in literary text Identifies problem/conflict in poetry		
Setting		
Analyzes how setting affects characters Analyzes how setting contributes to plot Analyzes how setting contributes to theme Draws conclusions about a setting based on a description		
	Draws conclusions about a setting based on a description	
	Draws conclusions about a setting based on a description	
Summarizing, Paraphrasing		
Summarizes poetry		

Supporting Details	
Determines details that support a stated idea in literary text Determines details that support an inference in literary text Compares and contrasts ideas presented in multiple literary texts Identifies details that support the theme in literary text	
Theme, Moral, Lesson	
Analyzes how setting contributes to theme Analyzes the development of a shared theme in multiple texts Determines a shared theme in multiple texts Determines the moral of a story Determines theme in literary text Determines theme in poetry	
	Determines a shared theme in multiple texts Determines theme in poetry Determines a shared theme in multiple texts
Understands character relationships	
	Understands how characters are developed or changed
	Summarizes poetry

LITERARY TEXT: LANGUAGE, CRAFT, AND STRUCTURE

Reinforce these skills & concepts	Develop these skills & concepts	Introduce these skills & concepts
Author's Craft: Figurative Language		
Analyzes the effect of figurative language in literary text Analyzes the effect of oxymoron Determines the meaning of a figurative phrase in literary text Identifies alliteration Identifies dialect Identifies hyperbole Identifies idiom Identifies irony Identifies onomatopoeia Identifies paradox Identifies simile Identifies symbolism Interprets allusion in literary text Interprets euphemism in literary text Interprets extended metaphor in literary text Interprets extended metaphor in persuasive text Interprets extended metaphor in poetry Interprets hyperbole in literary text Interprets idiom in literary text Interprets metaphor that makes a complex comparison to describe an abstract idea in literary text Interprets personification in literary text Interprets simile in literary text Interprets symbolism in literary text	Analyzes the effect of figurative language in literary text Determines the meaning of a figurative phrase in literary text Identifies alliteration Identifies hyperbole Identifies idiom Identifies metonymy Identifies onomatopoeia Identifies oxymoron Identifies paradox Identifies parallelism Identifies the source of an allusion Interprets allegory in literary text Interprets allusion in literary text Interprets extended metaphor in literary text Interprets extended metaphor in poetry Interprets hyperbole in literary text Interprets metaphor that makes a complex comparison to describe an abstract idea in literary text Interprets personification in literary text Interprets simile in literary text Interprets symbolism in literary text	Identifies alliteration Identifies allusion Identifies hyperbole Identifies onomatopoeia Identifies parallelism Interprets metaphor that makes a complex comparison to describe an abstract idea in literary text Interprets simile in literary text
		Identifies alliteration Identifies allusion Identifies hyperbole Identifies onomatopoeia Identifies parallelism Interprets metaphor that makes a complex comparison to describe an abstract idea in literary text Interprets simile in literary text
Author's Craft: Foreshadowing, Flashback		
Analyzes use of foreshadowing in literary text Identifies flashback in literary text Identifies foreshadowing in literary text	Identifies flashback in literary text Identifies foreshadowing in literary text	
Author's Craft: Imagery, Description		
Identifies imagery or description Understands that descriptions appeal to different senses	Analyzes the effect of imagery in literary text	
Author's Craft: Perspective, Attitude		

Determines narrator's attitude in literary text Determines speaker's attitude in poetry Evaluates narrator's attitude in literary text to make an inference Identifies details that support narrator's viewpoint in literary text	Identifies details that support narrator's viewpoint in literary text	Understands the point an author makes in a satirical passage
		Understands the point an author makes in a satirical passage
Author's Craft: Persuasive and Rhetorical Techniques		
Interprets extended metaphor in persuasive text		
Author's Craft: Style, Voice, Tone, Mood		
Analyzes how mood is conveyed in literary text Analyzes the effect of word choice in literary text Determines mood in literary text Determines mood in poetry Determines tone in literary text Understands what tone is in literary text	Analyzes how mood is conveyed in literary text Analyzes the effect of word choice in literary text Determines mood in literary text Determines mood in poetry Determines tone in literary text	Analyzes tone in poetry Determines tone in literary text
Analyzes use of suspense in literary text		Analyzes how mood affects plot in a literary text
		Analyzes tone in poetry Determines tone in literary text
		Analyzes how mood affects plot in a literary text
Characteristics of Genre: Literary		
Analyzes form or structure of poetry Analyzes how the structure of a poem contributes to its meaning Analyzes use of stage directions Determines rhyme scheme in poetry Identifies form or structure in poetry Identifies stanzas in poetry Understands characteristics of drama Understands characteristics of fiction Understands terms that refer to structural elements in drama	Analyzes use of stage directions Determines rhyme scheme in poetry Identifies form or structure in poetry Understands characteristics of narrative poetry Understands terms that refer to structural elements in drama	Identifies form or structure in poetry Understands terms that refer to structural elements in drama
		Identifies form or structure in poetry Understands terms that refer to structural elements in drama
Dialogue		

Analyzes how dialogue advances plot in literary text Analyzes use of dialogue in literary text Identifies dialogue as the primary structure of a literary text	Analyzes how dialogue advances plot in literary text	
Plot		
Analyzes climax in literary text Analyzes how dialogue advances plot in literary text Analyzes use of suspense in literary text Identifies exposition in literary text Understands development of plot in literary text Understands terms commonly used to describe plot	Analyzes how dialogue advances plot in literary text Identifies exposition in literary text Identifies falling action in literary text Understands development of plot in literary text Understands terms commonly used to describe plot	Analyzes how mood affects plot in a literary text Identifies exposition in literary text
		Analyzes how mood affects plot in a literary text Identifies exposition in literary text
Point of View		
Analyzes the effect of narrator's point of view Describes how an ironic point of view affects meaning Describes the technique an author uses to develop point of view Predicts how a story would differ if told from another point of view Recognizes third-person point of view	Analyzes the effect of narrator's point of view Describes how an ironic point of view affects meaning Identifies a third-person objective narrator Predicts how a story would differ if told from another point of view	Describes how an ironic point of view affects meaning
		Describes how an ironic point of view affects meaning
Purpose		
Determines specific purpose of literary text		
Supporting Details		
Identifies details that support narrator's viewpoint in literary text	Identifies details that support narrator's viewpoint in literary text	
Text Structure: Organization		
Analyzes form or structure of poetry Identifies form or structure in poetry	Identifies form or structure in poetry	Identifies form or structure in poetry
		Identifies form or structure in poetry

INFORMATIONAL TEXT: KEY IDEAS AND DETAILS

Reinforce these skills & concepts	Develop these skills & concepts	Introduce these skills & concepts
Assertions and Claims		
Compares and contrasts claims in multiple argumentative texts Compares and contrasts viewpoints in multiple informational texts Determines how an author organizes claims		
	Compares and contrasts claims in multiple argumentative texts Compares and contrasts viewpoints in multiple informational texts Determines how an author organizes claims	Compares and contrasts claims in multiple argumentative texts
Author's Craft: Perspective, Attitude		
Determines the difference in focus of two informational texts on the same topic		
Cause and Effect		
Determines the cause of a situation or event in informational text Determines the cause of a situation or event in literary nonfiction		
	Determines the cause of a situation or event in literary nonfiction	
Characteristics of Genre: Literary Nonfiction		
Determines how an autobiographical account is different from a biographical account		
Facts and Opinions		
Distinguishes fact from opinion in informational text		
	Distinguishes fact from opinion in informational text	
Following Directions		
Locates information in a set of directions		
Inferences, Conclusions, Predictions		
Draws conclusions based on		

multiple informational texts Draws conclusions from informational text Draws conclusions from literary nonfiction Draws conclusions from procedural or technical text Makes inferences from definitions Makes inferences from informational text Makes inferences from literary nonfiction Analyzes implicit relationships between ideas in informational text Compares and contrasts ideas described in informational text		
	Draws conclusions from informational text Draws conclusions from procedural or technical text Makes inferences from informational text Makes inferences from literary nonfiction Compares and contrasts ideas described in informational text	Makes inferences from informational text
Locating Information		
Locates details in literary nonfiction Locates information in a set of directions Compares and contrasts details in multiple informational texts		
Main or Central Idea, Topic, Titles		
Analyzes how details shape a central idea in literary nonfiction Analyzes the development of a central idea in informational text Analyzes the development of a central idea in literary nonfiction Determines main idea in informational text Determines main idea in literary nonfiction Determines main idea in persuasive text Determines the main idea of publicity materials or public service announcements Determines two or more main ideas in informational text		
	Analyzes the development of a central idea in informational text Determines main idea in	Analyzes the development of a central idea in informational text Determines main idea in

	informational text Determines main idea in literary nonfiction Determines two or more main ideas in informational text	informational text Determines two or more main ideas in informational text
Summarizing, Paraphrasing		
Paraphrases text Summarizes a sequence of events in informational text Summarizes informational text Summarizes political speech Synthesizes information found in multiple informational texts		
	Summarizes informational text Summarizes political speech	
Supporting Details		
Determines details that support a concept presented in informational text Determines details that support a prediction or conclusion in informational text Determines details that support a stated idea in literary nonfiction Determines details that support an inference in informational text Determines details that support an inference in literary nonfiction Identifies details that support main idea in informational text Analyzes the technique and details an author uses to develop an event, concept, or characterization in informational text		
	Determines details that support a stated idea in literary nonfiction Determines details that support an inference in literary nonfiction Analyzes the technique and details an author uses to develop an event, concept, or characterization in informational text	Determines details that support an inference in literary nonfiction
Theme, Moral, Lesson		
Determines theme in literary nonfiction		

INFORMATIONAL TEXT: LANGUAGE, CRAFT, AND STRUCTURE

Reinforce these skills & concepts	Develop these skills & concepts	Introduce these skills & concepts
Assertions and Claims		
Analyzes the use of counterclaims in argumentative text Evaluates evidence used to support claims in argumentative text Evaluates validity of reasoning in argumentative text Identifies evidence that supports a claim in argumentative text Recognizes when assertions are stated as generalizations	Evaluates evidence used to support claims in argumentative text Evaluates validity of reasoning in argumentative text	
Author's Craft: Figurative Language		
Analyzes the effect of oxymoron		
Author's Craft: Perspective, Attitude		
Analyzes advertising for evidence of bias Analyzes argumentative text for evidence of bias Analyzes informational text for evidence of bias or stereotypes Determines author's attitude in informational text Determines author's attitude in persuasive text Evaluates author's attitude in informational text to make an inference Evaluates the effect of bias in argumentative text	Analyzes argumentative text for evidence of bias Determines author's attitude in informational text Determines author's attitude in persuasive text Evaluates the effect of bias in argumentative text	
Author's Craft: Persuasive and Rhetorical Techniques		
Analyzes persuasive technique used in a speech Recognizes the use of rhetorical question	Recognizes the use of parallelism	
Author's Craft: Style, Voice, Tone, Mood		
Analyzes the effect of word choice on meaning Determines tone in informational text	Analyzes the effect of allusion on tone Determines tone in informational text	
Characteristics of Genre: Persuasive, Argumentative		
Analyzes advertising for evidence of bias Analyzes persuasive technique used in a speech		
Text Features, Visuals		
Evaluates information in charts or graphs Understands the purpose of	Understands the purpose of a sidebar	

a sidebar

Text Structure: Organization	
Analyzes the effect of multiple structures in informational text	
Analyzes the effect of multiple structures in literary nonfiction text	Analyzes the effect of multiple structures in informational text
Analyzes the use of a cause-effect structure in informational text	Analyzes the use of a compare-contrast structure in informational text
Analyzes the use of a chronology structure in informational text	
Analyzes the use of a compare-contrast structure in informational text	

VOCABULARY: ACQUISITION AND USE

Reinforce these skills & concepts	Develop these skills & concepts	Introduce these skills & concepts
Academic and Content Vocabulary		
Uses context to determine the meaning of academic words or phrases in informational text Uses context to determine the meaning of domain-specific words or phrases in informational text		
Base Words, Affixes		
Applies knowledge of Greek or Latin roots to determine the meaning of a word in the 9-12 grade band Identifies the meaning of common Greek and Latin roots Understands how the prefix inter- changes the meaning of a word	Applies knowledge of Greek or Latin roots to determine the meaning of a word in the 9-12 grade band	
Context Clues: Unknown and Multiple-Meaning Words		
Determines which meaning of a multiple-meaning word in the 9-12 grade band fits a given context Uses context in a grade 10 passage to determine the meaning of above grade 10 vocabulary Uses context to determine the meaning of words in the 9-12 grade band	Uses context to determine the meaning of words in the 9-12 grade band	Uses context to determine the meaning of words in the 9-12 grade band
Reference Materials		
Uses a dictionary definition to confirm initial understanding of word meaning Uses context and dictionary or thesaurus entries to determine word meaning	Uses context and dictionary or thesaurus entries to determine word meaning	
Text Features, Visuals		
Draws conclusions using specialized reference materials		
Word Nuances and Shades of Meaning		
Analyzes connotative meanings of words in informational text Analyzes nuances in meaning among related words to determine which fits a given context Understands precise connotations of words with similar	Analyzes nuances in meaning among related words to determine which fits a given context	

meanings Uses context to determine connotation of words	
Word Relationships	
Identifies synonyms of given words in the 9-12 grade band Identifies words or phrases in context that show a cause-effect relationship Uses synonym relationships in context to determine word meanings	Identifies synonyms of given words in the 9-12 grade band Uses analogies in context to determine word meaning

MAP GROWTH SCIENCE - GENERAL SCIENCE LEARNING STATEMENTS

LIFE SCIENCE

Reinforce these skills & concepts	Develop these skills & concepts	Introduce these skills & concepts
Adaptation		
Constructs explanations to describe how certain traits help organisms survive in specific environments	Applies evidence about natural selection to explain how environmental changes affect gene distribution, leading to changes in populations	
Predicts how species will adapt over time to ecological and environmental change	Describes the conditions necessary for evolution by natural selection to occur	
Describes how traits that support survival tend to increase in populations over time		
Describes how natural selection results in a specific adaptation		
Analyzes and interprets data to determine environmental causes for adaptations		
Describes the conditions necessary for evolution by natural selection to occur		
Predicts the effects of natural selection on a population		
Applies scientific ideas or evidence to explain how natural selection results in specific adaptations		
Analyzes and interprets data to describe how changes in environmental conditions may affect species over time		
		Applies evidence about natural selection to explain how environmental changes affect gene distribution, leading to changes in populations
Behavioral Responses		

Models how inputs are received by the senses, are transferred through nerve cells to the brain, and result in behavioral responses		
Body Systems: Interacting Systems and Homeostasis		
Describes how systems work together for the body to function	Describes how systems work together for the body to function	
Identifies systems that work together to perform specific functions of the body	Describes how parts of body systems interact for the body to function	
Describes how parts of body systems interact for the body to function		
Identifies ways that the human body maintains equilibrium		
		Describes how parts of body systems interact for the body to function
Body Systems: Organs and Specialized Cells		
Relates the structures of specialized cells to their functions within organisms	Relates the structures of specialized cells to their functions within organisms	
Describes how structure supports the functions of organs	Describes how structure supports the functions of organs	
Describes how structure supports the functions of organs, using models	Describes how structure supports the functions of organs, using models	
		Describes how structure supports the functions of organs
Body Systems: System Components and Functions		
Relates concepts of cells, tissues, organs, and organ systems, using models	Relates concepts of cells, tissues, organs, and organ systems, using models	
Recognizes components of the respiratory system	Identifies parts within organisms as cells, tissues, organs, or organ systems	
Analyzes and interprets data to relate cells, tissues, organs, and organ systems		
Identifies parts within organisms as cells, tissues, organs, or organ		

systems

Cells: Structures and Functions	
Relates the cell membrane to its functions in the cell	Represents how organelles affect the functioning of a cell as a whole, using models
Relates structures of plant and animal cells to their functions	Describes how the structure of DNA affects the structure and/or function of proteins, cells, and organisms
Represents how organelles affect the functioning of a cell as a whole, using models	Describes how the structure of DNA affects the structure of proteins, using models
Describes how the structure of DNA affects the structure and/or function of proteins, cells, and organisms	Relates the number of mitochondria in different types of cells to the energy requirements of those cells
Relates the number of mitochondria in different types of cells to the energy requirements of those cells	
Describes the purpose of genetically modifying organisms by inserting chloroplasts	
Compares the functions of cell walls in plant cells to structures found in other organisms	
Analyzes and interprets data to relate chloroplasts to photosynthesis	
Relates the green color of plants to the presence of chloroplasts and the capacity for photosynthesis	

Ecosystem Dynamics	
Analyzes and interprets data to describe how biological and physical changes impact biodiversity over time	Evaluates solutions for minimizing habitat destruction caused by human activities
Evaluates solutions for minimizing habitat destruction caused by human activities	

Effects of Humans on Habitats and Living Things	
Evaluates solutions intended to lessen the negative effects of humans on biodiversity	Analyzes and interprets data to infer effects of human activity on ecosystems

Defines design problems about reducing human impacts on ecosystems

Analyzes and interprets data to infer effects of human activity on ecosystems

Effects of Humans on Land, Water, and Air
Describes effects of fertilizers/phosphates on rivers and lakes

Engineering Design Solutions	
Evaluates solutions intended to lessen the negative effects of humans on biodiversity	Evaluates solutions for minimizing habitat destruction caused by human activities
Evaluates solutions for minimizing habitat destruction caused by human activities	

Engineering Problems
Defines design problems about reducing human impacts on ecosystems

Evolutionary Relationships and Evidence
Constructs explanations relating cellular evidence to biological evolution
Applies scientific ideas to explain similarities and differences among living organisms or among fossilized and living organisms
Constructs explanations relating anatomical evidence to biological evolution

Extinction and Speciation
Compares causes of mass extinction in the past and present

Genetic Crosses	
Analyzes and interprets data to predict the probabilities of expressed traits for crosses involving a single trait	Analyzes and interprets data to predict the probabilities of expressed traits for crosses involving a single trait
Describes inheritance patterns of recessive traits in populations	Applies scientific ideas of dominant and recessive alleles to infer traits of

	parents	
Applies scientific ideas of dominant and recessive alleles to infer traits of parents	Uses mathematics to predict probabilities that offspring will express certain traits, given parental alleles	
Applies scientific ideas of dominant and recessive alleles to explain observed traits of offspring	Analyzes and interprets data of offspring's expressed traits to predict parental genotypes for crosses involving one trait	
Uses mathematics to predict probabilities that offspring will express certain traits, given parental alleles	Infers whether a trait is dominant or recessive, using a pedigree chart	
Infers genotypes of parents for single-trait crosses, using Punnett squares		
Analyzes and interprets data of offspring's expressed traits to predict parental genotypes for crosses involving one trait		
		Uses mathematics to predict probabilities that offspring will express certain traits, given parental alleles
Group Behavior		
Supports claims that group behavior improves survivability of individuals and the species as a whole	Uses evidence to explain how group behavior affects the probability of survival of group members	
Information Transfer		
Sequences the steps required for an organism to process stimuli		
Inherited and Acquired Traits		
Describes how the environment influences the expression of genes		
Interactions among Organisms		
Analyzes and interprets data to determine how interactions with living and nonliving environmental factors affect the carrying capacity of populations		
Analyzes and interprets data to describe how predatory interactions		

affect populations over time	
Predicts how changes to mutually beneficial interactions affect populations	
Applies scientific ideas to explain how competition affects population changes	
Describes how animals affect plant reproduction	
Interactions with the Physical Environment	
Analyzes and interprets data to determine how interactions with living and nonliving environmental factors affect the carrying capacity of populations	
Molecular Genetics	
Infers the effect of a mutation on an organism	
Predicts effects of mutations in somatic cells and sex cells	
Natural and Artificial Selection	
Describes the conditions necessary for evolution by natural selection to occur	Describes the conditions necessary for evolution by natural selection to occur
Applies scientific ideas to explain how sexual reproduction and genetic variation affect survivability	Applies evidence about natural selection to explain how environmental changes affect gene distribution, leading to changes in populations
Applies scientific ideas or evidence to infer the effects of genetic variability on survival	Applies scientific ideas to explain speciation due to natural selection
Describes how genetic engineering can be used for different applications	
Identifies examples of artificial selection	
Applies scientific ideas or evidence to explain how natural selection results in specific adaptations	
Describes benefits of selective	

breeding		
Describes how natural selection results in a specific adaptation		
Predicts the effects of natural selection on a population		
Constructs explanations to describe how certain traits help organisms survive in specific environments		
		Applies evidence about natural selection to explain how environmental changes affect gene distribution, leading to changes in populations
Pathways of Energy and Matter in Ecosystems		
Traces the flow of energy through ecosystems, using models of food chains or food webs	Describes how photosynthesis and cellular respiration contribute to the cycling of carbon through Earth's systems, using quantitative models	
Describes the relative sizes of populations in food chain models	Describes the relative sizes of populations in food chain models	
Compares levels of ecological pyramids	Compares levels of ecological pyramids	
Describes available energy at different trophic levels in ecosystems, using models	Describes available energy at different trophic levels in ecosystems, using models	
Determines evidence supporting the presence of aerobic or anaerobic respiration	Describes how photosynthesis and cellular respiration contribute to the cycling of carbon through Earth's systems	
Describes how photosynthesis and cellular respiration contribute to the cycling of carbon through Earth's systems	Describes how energy transfers between trophic levels of ecosystems	
Describes how energy transfers between trophic levels of ecosystems	Compares the flow of energy and/or matter in aerobic and anaerobic respiration, using models	
Applies scientific ideas to explain differences in biomass among trophic levels in an ecosystem		
Describes the flow of matter and energy in small-scale ecosystems		

		Supports claims about the process of respiration in both aerobic and anaerobic environments
		Describes how photosynthesis and cellular respiration contribute to the cycling of carbon through Earth's systems
		Describes how energy transfers between trophic levels of ecosystems
Photosynthesis and Respiration		
Describes energy flow in respiration	Represents the flow of matter and energy in cellular respiration, using models	
Represents the flow of matter and energy in cellular respiration, using models	Describes the flow of matter and energy in photosynthesis and cellular respiration	
Compares the flow of matter and energy in photosynthesis and cellular respiration, using models	Represents the flow of matter and energy in photosynthesis, using models	
Describes the flow of matter and energy in photosynthesis and cellular respiration		
Makes a claim based on evidence about photosynthesis		
Represents the flow of matter and energy in photosynthesis, using models		
		Represents the flow of matter and energy in cellular respiration, using models
		Recognizes substances in plants that provide energy for the plants' growth
		Describes the flow of matter and energy in photosynthesis and cellular respiration
Population Dynamics		
Predicts how changes to one population will indirectly affect other populations in ecosystems, using models		

Predicts how changes to ecosystems will affect populations within those ecosystems		
Predicts how changes to one population will indirectly affect other populations in ecosystems		
Applies scientific ideas to explain how competition affects population changes		
Predicts how changes to one population will directly affect other populations in ecosystems		
Reproduction and Genetic Variation		
Describes how the expression of different genes causes cells to have different functions	Describes how the expression of different genes causes cells to have different functions	
Applies scientific ideas to explain variations of traits in populations	Describes causes of genetic variability in species	
Describes causes of genetic variability in species		
Reproduction, Growth, and Development		
Describes how animals affect plant reproduction		
Describes how the expression of different genes causes cells to have different functions	Describes how the expression of different genes causes cells to have different functions	
		Relates differentiation to the development of the systems in complex organisms

Reinforce these skills & concepts	Develop these skills & concepts	Introduce these skills & concepts
Acceleration and Free Fall		
	Explains why objects with different masses can fall at the same rate	
Atomic Structure		
Describes limitations or accuracy of atomic models	Describes limitations or accuracy of atomic models	
Identifies models of elements using information from the periodic table	Identifies models of elements using information from the periodic table	
Recognizes the number of subatomic particles in models of atoms	Develops models of elements using information from the periodic table	
Identifies accurate models of atoms	Recognizes the number of subatomic particles in models of atoms	
	Identifies accurate models of atoms	
Chemical Properties of Matter		
Predicts patterns of properties using the periodic table	Predicts patterns of properties using the periodic table	
Describes properties of individual elements based on their position in the periodic table	Describes societal and environmental impacts of producing various products from synthetic and natural materials	
	Describes properties of individual elements based on their position in the periodic table	
Chemical Reactions		
Determines reactants and products in models of chemical reactions by recognizing that atoms are conserved	Identifies factors that affect rates of reaction	
Identifies factors that affect rates of reaction	Designs devices that use chemical reactions to transfer thermal energy	
Applies scientific ideas about thermal energy transfers in chemical reactions to explain phenomena	Predicts how changes in temperature affect rates of reaction	
Predicts how changes in	Balances chemical equations	

temperature affect rates of reaction	
Compares amounts and compositions of products and reactants of chemical reactions using the law of conservation of matter	Compares amounts and compositions of products and reactants of chemical reactions using the law of conservation of matter
Conservation of Mass and Matter	
Compares amounts and compositions of products and reactants of chemical reactions using the law of conservation of matter	Applies conservation of matter to calculate amounts of products and reactants, using chemical equations
Relates changes in temperature and state to changes in thermal energy	Compares amounts and compositions of products and reactants of chemical reactions using the law of conservation of matter
Determines reactants and products in models of chemical reactions by recognizing that atoms are conserved	Develops and uses models to demonstrate that atoms are rearranged and not lost during chemical reactions
	Relates changes in temperature and state to changes in thermal energy
Effects of Force on Motion	
Describes how technologies help meet design criteria for preventing damage to colliding objects	Describes effects of forces on motions of objects in space
Applies Newton's third law to explain design solutions that change the motion of objects	Predicts motions of interacting objects by applying Newton's third law
Applies Newton's third law to explain phenomena	Describes how technologies help meet design criteria for preventing damage to colliding objects
Analyzes and interprets motion data to describe effects of forces on objects	Evaluates design solutions to reduce forces on objects during collisions
Analyzes and interprets force diagrams to describe the acceleration of objects	Describes how forces acting on an object determine the motion of the object
Analyzes and interprets speed-time data to determine when	Describes forces acting on objects with constant velocity

balanced/unbalanced forces are acting	
	Analyzes and interprets motion data to describe effects of forces on objects
	Describes a solution to a design problem involving forces
	Relates forces on objects to motion data for the objects
	Analyzes and interprets force diagrams to describe the acceleration of objects
Electric Charges and Forces	
Describes how charged objects affect uncharged objects, using models	Describes how to test objects for a positive or negative static electric charge
Describes causes of static electricity	Compares electric forces between objects with different charges at different distances
Describes how electric fields exert forces that cause interactions between objects not in contact	
Electromagnetic Waves	
Describes effects of ultraviolet light on humans	Identifies the wavelength from a model of an electromagnetic wave
Describes effects of electromagnetic radiation on living organisms	Describes effects of electromagnetic radiation on living organisms
Energy Conversions	
Describes energy transfers between potential and kinetic energy	Describes energy conversions during the process of burning
Investigates energy conversions in devices, based on criteria and constraints	Investigates energy conversions in devices, based on criteria and constraints
Develops and uses models to describe energy transfers between potential and kinetic energy	Describes conversions between chemical and mechanical energy in moving animals
Describes energy conversions in a chemical reaction considering energy conservation	Develops and uses models to describe energy transfers between potential and kinetic energy

Describes energy conversions due to acceleration of objects within magnetic fields	Calculates changes in energy of an object based on changes in position of that object
Describes energy conversions involving generating and using electricity	Describes energy conversions involving generating and using electricity
Describes changes in kinetic, thermal, and potential energy when objects collide	Relates potential energy to height of objects using graphs
Describes energy conversions in devices	Describes energy conversions in devices
Energy Forms	
Relates changes in motions in space systems to energy	Relates the amount of thermal energy transferred to a substance/object to the speed and average kinetic energy of particles within the substance/object
Describes energy inputs/outputs of devices	Describes energy inputs/outputs of devices
Engineering Design Solutions	
Applies scientific ideas about the effects of heat transfer on materials used in technological designs	Evaluates solutions to solve problems involving heat energy
Investigates energy conversions in devices, based on criteria and constraints	Applies scientific ideas about the effects of heat transfer on materials used in technological designs
	Plans investigations to test proposed design solutions to problems involving heat transfer
	Investigates energy conversions in devices, based on criteria and constraints
Analyzes and interprets data to determine materials with properties that meet the criteria and constraints of a solution	Designs devices that use chemical reactions to transfer thermal energy
	Analyzes and interprets data to determine materials with properties that meet the criteria and constraints of a solution
Describes how technologies help meet design criteria for preventing	Evaluates design solutions to reduce forces on objects during

damage to colliding objects	collisions
Refines designs to optimize motions of objects	Describes how technologies help meet design criteria for preventing damage to colliding objects
	Refines designs to optimize motions of objects
Engineering Problems	
Represents forces with free-body diagrams	Relates understanding of forces to advances in technology
Gravity	
Analyzes and interprets planetary mass-weightdata to predict weights on other planets	Relates the force of gravity to acceleration due to gravity
Describes effects of gravity on projectiles	Predicts the weights of objects in different places in the Earth-Moon system
Compares gravitational fields of planets with the same radius and different masses	
Relates changes in the force of gravity to changes of the mass of objects	
Analyzes and interprets data to make claims about the relative gravitational forces between objects	
Relates the force of gravity to acceleration due to gravity	
Predicts the weights of objects in different places in the Earth-Moon system	
Heat Transfer	
Describes the motion of heat between substances	Applies scientific ideas about heat transfer to explain the results of investigations
Applies scientific ideas about heat transfer to explain the results of investigations	Plans investigations to test proposed design solutions to problems involving heat transfer
Evaluates procedures in terms of variables and controls, for investigations about heat transfer	Evaluates solutions to solve problems involving heat energy

Evaluates tools needed to investigate heat transfer	Plans investigations to answer questions about factors affecting heat transfer
Plans investigations to answer questions about factors affecting heat transfer	Describes heat flow/transfer during changes of state/phase
Applies scientific ideas about the effects of heat transfer on materials used in technological designs	Applies scientific ideas about the effects of heat transfer on materials used in technological designs
	Recognizes that heat/thermal energy moves from higher to lower temperatures
Information Transfer	
Recognizes that light can carry information	
Compares the effects of digital and analog methods of transferring and maintaining information	
Light	
Applies scientific ideas to explain how different transparent materials affect the path of light	Describes how light carries information from objects to eyes
Recognizes refraction of light in a model	Describes how materials absorb and transmit light, using models
Explains that the color of objects is related to the light absorbed and reflected by them	Recognizes refraction of light in a model
	Explains that the color of objects is related to the light absorbed and reflected by them
Magnetism and Electromagnetism	
Plans investigations to demonstrate the effects of magnetic fields on electric currents	Describes how to make magnets by using electric currents
Analyzes and interprets data to infer relationships between magnetic forces and distances	Analyzes and interprets data to infer relationships between magnetic forces and distances
Describes how magnets separate mixtures, using models	Describes how magnets separate mixtures, using models
Molecular Structure and Bonding	
Develops and uses models to	Develops and uses models to

describe the structure of molecules	describe the structure of molecules
Relates the properties of compounds to the chemical bonds of the compounds	Relates the properties of compounds to the chemical bonds of the compounds
Analyzes and interprets data in the periodic table to determine examples of crystalline compounds	Relates the effects of electrons to the chemical properties of elements/molecules, using models
Describes how the properties of water molecules affect the behavior of water	Analyzes and interprets data in the periodic table to determine the types of bonding in compounds
Recognizes that forces between atoms hold molecules of substances together	
Momentum	
Recognizes factors that can change an object's momentum	
Motion	
Relates motions of objects to graphs of the motions	Relates motions of objects to graphs of the motions
Refines designs to optimize motions of objects	Describes plans to investigate factors that affect motions of objects
	Refines designs to optimize motions of objects
Nuclear Chemistry	
	Compares energy release from fusion, fission, and chemical reactions
Particle Model of Matter	
Applies a particle model of matter to explain the expansion and compression of objects and substances	Applies a particle model of matter to explain the expansion and compression of objects and substances
Applies scientific ideas to explain how molecular movement affects the density of substances in different states of matter	Analyzes and interprets data to relate temperature changes to changes in molecular motion and spacing
Relates molecular/particle motion and spacing to the states/phases of substances, using a model	Applies scientific ideas to relate changes in the properties of substances when heated to changes in the molecular/particle motion and/or spacing

Analyzes and interprets data to relate temperature changes to changes in molecular motion and spacing	Relates changes in temperature to changes in the average speed/kinetic energy and/or spacing of molecules
Plans and/or evaluates investigations about diffusion using appropriate variables and controls	Relates molecular/particle motion and spacing to state/phase changes of substances
Relates changes in temperature to changes in the average speed/kinetic energy and/or spacing of molecules	Applies scientific ideas of particle motion and spacing to explain visible behaviors of liquids and gases
Applies the particle model of matter to describe how temperature affects pressure	Relates molecular/particle motion and spacing to changes in temperature/heat/thermal energy of a substance, using a model
Relates molecular/particle motion and spacing to state/phase changes of substances	Determines evidence to support claims about the relationship between temperature and particle/molecular motion
Relates molecular/particle motion and spacing to changes in temperature/heat/thermal energy of a substance, using a model	Describes how factors that affect rates of reaction work at the molecular level
Describes how factors that affect rates of reaction work at the molecular level	
Physical Properties of Matter	
Predicts how changes in temperature affect density and buoyancy	Predicts how changes in temperature affect density and buoyancy
Analyzes and interprets data to determine materials with properties that meet the criteria and constraints of a solution	Analyzes and interprets data to determine materials with properties that meet the criteria and constraints of a solution
Analyzes and interprets data to classify elements as metals or nonmetals based on their properties	Applies scientific ideas to explain changes in volume of a system
Applies scientific ideas to explain changes in volume of a system	Describes properties of individual elements based on their position in the periodic table
Describes properties of individual elements based on their position in	Describes characteristics of physical changes

the periodic table	
Describes characteristics of physical changes	Analyzes and interprets data to relatedensity to the ability of an object to float or sink
Analyzes and interprets data to relatedensity to the ability of an object to float or sink	Predicts patterns of properties using the periodic table
Predicts patterns of properties using the periodic table	Describes societal and environmental impacts of producing various products from synthetic and natural materials
Predicts how changes in temperature or pressure will affect the volume of gases	Predicts how changes in temperature or pressure will affect the volume of gases
Analyzes and interprets data to infer the properties of substances	
Pure Substances, Mixtures, and Solutions	
Compares mixtures, compounds, and elements, using models	Compares mixtures, compounds, and elements, using models
Describes plans to investigate using melting points to distinguish pure substances from mixtures	Analyzes and interprets data to infer whether substances are mixtures or compounds
Describes patterns of properties for groups of elements and for periods of elements on the periodic table	Describes patterns of properties for groups of elements and for periods of elements on the periodic table
Sound Waves	
Relates sound transmission to molecular spacing of mediums	Relates sound transmission to the medium of waves
Relates amplitude to energy of sound waves, using mathematical representations	Analyzes and interprets data to predict the pitch of sounds
Relates sound transmission to the medium of waves	
Wave Properties	
Uses models to describe the effects of various obstacles on the movement of mechanical waves	Applies knowledge of how waves move through different mediums to describe the structure of objects
	Explains why waves move at different speeds through different mediums

EARTH AND SPACE SCIENCE

Reinforce these skills & concepts	Develop these skills & concepts	Introduce these skills & concepts
Climate		
Describes how human activities and natural events have influenced the rise in global temperatures during modern times	Analyzes and interprets data to infer that greenhouse gases affect global climate change	
	Applies scientific ideas to explain the increasing intensity of severe weather associated with global climate change	
	Describes relationships between human-produced greenhouse gases and Earth'systems	
Predicts how increases in atmospheric carbon dioxide affect heat storage in the atmosphere	Predicts how increases in atmospheric carbon dioxide affect heat storage in the atmosphere	
Describes how clouds affect radiation of heat energy between Earth and space	Describes how clouds affect radiation of heat energy between Earth and space	
Describes how volcanic eruptions affect weather and climate	Describes how volcanic eruptions affect weather and climate	
Analyzes and interprets maps to describe how elevation, large bodies of water, and/or landforms affect local climates	Describes how latitude and ocean currents affect climates	
	Uses models to predict how changes in Earth's atmosphere affect energy flow and therefore climate	
	Compares the time scale of events that affect planetary energy flow and global climate	
		Predicts how increases in atmospheric carbon dioxide affect heat storage in the atmosphere
		Describes how latitude and ocean currents affect climates
Earth's Layers		
Describes how volcanic eruptions	Describes mantle convection in	

change Earth's surface	Earth, using models	
Describes mantle convection in Earth, using models	Describes examples of the coevolution of life and Earth's atmosphere	
Recognizes rapid and slow processes that change Earth's surface		
Describes examples of the coevolution of life and Earth's atmosphere		
Analyzes and interprets data to relate density to the order of Earth's layers		
Eclipses and Moon Phases		
Describes data needed to investigate the phases of the Moon	Describes the causes of solar eclipses	
Describes the causes of solar eclipses	Applies knowledge of Sun-Earth-Moon system to design a model of the system	
Analyzes and interprets data to determine the length of a lunar cycle	Determines the phases of the Moon using a model of the Earth-Sun-Moon system	
Determines the phases of the Moon using a model of the Earth-Sun-Moon system		
Effects of Humans on Habitats and Living Things		
Uses evidence to support predictions about effects of humans' resource consumption on Earth'systems	Uses evidence to support predictions about effects of humans' resource consumption on Earth'systems	
Describes human activities that disrupt ecosystems	Describes human activities that disrupt ecosystems	
Plans investigations to determine the impact of human activities on the environment	Describes how changes in the production and use of fossil fuels affect society and the environment	
Describes how changes in the production and use of fossil fuels affect society and the environment		
		Describes human activities that disrupt ecosystems

Effects of Humans on Land, Water, and Air	
Evaluates solutions designed to reduce human consumption of natural resources	Predicts effects of alternative energy technologies on natural resources
Analyzes and interprets data to predict how the frequency of problems related to pollution will change over time	Describes how human activities affect the nitrogen cycle
Applies knowledge of the use of fossil fuels to explain increases in atmospheric carbon dioxide	Describes relationships between human-produced greenhouse gases and Earth'systems
Evaluates competing solutions designed to reduce environmental impacts of energy production	Evaluates solutions to problems involving human impacts on global climate
	Evaluates solutions to problems involving human impacts on forest and stream systems
	Relates burning of fossil fuels to acidification of water
	Evaluates competing solutions designed to reduce environmental impacts of energy production

Engineering Design Solutions	
Evaluates solutions designed to reduce human consumption of natural resources	Evaluates solutions to problems involving human impacts on forest and stream systems
Analyzes and interprets data to compare the costs and benefits of solutions for developing energy resources	Analyzes and interprets data to compare the costs and benefits of solutions for developing energy resources
Analyzes and interprets data about rock and soil properties to design a solution to a problem	Evaluates solutions to problems involving human impacts on global climate

Engineering Problems
Defines criteria and constraints for solutions to problems involving the use of energy resources
Identifies problems that erosion and weathering can cause for humans

Engineering Solution Optimizations	
Evaluates competing solutions designed to reduce environmental	Evaluates competing solutions designed to reduce environmental

impacts of energy production	impacts of energy production	
Natural Hazards		
Recognizes impacts of volcanic activity on human societies	Recognizes impacts of volcanic activity on human societies	
Analyzes and interprets data about natural hazards to predict disastrous events		
		Recognizes impacts of volcanic activity on human societies
Natural Resources		
Analyzes and interprets data to compare the costs and benefits of solutions for developing energy resources	Analyzes and interprets data to compare the costs and benefits of solutions for developing energy resources	
Defines criteria and constraints for solutions to problems involving the use of energy resources	Describes relationships between natural resource management and long-term human survival	
Describes how decreased resource availability affects human actions	Evaluates competing solutions designed to reduce environmental impacts of energy production	
Evaluates competing solutions designed to reduce environmental impacts of energy production	Uses evidence to support predictions about effects of humans' resource consumption on Earth'systems	
Uses evidence to support predictions about effects of humans' resource consumption on Earth'systems		
Plate Tectonics		
Applies evidence from sea-floor models to explain the ages of parts of Earth's crust		
Uses models to describe evidence supporting plate tectonics	Analyzes and interprets data to describe evidence supporting plate tectonics	
Analyzes and interprets data to describe evidence supporting plate tectonics	Uses models to describe geologic features formed at plate boundaries	
Describes how uplift causes changes to Earth's surface	Uses models to describe causes of plate motion	
Uses models to describe geologic	Applies scientific reasoning and	

features formed at plate boundaries	evidence to explain changes in Earth's surface due to plate movement	
Relates models to phenomena caused by plate tectonics	Applies scientific ideas about plate tectonics to describe patterns of species distribution	
Analyzes and interprets patterns found on maps to describe how the locations of earthquakes and volcanoes relate to the locations of tectonic plates		
Uses models to describe the formation of geologic features of the ocean floor over time		
Identifies landforms that result from uplift		
		Develops and uses models to describe patterns in the relative ages of geologic structures based on their distances from tectonic plate features
		Uses models to describe geologic features formed at plate boundaries
Rock Layers and the Fossil Record		
	Describes the process of igneous intrusions, using models	
	Develops and uses models to describe features of rock layers	
		Describes how radioactive dating of Earth materials can provide evidence about Earth's history and formation
Rocks, Minerals, and Soil		
Analyzes and interprets data about rock and soil properties to design a solution to a problem	Applies scientific ideas to explain why mineral deposits occur along plate boundaries	
Describes the role of energy in the formation of sedimentary, igneous, and metamorphic rocks	Describes the flow of energy and cycling of matter through the rock cycle	
Describes the flow of energy and cycling of matter through the rock cycle		

Describes processes of the rock cycle, using models		
Seasons, Days, and Years		
Describes how Earth's axial tilt affects seasons	Describes how Earth's axial tilt affects seasons	
Describes how Earth's axial tilt affects seasons, using a model of the Sun-Earth	Describes how Earth's axial tilt affects seasons, using a model of the Sun-Earth	
Uses models of the Sun-Earth to show Earth's axial tilt	Uses models of the Sun-Earth to show Earth's axial tilt	
Identifies seasons using a Sun-Earth model	Identifies seasons using a Sun-Earth model	
Describes how Earth's axial tilt affects temperature, using a model of the Sun-Earth	Describes how Earth's axial tilt affects temperature, using a model of the Sun-Earth	
		Describes why some planets do not have seasons
		Identifies seasons using a Sun-Earth model
The Solar System		
Provides evidence to support claims about effects of solar flares on Earth'systems	Describes evidence supporting predictions about the Sun's life-span	
Analyzes and interprets data to develop scale models of the Solar System	Describes the effects of solar events on Earth'systems	
Describes the relationship between gravitational attraction and orbits		
Analyzes and interprets data to compare scale characteristics of planets		
The Universe, Stars, and Galaxies		
Develops and uses models to represent the effects of gravity on systems in space	Develops and uses models to represent the effects of gravity on systems in space	
Analyzes and interprets data to describe the motion of stars as seen from Earth	Analyzes and interprets data to support the idea that matter in the Universe has a common origin	
Orders the systems of the Universe by relative size		

Develops and uses models to represent the effects of orbital motion on gravitational force Relates changes in stellar positions as seen from Earth to positions of Earth in its orbit Recognizes that Earth and its Solar System are part of the Milky Way galaxy		
		Develops and uses models to represent the effects of gravity on systems in space Recognizes effects of motion on the shifting of the color/wavelength/frequency of light Uses evidence and reasoning to support the big bang theory
Water on Earth		
Describes the causes of dew formation Describes the effects of glaciers on Earth's surface Infers how environmental changes impact the water cycle, using models Describes causes of surface currents and deep water ocean currents Describes how humans impact the water cycle Represents processes of the water cycle in models	Describes causes of surface currents and deep water ocean currents Describes how humans impact the water cycle Describes how sunlight affects global movement of ocean currents Represents processes of the water cycle in models	
		Describes causes of surface currents and deep water ocean currents Represents processes of the water cycle in models
Weather Conditions, Prediction, and Measurement		
Identifies the Sun as the source of energy for weather	Describes how the uneven heating of Earth causes global wind patterns	

Reads and interprets data from weather instruments to describe the weather	Describes how the uneven heating of land and bodies of water causes wind, using models	
Describes how the uneven heating of land and/or bodies of water causes wind	Describes how the uneven heating of land and/or bodies of water causes wind	
Describes the effects of interacting air masses	Recognizes effects of the "Coriolis effect" on global wind patterns	
Describes differential heating and cooling of land and water by sunlight		
Applies knowledge of density and temperature to explain interactions of air masses		
		Describes how the uneven heating of Earth causes global wind patterns
		Describes effects of Earth's rotation on global oceanic and atmospheric patterns
Weathering and Erosion		
Describes how moving water erodes and carves land to form canyons over time	Determines variables and controls in investigations about water erosion	
Determines variables and controls in investigations about water erosion	Determines evidence that supports claims about the formation of landforms	
Describes how the freezing and thawing of water causes weathering	Describes how erosion and deposition form deltas, islands, and flood plains	
Applies scientific ideas about the scale of geologic processes to explain changes in landscapes	Describes how water deposits sediments and changes landforms over time	
Applies scientific ideas and evidence to explain examples of chemical weathering		
Identifies problems that erosion and weathering can cause for humans		
Determines evidence that supports claims about the formation of landforms		
Applies scientific ideas to explain		

the effects of erosion on mountain height

Describes how water erosion changes Earth's surface, using models

Compares the composition of weathered and unweathered rocks, using models

Describes how weathering and erosion from wind and water form buttes, pillars, and arches over time

Describes how water deposits sediments and changes landforms over time

Applies scientific ideas to explain how volcanic eruptions may increase water erosion

Describes how erosion and deposition form deltas, islands, and flood plains