

2021 - 2022

## Homewood Middle School Learning Targets

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### 7th Grade Writing

#### **1. Use the writing process to plan, organize and compose both formal and informal documents in the narrative, explanatory, and argumentative modes.**

- a) I can produce coherent writing with focused development, organization, and style appropriate to task, purpose, and audience.
- b) I can develop and strengthen writing as needed by planning, revising, editing, rewriting, or trying a new approach.
- c) I can use technology to produce and publish writing, link and cite sources, and to collaborate with others.
- d) I can use a variety of appropriate transitions to create unity and clarify the relationships among ideas and concepts or to convey sequence and signal shifts from one time frame or setting to another.
- e) I can establish and maintain a formal style appropriate for each mode of writing.
- f) I can use precise language and topic-specific vocabulary.
- g) I can write within a short time frame or extended time frame for discipline specific tasks, purposes, and audiences.

#### **NARRATIVE**

- a) I can write narratives to develop real or imagined experiences or events using effective techniques, relevant descriptive details, and well-structured plots.
- b) I can establish context and point of view.
- c) I can organize an event sequence that unfolds naturally and logically.
- d) I can use dialogue, pacing, and description to develop experiences, events, and/or characters.
- e) I can use relevant descriptive details and sensory language to capture action and convey experiences and events.

#### **EXPOSITORY/EXPLANATORY/INFORMATIONAL**

- a) I can write informative/explanatory texts to examine and express complex ideas and information.
- b) I can introduce my topic clearly and preview what follows.
- c) I can develop the topic with relevant facts, definitions, concrete details, quotations, or other informational examples.
- d) I can organize ideas, concepts, and information using definition, classification, comparison/contrast, and/or cause/effect strategies.
- e) I can provide a concluding statement or section that follows from and supports the information or explanation presented.

#### **ARGUMENT**

- a) I can write arguments that support claims using clear reasoning and meaningful evidence.

- b) I can introduce claims and acknowledge alternate and opposing claims.
- c) I can use logical reasoning and relevant evidence to support and organize a claim.
- d) I can provide a concluding statement that follows from and supports the argument presented.

**2. Use the research process to support a thesis on a literary or non literary topic.**

- a) I can conduct research projects based on focused questions, demonstrating understanding of the subject under investigation.
- b) I can gather relevant information from multiple print and digital sources.
- c) I can assess the credibility and accuracy of sources.
- d) I can integrate information while avoiding plagiarism.
- e) I can draw evidence from literary or informational texts to support analysis, reflection, and research.

### **7th Grade Language**

**3. Demonstrate command of the conventions of Standard English grammar, capitalization, punctuation, and spelling in writing and/or speaking.**

- a) I can make subjects and verbs agree in sentences with prepositional phrase interrupters and inverted word order, with indefinite pronouns or collective nouns as subjects, with compound subjects joined by correlative or coordinating conjunctions, and with collective nouns when verb form depends on the rest of the sentence.
- b) I can explain the function of phrases and clauses in general and in specific sentences.
- c) I can use phrases and clauses in a sentence, recognizing and correcting misplaced and dangling modifiers.
- d) I can correctly choose to use simple, compound, or compound-complex sentences in order to show the differing relationships among ideas.
- e) I can use a comma to separate coordinate adjectives.
- f) I can use knowledge of language and its conventions when reading, writing, speaking, and listening.
- g) I can choose language that expresses ideas precisely and concisely, and recognize and eliminate wordiness and redundancy.

### **7th Grade Reading Comprehension and Application**

**4. Apply reading strategies to materials for comprehension, main idea, tone, propaganda, and argument.**

- a) I can determine the theme(s)/central idea(s) of a text and analyze their development.
- b) I can provide an objective summary of the text in both literary and informational text.
- c) I can read and comprehend text on grade level, proficiently.
- d) I can cite several pieces of textual evidence to support analysis of explicit text and inferences drawn from the text.
- e) I can determine two or more central ideas in an informational text and analyze their development.
- f) I can trace and evaluate the argument and specific claims in an informational text.
- g) I can assess whether the reasoning is sound, the evidence is relevant, and the evidence is sufficient to support the claims in an informational text.

**5. Identify and interpret the author's style and structures of texts used in world literature, informational texts, and media.**

- a) I can analyze the effect of specific word choice on meaning and tone.
- b) I can determine figurative and connotative meanings of words and phrases as they are used in a text.
- c) I can analyze how a text's form and structure contribute to its meaning.
- d) I can analyze how an author develops and contrasts the points of view of different characters or narrators in a text.
- e) I can analyze how a poem's form and structure contribute to its meaning.
- f) I can analyze the effects of rhyme and repetition of sounds on a specific aspect of a poem, story, or drama.
- g) I can analyze the organization of text structure. including headings, subheadings, bolded/highlighted /italicize words, captions, graphs, illustrations in an informational text.
- h) I can analyze author structure: how major sections contribute to the development of ideas and to the whole in an information text.
- i) I can determine an author's purpose and point of view and how an author develops or contrasts different points of view in an informational text.
- j) I can analyze how an author distinguishes his or her position from that of others in an informational text.
- k) I can analyze how two or more authors, writing about the same topic, shape their presentations of key information by emphasizing different evidence or advancing different interpretations of an informational text.

**6. Analyze genre, tone, and plot, literary devices and elements and author's point of view and purpose in short stories, drama, poetry, informational texts and media.**

- a) I can compare/contrast characteristics that define various genres and media.
- b) I can analyze how particular elements of a story or drama interact, including interactions among individuals, events, and ideas.
- c) I can identify and analyze literary devices and elements in informational texts.
- d) I can determine an author's purpose and point of view.

**7. Acknowledge different perspectives and make contemporary connections to world literature, informational documents, and media.**

- a) I can analyze the interactions between individuals, events, and ideas in an informational text.
- b) I can compare/contrast a fictional portrayal with a historical account of the same period and understand how authors of fiction use or alter history.
- c) I can compare and contrast a written story, drama, or poem to its audio, filmed, staged, or multimedia version, analyzing the effects of techniques unique to each medium (e.g., lighting, sound, color, or camera focus and angles in a film).
- d) I can compare/contrast a written text to an alternate version to analyze the effects of techniques unique to each medium.
- e) I can compare/contrast a text to an alternate version to analyze each medium's portrayal of the subject.

## 7th Grade Speaking and Listening

### **8. Present information in a clear, concise, and logical manner appropriate for the task, audience, and purpose.**

- a) I can engage effectively in grade level discussions, texts, and issues with diverse partners.
- b) I can come prepared for discussions by reading or researching material relevant to class topics.
- c) I can refer to evidence on a topic, text, or issue by drawing from prior material and experience to probe and reflect on ideas under discussion.
- d) I can acknowledge new information expressed by others, build on those ideas, and express my own ideas clearly, as well as modify my views when appropriate.
- e) I can define individual roles as needed, track progress towards specific goals and deadlines, and bring discussions back on topic as needed.
- f) I can pose questions that require elaboration, and respond to others' questions and comments with relevant observations and ideas.
- g) I can present claims and findings while emphasizing main points using pertinent descriptions, facts, details, and examples.
- h) I can use appropriate eye contact, speak in an adequate volume, and pronounce my words clearly.
- i) I can include multimedia components and visual displays, effectively and when appropriate.
- j) I can adapt speech to a variety of contexts and tasks, and demonstrate command of formal English when indicated and appropriate.

## 7th Grade Vocabulary

### **9. Determine the meaning of unknown and/or multiple-meaning words, and phrases in grade-level texts.**

- a) I can use context (e.g., the overall meaning of a sentence, paragraph, or text; a word's position or function in a sentence) as a clue to the meaning of a word or phrase and the relationship between words.
- b) I can consult reference materials (e.g., dictionaries, glossaries, thesauruses), both print and digital, to find the pronunciation, meaning, part of speech, etymology, or to determine or clarify the word.
- c) Use Greek or Latin prefixes and roots as clues to the meaning of a word.
- d) I can demonstrate independence in gathering vocabulary knowledge when considering a word or phrase important to comprehension or expression.

### **10. Expand vocabulary to increase reading comprehension and strengthen communication.**

- a) I can demonstrate understanding of word relationships (e.g., stingy, scrimping, economical, thrifty) and nuances in word meanings.
- b) I can explain figurative language such as figures of speech in context.
- c) I can gather and accurately use a range of general academic and domain specific words and phrases sufficient for reading, writing, speaking, and listening at the college and career readiness level (e.g. hyperbole, quadrilateral, hypothesis, anarchy, Bloom's Taxonomy).

- d) I can analyze a word's connotation and denotation and distinguish connotations of words with similar denotations.
- e) I can gather vocabulary knowledge when considering a word or phrase important to comprehension or expression.

### **7th Grade Math Learning Targets**

#### **1. Add, subtract, factor and expand expressions (numerical and variable)**

- a. I can use a number line to demonstrate that the distance between two rational numbers on the number line is the absolute value of their difference, and apply this principle in real-world contexts.
- b. I can add, subtract, multiply, and divide integers.
- c. I can apply the order of operations.
- d. I can apply distributive property, commutative property, associative property, and the identity property.
- e. I can simplify variable expressions (also involving distributive property).
- f. I can use distributive property and combine like terms to calculate the area of rectangles and triangles with variable expressions.

#### **2. Apply the understanding of operations of fractions and decimals**

- a. I can convert from fractions to decimals to percent and vice-versa.
- b. I can add, subtract, multiply and divide fractions and decimals.
- c. I can determine whether rational numbers terminate or repeat.
- d. I can determine whether a number is rational or irrational.
- e. I can solve real world problems involving operations with fractions and decimals.

#### **3. Solve multi-step linear equations and inequalities in one variable to solve problems (Construct inequalities on a number line.)**

- a. I can solve linear equations/inequalities in one variable with one solution.
- b. I can solve linear equations in one variable with infinitely many solutions.
- c. I can solve linear equations in one variable with no solution.
- d. I can solve linear equations/inequalities with rational number coefficients.
- e. I can solve linear equations/inequalities that require expanding expressions using the distributive property.
- f. I can solve linear equations/inequalities whose solutions require collecting like terms.
- g. I can solve linear equations/inequalities with variables on both sides.
- h. I can use equations/inequalities to solve word problems.
- i. I can graph solutions of inequalities on a number line.

#### **4. Understand properties of positive and negative exponents including scientific notation**

- a. I can develop and apply properties of integer exponents to generate equivalent numerical and algebraic expressions.

- b. I can use square root and cube root symbols to represent solutions to equations.
- c. I can evaluate square roots of perfect squares and cube roots of perfect cubes.
- d. I can explain that the square root of a non-perfect square is irrational.
- e. I can use numbers expressed in the form of a single digit times an integer power of 10 to estimate very large or very small quantities.
- f. I can use scientific notation to compare and order different quantities.
- g. I can perform multiplication with numbers expressed in scientific notation.

**5. Simplify ratios and calculate rates and unit rate.**

- a. I can compute unit rates associated with ratios of fractions, including ratios of lengths, areas, and other quantities measured in like or different units.
- b. I can set up proportions or conversions to compute unit rates measured in different units.
- c. I can identify the constant of proportionality (unit rate) in tables, graphs, equations, diagrams, and verbal descriptions of proportional relationships.

**6. Write and solve proportions (including scale drawings)**

- a. I can solve problems involving scale drawings of geometric figures.
- b. I can set up proportions to calculate lengths and areas from scale drawings.
- c. I can reproduce a scale drawing on a different scale.

**7. Solve percent problems including simple interest with account balance, mark ups, discounts, sales tax and tips, and percent of change.**

- a. I can solve simple interest problems.
- b. I can solve markup and mark down problems.
- c. I can solve gratuities, commission, and fee problems.
- d. I can solve percent increase and decrease problems.
- e. I can solve tax problems.

**8. Write and graph linear equations in two variables including using slope and y-intercept.**

- a. I can graph proportional relationships, interpreting the unit rate as the slope of the graph.
- b. I can decide whether two quantities are in a proportional relationship by testing for equivalent ratios in a table or graphing on a coordinate plane and observing whether the graph is a straight line through the origin.
- c. I can derive the equation  $y = mx$  for a line through the origin.
- d. I can derive the equation  $y = mx + b$  for a line intercepting the vertical axis at  $b$ .
- e. I can find the slope of the line containing the two points, given two points on a graph, and explain why it will be the same for any two distinct points on the line.
- f. I can graph linear relationships, interpret the slope as the rate of change of the graph, and identify the y-intercept as the initial value

- g. I can demonstrate that the linear equations that include those two sets of points may have different  $y$ -intercepts, given that the slopes for two different sets of points are equal.
- h. I can interpret the rate of change of the linear function from a table or graph.

**9. Identify the effect on the graph of replacing  $f(x)$  by  $f(x) + k$ ,  $kf(x)$ ,  $f(kx)$ , and  $f(x + k)$  for specific values of  $k$  (both positive and negative); find the value of  $k$  given the graphs. Experiment with cases and explain the effects on the graph using technology, where appropriate. Limited to linear functions.**

**10. Solve real world and mathematical problems involving area, surface area, and volume of two- and three-dimensional objects composed of triangles, quadrilaterals, polygons, cubes, cylinders, spheres and right prisms**

- a. I can describe the two-dimensional figures that result from slicing three dimensional figures, as in plane sections of right rectangular prisms and right rectangular pyramids.
  - i. I can name three-dimensional figures and distinguish the properties between them.
  - ii. I can name and define characteristics of two-dimensional shapes.
  - iii. I can determine the 2D shape created when a 3D shape is sliced.
- b. I can use the formulas for area and circumference of a circle to solve problems.
  - i. I can calculate the area and circumference of a circle.
  - ii. I can use area and circumference to solve problems.
  - iii. I can understand how circumference and area relate to each other.
- c. I can define the area, volume, and surface area of 2D and 3D objects.
- d. I can calculate area, volume, and surface area of 2D and 3D objects (surface area of rectangular prisms, volume of cones, spheres, cylinders, and rectangular prisms).
- e. I can solve real world problems involving 2D and 3D objects.

**11. Solve real-world problems involving angle measure**

- a. I can use informal arguments to establish facts about the sum of the interior angles of a triangle.
- b. I can identify when the conditions of a triangle determine a unique triangle, more than one triangle, or no triangle.
- c. I can use facts about supplementary, complementary, vertical, and adjacent angles in a multistep problem to write and solve simple equations for an unknown angle in a figure.
  - i. I can define supplementary, complementary, vertical and adjacent angles.
  - ii. I can write and solve simple equations for an unknown angle in a figure.
- d. I can identify special angle pairs and angles created when a transversal intersects two other lines.
  - i. I can use informal arguments to establish facts about the angles created when parallel lines are cut by a transversal (corresponding angles, alternate interior angles, alternate exterior angles, and vertical angles).

**12. Describe the effect of translations, rotations, reflections, and dilations on two-dimensional figures**

- a. I can understand that a two-dimensional figure is similar to another if the second can be obtained from the first by a sequence of rotations, reflections, translations, and dilations.
- b. I can describe a sequence that exhibits the similarity between two similar two-dimensional figures.

**13. Use random sampling to draw inferences about a population**

- a. I can differentiate between a sample and a population size.
- b. I can compare sampling techniques to determine whether a sample is random and thus representative of a population, explaining that random sampling tends to produce representative samples and support valid inferences.
- c. I can determine whether conclusions and generalizations can be made about a population based on a sample.
- d. I can use data from a random sample to draw inferences about a population with an unknown characteristic of interest, generating multiple samples to gauge variation and make predictions or conclusions about the population.
- e. I can informally explain situations in which statistical bias may exist.

**14. Informally assess the degree of visual overlap of two numerical data distributions with similar variabilities, measuring the difference between the centers by expressing it as a multiple of a measure of variability.**

**15. Make informal comparative inferences about two populations using measures of center and variability and/or mean absolute deviation.**

**16. Investigate probability models**

- a. I can calculate theoretical and experimental probability and create area models, tree diagrams and charts
- b. I can observe the relative frequency of an event over the long run, using simulation or technology, and use those results to predict approximate relative frequency.
- c. I can design and use a simulation to generate frequencies for compound events.
- d. I can define and develop the probability of a chance event as a number between 0 and 1 that expresses the likelihood of the event occurring.
- e. I can identify independent and dependent events.

**7th Grade MATH TEAM**

- Student targets will be mastered at a faster pace and at increased depth in this math team course. \*denotes additional learning targets that are not part of the Alabama Grade 7 Course of Study

### **1. Add, subtract, factor and expand expressions (numerical and variable)**

- a. I can use a number line to demonstrate that the distance between two rational numbers on the number line is the absolute value of their difference, and apply this principle in real-world contexts.
- b. I can add, subtract, multiply, and divide integers.
- c. I can apply the order of operations.
- d. I can apply distributive property, commutative property, associative property, and the identity property.
- e. I can simplify variable expressions (also involving distributive property).
- f. I can use distributive property and combine like terms to calculate the area of rectangles and triangles with variable expressions.
- g. \* I can model and solve consecutive integer problems.
- h. \* I can add, subtract, multiply and divide radical expressions.

### **2. Apply the understanding of operations of fractions and decimals**

- a. I can convert from fractions to decimals to percent and vice-versa.
- b. I can add, subtract, multiply and divide fractions and decimals.
- c. I can determine whether rational numbers terminate or repeat.
- d. I can determine whether a number is rational or irrational.
- e. I can solve real world problems involving operations with fractions and decimals.
- f. \* I can solve combined work problems.

### **3. Solve multi-step linear equations and inequalities in one variable to solve problems (Construct inequalities on a number line.)**

- a. I can solve linear equations/inequalities in one variable with one solution.
- b. I can solve linear equations in one variable with infinitely many solutions.
- c. I can solve linear equations in one variable with no solution.
- d. I can solve linear equations/inequalities with rational number coefficients.
- e. I can solve linear equations/inequalities that require expanding expressions using the distributive property.
- f. I can solve linear equations/inequalities whose solutions require collecting like terms.
- g. I can solve linear equations/inequalities with variables on both sides.
- h. I can use equations/inequalities to solve word problems.
- i. I can graph solutions of inequalities on a number line.
- j. \*I can solve equations involving one or two absolute values.
- k. \* I can solve radical equations.

### **4. Understand properties of positive and negative exponents including scientific notation**

- a. I can develop and apply properties of integer exponents to generate equivalent numerical and algebraic expressions.
- b. I can use square root and cube root symbols to represent solutions to equations.
- c. I can evaluate square roots of perfect squares and cube roots of perfect cubes.
- d. I can explain that the square root of a non-perfect square is irrational.
- e. I can use numbers expressed in the form of a single digit times an integer power of 10 to estimate very large or very small quantities.
- f. I can use scientific notation to compare and order different quantities.
- g. I can perform multiplication with numbers expressed in scientific notation.
- h. \* I can add, subtract, multiply and divide numbers in scientific notation.
- i. \* I can evaluate perfect roots higher than squares and cubes.
- j. \* I can simplify exponential expressions with negative exponents.
- k. \* I can simplify an algebraic quotient by rationalizing an irrational monomial denominator.
- l. \* I can define the imaginary number  $i$  such that  $i^2 = -1$

**5. Simplify ratios and calculate rates and unit rate.**

- a. I can compute unit rates associated with ratios of fractions, including ratios of lengths, areas, and other quantities measured in like or different units.
- b. I can set up proportions or conversions to compute unit rates measured in different units.
- c. I can identify the constant of proportionality (unit rate) in tables, graphs, equations, diagrams, and verbal descriptions of proportional relationships.
- d. \* I can model and solve distance-rate-time problems

**6. Write and solve proportions (including scale drawings)**

- a. I can solve problems involving scale drawings of geometric figures.
- b. I can set up proportions to calculate lengths and areas from scale drawings.
- c. I can reproduce a scale drawing on a different scale.

**7. Solve percent problems including simple interest with account balance, mark ups, discounts, sales tax and tips, and percent of change.**

- a. I can solve simple interest problems.
- b. I can solve markup and mark down problems.
- c. I can solve gratuities, commission, and fee problems.
- d. I can solve percent increase and decrease problems.
- e. I can solve tax problems.
- f. \* I can solve compound interest problems.
- g. \* I can calculate the original cost after a discount or markup.

**8. Write and graph linear equations in two variables including using slope and y-intercept.**

- a. I can graph proportional relationships, interpreting the unit rate as the slope of the graph.
- b. I can decide whether two quantities are in a proportional relationship by testing for equivalent ratios in a table or graphing on a coordinate plane and observing whether the graph is a straight line through the origin.
- c. I can derive the equation  $y = mx$  for a line through the origin.
- d. I can derive the equation  $y = mx + b$  for a line intercepting the vertical axis at  $b$ .
- e. I can find the slope of the line containing the two points, given two points on a graph, and explain why it will be the same for any two distinct points on the line.
- f. I can graph linear relationships, interpret the slope as the rate of change of the graph, and identify the  $y$ -intercept as the initial value
- g. I can demonstrate that the linear equations that include those two sets of points may have different  $y$ -intercepts, given that the slopes for two different sets of points are equal.
- h. I can interpret the rate of change of the linear function from a table or graph.
- i. \* I can evaluate functions using function notation.
- j. \* I can describe a linear pattern by writing an equation in slope-intercept form, standard form, and point slope form.
- k. \* I can write the equation of a pattern given two points, a point and the slope, a table, a graph or a set of ordered pairs.
- l. \* I can model and solve a system of linear equations and inequalities graphically and algebraically.

**9. Identify the effect on the graph of replacing  $f(x)$  by  $f(x) + k$ ,  $kf(x)$ ,  $f(kx)$ , and  $f(x + k)$  for specific values of  $k$  (both positive and negative); find the value of  $k$  given the graphs. Experiment with cases and explain the effects on the graph using technology, where appropriate. Limited to linear functions.**

**10. Solve real world and mathematical problems involving area, surface area, and volume of two- and three-dimensional objects composed of triangles, quadrilaterals, polygons, cubes, cylinders, spheres and right prisms**

- a. I can describe the two-dimensional figures that result from slicing three dimensional figures, as in plane sections of right rectangular prisms and right rectangular pyramids.
  - i. I can name three-dimensional figures and distinguish the properties between them.
  - ii. I can name and define characteristics of two-dimensional shapes.
  - iii. I can determine the 2D shape created when a 3D shape is sliced.
- b. I can use the formulas for area and circumference of a circle to solve problems.
  - i. I can calculate the area and circumference of a circle.
  - ii. I can use area and circumference to solve problems.
  - iii. I can understand how circumference and area relate to each other.

- c. I can define the area, volume, and surface area of 2D and 3D objects.
- d. I can calculate area, volume, and surface area of 2D and 3D objects (surface area of rectangular prisms, volume of cones, spheres, cylinders, and rectangular prisms).
- e. I can solve real world problems involving 2D and 3D objects.
- f. \* I can find the apothem of regular polygons using the pythagorean theorem.
- g. \* I can calculate the area of regular polygons using the apothem.
- h. \* I can calculate the area of shaded figures.
- i. \* I can calculate surface area and volume of composite figures.

### **11.Solve real-world problems involving angle measure**

- a. I can use informal arguments to establish facts about the sum of the interior angles of a triangle.
- b. I can identify when the conditions of a triangle determine a unique triangle, more than one triangle, or no triangle.
- c. I can use facts about supplementary, complementary, vertical, and adjacent angles in a multistep problem to write and solve simple equations for an unknown angle in a figure.
  - i. I can define supplementary, complementary, vertical and adjacent angles.
  - ii. I can write and solve simple equations for an unknown angle in a figure.
- d. I can identify special angle pairs and angles created when a transversal intersects two other lines.
  - i. I can use informal arguments to establish facts about the angles created when parallel lines are cut by a transversal (corresponding angles, alternate interior angles, alternate exterior angles, and vertical angles).
- e. \* I can calculate angle measures when given a ratio to compare the angles.
- f. \* I can apply properties of special right triangles in real world situations.
- g. \* I can develop and apply the formula for calculating the number of diagonals in a figure.
- h. \* I can identify, calculate, and apply the trigonometric ratios (sine, cosine, and tangent ) to real world problems.

### **12.Describe the effect of translations, rotations, reflections, and dilations on two-dimensional figures**

- a. I can understand that a two-dimensional figure is similar to another if the second can be obtained from the first by a sequence of rotations, reflections, translations, and dilations.
- b. I can describe a sequence that exhibits the similarity between two similar two dimensional figures.

### **13.Use random sampling to draw inferences about a population**

- a. I can differentiate between a sample and a population size.

- b. I can compare sampling techniques to determine whether a sample is random and thus representative of a population, explaining that random sampling tends to produce representative samples and support valid inferences.
- c. I can determine whether conclusions and generalizations can be made about a population based on a sample.
- d. I can use data from a random sample to draw inferences about a population with an unknown characteristic of interest, generating multiple samples to gauge variation and make predictions or conclusions about the population.
- e. I can informally explain situations in which statistical bias may exist.

**14. Informally assess the degree of visual overlap of two numerical data distributions with similar variabilities, measuring the difference between the centers by expressing it as a multiple of a measure of variability.**

**15. Make informal comparative inferences about two populations using measures of center and variability and/or mean absolute deviation.**

**16. Investigate probability models**

- a. I can calculate theoretical and experimental probability and create area models, tree diagrams and charts
- b. I can observe the relative frequency of an event over the long run, using simulation or technology, and use those results to predict approximate relative frequency.
- c. I can design and use a simulation to generate frequencies for compound events.
- d. I can define and develop the probability of a chance event as a number between 0 and 1 that expresses the likelihood of the event occurring.
- e. I can identify independent and dependent events.
- f. \* I can identify the number of permutations and combinations that can be made from a group of objects.
- g. \* I can apply Pascal's triangle to solve problems involving probability.

**17.\* Additional Math Team Targets**

- a. \* I can explain the proof of the Pythagorean Theorem and its converse.
- b. \* I can apply the Pythagorean Theorem to determine unknown side lengths in right triangles in real-world and mathematical problems in two and three dimensions.
- c. \* I can apply the midpoint formula to determine the midpoint of two coordinate points.
- d. \* I can apply the pythagorean theorem and distance formula to find the distance between two points in a coordinate plane.
- e. \*I can identify events as subsets of a sample space using characteristics of the outcomes, or as unions, intersections, or complements of other events.

- f. \* I can develop and apply formulas for special patterns (finding the sum of "n" odd integers or "n" even integers, finding the number of factors of a given number).
- g. \* I can convert base 10 numbers to other bases
- h. \* I can convert a number in any base to a base 10 number.
- i. \* I can solve problems involving defining other "operations". (ex:  $a \# b = ab - b$ ).

## **7th Grade Science**

### **From Molecules to Organisms: Structures and Processes**

#### **1. Gather and synthesize information to support claims of the cell theory and explain how cells differ in structure and function.**

- a) I can distinguish between living and nonliving things.
- b) I can argue the claims about the cell theory.
- c) I can differentiate between prokaryotic and eukaryotic cells.
- d) I can contrast the methods of sexual and asexual reproduction with prokaryotic and eukaryotic cells.
- e) I can develop a cell model to demonstrate cell structures (e.g. nucleus, cell membrane, cell wall, ribosomes, mitochondria, chloroplasts, and vacuoles) and functions.
- f) I can construct an explanation of how specific organelles in eukaryotic cells are used for maintaining a stable environment.

#### **2. Construct models and representations of organ systems to demonstrate how multiple interacting organs and systems work together to accomplish specific functions.**

- a) I can describe connections between the levels of organization (cells, tissues, organs, organ systems).
- b) I can explain the basic function of each system (e.g., circulatory, digestive, muscular, respiratory, skeletal, and nervous) and identify the main organs involved.
- c) I can construct models supporting how the body systems function together.

### **Ecosystems: Interactions, Energy, and Dynamics**

#### **3. Examine the cycling of matter between abiotic and biotic parts of ecosystems to explain the flow of energy and the conservation of matter.**

- a) I can identify abiotic and biotic factors in a given environment.
- b) I can construct a model to demonstrate energy flow in a food web between producers, consumers and decomposers.
- c) I can evaluate biogeochemical cycles (e.g. carbon, nitrogen) and explain how atoms in an ecosystem are cycled between the living and nonliving parts of the ecosystem.
- d) I can generate a scientific explanation based on evidence for the role of photosynthesis and cellular respiration in the cycling of matter and flow of energy into and out of organisms.

#### **4. Analyze and interpret data to provide evidence regarding how resource availability impacts individual organisms, as well as populations of organisms, within an ecosystem.**

- a) I can list the hierarchy of an ecosystem.
- b) I can analyze the impact of limited resources on a population.
- c) I can justify competition based on resource availability.
- d) I can use data to provide evidence of the impact of resource availability.

**5. Construct an explanation to predict consistent patterns of interactions in different ecosystems in terms of the relationships between and among organisms.**

- a) I can define and give examples of interspecies interactions such as competition, predation, mutualism, commensalism, and parasitism.
- b) I can determine the impacts of interspecies interactions on population growth.
- c) I can predict patterns of interactions among organisms across different ecosystems.

**6. Use empirical evidence from patterns and data to demonstrate how changes to an ecosystem can lead to shifts in populations and design a solution which maintains biodiversity and ecosystem services.**

- a) I can investigate the impact of disruptions (e.g. deforestation, succession, drought, fire, disease, human activities, and invasive species) on an ecosystem.
- b) I can construct an argument based on empirical evidence to support or refute that changes to physical or biological components of an ecosystem can lead to shifts in populations.
- c) I can predict how changes to biodiversity can affect an ecosystem.
- d) I can explain how an ecosystem directly or indirectly supports humans' survival and the quality of life.
- e) I can engage in an argument to defend the effectiveness of a design solution which maintains biodiversity and ecosystem services.(e.g., using scientific, economic, and social considerations regarding purifying water, recycling nutrients, and preventing soil erosion).

**7. Use evidence and scientific reasoning to explain factors affecting the probability of successful reproduction in both animals in plants, and interpret data to predict how various factors will affect the growth of organisms.**

- a) I can identify and describe the function of the specialized plant structures which contribute to reproductive success.
- b) I can identify animal behaviors which affect the probability of reproduction (e.g., nest building to protect young from cold, herding of animals to protect young from predators, vocalization of animals, and colorful plumage to attract mates from breeding).
- c) I can use scientific reasoning to determine how specialized plant structures and animal behaviors impact the success of reproduction.
- d) I can use data to predict the impact of environmental conditions (e.g., drought decreasing plant growth, fertilizers increasing plant growth, different varieties of plant seeds growing at different rates in different weather conditions, fish growing larger in large ponds than in small ponds) on the growth of organisms.

e) I can analyze the impact of genetic factors (e.g., selective breeding of cattle, grafting of plants) on the growth of organisms.

### **Heredity: Inheritance and Variation of Traits**

**8. Construct and use models to explain that genetic variations between parent and offspring occur as a result of genetic differences in randomly inherited genes, and that additional variations may arise from alteration of genetic information.**

- a) I can define genetic variations, alleles, mutations, Punnett Squares, heterozygous, and homozygous.
- b) I can define chromosomes and identify their location in both prokaryotic and eukaryotic cells.
- c) I can develop a model to demonstrate the impact of genes on chromosomes.
- d) I can create models, such as Punnett squares and pedigrees, which explain genetic differences in randomly inherited genes.
- e) I can construct an explanation from evidence to describe how genetic mutations result in harmful, beneficial, or neutral effects to the structure and function of an organism.

**9. Engage in argument from evidence to evaluate the impact of genetic technologies on the inheritance of desired traits in organisms.**

- a) I can explain technologies (e.g., forced pollination, selective breeding, genetic engineering, genetic modification, gene therapy) used in genetics.
- b) I can argue the benefits or cons of genetic technology being used to produce the desired traits in animals.

### **Unity and Diversity**

**10. Analyze and interpret data which supports the evolution of organisms including embryological, anatomical and fossil evidence.**

- a) I can explain how the fossil record documents the existence, diversity, extinction and change of life forms throughout the history of the earth.
- b) I can use fossils and their chronological appearance in rock layers to interpret patterns of change in the level of complexity of anatomical structures.
- c) I can construct an explanation (e.g., cladogram, phylogenetic tree) based on evidence for the anatomical similarities and differences among modern organisms and between modern and fossil organisms, including living fossils (e.g., alligator, horseshoe crab, nautilus, coelacanth).
- d) I can use pictorial data to identify patterns in embryo development across multiple species and predict relationships which are not evident in adult anatomy.

**11. Construct an explanation from evidence that natural selection may lead to the predominance of certain traits that support successful survival and reproduction of a population and to the suppression of other traits.**

- a) I can define natural selection.
- b) I can explain how adaptations lead to natural selection over time.
- c) I can use mathematical models to demonstrate the support of natural selection.

d) I can support with evidence how traits have supported or inhibited the survival rate.

## **7th Grade Social Studies**

### **Civics**

#### **Citizenship**

##### **2. Explain individual and civic responsibilities of citizens of the United States.**

- a) I can identify the criteria for a person to be considered a citizen, including the steps of the naturalization process.
- b) I can differentiate between the rights, social responsibilities, and personal duties of citizens.

#### **Economics**

##### **3. Demonstrate how the principles of the U.S. economy influence the decisions of individuals, governments, and businesses.**

- a) I can apply the principles of opportunity cost and scarcity to personal economic decisions.
- b) I can create a monthly budget by applying the principles of scarcity, fixed expenses, and variable expenses.

#### **Government**

##### **4. Explain the structure, powers, and functions of the legislative, executive, and judicial branches of the federal, state, and local governments.**

- a) I can classify powers as belonging to the federal government, the state government, or as powers they share.
- b) I can explain the structure of the federal and state legislative, executive, and judicial branches.
- c) I can compare and contrast the functions of state and federal branches of government.
- d) I can explain the Congressional process of creating a law.
- e) I can explain the differences between criminal and civil court cases.
- f) I can explain the differences between juvenile and adult court cases.
- g) I can explain how the electoral college is used to elect the president of the United States.
- h) I can explain the federal system of checks and balances and provide accurate examples.

#### **History**

##### **5. Identify essential characteristics of and ideals embedded in the Declaration of Independence, the Constitution, and the Bill of Rights.**

- a) I can identify the critical events leading up to the creation of the Declaration of Independence, the Constitution, and the Bill of Rights.
- b) I can describe the purpose and content of the Declaration of Independence.
- c) I can identify the influence of writers, philosophers, and past societies on the founding principles of the American government.
- d) I can explain the weaknesses of the Articles of Confederation.

- e) I can identify the key components of the New Jersey and Virginia Plans.
- f) I can describe compromises made during the drafting of the Constitution.
- g) I can contrast the opinions of the Federalists and Anti-Federalists regarding the balance of power in the American government.
- h) I can describe the structure of the Constitution including the Preamble, 7 Articles, and the Amendments.
- i) I can understand protections given by the Bill of Rights and the relevance to citizens today.
- j) I can compare and contrast the U.S. system of democracy with other forms of government such as monarchy, dictatorship, etc.

## **Geography**

### **Physical Geography**

#### **6. Use maps, globes, and geographic technology to locate and describe physical characteristics of select regions of the Eastern Hemisphere and Europe.**

- a) I can locate a place using latitude and longitude.
- b) I can determine how location affects climate and vegetation.
- c) I can describe the differences between climate regions.
- d) I can analyze types of maps for their appropriate use.
- e) I can explain how the earth's tilt causes seasons.
- f) I can identify the parts of a map and describe their purposes.
- g) I can identify Earth's hemispheres, continents, and oceans.
- h) I can differentiate between absolute and relative location.
- i) I can identify cardinal and intermediate directions.

### **Human Geography**

#### **7. Explain how the physical geography affects selected regions of the Eastern Hemisphere and Europe.**

- a) I can explain the earth's population distribution based on earth's physical geography.
- b) I can give examples of how physical geography influences agriculture, housing, transportation, economy and vegetation.

#### **8. Identify the cultural, political, and economic characteristics of selected regions of the Eastern Hemisphere and Europe.**

- a) I can identify and label political divisions of Europe, Africa, Asia, and Oceania.
- b) I can identify and label major physical features of Europe, Africa, Asia and Oceania.
- c) I can explain how development impacts a nation's demography.
  - d) I can explain the economic effects of population growth and/or decline.
- e) I can identify the cultural, political, and economic characteristics of regions of Africa.
- f) I can identify cultural, political, and economic characteristics of regions of Asia.
- g) I can identify cultural, political, and economic characteristics of Europe.

## **Environmental Change**

### **9. Analyze change in the environment due to natural phenomena and human activity.**

- a) I can identify changes in the environment due to natural phenomena such as hurricanes, volcanoes, earthquakes, etc.
- b) I can identify causes and effects of desertification and deforestation.
- c) I can explain possible detrimental effects of human activity on the environment and possible solutions.
- d) I can identify the ways that humans change the environment to accommodate their needs such as terracing mountains to create farm land, building dams to produce hydroelectric power, and building oil rigs in the ocean to produce petroleum.
- e) I can categorize natural resources into renewable and non-renewable resources.
- f) I can identify how the use of natural resources impacts a nation's human development index ranking.

## **Conflict**

### **10. Identify recurring sources of conflict within and between countries of the Eastern Hemisphere, including all of Europe.**

- a) I can identify sources of historical and present conflict in selected regions and between selected countries in the Eastern Hemisphere and Europe.
- b) I can analyze sources of conflicts to identify recurring themes.

## **Reading and Writing in Social Studies**

### **11. Demonstrate proficiency in reading in the content area.**

- a) I can determine the central idea, accurately summarize, and cite textual evidence using primary and secondary sources.
- b) I can analyze the relationship between a primary and secondary source on the same topic.
- c) I can describe how a text presents information and identify key steps in a text's description of a social studies process.
- d) I can determine the meaning of social studies vocabulary words and phrases as they are used in a text.
- e) I can identify aspects of a text that reveal an author's point of view and distinguish among fact, opinion and reasoned judgment in a text.
- f) I can integrate visual information (e.g., in charts, graphs, photographs, videos, or maps) with other information in print and digital texts.

### **12. Demonstrate proficiency in writing in the content area.**

- a) I can write arguments focused on discipline-specific content.
- b) I can write informative/explanatory texts, including the narration of historical events or technical processes.
- c) I can produce clear and coherent writing in which the development, organization, and style are appropriate to task, purpose and audience.
- d) I can draw evidence from informational texts to support analysis, reflection and research.
- e) I can use technology, as well as multiple print and digital resources, to conduct research, gather relevant information, and produce and publish writing that presents the relationship between information and ideas clearly and efficiently.

**13. Implement argument, research, and interpretations of content throughout the social studies curriculum.**

- a) I can interpret primary and secondary documents through multiple print and digital resources.
- b) I can assess leadership qualities and their influences on society.
- c) I can evaluate sources of information to identify opinion, bias, and prejudice.
- d) I can determine arguments based on central questions and evidence.
- e) I can defend multiple points of view based on central questions and evidence and draw conclusions through writing.
- f) I can compose an informative/explanatory piece of writing that displays my understanding of a historical event.
- g) I can identify characteristics of an informed and responsible citizen.
- h) I can make connections between the past and modern worlds.
- i) I can analyze content through charts, graphs and maps.

**\*There will be an emphasis on the use of current events in order to address the reading, writing, and content standards listed above.**