INSTRUCTIONAL MATERIALS ADMINISTRATOR

BID 3345

Recommendation

Yes

Comments: This material would be beneficial in a science classroom, particularly for labs and simulations. I would be very happy with my state's choice to use their online program. However, it would be necessary to supplement this program with other sources, such as ExamView for testing, notes/PowerPoints, and a diagnostic program that would identify students' individual strengths and weaknesses, which the Amplify program does not incorporate.

Material for Review

Course: M/J Comprehensive Science 2 (2002070)
Title: Amplify Science: Florida Edition - Comprehensive Science 2 , Edition: 2018 Florida Edition
Copyright: 2016
Author: Lawrence Hall of Science
Grade Level: 6 - 8

Content

Answer each item below and select the "Save" button to save your responses. You must select the "Save" button before going to another section or leaving this page to save the answers you have provided. If you are unable to complete the section, you may save your answers and come back to complete at a later time. All items must be answered for a section to be considered complete.
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5 - VERY GOOD ALIGNMENT
4 - GOOD ALIGNMENT
3 - FAIR ALIGNMENT
2 - POOR ALIGNMENT
1 - VERY POOR/NO ALIGNMENT

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Each set of materials submitted for adoption is evaluated based on each benchmark for that course and the Content, Presentation, and Learning items included in this rubric.

A. Alignment with curriculum1. A. The content aligns with the state's standards and benchmarks for subject, grade level and learning outcomes.

(●) **VERY GOOD ALIGNMENT** ( ) GOOD ALIGNMENT ( ) FAIR ALIGNMENT ( ) POOR ALIGNMENT ( ) VERY POOR/NO ALIGNMENT

Justification:
Teachers can search by standard to find all resources associated with each standard.

2. A. The content is written to the correct skill level of the standards and benchmarks in the course.

(●) **VERY GOOD ALIGNMENT** ( ) GOOD ALIGNMENT ( ) FAIR ALIGNMENT ( ) POOR ALIGNMENT ( ) VERY POOR/NO ALIGNMENT

Justification:
Each lesson has a differentiation section that allows the teacher to differentiate based on advanced, general, below level, ELL, etc.

3. A. The materials are adaptable and useful for classroom instruction.

VERY GOOD ALIGNMENT **GOOD ALIGNMENT** FAIR ALIGNMENT POOR ALIGNMENT VERY POOR/NO ALIGNMENT
Justification:
There are lessons that can be accessed completely online or completely on paper, or any variance in between. Labs are provided in every lesson.

B. Level of Treatment4. B. The materials provide sufficient details for students to understand the significance of topics and events.

VERY GOOD ALIGNMENT GOOD ALIGNMENT **FAIR ALIGNMENT** POOR ALIGNMENT VERY POOR/NO ALIGNMENT
Justification:
Students complete background knowledge (prior learning), then simulations and hands on activities, then apply what they learned, then are tested on the chapter. However, I do not believe there are enough questions for students to answer to demonstrate understanding.

5. B. The level (complexity or difficulty) of the treatment of content matches the standards.

VERY GOOD ALIGNMENT GOOD ALIGNMENT **FAIR ALIGNMENT** POOR ALIGNMENT VERY POOR/NO ALIGNMENT
Justification:
Again, I do not see enough questioning techniques. The hands on labs and simulations are good, but the actual lessons provide very few questions (sometimes just 1 question after an activity) for students to answer.

6. B. The level (complexity or difficulty) of the treatment of content matches the student abilities and grade level.

VERY GOOD ALIGNMENT GOOD ALIGNMENT **FAIR ALIGNMENT** POOR ALIGNMENT VERY POOR/NO ALIGNMENT
Justification:
Again, I do not see enough questioning techniques. The hands on labs and simulations are good, but the actual lessons provide very few questions (sometimes just 1 question after an activity) for students to answer.

7. B. The level (complexity or difficulty) of the treatment of content matches the time period allowed for teaching.

VERY GOOD ALIGNMENT GOOD ALIGNMENT **FAIR ALIGNMENT** POOR ALIGNMENT VERY POOR/NO ALIGNMENT
Justification:
The lessons are expected to take 45-60 minutes to complete. However, I believe teachers will need to supplement the material with notes and discussion for students to fully understand each benchmark. This time is not included in their lesson timing. Moreover, the Amplify program states they only have lessons that would last 154 days, whereas most public schools are in session over 180 school days.

C. Expertise for Content Development8. C. The primary and secondary sources cited in the materials reflect expert information for the subject.

VERY GOOD ALIGNMENT **GOOD ALIGNMENT** FAIR ALIGNMENT POOR ALIGNMENT VERY POOR/NO ALIGNMENT
Justification:
The Amplify program accesses resources from FOSS®, Seeds of Science/Roots of Reading®, GEMS®, SEPUP™, and Ocean Sciences Sequence.

9. C. The primary and secondary sources contribute to the quality of the content in the materials.

VERY GOOD ALIGNMENT **GOOD ALIGNMENT** FAIR ALIGNMENT POOR ALIGNMENT VERY POOR/NO ALIGNMENT
Justification:
The Amplify program accesses resources from FOSS®, Seeds of Science/Roots of Reading®, GEMS®, SEPUP™, and Ocean Sciences Sequence. However, I believe there should be more instructional materials provided to have a complete understanding of subject matter.

D. Accuracy of Content10. D. The content is presented accurately. (Material should be devoid of typographical or visual errors).

VERY GOOD ALIGNMENT GOOD ALIGNMENT FAIR ALIGNMENT POOR ALIGNMENT VERY POOR/NO ALIGNMENT
Justification:
All content sections are free of errors from my observations

11. D. The content of the material is presented objectively. (Material should be free of bias and contradictions and is noninflammatory in nature).

VERY GOOD ALIGNMENT GOOD ALIGNMENT FAIR ALIGNMENT POOR ALIGNMENT VERY POOR/NO ALIGNMENT
Justification:
The section that could be controversial material is Natural Selection, and it appears to show only the facts.

12. D. The content of the material is representative of the discipline? (Material should include prevailing theories, concepts, standards, and models used with the subject area).

VERY GOOD ALIGNMENT **GOOD ALIGNMENT** FAIR ALIGNMENT POOR ALIGNMENT VERY POOR/NO ALIGNMENT
Justification:
All lessons showed concepts related to standards and had simulations and/or models related to the subject.

13. D. The content of the material is factual accurate. (Materials should be free of mistakes and inconsistencies).

VERY GOOD ALIGNMENT **GOOD ALIGNMENT** FAIR ALIGNMENT POOR ALIGNMENT VERY POOR/NO ALIGNMENT

Justification:
I did not see any errors related to content.

E. Currency of Content14. E. The content is up-to-date according to current research and standards of practice.

VERY GOOD ALIGNMENT **GOOD ALIGNMENT** FAIR ALIGNMENT POOR ALIGNMENT VERY POOR/NO ALIGNMENT
Justification:
From what I can tell, the content is up to date. There are research articles attached that are recent. Simulations used have good graphics and content.

15. E. The content is presented to the curriculum, standards, and benchmarks in an appropriate and relevant context.

VERY GOOD ALIGNMENT **GOOD ALIGNMENT** FAIR ALIGNMENT POOR ALIGNMENT VERY POOR/NO ALIGNMENT
Justification:
Appropriate content for 7th grade. I am concerned with the variety of teaching methods.

16. E. The content is presented in an appropriate and relevant context for the intended learners.

VERY GOOD ALIGNMENT **GOOD ALIGNMENT** FAIR ALIGNMENT POOR ALIGNMENT VERY POOR/NO ALIGNMENT
Justification:
Again, only concern is the variety of methods available.

F. Authenticity of Content17. F. The content includes connections to life in a context that is meaningful to students.

VERY GOOD ALIGNMENT GOOD ALIGNMENT FAIR ALIGNMENT POOR ALIGNMENT VERY POOR/NO ALIGNMENT
Justification:
Students will love completing the simulations and labs.

18. F. The material includes interdisciplinary connections which are intended to make the content meaningful to students.

VERY GOOD ALIGNMENT **GOOD ALIGNMENT** FAIR ALIGNMENT POOR ALIGNMENT VERY POOR/NO ALIGNMENT
Justification:
There are many connections to ELA, but I saw very few connections to math, other than graphing.

G. Multicultural Representation19. G. The portrayal of gender, ethnicity, age, work situations, cultural, religious, physical, and various social groups are fair and unbiased. (Please explain any unfair or biased portrayals in the comments section).

VERY GOOD ALIGNMENT GOOD ALIGNMENT FAIR ALIGNMENT POOR ALIGNMENT VERY POOR/NO ALIGNMENT
Justification:
No issues here.

H. Humanity and Compassion20. H. The materials portray people and animals with compassion, sympathy, and consideration of their needs and values and exclude hard-core pornography and inhumane treatment. (An exception may be necessary for units covering animal welfare).

VERY GOOD ALIGNMENT GOOD ALIGNMENT FAIR ALIGNMENT POOR ALIGNMENT VERY POOR/NO ALIGNMENT
Justification:
There are no labs that require use of animals and animals are never projected to be mistreated.

21. In general, is the content of the benchmarks and standards for this course covered in the material.

VERY GOOD ALIGNMENT GOOD ALIGNMENT **FAIR ALIGNMENT** POOR ALIGNMENT VERY POOR/NO ALIGNMENT
Justification:
Content is covered on a basic level, but I believe there needs to be more content provided to give students a deeper understanding. The labs and hands on material are great, but this program seems to be missing other components.

Presentation

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A. Comprehensiveness of Student and Teacher Resources1. A. The comprehensiveness of the student resources address the targeted learning outcomes without requiring the teacher to prepare additional teaching materials for the course.

○ VERY GOOD ALIGNMENT ○ GOOD ALIGNMENT ○ FAIR ALIGNMENT ◉ **POOR ALIGNMENT** ○ VERY POOR/NO ALIGNMENT

Justification:
My opinion is that the content is not enough to sustain teachers for a full year of teaching. I believe students will learn through the hands on labs. However, they will need more content to reach proficiency.

B. Alignment of Instructional Components2. B. All components of the major tool align with the curriculum and each other.

◉ **VERY GOOD ALIGNMENT** ○ GOOD ALIGNMENT ○ FAIR ALIGNMENT ○ POOR ALIGNMENT ○ VERY POOR/NO ALIGNMENT

Justification:
The introduction, actual lesson, hands on labs, and lesson recap do align with each other.

C. Organization of Instructional Materials3. C. The materials are consistent and logical organization of the content for the subject area.

◉ **VERY GOOD ALIGNMENT** ○ GOOD ALIGNMENT ○ FAIR ALIGNMENT ○ POOR ALIGNMENT ○ VERY POOR/NO ALIGNMENT

Justification:
All lessons are organized in a logical progression of the science standards.

D. Readability of Instructional Materials4. D. Narrative and visuals engage students in reading or listening as well as in understanding of the content at a level appropriate to the students' abilities.

◉ **VERY GOOD ALIGNMENT** ○ GOOD ALIGNMENT ○ FAIR ALIGNMENT ○ POOR ALIGNMENT ○ VERY POOR/NO ALIGNMENT

Justification:
The lessons are engaging for students.

E. Pacing of Content5. E. The amount of content presented at one time or the pace at which it is presented must be of a size or rate that allows students to perceive and understand it.

○ VERY GOOD ALIGNMENT ◉ **GOOD ALIGNMENT** ○ FAIR ALIGNMENT ○ POOR ALIGNMENT ○ VERY POOR/NO ALIGNMENT

Justification:
The timeline that is provided will allow students to understand the content presented. However, I do not believe the questioning techniques go into enough detail for teachers to be able to judge student proficiency.

Accessibility6. The material contains presentation, navigation, study tool and assistive supports that aid students, including those with disabilities, to access and interact with the material. (For assistance refer to the answers on the UDL questionnaire).

○ VERY GOOD ALIGNMENT ○ GOOD ALIGNMENT ◉ **FAIR ALIGNMENT** ○ POOR ALIGNMENT ○ VERY POOR/NO ALIGNMENT

Justification:
There are differentiation strategies provided in each lesson, but they are generalized and basic in nature. For example, they state to allow extended time and consider providing differentiation if students need it but don't give specific examples of what can be done.

7. In general, how well does the submission satisfy PRESENTATION requirements? (The comments should support your responses to the questions in the Presentation section).

○ VERY GOOD ALIGNMENT ○ GOOD ALIGNMENT ◉ **FAIR ALIGNMENT** ○ POOR ALIGNMENT ○ VERY POOR/NO ALIGNMENT

Justification:
The Amplify curriculum would be great as a supplement to another textbook that does not provide labs and online simulations, but I would be frustrated as a teacher if my district chose the program as our only textbook.

Learning

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A. Motivational Strategies1. A. Instructional materials include features to maintain learner motivation.

(●) **VERY GOOD ALIGNMENT** ( ) GOOD ALIGNMENT ( ) FAIR ALIGNMENT ( ) POOR ALIGNMENT ( ) VERY POOR/NO ALIGNMENT
Justification:
The lessons are very engaging.

B. Teaching a Few "Big Ideas"2. B. Instructional materials thoroughly teach a few important ideas, concepts, or themes.

( ) VERY GOOD ALIGNMENT ( ) GOOD ALIGNMENT (●) **FAIR ALIGNMENT** ( ) POOR ALIGNMENT ( ) VERY POOR/NO ALIGNMENT
Justification:
I believe the program gives a surface level understanding for all big ideas, and it allows the learner to complete hands on labs to gain a deeper understanding. However, I do not believe the questioning techniques cause students to gain proficient understanding. For example, for my students who are not kinesthetic learners, I am not sure that they would gain much knowledge through this program.

C. Explicit Instruction3. C. The materials contain clear statements of information and outcomes.

( ) VERY GOOD ALIGNMENT (●) **GOOD ALIGNMENT** ( ) FAIR ALIGNMENT ( ) POOR ALIGNMENT ( ) VERY POOR/NO ALIGNMENT
Justification:
All goals are clearly stated, but I am not convinced that all students can reach these goals with the lessons provided.

D. Guidance and Support4. D. The materials provide guidance and support to help students safely and successfully become more independent learners and thinkers.

(●) **VERY GOOD ALIGNMENT** ( ) GOOD ALIGNMENT ( ) FAIR ALIGNMENT ( ) POOR ALIGNMENT ( ) VERY POOR/NO ALIGNMENT
Justification:
Students must work independently to complete the tasks.

5. D. Guidance and support must be adaptable to developmental differences and various learning styles.

( ) VERY GOOD ALIGNMENT ( ) GOOD ALIGNMENT (●) **FAIR ALIGNMENT** ( ) POOR ALIGNMENT ( ) VERY POOR/NO ALIGNMENT
Justification:
There are more activities for advanced students, but there is no guidance for lower level learners. The text states to remember to differentiate but does not state how to do so.

E. Active Participation of Students6. E. The materials engage the physical and mental activity of students during the learning process.

(●) **VERY GOOD ALIGNMENT** ( ) GOOD ALIGNMENT ( ) FAIR ALIGNMENT ( ) POOR ALIGNMENT ( ) VERY POOR/NO ALIGNMENT
Justification:
Students will be engaged while learning during the simulations and hands on labs.

7. E. Rate how well the materials include organized activities that are logical extensions of content, goals, and objectives.

( ) VERY GOOD ALIGNMENT (●) **GOOD ALIGNMENT** ( ) FAIR ALIGNMENT ( ) POOR ALIGNMENT ( ) VERY POOR/NO ALIGNMENT
Justification:
The extensions are great for advanced students. I believe there should be more activities to review basic concepts before or after the simulations/labs.

F. Targeted Instructional Strategies8. F. Instructional materials include the strategies known to be successful for teaching the learning outcomes targeted in the curriculum requirements.

( ) VERY GOOD ALIGNMENT (●) **GOOD ALIGNMENT** ( ) FAIR ALIGNMENT ( ) POOR ALIGNMENT ( ) VERY POOR/NO ALIGNMENT
Justification:
There are instructional strategies provided in each lesson.

9. F. The instructional strategies incorporated in the materials are effective in teaching the targeted outcomes.

VERY GOOD ALIGNMENT **GOOD ALIGNMENT** FAIR ALIGNMENT POOR ALIGNMENT VERY POOR/NO ALIGNMENT

Justification:
The standards can be taught using the curriculum provided but not for a deeper understanding.

G. Targeted Assessment Strategies10. G. The materials correlate assessment strategies to the desired learning outcomes.

VERY GOOD ALIGNMENT **GOOD ALIGNMENT** FAIR ALIGNMENT POOR ALIGNMENT VERY POOR/NO ALIGNMENT

Justification:
The assessments align with instructional goals.

11. G. the assessment strategies incorporated in the materials are effective in assessing the learners' performance with regard to the targeted outcomes.

VERY GOOD ALIGNMENT GOOD ALIGNMENT **FAIR ALIGNMENT** POOR ALIGNMENT VERY POOR/NO ALIGNMENT

Justification:
There are only multiple choice and short answer questions. It would be difficult to determine if students can apply their knowledge (such as graphing) without other testing types.

Universal Design for Learning12. This submission incorporates strategies, materials, activities, etc., that consider the needs of all students.

VERY GOOD ALIGNMENT GOOD ALIGNMENT **FAIR ALIGNMENT** POOR ALIGNMENT VERY POOR/NO ALIGNMENT

Justification:
The advanced and ELL learners are covered. However, there are no specific differentiation strategies provided for lower level learners.

Mathematical Practice13. Do you observe the appropriate application of Mathematical Practices (MP) as applicable?

VERY GOOD ALIGNMENT GOOD ALIGNMENT FAIR ALIGNMENT POOR ALIGNMENT **VERY POOR/NO ALIGNMENT**

Justification:
I do not see any mathematical practices addressed unless they are already intertwined in a science standard (such as Punnett squares). I am particularly frustrated that there are no graphs or charts for students to create.

14. In general, does the submission satisfy LEARNING requirements? (The comments should support your responses to the questions in the Learning section.)

VERY GOOD ALIGNMENT GOOD ALIGNMENT **FAIR ALIGNMENT** POOR ALIGNMENT VERY POOR/NO ALIGNMENT

Justification:
This submission provides learning goals for students but does not address all learners.

Standards

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When looking at standards alignment reviewers should consider not only the robustness of the standard coverage but also the content complexity (depth of knowledge level) if appropriate. More information on content complexity as it relates to Florida standards can be found at: http://www.cpalms.org/Uploads/docs/CPALMS/initiatives/contentcomplexity/CPALMS_ccdefinitions_140711.pdf
For example, if the standard is marked as a level 3 (strategic reasoning and complex thinking) then the materials coverage should reflect this. If the materials coverage is only sufficient to allow for recall (level 1) then this should be reflected in the points assigned.

1. **SC.7.E.6.1:** Describe the layers of the solid Earth, including the lithosphere, the hot convecting mantle, and the dense metallic liquid and solid cores.

(●) **VERY GOOD ALIGNMENT** ( ) GOOD ALIGNMENT ( ) FAIR ALIGNMENT ( ) POOR ALIGNMENT ( ) VERY POOR/NO ALIGNMENT

Justification:
This standard is addressed through multiple activities in the Plate Motion unit. For example: • In Lesson 1.2, Activity 3 (press NEXT to see parts 2 through 6 of 6), students read short descriptions and analyze cross-section diagrams of deep drilling sites to learn about the nature of the outer lithosphere. • In Lesson 1.3, the activity titled “Revealing Earth’s Outer Layer”. students view a video that shows a computer model of the outer lithosphere. • In Lesson 2.1, Activity 3, students use a physical model to understand the nature of the mantle. • In Lesson 2.1, Activity 5, students read “How Do We Know What's Inside Earth?” which describes all the layers of the solid Earth.

2. **SC.7.E.6.2:** Identify the patterns within the rock cycle and relate them to surface events (weathering and erosion) and sub-surface events (plate tectonics and mountain building).

Remarks/Examples:
Florida Standards Connections: MAFS.K12.MP.7: Look for and make use of structure.

(●) **VERY GOOD ALIGNMENT** ( ) GOOD ALIGNMENT ( ) FAIR ALIGNMENT ( ) POOR ALIGNMENT ( ) VERY POOR/NO ALIGNMENT

Justification:
This standard is the focus of much of the Rock Transformations unit. For example: • In Lesson 2.1, Activity 2, students use the simulation to explore weathering at the surface and melting to form magma below ground. • In Lesson 3.1, Activities 2 and 3, students read and discuss the article “The Oldest Rock Formations on Earth” describing many ways rock and rock material can be transformed. • In Lesson 3.2, Activity 3, students complete the challenges in the simulation that involve moving rock material and mountain building due to subduction, as well as weathering and erosion.

3. **SC.7.E.6.3:** Identify current methods for measuring the age of Earth and its parts, including the law of superposition and radioactive dating.

( ) VERY GOOD ALIGNMENT ( ) GOOD ALIGNMENT (●) **FAIR ALIGNMENT** ( ) POOR ALIGNMENT ( ) VERY POOR/NO ALIGNMENT

Justification:
This standard is covered in the Plate Motion unit: • In Lesson 3.2, Activity 5. Students read “Steno and the Shark” which describes how observations of fossil shark teeth provided evidence about the age of the Earth and its parts. • In Lesson 3.3, Activity 2, the class debriefs the article and discusses both the law of superposition and radioactive dating.

4. **SC.7.E.6.4:** Explain and give examples of how physical evidence supports scientific theories that Earth has evolved over geologic time due to natural processes.

( ) VERY GOOD ALIGNMENT (●) **GOOD ALIGNMENT** ( ) FAIR ALIGNMENT ( ) POOR ALIGNMENT ( ) VERY POOR/NO ALIGNMENT

Justification:
This standard is a focus of the Plate Motion and Rock Transformations units. For example: • In the Plate Motion unit, Lesson 3.1, the Activity titled “Video: Plate Motion and GPS”, students watch “Plate Motion and GPS”, a short documentary video about measuring the rate of plate motion. In Activity 2 of this lesson, students use data from a map and use the simulation to calculate the distance tectonic plates move over many millions of years. (Click NEXT to see part 3 of 3 of this activity and see the Teacher Support tab). • In the Rock Transformations unit, Lesson 3.1, Activities 2 and 3, students read and discuss the article “The Oldest Rock Formations on Earth” describing changes to rock formations over billions of years.

5. **SC.7.E.6.5:** Explore the scientific theory of plate tectonics by describing how the movement of Earth's crustal plates causes both slow and rapid changes in Earth's surface, including volcanic eruptions, earthquakes, and mountain building.

( ) VERY GOOD ALIGNMENT (●) **GOOD ALIGNMENT** ( ) FAIR ALIGNMENT ( ) POOR ALIGNMENT ( ) VERY POOR/NO ALIGNMENT

Justification:
This standard is a focus of the Plate Motion unit. For example: • In Lesson 1.4, Activity 2, students run tests in the simulation to determine the relationship between earthquakes and plate motion. • In Lesson 3.4, Activities 2, 3, and 4, students analyze evidence, and write explanations for how fossils from the same land-dwelling species came to be found in both South America and South Africa as plate motion separated those continents over many millions of years.

6. **SC.7.E.6.6:** Identify the impact that humans have had on Earth, such as deforestation, urbanization, desertification, erosion, air and water quality, changing the flow of water.

( ) VERY GOOD ALIGNMENT ( ) GOOD ALIGNMENT (●) **FAIR ALIGNMENT** ( ) POOR ALIGNMENT ( ) VERY POOR/NO ALIGNMENT

Justification:
This standard is addressed in the Rock Transformations unit. For example, in Lesson 3.4, Activity 4, students view a slide show and discuss ways that human actions impact weathering and water flow.

7. **SC.7.E.6.7:** Recognize that heat flow and movement of material within Earth causes earthquakes and volcanic eruptions, and creates mountains and ocean basins.

(●) **VERY GOOD ALIGNMENT** ( ) GOOD ALIGNMENT ( ) FAIR ALIGNMENT ( ) POOR ALIGNMENT ( ) VERY POOR/NO ALIGNMENT

Justification:
This standard is addressed in the Plate Motion unit. For example: • In Lesson 2.1, Activity 5, students read “How Do We Know What's Inside Earth?” which describes convection within the mantle. • In Lesson 2.4, Activity 3, students gather evidence from the simulation about earthquakes, volcanoes, and landforms at different types of plate boundaries. • In Lesson 3.4, Activities 2, 3, and 4, students analyze evidence, and write explanations for how fossils from the same land-dwelling species came to be found in both South America and South Africa as plate motion created an ocean basin those continents.

8. **SC.7.L.15.1:** Recognize that fossil evidence is consistent with the scientific theory of evolution that living things evolved from earlier species.

VERY GOOD ALIGNMENT **GOOD ALIGNMENT** FAIR ALIGNMENT POOR ALIGNMENT VERY POOR/NO ALIGNMENT

Justification:
This standard is addressed in the Natural Selection unit in Lesson 3.2, Activity 5 (click NEXT to see parts 2 and 3 of 4 in this activity). Students observe and compare detailed illustrations of fossils and of skeletons of related living organisms and they read “How You Are Like a Blue Whale”, an article that describes fossil evidence of evolution in mammals.

9. **SC.7.L.15.2:** Explore the scientific theory of evolution by recognizing and explaining ways in which genetic variation and environmental factors contribute to evolution by natural selection and diversity of organisms.

VERY GOOD ALIGNMENT GOOD ALIGNMENT FAIR ALIGNMENT POOR ALIGNMENT VERY POOR/NO ALIGNMENT

Justification:
This standard is addressed in the Natural Selection unit. For example: • In Lesson 1.3, Activity 2, students use the Natural Selection simulation to explore variation in a population. • In Lesson 2.2, Activity 2 students use the Natural Selection simulation to investigate how adaptive traits affect survival and reproduction rates. • In Lesson 2.2, Activity 3, students create a model and write an explanation for how the trait of beak strength could change in a bird population over time. • In Lesson 3.2, Activity 3, students use the Natural Selection simulation to investigate how the fur level trait in a population will change over time in a cold environment. • In Lesson 3.3, Activity 4, students read an article describing the evolution through natural selection of tortoises in South America and the Galapagos Islands.

10. **SC.7.L.15.3:** Explore the scientific theory of evolution by relating how the inability of a species to adapt within a changing environment may contribute to the extinction of that species.

VERY GOOD ALIGNMENT GOOD ALIGNMENT **FAIR ALIGNMENT** POOR ALIGNMENT VERY POOR/NO ALIGNMENT

Justification:
This standard is addressed in the Natural Selection unit. For example: • In Lesson 2.4, Activity 4, students are challenged to cause extinction in the Natural Selection simulation, and the class discusses how environmental change can cause extinction when individuals with adaptive traits are not present in the population.

11. **SC.7.L.16.1:** Understand and explain that every organism requires a set of instructions that specifies its traits, that this hereditary information (DNA) contains genes located in the chromosomes of each cell, and that heredity is the passage of these instructions from one generation to another.

Remarks/Examples:
Integrate HE.7.C.1.4. Describe how heredity can affect personal health.

VERY GOOD ALIGNMENT GOOD ALIGNMENT FAIR ALIGNMENT POOR ALIGNMENT VERY POOR/NO ALIGNMENT

Justification:
Chapter 2 and Chapter 3 of the unit Traits and Reproduction are focused on this concept. For example: • In Lesson 2.1, Activity 2, students read the article, “Hemophilia, Proteins, and Genes” which describes the role of genes and chromosomes in producing proteins which determine traits. • In Lesson 2.2, Activity 2, students engage in a physical model in which they play the roles of genes and ribosomes. • In Lesson 2.2, Activity 4, and in Lesson 2.3, students watch the video “Mutations and New Traits” (see Digital Resources), which shows how new traits can be introduced into a population by a mutation that results in a trait, the genes for which can be passed down from parents to offspring. • In Lesson 2.3, Activity 2, students use the Traits and Reproduction sim to observe that organisms always have two copies of a gene (one on each chromosome) for each feature. • In Lesson 3.2, Activity 3, students use the Traits and Reproduction simulation to investigate the process of inheritance.

12. **SC.7.L.16.2:** Determine the probabilities for genotype and phenotype combinations using Punnett Squares and pedigrees.

VERY GOOD ALIGNMENT GOOD ALIGNMENT **FAIR ALIGNMENT** POOR ALIGNMENT VERY POOR/NO ALIGNMENT

Justification:
This standard is addressed in the Traits and Reproduction unit in Lesson 3.3, Activity 4. Students learn to use Punnett squares to predict probabilities for genotypes and phenotypes for specific traits from given parents and compare these to results shown in pedigrees in the digital simulation.

13. **SC.7.L.16.3:** Compare and contrast the general processes of sexual reproduction requiring meiosis and asexual reproduction requiring mitosis.

VERY GOOD ALIGNMENT **GOOD ALIGNMENT** FAIR ALIGNMENT POOR ALIGNMENT VERY POOR/NO ALIGNMENT

Justification:
This standard is addressed in the Traits and Reproduction unit. In Lesson 3.3, Activity 5, (click NEXT to see part 2 of 2 of this activity), students read an article titled “Sea Anemones: Two Ways to Reproduce,” which compares sexual and asexual reproduction at the cellular level. In addition, throughout Chapter 3, students investigate sexual reproduction of organisms and the gene combinations that result in offspring. For instance, in Lesson 3.3, Activity 5, students investigate the resulting combinations of genes and traits in offspring of a male and female spider after random fertilization.

14. **SC.7.L.16.4:** Recognize and explore the impact of biotechnology (cloning, genetic engineering, artificial selection) on the individual, society and the environment.

Remarks/Examples:
Integrate HE.7.C.1.4. Describe how heredity can affect personal health.

VERY GOOD ALIGNMENT GOOD ALIGNMENT FAIR ALIGNMENT POOR ALIGNMENT VERY POOR/NO ALIGNMENT

Justification:
Chapter 2 and Chapter 3 of the unit Traits and Reproduction are focused on this concept. For example: • In Lesson 2.1, Activity 2, students read the article, “Hemophilia, Proteins, and Genes” which describes the role of genes and chromosomes in producing proteins which determine traits. • In Lesson 2.2, Activity 2, students engage in a physical model in which they play the roles of genes and ribosomes. • In Lesson 2.2, Activity 4, and in Lesson 2.3, students watch the video “Mutations and New Traits” (see Digital Resources), which shows how new traits can be introduced into a population by a mutation that results in a trait, the genes for which can be passed down from parents to offspring. • In Lesson 2.3, Activity 2, students use the Traits and Reproduction sim to observe that organisms always have two copies of a gene (one on each chromosome) for each feature. • In Lesson 3.2, Activity 3, students use the Traits and Reproduction simulation to investigate the process of inheritance.

15. **SC.7.L.17.1:** Explain and illustrate the roles of and relationships among producers, consumers, and decomposers in the process of energy transfer in a food web.

VERY GOOD ALIGNMENT GOOD ALIGNMENT **FAIR ALIGNMENT** POOR ALIGNMENT VERY POOR/NO ALIGNMENT
Justification:
This standard is addressed in the Populations and Resources unit. For example: • In Lesson 2.3, Activity 4, students read an article, “Where Living Things Get Their Energy,” which describes the relationships between producers, consumers, and decomposers in ecosystems, and where each of those organism types gets its energy.

16. **SC.7.L.17.2:** Compare and contrast the relationships among organisms such as mutualism, predation, parasitism, competition, and commensalism.

VERY GOOD ALIGNMENT GOOD ALIGNMENT FAIR ALIGNMENT POOR ALIGNMENT VERY POOR/NO ALIGNMENT
Justification:
The unit Populations and Resources is focused on this concept. For example: • In Lesson 3.3, Activity 4, students read the article “The Ant and the Acacia”, which addresses mutualism and compares it to other relationships in ecosystems, such as predation and competition. Students discuss the article and contrast mutualism with parasitism and commensalism in Lesson 3.4, Activity 1. • In Lesson 2.4, Activity 4, students conduct an investigation of predator-prey relationships using the Populations and Resources simulation. • In Lesson 3.1, Activity 2, students read the article “Jelly Population Explosion: How Competition Can Affect Population Size” • In Lesson 3.4, Activity 3, students write an argument about the causes of changes to a population of moon jellies, which includes an analysis of predator-prey relations.

17. **SC.7.L.17.3:** Describe and investigate various limiting factors in the local ecosystem and their impact on native populations, including food, shelter, water, space, disease, parasitism, predation, and nesting sites.

VERY GOOD ALIGNMENT GOOD ALIGNMENT **FAIR ALIGNMENT** POOR ALIGNMENT VERY POOR/NO ALIGNMENT
Justification:
This standard is addressed in the Populations and Resources unit. In Lesson 4.3, Activity 4, students read an article titled “Limiting Factors in Ecosystems,” which provides a variety of examples of when a factor is limiting and when it is not and the effects of these limiting factors on populations of organisms that live in the ecosystem.

18. **SC.7.N.1.1:** Define a problem from the seventh grade curriculum, use appropriate reference materials to support scientific understanding, plan and carry out scientific investigation of various types, such as systematic observations or experiments, identify variables, collect and organize data, interpret data in charts, tables, and graphics, analyze information, make predictions, and defend conclusions.

Remarks/Examples:
Florida Standards Connections: LAFS.68.RST.1.3. Follow precisely a multistep procedure when carrying out experiments, taking measurements, or performing technical tasks.

VERY GOOD ALIGNMENT GOOD ALIGNMENT FAIR ALIGNMENT POOR ALIGNMENT VERY POOR/NO ALIGNMENT
Justification:
Every unit in Amplify Science is structured around conducting investigations as well as gathering and analyzing evidence.

19. **SC.7.N.1.2:** Differentiate replication (by others) from repetition (multiple trials).

VERY GOOD ALIGNMENT **GOOD ALIGNMENT** FAIR ALIGNMENT POOR ALIGNMENT VERY POOR/NO ALIGNMENT
Justification:
This standard is addressed in the Traits and Reproduction, Natural Selection and Plate Motion Engineering Internship units. • In Traits and Reproduction Lesson 3.3, Activity 4, the class engages in repeated trials with the Traits and Reproduction simulation in order to get reliable data for questions about probability. Class discussion contrasts this to what would be necessary for replication of inheritance tests with live organisms. • In Natural Selection, Lesson 1.4, Activity 4, the Teacher Support note “Technology Note: Repeating Trials” encourages the teacher to discuss both replication and repetition with students after a sim test in which different students are likely to find different results based on random variation. • In the Plate Motion Engineering Internship unit, Lessons 5 and 6, students carefully track the details of the tsunami warning systems they test so that tests of successful designs can be replicated (see for example, Lesson 5, the Activity titled “Testing Warning System Designs”).

20. **SC.7.N.1.3:** Distinguish between an experiment (which must involve the identification and control of variables) and other forms of scientific investigation and explain that not all scientific knowledge is derived from experimentation.

VERY GOOD ALIGNMENT **GOOD ALIGNMENT** FAIR ALIGNMENT POOR ALIGNMENT VERY POOR/NO ALIGNMENT
Justification:
This standard is addressed in multiple units, in which students engage in different types of investigations and discuss the evidence gathered. For example: • In Thermal Energy, Lesson 1.2, Activity 3, students conduct an experiment in which they compare effects in hot and cold water. • In Light Waves, Lesson 1.2, Activity 3, students conduct an exploratory investigation in which they gather evidence that light carries energy. • In the Populations and Resources unit, Lesson 2.2, Activities 2 and 4, the class conducts a controlled experiment to test the input variable of different amount of sugar on the output variable of the amount of cellular respiration by the yeast. • In the Natural

Selection unit, Lesson 2.2, Activity 2, students conduct systematic observations of reproduction by organisms with more-adaptive and less-adaptive traits in the Natural Selection simulation.

21. **SC.7.N.1.4:** Identify test variables (independent variables) and outcome variables (dependent variables) in an experiment.

VERY GOOD ALIGNMENT **GOOD ALIGNMENT** FAIR ALIGNMENT POOR ALIGNMENT VERY POOR/NO ALIGNMENT

Justification:
This standard is addressed in multiple units, in which students engage in experiments. For example: • In the Populations and Resources unit, Lesson 2.2, Activity 2 (press NEXT to see part 2 of 2, in which test and outcome variables are discussed) and Activity 4, the class conducts a controlled experiment to test the input variable of different amount of sugar on the output variable of the amount of cellular respiration by the yeast. • In the Natural Selection unit, Lesson 1.5, Activity 2, students conduct a controlled experiment in the Natural Selection simulation testing the effect of the input variable of the presence/absence of predators on the outcome variable of prey color traits.

22. **SC.7.N.1.5:** Describe the methods used in the pursuit of a scientific explanation as seen in different fields of science such as biology, geology, and physics.

VERY GOOD ALIGNMENT GOOD ALIGNMENT FAIR ALIGNMENT POOR ALIGNMENT VERY POOR/NO ALIGNMENT

Justification:
Throughout the Comprehensive Science 2 Course, students experience and discuss numerous methods used in physical science to gather evidence in pursuit of scientific explanations. For example: • In the Light Waves unit, Lesson 1.2, in the activity titled “Interview with a Spectroscopist”, students watch a short documentary video about a scientist who conducts laboratory experiments using lasers. • In Harnessing Human Energy unit, Lesson 1.4, Activity 3, students read an article, “Energy Inventions”, about scientists and engineers who design energy solutions. • In the Populations and Resources unit, in Lesson 1.2 in an activity titled “Introducing Studying Jelly Populations” students watch a short documentary video about a real scientist who uses sampling, laboratory experiments and ecosystem models to learn about jellies role in ecosystems. • In the Populations and Resources unit, Lesson 1.4 in an activity titled “Sampling a Jelly Population” students watch a video that teaches them about the importance of sampling in ecology and what makes evidence from sampling stronger or less strong. And in the same lesson in Activity 2, students evaluate sampling evidence. • In the Traits and Reproduction unit, Lesson 1.3, Activity 3, students create physical models of protein molecules and discuss the importance of models to investigating organic structures that are too small to be seen.

23. **SC.7.N.1.6:** Explain that empirical evidence is the cumulative body of observations of a natural phenomenon on which scientific explanations are based.

VERY GOOD ALIGNMENT GOOD ALIGNMENT FAIR ALIGNMENT POOR ALIGNMENT VERY POOR/NO ALIGNMENT

Justification:
Every Amplify Science unit is structured around students generating empirical evidence and analyzing this evidence as well as other evidence in order to make explanations about scientific principles as well as specific phenomena. For example, in the Light Waves unit, students are investigating the natural phenomenon of the high rate of skin cancer in Australia. • In Lesson 1.2, Activity 3, students gather empirical evidence that light carries energy. • In Lesson 1.4, Activity 3, students analyze observations of world sunlight levels and compare them to skin cancer rates. • In Lesson 1.4, Activity 4, students write an explanation of the phenomenon based on this evidence and observations. In the Natural Selection unit, students are investigating what has caused a population of newts to become so poisonous. • In Lesson 1.5, Activity 2; Lesson 2.2, Activity 2 and Lesson 3.2, Activity 3, students generate and analyze evidence from the simulation in order to explain how traits in a population can change. • In Lesson 2.4, Activities 3 and 5, students analyze data about the newt population and plan and write arguments supporting an explanation about why the newts became so poisonous. In the Rock Transformations unit, students are investigating what caused a rock formation in the Great Plains and one in the Rocky Mountains to have nearly identical composition. • In Lesson 2.1, Activity 2, students plan and conduct tests in the simulation to gather evidence about how sediment and magma can each be formed. • In Lesson 2.2, Activity 2, students gather evidence about different ways rocks can form by reading the article “Devil’s Tower”. • In Lesson 3.4, Activities 2, 3, and 5 students analyze evidence about plate motion in the regions, create visual models, and write scientific explanations about the Great Plains/Rocky Mountains question.

24. **SC.7.N.1.7:** Explain that scientific knowledge is the result of a great deal of debate and confirmation within the science community.

VERY GOOD ALIGNMENT GOOD ALIGNMENT FAIR ALIGNMENT POOR ALIGNMENT VERY POOR/NO ALIGNMENT

Justification:
• In the Light Waves unit, Lesson 3.2, Activity 4, students read an article “What Animals See” that includes discussion about the uncertainties scientists have about animal vision.

25. **SC.7.N.2.1:** Identify an instance from the history of science in which scientific knowledge has changed when new evidence or new interpretations are encountered.

VERY GOOD ALIGNMENT GOOD ALIGNMENT FAIR ALIGNMENT **POOR ALIGNMENT** VERY POOR/NO ALIGNMENT

Justification:
Students encounter this concept in the Plate Motion unit. In Lesson 3.2, Activities 3 and 4, students read and discuss “A Continental Puzzle”, an article which describes how new evidence caused a large change in scientists’ understanding of how the Earth’s surface changes over long time periods.

26. **SC.7.N.3.1:** Recognize and explain the difference between theories and laws and give several examples of scientific theories and the evidence that supports them.

VERY GOOD ALIGNMENT **GOOD ALIGNMENT** FAIR ALIGNMENT POOR ALIGNMENT VERY POOR/NO ALIGNMENT

Justification:
This standard is addressed in the Natural Selection, Plate Motion, and Rock Transformations units. This standard is addressed in the Natural Selection unit. In Lesson 3.3, Activity 4, the class discusses the theory of evolution, including the extensive evidence that supports the theory. They also discuss the difference between a theory and a law, and consider other theories that they may be familiar with, such as the theory of plate tectonics and cell theory. In addition, in Plate Motion Lesson 3.3, Activity 2, the class discusses the theory of plate tectonics, including how the term theory is used differently in science and in everyday language. They also discuss the difference between a theory and a law, and consider other theories that they may be familiar with, such as the theory of evolution and cell theory. In the Rock Transformations unit, students have a number of experiences that support an understanding of the Laws of Conservation of Matter, for

example: • Lesson 3.1, Activities 2 and 3, the article “The Oldest Rock Formations on Earth” describes the cycling of rock material • Lesson 3.3, Activity 2, a classroom model of cycling of rock material.

27. **SC.7.N.3.2:** Identify the benefits and limitations of the use of scientific models. Thus, the use of the term theory in science is very different than how it is used in everyday life.

Remarks/Examples:
Florida Standards Connections: MAFS.K12.MP.4: Model with mathematics.

(●) **VERY GOOD ALIGNMENT** ( ) GOOD ALIGNMENT ( ) FAIR ALIGNMENT ( ) POOR ALIGNMENT ( ) VERY POOR/NO ALIGNMENT
Justification:
This standard is addressed in all Amplify Science units. For example: • In the Thermal Energy unit, students investigate thermal energy transfer using a variety of models, including a digital simulation (Lesson 1.3, Activity 2), a physical model (Lesson 2.4, Activity 3), and a visual model (Lesson 2.5, Activity 3 - press NEXT to see part 2 of 3 of this activity), recognizing differences between each model. • In the Traits and Reproduction unit, students investigate proteins using a variety of models, including a digital simulation (Lesson 1.2, Activity 3), a 3D image of a protein (Lesson 1.3, Activity 2 - press NEXT to see part 2 of 3 of this activity), and a physical model of proteins (Lesson 1.3, Activity 3), recognizing differences between each model (e.g., the simulation shows a diagrammatic representation of proteins, while the 3D image shows a more realistic, three-dimensional shape of a protein). • In the Traits and Reproduction unit, students investigate using a digital simulation, which allows students to add proteins to organisms’ cells. In Lesson 1.5, Activity 3, the class discusses the limitations of this model: The Sim includes this feature because it helps us investigate how different proteins relate to different traits. However, changing traits in this way would be a difficult feat to accomplish in the real world and would not occur exactly as the Sim shows. • For example, in the Plate Motion unit investigate plate motion using a variety of models, including a physical model using putty and a plastic cube (Lesson 2.1, Activity 3) a digital simulation (e.g., Lesson 2.4, Activity 3), and a physical model using towels (Lesson 2.3, Activity 3), and recognizing differences between each model.

28. **SC.7.P.10.1:** Illustrate that the sun's energy arrives as radiation with a wide range of wavelengths, including infrared, visible, and ultraviolet, and that white light is made up of a spectrum of many different colors.

(●) **VERY GOOD ALIGNMENT** ( ) GOOD ALIGNMENT ( ) FAIR ALIGNMENT ( ) POOR ALIGNMENT ( ) VERY POOR/NO ALIGNMENT
Justification:
This standard is the focus of the Light Waves unit and is addressed in multiple lessons. For example: • In Lesson 2.2, Activity 2, Students read the article “Harvesting Sunlight”, about how the sun emits all types of light, including infrared, visible and ultraviolet, but plants can only use certain types of visible light for photosynthesis; then in Lesson 2.3, Activity 1, they analyze a diagram and write an explanation of the difference between light from the sun and light from a grow bulb, in terms of wavelengths and spectrum. • In Lesson 2.4, Activity 1, students analyze a diagram showing the range of wavelengths emitted from the sun, considering which wavelengths are absorbed in the atmosphere. • In Lesson 2.3, Activity 3, students use the Light Wave simulation to discover that different types of light have different wavelengths. • In Lesson 2.4, Activity 2, students use the Light Wave simulation to collect, record and analyze data about the effects of different types of light on the genetic materials in cells. • In Lesson 3.2, Activity 2, students read the article “What Eyes Can See”, which helps them make an explanation for why objects appear a certain color because they reflect or absorb different colors of light that make up white light.

29. **SC.7.P.10.2:** Observe and explain that light can be reflected, refracted, and/or absorbed.

( ) VERY GOOD ALIGNMENT (●) **GOOD ALIGNMENT** ( ) FAIR ALIGNMENT ( ) POOR ALIGNMENT ( ) VERY POOR/NO ALIGNMENT
Justification:
This standard is addressed in the Light Waves unit: • In Lesson 3.1 activity 2, students use a laser pointer and different objects to investigate what can happen to light as it travels. Students discover that light can be reflected, transmitted or absorbed depending on the object it hits. • In Lesson 3.1 Activity 3, students use the Light Waves simulation to test how different types of light behave when they hit glass and aluminum foil. Students discover that light can be reflected, transmitted or absorbed depending on the type of light and the material it hits. • In Lesson 3.6 activity 4, students read the article “Making Waves at Swim Practice”, about how waves travel different speeds depending on the material they are traveling through. Students learn that when waves change speed when traveling from one material to another the light wave refracts (bends).

30. **SC.7.P.10.3:** Recognize that light waves, sound waves, and other waves move at different speeds in different materials.

( ) VERY GOOD ALIGNMENT ( ) GOOD ALIGNMENT (●) **FAIR ALIGNMENT** ( ) POOR ALIGNMENT ( ) VERY POOR/NO ALIGNMENT
Justification:
This standard is addressed in the Light Waves unit: • In Lesson 3.6, Activity 4, students read the article “Making Waves at Swim Practice”, about how waves travel different speeds depending on the material they are traveling through. Students learn that sounds waves travel more quickly through solids and liquids than through gases like the air, but that light waves travel most quickly through empty space, more slowly through gas and even more slowly through liquids.

31. **SC.7.P.11.1:** Recognize that adding heat to or removing heat from a system may result in a temperature change and possibly a change of state.

( ) VERY GOOD ALIGNMENT (●) **GOOD ALIGNMENT** ( ) FAIR ALIGNMENT ( ) POOR ALIGNMENT ( ) VERY POOR/NO ALIGNMENT
Justification:
This standard is addressed in the Thermal Energy unit. For example: • In Lesson 2.3, Activity 2, students investigate why the molecules that make up objects change speed (why objects change temperature). Using the Thermal Energy simulation, students test what happens when a warm object and is placed near a cooler object. Students observe that energy (heat) transfers from warmer to cooler objects causing both objects to change temperature. When energy (heat) is transferred out the object gets cooler, when energy (heat) is transferred in the object gets warmer. • In Lesson 2.3, Activity 3, students reread the article “How Air Conditioners Make Cities Hotter”, about how air conditioners make the inside of building cooler by transferring energy (heat) to the outdoors, making it hotter. Students learn that energy (heat) transfers from warmer objects to colder objects because faster-moving molecules that make up warmer objects collide with the slower-moving molecules that make up cooler objects, making the slower-moving molecules speed up. This causes the warmer object to cool down and the cooler object to warm up.

32. **SC.7.P.11.2:** Investigate and describe the transformation of energy from one form to another.

◉ **VERY GOOD ALIGNMENT** ○ GOOD ALIGNMENT ○ FAIR ALIGNMENT ○ POOR ALIGNMENT ○ VERY POOR/NO ALIGNMENT

Justification:
This standard is addressed in the Harnessing Human Energy unit. • In Lesson 2.1, Activity 3, students investigate in a digital simulation to gather evidence about where objects get their energy from. From this investigation, students discover that objects do not create their own energy; rather, they get energy from other objects that have energy. (press NEXT to see part 2 of 3 of this activity). Students make an explicit connection between their investigations and the law of conservation of energy. • In Lesson 2.2, Activity 2, students revisit an article, “Energy Inventions”, with a focus on where the objects in the article get their energy from. After analyzing information presented in this article, students figure out that energy can change from one form to another.

33. **SC.7.P.11.3:** Cite evidence to explain that energy cannot be created nor destroyed, only changed from one form to another.

○ VERY GOOD ALIGNMENT ◉ **GOOD ALIGNMENT** ○ FAIR ALIGNMENT ○ POOR ALIGNMENT ○ VERY POOR/NO ALIGNMENT

Justification:
This standard is addressed in the Harnessing Human Energy unit. • In Lesson 2.1, Activity 3, students investigate in a digital simulation to gather evidence about where objects get their energy from. From this investigation, students discover that objects do not create their own energy; rather, they get energy from other objects that have energy. (press NEXT to see part 2 of 3 of this activity). Students make an explicit connection between their investigations and the law of conservation of energy. • In Lesson 2.2, Activity 2, students revisit an article, “Energy Inventions”, with a focus on where the objects in the article get their energy from. After analyzing information presented in this article, students figure out that energy can change from one form to another.

34. **SC.7.P.11.4:** Observe and describe that heat flows in predictable ways, moving from warmer objects to cooler ones until they reach the same temperature.

○ VERY GOOD ALIGNMENT ◉ **GOOD ALIGNMENT** ○ FAIR ALIGNMENT ○ POOR ALIGNMENT ○ VERY POOR/NO ALIGNMENT

Justification:
This standard is addressed in the Thermal Energy unit: • In Lesson 2.3, Activity 2, students investigate why the molecules that make up objects change speed (why objects change temperature). Using the Thermal Energy simulation, students test what happens when a warm object and is placed near a cooler object. Students learn that energy (heat) transfers from the warmer object to the cooler object. • In Lesson 2.3, Activity 3, students reread the Article “How Air Conditioners Make Cities Hotter”, about how air conditioners make the inside of building cooler by transferring energy (heat) to the outdoors, making it hotter. Students learn that energy (heat) transfers from warmer objects to colder objects because faster-moving molecules that make up warmer objects collide with the slower-moving molecules that make up cooler objects, making the slower-moving molecules speed up. This transfer happens until the objects are the same temperature.

35. **LAFS.68.RST.1.1:** Cite specific textual evidence to support analysis of science and technical texts.

○ VERY GOOD ALIGNMENT ◉ **GOOD ALIGNMENT** ○ FAIR ALIGNMENT ○ POOR ALIGNMENT ○ VERY POOR/NO ALIGNMENT

Justification:
This standard is addressed in every unit of the Comprehensive Science 2 Course. Students read articles multiple times, for different purposes, in order to gather textual evidence to support science ideas. For example: • In Lesson 2.3, Activity 3 of the Thermal Energy unit, students re-read a section of the same article, “How Air Conditioners Make Cities Hotter” that they read during the previous lesson. The purpose of the re-reading they do in this lesson is to collect evidence from the article to support or refute two opposing claims about how molecules speed up when energy is introduced. Students then discuss the evidence they found and the claim that is supported (or refuted) based on evidence from the text.

36. **LAFS.68.RST.1.2:** Determine the central ideas or conclusions of a text; provide an accurate summary of the text distinct from prior knowledge or opinions.

○ VERY GOOD ALIGNMENT ◉ **GOOD ALIGNMENT** ○ FAIR ALIGNMENT ○ POOR ALIGNMENT ○ VERY POOR/NO ALIGNMENT

Justification:
This standard is addressed in every unit of the Comprehensive Science 2 Course. Students read articles multiple times and apply the strategy of summarizing often. In addition, for every ‘second read’ students are asked questions that help them to summarize the important ideas from the text. For example: • In Lesson 2.2, Activity 2 of the Light Waves unit, students read the article “Harvesting Sunlight” and are introduced to the specific strategy of summarizing main ideas while reading. Students then read and apply this strategy, among others they have learned as part of the Active Reading approach. After reading, in Activity 3, students share their annotations (first with partners and with the whole class), including the summaries they made while reading. • In Lesson 3.2, Activity 2 of the Populations and Resources unit, students re-read a section of the article, “Jelly Population Explosion” (the Competition for Food section) in order to better understand how competition in an ecosystem affects the populations described in the article. They highlight important information as they read, then respond to a question in which they summarize this key information.

37. **LAFS.68.RST.1.3:** Follow precisely a multistep procedure when carrying out experiments, taking measurements, or performing technical tasks.

○ VERY GOOD ALIGNMENT ◉ **GOOD ALIGNMENT** ○ FAIR ALIGNMENT ○ POOR ALIGNMENT ○ VERY POOR/NO ALIGNMENT

Justification:
This standard is addressed in every unit of the Comprehensive Science 2 Course. For example: • In Lesson 3.2, Activity 2 of the Harnessing Human Energy unit, students work in small groups to design and create an energy system, using materials in the classroom. In order to do this, they must work together and follow a set of procedures, checking these procedures often throughout the activity to ensure that they have included all the required elements. • In Lesson 2.4, Activity 2 of the Populations and Resources unit, students test a variety of scenarios focused on changes to an ecosystem, in the Populations and Resources simulation. Students must follow a multistep procedure and collect and record data in order to complete this activity.

38. **LAFS.68.RST.2.4:** Determine the meaning of symbols, key terms, and other domain-specific words and phrases as they are used in a specific scientific or technical context relevant to grades 6–8 texts and topics.

○ VERY GOOD ALIGNMENT ◉ **GOOD ALIGNMENT** ○ FAIR ALIGNMENT ○ POOR ALIGNMENT ○ VERY POOR/NO ALIGNMENT

Justification:
This standard is addressed in every unit of the Comprehensive Science 2 Course. For example: • In Lesson 4.1, Activities 3 and 4 of the

Thermal Energy unit, students read, annotate and analyze evidence cards. Each card contains text, symbols, graphs and/or data tables. Students must carefully read all available information on these cards in order to make meaning from them. • In Lesson 3.1, Activity 3 of the Traits and Reproduction unit, students read the article, “Why Are Identical Twins Rare?” The article contains both traditional text as well as several diagrams that are essential for understanding the article. In order to analyze these diagrams, students will need to determine the meaning of the associated symbols and domain-specific vocabulary.

39. **LAFS.68.RST.2.5:** Analyze the structure an author uses to organize a text, including how the major sections contribute to the whole and to an understanding of the topic.

VERY GOOD ALIGNMENT **GOOD ALIGNMENT** FAIR ALIGNMENT POOR ALIGNMENT VERY POOR/NO ALIGNMENT

Justification:
This standard is addressed in multiple units of the Comprehensive Science 2 Course. For example: • In the Plate Motion unit, Lesson 2.2, Activity 2 (see the Teacher Support tab, note titled “Instructional Suggestion: Literacy Note: Text Structure) students are introduced to the idea of different text structures and discuss the text structure that best applies to the “Listening to Earth” article. • In Lesson 3.1, Activity 2 of the Natural Selection unit, students are introduced to a set of articles, each of which describes how mutations have affected one species of organisms. Students choose one species to read about, and over the course of this lesson and the next as they discuss the information they learn from each article, students learn how this article set works to contribute to the whole and to an understanding of the topic of mutations in general.

40. **LAFS.68.RST.2.6:** Analyze the author’s purpose in providing an explanation, describing a procedure, or discussing an experiment in a text.

VERY GOOD ALIGNMENT **GOOD ALIGNMENT** FAIR ALIGNMENT POOR ALIGNMENT VERY POOR/NO ALIGNMENT

Justification:
This standard is addressed in multiple units of the Comprehensive Science 2 Course. For example: • In Lesson 3.3, during the Activities titled introducing Quality of Evidence and Evaluating Ed-U-Swivel Evidence from the Harnessing Human Energy unit, students are asked to read and analyze a set of possible evidences, and sort it according to how reliable each source of evidence is. Each piece of evidence comes from a different source, and students evaluating the sources and make conclusions about the inherent biases of each before deciding which data they should rely upon to create arguments later in the lesson.

41. **LAFS.68.RST.3.7:** Integrate quantitative or technical information expressed in words in a text with a version of that information expressed visually (e.g., in a flowchart, diagram, model, graph, or table).

VERY GOOD ALIGNMENT **GOOD ALIGNMENT** FAIR ALIGNMENT POOR ALIGNMENT VERY POOR/NO ALIGNMENT

Justification:
This standard is addressed in multiple units of the Comprehensive Science 2 Course. For example: • In Lesson 3.1, Activity 3 of the Traits and Reproduction unit, students read the article, “Why Are Identical Twins Rare?” The article contains several diagrams that are crucial for understanding the content of the article, which focuses on sexual reproduction. In Lesson 3.2, Activity 2, students re-read a portion of the article and are specifically directed to pay attention to these important diagrams so they can more fully understand the content expressed in the article.

42. **LAFS.68.RST.3.8:** Distinguish among facts, reasoned judgment based on research findings, and speculation in a text.

VERY GOOD ALIGNMENT **GOOD ALIGNMENT** FAIR ALIGNMENT POOR ALIGNMENT VERY POOR/NO ALIGNMENT

Justification:
This standard is addressed in multiple units of the Comprehensive Science 2 Course. For example: • In Lesson 4.1, Activity 2 of the Thermal Energy unit, students are introduced to a problem that they need analyze: after a disaster on an island, a company provided the residents with pasteurization kits, yet some residents still got sick. Were the kits faulty, or was something else at fault? Over the course of this and the following lesson (Lesson 4.2) students read, analyze and discuss evidence cards and other related documents in order to determine what happened; they must decide which facts and which opinions use, refute or ignore in order to make a strong argument about what happened on the island.

43. **LAFS.68.RST.3.9:** Compare and contrast the information gained from experiments, simulations, video, or multimedia sources with that gained from reading a text on the same topic.

VERY GOOD ALIGNMENT **GOOD ALIGNMENT** FAIR ALIGNMENT POOR ALIGNMENT VERY POOR/NO ALIGNMENT

Justification:
This standard is addressed in every unit of the Comprehensive Science 2 Course. For example: • In Lesson 2.3, Activity 2 of the Light Waves unit, students re-read the article, “Harvesting Sunlight” to identify different kinds of light that affect plants. This information helps students to understand that there are different kinds of light, and that each kind of light can affect materials in different ways. Next, in Activity 3, students further develop this understanding by using the Light Waves simulation to create different kinds of light in the simulation and investigate their properties.

44. **LAFS.68.WHST.1.1:** Write arguments focused on discipline-specific content.

a. Introduce claim(s) about a topic or issue, acknowledge and distinguish the claim(s) from alternate or opposing claims, and organize the reasons and evidence logically.

b. Support claim(s) with logical reasoning and relevant, accurate data and evidence that demonstrate an understanding of the topic or text, using credible sources.

c. Use words, phrases, and clauses to create cohesion and clarify the relationships among claim(s), counterclaims, reasons, and evidence.

d. Establish and maintain a formal style.

e. Provide a concluding statement or section that follows from and supports the argument presented.

VERY GOOD ALIGNMENT **GOOD ALIGNMENT** FAIR ALIGNMENT POOR ALIGNMENT VERY POOR/NO ALIGNMENT

Justification:
This standard is addressed in all units of the Comprehensive Science 2 Course. For example: • In Lesson 4.3, Activity 4 in the Thermal Energy unit, students write arguments about whether the heating instructions for a pasteurization kit that was distributed to an island

community after a disaster are actually able to pasteurize water. Students base their arguments on evidence about how the device, which uses concepts of heat (energy) transfer works. This argumentation writing activity is constructed so that students' arguments can contain content from the entire unit.

45. **LAFS.68.WHST.1.2:** Write informative/explanatory texts, including the narration of historical events, scientific procedures/ experiments, or technical processes.

a. Introduce a topic clearly, previewing what is to follow; organize ideas, concepts, and information into broader categories as appropriate to achieving purpose; include formatting (e.g., headings), graphics (e.g., charts, tables), and multimedia when useful to aiding comprehension.

b. Develop the topic with relevant, well-chosen facts, definitions, concrete details, quotations, or other information and examples.

c. Use appropriate and varied transitions to create cohesion and clarify the relationships among ideas and concepts.

d. Use precise language and domain-specific vocabulary to inform about or explain the topic.

e. Establish and maintain a formal style and objective tone.

f. Provide a concluding statement or section that follows from and supports the information or explanation presented.

VERY GOOD ALIGNMENT **GOOD ALIGNMENT** FAIR ALIGNMENT POOR ALIGNMENT VERY POOR/NO ALIGNMENT

Justification:
This standard is addressed in all units of the Comprehensive Science 2 Course. For example: • In Lesson 4.3, Activity 2 in the Light Waves unit, students begin to prepare to write final arguments by first choosing a claim they want to support in writing. They then organize their thinking using a tool called the Reasoning Tool. Next, students further organize their thinking by examining what they written on the Reasoning Tool and deciding which evidence to include in their writing. All of these activities prepare students to develop a topic with relevant, well-chosen facts. In the instructions for writing their arguments, students are encouraged to directly use the information from each evidence card to support their writing, as they write their arguments in Activity 4. In addition, students are provided with supportive scaffolds such as the Scientific Argument Sentence Starters, which remind students ways to include transitions, clarify relationships among ideas, and maintain cohesion during their writing.

46. **LAFS.68.WHST.2.4:** Produce clear and coherent writing in which the development, organization, and style are appropriate to task, purpose, and audience.

VERY GOOD ALIGNMENT GOOD ALIGNMENT **FAIR ALIGNMENT** POOR ALIGNMENT VERY POOR/NO ALIGNMENT

Justification:
This standard is addressed in all units of the Comprehensive Science 2 Course. For example: • In Lessons 7, 8, and 9 of the Plate Motion Engineering Internship unit, students are introduced to the task of developing an Engineering Proposal that offers the best tsunami warning system for Sri Lanka, based on criteria such as cost, what kinds of earthquakes are detected and whether or not sufficient warning is provided for people to react. Students develop, revise and organize their written proposals during this series of lessons, and consider the style (through examination of a rubric, and after receiving feedback about their proposals) as well as audience (see, for example, Lesson 8, the activity titled "Revising Design Decisions").

47. **LAFS.68.WHST.2.5:** With some guidance and support from peers and adults, develop and strengthen writing as needed by planning, revising, editing, rewriting, or trying a new approach, focusing on how well purpose and audience have been addressed.

VERY GOOD ALIGNMENT **GOOD ALIGNMENT** FAIR ALIGNMENT POOR ALIGNMENT VERY POOR/NO ALIGNMENT

Justification:
This standard is addressed in all units of the Comprehensive Science 2 Course. Most units in the Comprehensive Science 2 Course end with a 3-day Science Seminar Sequence. This sequence provides time for students to examine evidence about a novel scientific problem that requires them to use content from the rest of the unit. Students discuss their ideas about this problem in a discourse routine called the Science Seminar, then independently write final arguments based on the thinking they did during the sequence. For example: • In Lesson 7, during the Activity titled, "Introducing the Proposal" of the Plate Motion Engineering Internship unit, students review their role as engineering interns and consider the audience to whom they will be addressing their proposals -- their project director. They are introduced to the rubric that will be used to provide feedback about their proposals and, through this, consider the component parts, tone, audience and specific vocabulary needed to write an effective proposal. Next, students write draft proposals, which receive feedback, and in the following two lessons, students revise their proposals based on this feedback.

48. **LAFS.68.WHST.2.6:** Use technology, including the Internet, to produce and publish writing and present the relationships between information and ideas clearly and efficiently.

VERY GOOD ALIGNMENT GOOD ALIGNMENT FAIR ALIGNMENT POOR ALIGNMENT VERY POOR/NO ALIGNMENT

Justification:
This standard is addressed in all units of the Comprehensive Science 2 Course. For example: • In Lesson 4.3, Activity 4 in the Thermal Energy unit (see the Teacher Support note titled Instructional Suggestion: Literacy Note: Additional Modalities for Sharing Arguments) students are presented with presentation options for their final argument, including publishing to a class webpage or blog.

49. **LAFS.68.WHST.3.7:** Conduct short research projects to answer a question (including a self-generated question), drawing on several sources and generating additional related, focused questions that allow for multiple avenues of exploration.

VERY GOOD ALIGNMENT **GOOD ALIGNMENT** FAIR ALIGNMENT POOR ALIGNMENT VERY POOR/NO ALIGNMENT

Justification:
This standard is addressed in many units of the Comprehensive Science 2 Course. For example: • In the Harnessing Human Energy unit, students are challenged to figure out how rescue workers who have to conduct rescues in areas that are far from an energy grid might have access to a sustainable supply of energy. They gather evidence about how this supply could be available over the course of many lessons; particularly, in Lesson 2.1, Activity 3 and Lesson 2.2, Activities 2 and 3, students conduct experiments using the Harnessing Human Energy simulation and gather evidence from an article and from energy source cards. In Lesson 2.3, Activity 3 they write explanations about how rescue workers can best meet their energy needs.

50. **LAFS.68.WHST.3.8:** Gather relevant information from multiple print and digital sources, using search terms effectively; assess the credibility and accuracy of each source; and quote or paraphrase the data and conclusions of others while avoiding plagiarism and following

a standard format for citation.

◉ **VERY GOOD ALIGNMENT** ○ GOOD ALIGNMENT ○ FAIR ALIGNMENT ○ POOR ALIGNMENT ○ VERY POOR/NO ALIGNMENT

Justification:
This standard is addressed across the Comprehensive Science 2 Course. For example: • In every unit, students can use the search function in the Amplify Library to search and find relevant content within articles. • In Lesson 3.3, during the Activities titled introducing Quality of Evidence and Evaluating Ed-U-Swivel Evidence from the Harnessing Human Energy unit, students are asked to read and analyze a set of possible evidences, and sort it according to how reliable each source of evidence is. Each piece of evidence comes from a different source, and students evaluate the sources and make conclusions about the inherent biases of each before deciding which data they should rely upon to create arguments later in the lesson. Students use the evidence that they determined is from more quality/less biased sources to prepare for (Activity 3) and write (Activity 4) an argument.

51. **LAFS.68.WHST.3.9:** Draw evidence from informational texts to support analysis reflection, and research.

◉ **VERY GOOD ALIGNMENT** ○ GOOD ALIGNMENT ○ FAIR ALIGNMENT ○ POOR ALIGNMENT ○ VERY POOR/NO ALIGNMENT

Justification:
This standard is addressed in all units of the Comprehensive Science 2 Course. For example: • In Lesson 2.3, Activity 3 of the Thermal Energy unit, students conduct a second read of part of the article “How Air Conditioners Make Cities Hotter.” During this read, they collect and record evidence that, along with evidence they gathered from a simulation investigation in Activity 2, allows them determine which claim, out of two provided claims, is most strongly supported by evidence.

52. **LAFS.68.WHST.4.10:** Write routinely over extended time frames (time for reflection and revision) and shorter time frames (a single sitting or a day or two) for a range of discipline-specific tasks, purposes, and audiences.

◉ **VERY GOOD ALIGNMENT** ○ GOOD ALIGNMENT ○ FAIR ALIGNMENT ○ POOR ALIGNMENT ○ VERY POOR/NO ALIGNMENT

Justification:
This standard is addressed in all units of the Comprehensive Science 2 Course. Students write in virtually every lesson, for a wide variety of purposes. Some examples are: • In Lesson 3.6, Activity 3 of the Light Waves unit, students analyze evidence with support of the Reasoning Tool, then use this work to write short arguments in Activity 5, about why skin cancer rates are so high in Australia. • In Lesson 2.4, Activity 2 of the Populations and Resources unit, students make predictions and write explanations about what factors would decrease the number of deaths that might occur in the ecosystem that is represented in the Populations and Resources simulation, then conduct an investigation to see if their predictions are correct. Afterwards, they again write and explain how they interpret the data they collected during the simulation activity.

53. **LAFS.7.SL.1.1:** Engage effectively in a range of collaborative discussions (one-on-one, in groups, and teacher-led) with diverse partners on grade 7 topics, texts, and issues, building on others’ ideas and expressing their own clearly.
a. Come to discussions prepared, having read or researched material under study; explicitly draw on that preparation by referring to evidence on the topic, text, or issue to probe and reflect on ideas under discussion.
b. Follow rules for collegial discussions, track progress toward specific goals and deadlines, and define individual roles as needed.
c. Pose questions that elicit elaboration and respond to others’ questions and comments with relevant observations and ideas that bring the discussion back on topic as needed.
d. Acknowledge new information expressed by others and, when warranted, modify their own views.

○ VERY GOOD ALIGNMENT ◉ **GOOD ALIGNMENT** ○ FAIR ALIGNMENT ○ POOR ALIGNMENT ○ VERY POOR/NO ALIGNMENT

Justification:
This standard is addressed in all units of the Comprehensive Science 2 Course. An example of some (not all) instances from the Traits and Reproduction unit is: • In Lesson 1.2, Activity 3, students activate prior knowledge about spiders and traits by discussing these concepts in partners then with the class. in Lesson 1.5, Activity 4, students participate in the discourse routine, Write and Share, in which they write about, then discuss in small groups, several pieces of evidence.

54. **LAFS.7.SL.1.2:** Analyze the main ideas and supporting details presented in diverse media and formats (e.g., visually, quantitatively, orally) and explain how the ideas clarify a topic, text, or issue under study.

○ VERY GOOD ALIGNMENT ◉ **GOOD ALIGNMENT** ○ FAIR ALIGNMENT ○ POOR ALIGNMENT ○ VERY POOR/NO ALIGNMENT

Justification:
This standard is addressed in all units of the Comprehensive Science 2 Course. • In Lesson 2.4, Activity 4 of the Populations and Resources unit, students participate in the small group discourse routine, Write and Share. In this activity, each student evaluates information about a different part of an ecosystem. Afterwards, students in the group come together to share their conclusions about the information they examined, and work together through discussion to come to conclusions about what happened the organisms they examined in the ecosystem.

55. **LAFS.7.SL.1.3:** Delineate a speaker’s argument and specific claims, evaluating the soundness of the reasoning and the relevance and sufficiency of the evidence.

○ VERY GOOD ALIGNMENT ○ GOOD ALIGNMENT ◉ **FAIR ALIGNMENT** ○ POOR ALIGNMENT ○ VERY POOR/NO ALIGNMENT

Justification:
This standard is addressed across multiple units in the Comprehensive Science 2 Course. Most units end with a curricular sequence called the Science Seminar Sequence. This 3-day series of lessons asks students to use content derived throughout the unit and apply it to understanding a new context. Students are presented with competing claims and evidence, then prepare for a whole-class discussion of this evidence.

56. **LAFS.7.SL.2.4:** Present claims and findings, emphasizing salient points in a focused, coherent manner with pertinent descriptions, facts, details, and examples; use appropriate eye contact, adequate volume, and clear pronunciation.

○ VERY GOOD ALIGNMENT ○ GOOD ALIGNMENT ◉ **FAIR ALIGNMENT** ○ POOR ALIGNMENT ○ VERY POOR/NO ALIGNMENT

Justification:
This standard is addressed across multiple units in the Comprehensive Science 2 Course. Most units end with a curricular sequence called the Science Seminar Sequence, which asks students to apply what they have learned to a new context. Students are presented with competing claims and evidence, then prepare for a whole-class discussion of this evidence.

57. **LAFS.7.SL.2.5:** Include multimedia components and visual displays in presentations to clarify claims and findings and emphasize salient points.

VERY GOOD ALIGNMENT **GOOD ALIGNMENT** FAIR ALIGNMENT POOR ALIGNMENT VERY POOR/NO ALIGNMENT
Justification:
This standard is addressed in all units of the Comprehensive Science 2 Course. For example: • In Lesson 4.3, Activity 4 in the Thermal Energy unit (see the Teacher Support note titled Instructional Suggestion: Literacy Note: Additional Modalities for Sharing Arguments) students are presented with presentation options for their final argument, including a multimedia presentation or video.

58. **HE.7.C.1.3:** Analyze how environmental factors affect personal health.

Remarks/Examples:
Food refrigeration, appropriate home heating and cooling, air/water quality, and garbage/trash collection.

VERY GOOD ALIGNMENT GOOD ALIGNMENT **FAIR ALIGNMENT** POOR ALIGNMENT VERY POOR/NO ALIGNMENT
Justification:
This standard is addressed across multiple units in the Comprehensive Science 2 Course. For example: • In Light Waves, students are introduced to the problem in Australia: its population is at an exceptionally high risk of skin cancer. Throughout the unit, students investigate light waves to help them explain why the skin cancer rate in Australia is so high. In doing so, students analyze how environmental factors, such as sun exposure and UV radiation, affect personal health. For example, in Lesson 1.3, Activity 4, students use the Light Waves simulation to observe that genetic material absorbs energy from light from the sun, and this energy can cause damage.

59. **HE.7.C.1.8:** Explain the likelihood of injury or illness if engaging in unhealthy/risky behaviors.

Remarks/Examples:
Abuse of over-the-counter medications, sexually transmitted diseases and sexually transmitted infections from sexual relationships, injury, or death from unsupervised handling of firearms, and physical/emotional injury, or impact from abusive dating partner.

VERY GOOD ALIGNMENT GOOD ALIGNMENT **FAIR ALIGNMENT** POOR ALIGNMENT VERY POOR/NO ALIGNMENT
Justification:
This standard is addressed across multiple units in the Comprehensive Science 2 Course, in the context of health issues around clean drinking water. For example: • In the Thermal Energy unit, Chapter 4 focuses on a problem involving contaminated drinking water. In Lesson 4.1, Activity 2 (click NEXT to see part 2 of 3 of this activity), students learn about the health effects of untreated water that is contaminated with bacteria.

60. **MAFS.7.SP.2.4:** Use measures of center and measures of variability for numerical data from random samples to draw informal comparative inferences about two populations. For example, decide whether the words in a chapter of a seventh-grade science book are generally longer than the words in a chapter of a fourth-grade science book.

VERY GOOD ALIGNMENT GOOD ALIGNMENT FAIR ALIGNMENT **POOR ALIGNMENT** VERY POOR/NO ALIGNMENT
Justification:
This standard is addressed in the Thermal Energy unit. In Lesson 1.4, Activity 2, students discuss the concept of an average as they define temperature (a measure of the average speed of the molecules of a thing).

61. **MAFS.7.SP.3.5:** Understand that the probability of a chance event is a number between 0 and 1 that expresses the likelihood of the event occurring. Larger numbers indicate greater likelihood. A probability near 0 indicates an unlikely event, a probability around 1/2 indicates an event that is neither unlikely nor likely, and a probability near 1 indicates a likely event.

VERY GOOD ALIGNMENT GOOD ALIGNMENT FAIR ALIGNMENT **POOR ALIGNMENT** VERY POOR/NO ALIGNMENT
Justification:
Going Further: Mathematical Thinking), students are prompted to think more about the chances of a person in Australia and a person in the US getting skin cancer. Students are introduced to data about the likelihood of each scenario (e.g., 2 out of every 3 people) and are supported to determine the probability of each event and to compare the two.

62. **ELD.K12.ELL.SC.1:** English language learners communicate information, ideas and concepts necessary for academic success in the content area of Science.

VERY GOOD ALIGNMENT **GOOD ALIGNMENT** FAIR ALIGNMENT POOR ALIGNMENT VERY POOR/NO ALIGNMENT
Justification:
In every Amplify Science unit, students are supported in developing science vocabulary and scientific language structures in oral discourse and in writing. For example: • In the Thermal Energy unit, Lesson 2.1, Activity 3 and Weather Patterns unit, Lesson 1.6, Activity 2, students use a Word Relationships routine to consider how key vocabulary words relate to one another and to practice forming sentences with these key words.

63. **ELD.K12.ELL.SI.1:** English language learners communicate for social and instructional purposes within the school setting.

VERY GOOD ALIGNMENT **GOOD ALIGNMENT** FAIR ALIGNMENT POOR ALIGNMENT VERY POOR/NO ALIGNMENT
Justification:
Student-to-student talk and writing-to-learn are important aspects of the pedagogical approach throughout Amplify Science, and Amplify Science uses a set of research-based principles for supporting English language learners in their oral and written participation: • Access and

build on students' background knowledge. • Capitalize on students' knowledge of language. • Provide additional scaffolds for language. • Provide explicit instruction about the language of science. • Offer multiple entry points into science content. • Provide multiple means of expressing science content knowledge.