Instructional Materials Administrator

BID 3377

Recommendation

No

Comments: No Florida Standards are provided with this textbook adoption. The state legislature passed a bill that said the standards had to be inserted in the textbook before adoption. This textbook does not meet this requirement and should not be recommended for adoption.

Material for Review

Course: Chemistry 1 Honors (2003350)
Title: Essential Chemistry Student Edition (Chemistry 1 Honors) , Edition: 1st
Copyright: 2017
Author: Dr. Tom Hsu
Grade Level: 9 - 12

Content

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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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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:
No Florida Standards. Only Next Generation Science Standards (national).

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:
No Florida Standards. Only Next Generation Science Standards (national).

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:
Little teacher support.

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:
Each chapter addresses a specific topic in chemistry.

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:
No Florida Standards. Only Next Generation Science Standards (national).

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:
11th grade reading level according to readability calculations.

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:
No pacing provided.

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:
Could not find sources for information cited.

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:
Could not find sources for information cited.

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:
No glaring errors.

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:
No glaring bias.

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:
Each chapter addresses a specific topic in chemistry.

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:
No glaring errors.

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:
Periodic table is up-to-date.

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:
No Florida Standards. Only Next Generation Science Standards (national). No mention of 5E model of instruction.

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:
No ESE/ESOL accommodations.

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:
Each chapter addresses specific topic in chemistry.

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:
STEM connections are just statements. No actual student engagement needs to occur.

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:
Text contains almost no pictures of humans in any scientific endeavor.

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:
Text contains almost no pictures of anything living in any scientific situation.

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:
No Florida Standards. Only Next Generation Science Standards (national).

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:
No Florida Standards. Only Next Generation Science Standards (national).

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:
No Florida Standards. Only Next Generation Science Standards (national).

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:
No Florida Standards. Only Next Generation Science Standards (national).

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 instructional methods used are only effective if learning is best accomplished by lecture. Research shows that only 15% of material presented in lecture is retained.

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:
No pacing provided.

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:
No ESE/ESOL accommodations.

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:
No Florida Standards. Only Next Generation Science Standards (national).

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:
Death by PowerPoint and lecture only results in retention of 15% of material presented. However, embedded labs will help maintain learner motivation if used.

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:
Each chapter addresses a specific topic in chemistry.

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:
This information is located at the beginning of each chapter.

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:
This course is set as a look-and-listen, not a do-and-remember, class. Lecture only serves to support 15% retention of material presented. Labs are too prescriptive and do not encourage independent learning and thinking.

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:
Only one learning style is addressed in teacher materials. Lecture only results in about 15% retention of material.

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:
Lecture only results in about 15% retention of materials. Prescriptive labs just reinforce the idea of a "right" answer and not real engagement.

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:
Embedded labs and some simulations are good extensions of content, goals, and objectives.

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:
Lecture (death by PowerPoint) only results in 15% of retention of material.

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:
Lecture (death by PowerPoint) only results in 15% of retention of material. Labs are prescriptive and just reinforce the idea of a "right" answer. The teacher materials do not discuss the 5E model of instruction.

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:
Only review materials are included in the text. No embedded assessments are included.

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:
The review materials are primarily lower-level questions and do not have many higher-level questions.

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:
No ESE/ESOL accommodations. No discussion of the teacher planning with the "end in mind."

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:
Mathematical practices are applied without Florida Standards.

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:
Learning requirements are all tainted by the fact that no Florida Standards are included in this text.

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.912.L.17.15:** Discuss the effects of technology on environmental quality.

VERY GOOD ALIGNMENT GOOD ALIGNMENT FAIR ALIGNMENT POOR ALIGNMENT **VERY POOR/NO ALIGNMENT**
Justification:
No Florida Standards. Only Next Generation Science Standards (national).

2. **SC.912.L.17.19:** Describe how different natural resources are produced and how their rates of use and renewal limit availability.

VERY GOOD ALIGNMENT GOOD ALIGNMENT FAIR ALIGNMENT POOR ALIGNMENT **VERY POOR/NO ALIGNMENT**
Justification:
No Florida Standards. Only Next Generation Science Standards (national).

3. **SC.912.L.18.12:** Discuss the special properties of water that contribute to Earth's suitability as an environment for life: cohesive behavior, ability to moderate temperature, expansion upon freezing, and versatility as a solvent.

Remarks/Examples:
Annually assessed on Biology EOC.

VERY GOOD ALIGNMENT GOOD ALIGNMENT FAIR ALIGNMENT POOR ALIGNMENT **VERY POOR/NO ALIGNMENT**
Justification:
No Florida Standards. Only Next Generation Science Standards (national).

4. **SC.912.N.1.1:** Define a problem based on a specific body of knowledge, for example: biology, chemistry, physics, and earth/space science, and do the following:

1. Pose questions about the natural world, (Articulate the purpose of the investigation and identify the relevant scientific concepts).
2. Conduct systematic observations, (Write procedures that are clear and replicable. Identify observables and examine relationships between test (independent) variable and outcome (dependent) variable. Employ appropriate methods for accurate and consistent observations; conduct and record measurements at appropriate levels of precision. Follow safety guidelines).
3. Examine books and other sources of information to see what is already known,
4. Review what is known in light of empirical evidence, (Examine whether available empirical evidence can be interpreted in terms of existing knowledge and models, and if not, modify or develop new models).
5. Plan investigations, (Design and evaluate a scientific investigation).
6. Use tools to gather, analyze, and interpret data (this includes the use of measurement in metric and other systems, and also the generation and interpretation of graphical representations of data, including data tables and graphs), (Collect data or evidence in an organized way. Properly use instruments, equipment, and materials (e.g., scales, probeware, meter sticks, microscopes, computers) including set-up, calibration, technique, maintenance, and storage).
7. Pose answers, explanations, or descriptions of events,
8. Generate explanations that explicate or describe natural phenomena (inferences),
9. Use appropriate evidence and reasoning to justify these explanations to others,
10. Communicate results of scientific investigations, and
11. Evaluate the merits of the explanations produced by others.

Remarks/Examples:
Florida Standards Connections for 6-12 Literacy in Science

For Students in Grades 9-10

LAFS.910.RST.1.1 Cite specific textual evidence to support analysis of science and technical texts, attending to the precise details of explanations or descriptions.

LAFS.910.RST.1.3 Follow precisely a complex multistep procedure when carrying out experiments, taking measurements, or performing technical tasks attending to special cases or exceptions defined in the text.

LAFS.910.RST.3.7 Translate quantitative or technical information expressed in words in a text into visual form (e.g., a table or chart) and translate information expressed visually or mathematically (e.g., in an equation) into words.

LAFS.910.WHST.1.2 Write informative/explanatory texts, including the narration of historical events, scientific procedures/ experiments, or technical processes.

LAFS.910.WHST.3.9 Draw evidence from informational texts to support analysis, reflection, and research.

For Students in Grades 11-12

LAFS.1112.RST.1.1 Cite specific textual evidence to support analysis of science and technical texts, attending to important distinctions the author makes and to any gaps or inconsistencies in the account.

LAFS.1112.RST.1.3 Follow precisely a complex multistep procedure when carrying out experiments, taking measurements, or performing technical tasks analyze the specific results based on explanations in the text.

LAFS.1112.RST.3.7 Integrate and evaluate multiple sources of information presented in diverse formats and media (e.g., quantitative data, video, multimedia) in order to address a question or solve a problem.

LAFS.1112.WHST.1.2 Write informative/explanatory texts, including the narration of historical events, scientific procedures/ experiments, or technical processes.

LAFS.1112.WHST.3.9 Draw evidence from informational texts to support analysis, reflection, and research.

Florida Standards Connections for Mathematical Practices

MAFS.K12.MP.1: Make sense of problems and persevere in solving them.
MAFS.K12.MP.2: Reason abstractly and quantitatively.
MAFS.K12.MP.3: Construct viable arguments and critique the reasoning of others. [Viable arguments include evidence.]
MAFS.K12.MP.4: Model with mathematics.
MAFS.K12.MP.5: Use appropriate tools strategically.
MAFS.K12.MP.6: Attend to precision.
MAFS.K12.MP.7: Look for and make use of structure.
MAFS.K12.MP.8: Look for and express regularity in repeated reasoning.

VERY GOOD ALIGNMENT GOOD ALIGNMENT FAIR ALIGNMENT POOR ALIGNMENT **VERY POOR/NO ALIGNMENT**
Justification:
No Florida Standards. Only Next Generation Science Standards (national).

5. **SC.912.N.1.2:** Describe and explain what characterizes science and its methods.

Remarks/Examples:
Science is characterized by empirical observations, testable questions, formation of hypotheses, and experimentation that results in stable and replicable results, logical reasoning, and coherent theoretical constructs.

Florida Standards Connections: MAFS.K12.MP.3: Construct viable arguments and critique the reasoning of others.

VERY GOOD ALIGNMENT GOOD ALIGNMENT FAIR ALIGNMENT POOR ALIGNMENT **VERY POOR/NO ALIGNMENT**
Justification:
No Florida Standards. Only Next Generation Science Standards (national).

6. **SC.912.N.1.4:** Identify sources of information and assess their reliability according to the strict standards of scientific investigation.

Remarks/Examples:
Read, interpret, and examine the credibility and validity of scientific claims in different sources of information, such as scientific articles, advertisements, or media stories. Strict standards of science include controlled variables, sufficient sample size, replication of results, empirical and measurable evidence, and the concept of falsification.

Florida Standards Connections: LAFS.910.RST.1.1 / LAFS.1112.RST.1.1.

VERY GOOD ALIGNMENT GOOD ALIGNMENT FAIR ALIGNMENT POOR ALIGNMENT **VERY POOR/NO ALIGNMENT**
Justification:
No Florida Standards. Only Next Generation Science Standards (national).

7. **SC.912.N.1.5:** Describe and provide examples of how similar investigations conducted in many parts of the world result in the same outcome.

Remarks/Examples:
Recognize that contributions to science can be made and have been made by people from all over the world.

VERY GOOD ALIGNMENT GOOD ALIGNMENT FAIR ALIGNMENT POOR ALIGNMENT **VERY POOR/NO ALIGNMENT**
Justification:
No Florida Standards. Only Next Generation Science Standards (national).

8. **SC.912.N.1.6:** Describe how scientific inferences are drawn from scientific observations and provide examples from the content being studied.

Remarks/Examples:
Collect data/evidence and use tables/graphs to draw conclusions and make inferences based on patterns or trends in the data.

Florida Standards Connections: MAFS.K12.MP.1: Make sense of problems and persevere in solving them.

VERY GOOD ALIGNMENT GOOD ALIGNMENT FAIR ALIGNMENT POOR ALIGNMENT **VERY POOR/NO ALIGNMENT**
Justification:
No Florida Standards. Only Next Generation Science Standards (national).

9. **SC.912.N.1.7:** Recognize the role of creativity in constructing scientific questions, methods and explanations.

Remarks/Examples:
Work through difficult problems using creativity, and critical and analytical thinking in problem solving (e.g. convergent versus divergent

thinking and creativity in problem solving).

Florida Standards Connections: MAFS.K12.MP.1: Make sense of problems and persevere in solving them and MAFS.K12.MP.2: Reason abstractly and quantitatively.

VERY GOOD ALIGNMENT GOOD ALIGNMENT FAIR ALIGNMENT POOR ALIGNMENT **VERY POOR/NO ALIGNMENT**
Justification:
No Florida Standards. Only Next Generation Science Standards (national).

10. **SC.912.N.2.2:** Identify which questions can be answered through science and which questions are outside the boundaries of scientific investigation, such as questions addressed by other ways of knowing, such as art, philosophy, and religion.

Remarks/Examples:
Identify scientific questions that can be disproved by experimentation/testing. Recognize that pseudoscience is a claim, belief, or practice which is presented as scientific, but does not adhere to strict standards of science (e.g. controlled variables, sample size, replicability, empirical and measurable evidence, and the concept of falsification).

Florida Standards Connections: MAFS.K12.MP.3: Construct viable arguments and critique the reasoning of others.

VERY GOOD ALIGNMENT GOOD ALIGNMENT FAIR ALIGNMENT POOR ALIGNMENT **VERY POOR/NO ALIGNMENT**
Justification:
No Florida Standards. Only Next Generation Science Standards (national).

11. **SC.912.N.2.3:** Identify examples of pseudoscience (such as astrology, phrenology) in society.

Remarks/Examples:
Determine if the phenomenon (event) can be observed, measured, and tested through scientific experimentation.

VERY GOOD ALIGNMENT GOOD ALIGNMENT FAIR ALIGNMENT POOR ALIGNMENT **VERY POOR/NO ALIGNMENT**
Justification:
No Florida Standards. Only Next Generation Science Standards (national).

12. **SC.912.N.2.4:** Explain that scientific knowledge is both durable and robust and open to change. Scientific knowledge can change because it is often examined and re-examined by new investigations and scientific argumentation. Because of these frequent examinations, scientific knowledge becomes stronger, leading to its durability.

Remarks/Examples:
Recognize that ideas with the most durable explanatory power become established theories, but scientific explanations are continually subjected to change in the face of new evidence.

Florida Standards Connections: MAFS.K12.MP.1: Make sense of problems and persevere in solving them MAFS.K12.MP.3: Construct viable arguments and critique the reasoning of others.

VERY GOOD ALIGNMENT GOOD ALIGNMENT FAIR ALIGNMENT POOR ALIGNMENT **VERY POOR/NO ALIGNMENT**
Justification:
No Florida Standards. Only Next Generation Science Standards (national).

13. **SC.912.N.2.5:** Describe instances in which scientists' varied backgrounds, talents, interests, and goals influence the inferences and thus the explanations that they make about observations of natural phenomena and describe that competing interpretations (explanations) of scientists are a strength of science as they are a source of new, testable ideas that have the potential to add new evidence to support one or another of the explanations.

Remarks/Examples:
Recognize that scientific questions, observations, and conclusions may be influenced by the existing state of scientific knowledge, the social and cultural context of the researcher, and the observer's experiences and expectations. Identify possible bias in qualitative and quantitative data analysis.

VERY GOOD ALIGNMENT GOOD ALIGNMENT FAIR ALIGNMENT POOR ALIGNMENT **VERY POOR/NO ALIGNMENT**
Justification:
No Florida Standards. Only Next Generation Science Standards (national).

14. **SC.912.N.3.1:** Explain that a scientific theory is the culmination of many scientific investigations drawing together all the current evidence concerning a substantial range of phenomena; thus, a scientific theory represents the most powerful explanation scientists have to offer.

Remarks/Examples:
Explain that a scientific theory is a well-tested hypothesis supported by a preponderance of empirical evidence.

Florida Standards Connections: MAFS.K12.MP.1: Make sense of problems and persevere in solving them and, MAFS.K12.MP.3: Construct viable arguments and critique the reasoning of others.

VERY GOOD ALIGNMENT GOOD ALIGNMENT FAIR ALIGNMENT POOR ALIGNMENT **VERY POOR/NO ALIGNMENT**
Justification:
No Florida Standards. Only Next Generation Science Standards (national).

15. **SC.912.N.3.2:** Describe the role consensus plays in the historical development of a theory in any one of the disciplines of science.

Remarks/Examples:
Recognize that scientific argument, disagreement, discourse, and discussion create a broader and more accurate understanding of natural processes and events.

Florida Standards Connections: MAFS.K12.MP.3: Construct viable arguments and critique the reasoning of others.

VERY GOOD ALIGNMENT GOOD ALIGNMENT FAIR ALIGNMENT POOR ALIGNMENT **VERY POOR/NO ALIGNMENT**
Justification:
No Florida Standards. Only Next Generation Science Standards (national).

16. **SC.912.N.3.3:** Explain that scientific laws are descriptions of specific relationships under given conditions in nature, but do not offer explanations for those relationships.

Remarks/Examples:
Recognize that a scientific theory provides a broad explanation of many observed phenomena while a scientific law describes how something behaves.

VERY GOOD ALIGNMENT GOOD ALIGNMENT FAIR ALIGNMENT POOR ALIGNMENT **VERY POOR/NO ALIGNMENT**
Justification:
No Florida Standards. Only Next Generation Science Standards (national).

17. **SC.912.N.3.5:** Describe the function of models in science, and identify the wide range of models used in science.

Remarks/Examples:
Describe how models are used by scientists to explain observations of nature.

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

VERY GOOD ALIGNMENT GOOD ALIGNMENT FAIR ALIGNMENT POOR ALIGNMENT **VERY POOR/NO ALIGNMENT**
Justification:
No Florida Standards. Only Next Generation Science Standards (national).

18. **SC.912.N.4.1:** Explain how scientific knowledge and reasoning provide an empirically-based perspective to inform society's decision making.

Remarks/Examples:
Recognize that no single universal step-by-step scientific method captures the complexity of doing science. A number of shared values and perspectives characterize a scientific approach.

MAFS.K12.MP.1: Make sense of problems and persevere in solving them, and MAFS.K12.MP.2: Reason abstractly and quantitatively.

VERY GOOD ALIGNMENT GOOD ALIGNMENT FAIR ALIGNMENT POOR ALIGNMENT **VERY POOR/NO ALIGNMENT**
Justification:
No Florida Standards. Only Next Generation Science Standards (national).

19. **SC.912.N.4.2:** Weigh the merits of alternative strategies for solving a specific societal problem by comparing a number of different costs and benefits, such as human, economic, and environmental.

Remarks/Examples:
Identify examples of technologies, objects, and processes that have been modified to advance society, and explain why and how they were modified. Discuss ethics in scientific research to advance society (e.g. global climate change, historical development of medicine and medical practices).

Florida Standards Connections: MAFS.K12.MP.1: Make sense of problems and persevere in solving them, and MAFS.K12.MP.2: Reason abstractly and quantitatively.

VERY GOOD ALIGNMENT GOOD ALIGNMENT FAIR ALIGNMENT POOR ALIGNMENT **VERY POOR/NO ALIGNMENT**
Justification:
No Florida Standards. Only Next Generation Science Standards (national).

20. **SC.912.P.8.1:** Differentiate among the four states of matter.

Remarks/Examples:
Differentiate among the four states of matter (solid, liquid, gas and plasma) in terms of energy, particle motion, and phase transitions. (Note: Currently five states of matter have been identified.)

VERY GOOD ALIGNMENT GOOD ALIGNMENT FAIR ALIGNMENT POOR ALIGNMENT **VERY POOR/NO ALIGNMENT**
Justification:
No Florida Standards. Only Next Generation Science Standards (national).

21. **SC.912.P.8.2:** Differentiate between physical and chemical properties and physical and chemical changes of matter.

Remarks/Examples:
Discuss volume, compressibility, density, conductivity, malleability, reactivity, molecular composition, freezing, melting and boiling points. Describe simple laboratory techniques that can be used to separate homogeneous and heterogeneous mixtures (e.g. filtration, distillation, chromatography, evaporation).

VERY GOOD ALIGNMENT GOOD ALIGNMENT FAIR ALIGNMENT POOR ALIGNMENT **VERY POOR/NO ALIGNMENT**
Justification:
No Florida Standards. Only Next Generation Science Standards (national).

22. **SC.912.P.8.3:** Explore the scientific theory of atoms (also known as atomic theory) by describing changes in the atomic model over time and why those changes were necessitated by experimental evidence.

Remarks/Examples:
Describe the development and historical importance of atomic theory from Dalton (atomic theory), Thomson (the electron), Rutherford (the nucleus and "gold foil" experiment), and Bohr (planetary model of atom), and understand how each discovery leads to modern atomic theory.

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

VERY GOOD ALIGNMENT GOOD ALIGNMENT FAIR ALIGNMENT POOR ALIGNMENT **VERY POOR/NO ALIGNMENT**
Justification:
No Florida Standards. Only Next Generation Science Standards (national).

23. **SC.912.P.8.4:** Explore the scientific theory of atoms (also known as atomic theory) by describing the structure of atoms in terms of protons, neutrons and electrons, and differentiate among these particles in terms of their mass, electrical charges and locations within the atom.

Remarks/Examples:
Explain that electrons, protons and neutrons are parts of the atom and that the nuclei of atoms are composed of protons and neutrons, which experience forces of attraction and repulsion consistent with their charges and masses.

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

VERY GOOD ALIGNMENT GOOD ALIGNMENT FAIR ALIGNMENT POOR ALIGNMENT **VERY POOR/NO ALIGNMENT**
Justification:
No Florida Standards. Only Next Generation Science Standards (national).

24. **SC.912.P.8.5:** Relate properties of atoms and their position in the periodic table to the arrangement of their electrons.

Remarks/Examples:
Use the periodic table and electron configuration to determine an element's number of valence electrons and its chemical and physical properties. Explain how chemical properties depend almost entirely on the configuration of the outer electron shell.

VERY GOOD ALIGNMENT GOOD ALIGNMENT FAIR ALIGNMENT POOR ALIGNMENT **VERY POOR/NO ALIGNMENT**
Justification:
No Florida Standards. Only Next Generation Science Standards (national).

25. **SC.912.P.8.6:** Distinguish between bonding forces holding compounds together and other attractive forces, including hydrogen bonding and van der Waals forces.

Remarks/Examples:
Describe how atoms combine to form molecules through ionic, covalent, and hydrogen bonding. Compare and contrast the characteristics of the interactions between atoms in ionic and covalent compounds and how these bonds form. Use electronegativity to explain the difference between polar and nonpolar covalent bonds.

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

Justification:
No Florida Standards. Only Next Generation Science Standards (national).

26. **SC.912.P.8.7:** Interpret formula representations of molecules and compounds in terms of composition and structure.

Remarks/Examples:
Write chemical formulas for simple covalent (HCl, SO2, CO2, and CH4), ionic (Na+ + Cl- +NaCl) and molecular (O2, H2O) compounds. Predict the formulas of ionic compounds based on the number of valence electrons and the charges on the ions.

VERY GOOD ALIGNMENT GOOD ALIGNMENT FAIR ALIGNMENT POOR ALIGNMENT **VERY POOR/NO ALIGNMENT**
Justification:
No Florida Standards. Only Next Generation Science Standards (national).

27. **SC.912.P.8.8:** Characterize types of chemical reactions, for example: redox, acid-base, synthesis, and single and double replacement reactions.

Remarks/Examples:
Classify chemical reactions as synthesis (combination), decomposition, single displacement (replacement), double displacement, and combustion.

VERY GOOD ALIGNMENT GOOD ALIGNMENT FAIR ALIGNMENT POOR ALIGNMENT **VERY POOR/NO ALIGNMENT**
Justification:
No Florida Standards. Only Next Generation Science Standards (national).

28. **SC.912.P.8.9:** Apply the mole concept and the law of conservation of mass to calculate quantities of chemicals participating in reactions.

Remarks/Examples:
Recognize one mole equals 6.02 x 10^23 particles (atoms or molecules). Determine number of particles for elements and compounds using the mole concept, in terms of number of particles, mass, and the volume of an ideal gas at specified conditions of temperature and pressure. Use experimental data to determine percent yield, empirical formulas, molecular formulas, and calculate the mass-to-mass stoichiometry for a chemical reaction.

VERY GOOD ALIGNMENT GOOD ALIGNMENT FAIR ALIGNMENT POOR ALIGNMENT **VERY POOR/NO ALIGNMENT**
Justification:
No Florida Standards. Only Next Generation Science Standards (national).

29. **SC.912.P.8.10:** Describe oxidation-reduction reactions in living and non-living systems.

Remarks/Examples:
Identify the substance(s) losing and gaining electrons in oxidation-reduction reactions. Discuss voltaic cells, various types of batteries, electrolysis of water, smelting and purification of metals, electrolysis of brine versus molten NaCl, neutralization reactions, electrolytic cells, and living systems (photosynthesis and cellular respiration).

VERY GOOD ALIGNMENT GOOD ALIGNMENT FAIR ALIGNMENT POOR ALIGNMENT **VERY POOR/NO ALIGNMENT**
Justification:
No Florida Standards. Only Next Generation Science Standards (national).

30. **SC.912.P.8.11:** Relate acidity and basicity to hydronium and hydroxyl ion concentration and pH.

Remarks/Examples:
Use experimental data to illustrate and explain the pH scale to characterize acid and base solutions. Compare and contrast the strengths of various common acids and bases.

VERY GOOD ALIGNMENT GOOD ALIGNMENT FAIR ALIGNMENT POOR ALIGNMENT **VERY POOR/NO ALIGNMENT**
Justification:
No Florida Standards. Only Next Generation Science Standards (national).

31. **SC.912.P.8.12:** Describe the properties of the carbon atom that make the diversity of carbon compounds possible.

Remarks/Examples:
Explain how the bonding characteristics of carbon lead to a large variety of structures ranging from simple hydrocarbons to complex polymers and biological molecules.

VERY GOOD ALIGNMENT GOOD ALIGNMENT FAIR ALIGNMENT POOR ALIGNMENT **VERY POOR/NO ALIGNMENT**
Justification:
No Florida Standards. Only Next Generation Science Standards (national).

32. **SC.912.P.8.13:** Identify selected functional groups and relate how they contribute to properties of carbon compounds.

Remarks/Examples:
Recognize functional groups in structural formulas of carbon molecules (e.g. sugars, proteins, nucleotides, amino acids, hydroxyl groups which form alcohols, carbonyl groups which form aldehydes / ketones, carboxyl groups which form carboxylic acids, etc.).

VERY GOOD ALIGNMENT GOOD ALIGNMENT FAIR ALIGNMENT POOR ALIGNMENT **VERY POOR/NO ALIGNMENT**
Justification:
No Florida Standards. Only Next Generation Science Standards (national).

33. **SC.912.P.10.1:** Differentiate among the various forms of energy and recognize that they can be transformed from one form to others.

Remarks/Examples:
Differentiate between kinetic and potential energy. Recognize that energy cannot be created or destroyed, only transformed. Identify examples of transformation of energy: Heat to light in incandescent electric light bulbs Light to heat in laser drills Electrical to sound in radios Sound to electrical in microphones Electrical to chemical in battery rechargers Chemical to electrical in dry cells Mechanical to electrical in generators [power plants] Nuclear to heat in nuclear reactors Gravitational potential energy of a falling object is converted to kinetic energy then to heat and sound energy when the object hits the ground.

VERY GOOD ALIGNMENT GOOD ALIGNMENT FAIR ALIGNMENT POOR ALIGNMENT **VERY POOR/NO ALIGNMENT**
Justification:
No Florida Standards. Only Next Generation Science Standards (national).

34. **SC.912.P.10.2:** Explore the Law of Conservation of Energy by differentiating among open, closed, and isolated systems and explain that the total energy in an isolated system is a conserved quantity.

Remarks/Examples:
Use calorimetry to illustrate conservation of energy. Differentiate between the different types of systems and solve problems involving conservation of energy in simple systems (Physics).Explain how conservation of energy is important in chemical reactions with bond formation and bond breaking (Chemistry).

VERY GOOD ALIGNMENT GOOD ALIGNMENT FAIR ALIGNMENT POOR ALIGNMENT **VERY POOR/NO ALIGNMENT**
Justification:
No Florida Standards. Only Next Generation Science Standards (national).

35. **SC.912.P.10.5:** Relate temperature to the average molecular kinetic energy.

Remarks/Examples:
Recognize that the internal energy of an object includes the energy of random motion of the object's atoms and molecules, often referred to as thermal energy.

VERY GOOD ALIGNMENT GOOD ALIGNMENT FAIR ALIGNMENT POOR ALIGNMENT **VERY POOR/NO ALIGNMENT**
Justification:
No Florida Standards. Only Next Generation Science Standards (national).

36. **SC.912.P.10.6:** Create and interpret potential energy diagrams, for example: chemical reactions, orbits around a central body, motion of a pendulum.

Remarks/Examples:
Construct and interpret potential energy diagrams for endothermic and exothermic chemical reactions, and for rising or falling objects. Describe the transformation of energy as a pendulum swings.

VERY GOOD ALIGNMENT GOOD ALIGNMENT FAIR ALIGNMENT POOR ALIGNMENT **VERY POOR/NO ALIGNMENT**
Justification:
No Florida Standards. Only Next Generation Science Standards (national).

37. **SC.912.P.10.7:** Distinguish between endothermic and exothermic chemical processes

Remarks/Examples:
Classify chemical reactions and phase changes as exothermic (release thermal energy) or endothermic (absorb thermal energy).

VERY GOOD ALIGNMENT GOOD ALIGNMENT FAIR ALIGNMENT POOR ALIGNMENT **VERY POOR/NO ALIGNMENT**
Justification:
No Florida Standards. Only Next Generation Science Standards (national).

38. **SC.912.P.10.8:** Explain entropy's role in determining the efficiency of processes that convert energy to work.

Remarks/Examples:
Recognize that there is a natural tendency for systems to move in a direction of disorder or randomness (entropy). Describe entropy as a quantity that measures the order or disorder of a system and that this quantity is larger for a more disordered system.

VERY GOOD ALIGNMENT GOOD ALIGNMENT FAIR ALIGNMENT POOR ALIGNMENT **VERY POOR/NO ALIGNMENT**
Justification:
No Florida Standards. Only Next Generation Science Standards (national).

39. **SC.912.P.10.9:** Describe the quantization of energy at the atomic level.

Remarks/Examples:
Explain that when electrons transition to higher energy levels they absorb energy, and when they transition to lower energy levels they emit energy. Recognize that spectral lines are the result of transitions of electrons between energy levels that correspond to photons of light with an energy and frequency related to the energy spacing between levels (Planck's relationship E = hv).

VERY GOOD ALIGNMENT GOOD ALIGNMENT FAIR ALIGNMENT POOR ALIGNMENT **VERY POOR/NO ALIGNMENT**
Justification:
No Florida Standards. Only Next Generation Science Standards (national).

40. **SC.912.P.10.10:** Compare the magnitude and range of the four fundamental forces (gravitational, electromagnetic, weak nuclear, strong nuclear).

Remarks/Examples:
Recognize and discuss the effect of each force on the structure of matter and the evidence for it.

VERY GOOD ALIGNMENT GOOD ALIGNMENT FAIR ALIGNMENT POOR ALIGNMENT **VERY POOR/NO ALIGNMENT**
Justification:
No Florida Standards. Only Next Generation Science Standards (national).

41. **SC.912.P.10.11:** Explain and compare nuclear reactions (radioactive decay, fission and fusion), the energy changes associated with them and their associated safety issues.

Remarks/Examples:
Identify the three main types of radioactive decay (alpha, beta, and gamma) and compare their properties (composition, mass, charge, and penetrating power). Explain the concept of half-life for an isotope (e.g. C-14 is used to determine the age of objects) and calculate the amount of a radioactive substance remaining after an integral number of half-lives have passed. Recognize that the energy release per gram of material is much larger in nuclear fusion or fission reactions than in chemical reactions due to the large amount of energy related to small amounts of mass by equation E=mc^2.

VERY GOOD ALIGNMENT GOOD ALIGNMENT FAIR ALIGNMENT POOR ALIGNMENT **VERY POOR/NO ALIGNMENT**
Justification:
No Florida Standards. Only Next Generation Science Standards (national).

42. **SC.912.P.10.12:** Differentiate between chemical and nuclear reactions.

Remarks/Examples:
Describe how chemical reactions involve the rearranging of atoms to form new substances, while nuclear reactions involve the change of atomic nuclei into entirely new atoms. Identify real-world examples where chemical and nuclear reactions occur every day.

VERY GOOD ALIGNMENT GOOD ALIGNMENT FAIR ALIGNMENT POOR ALIGNMENT **VERY POOR/NO ALIGNMENT**
Justification:
No Florida Standards. Only Next Generation Science Standards (national).

43. **SC.912.P.10.18:** Explore the theory of electromagnetism by comparing and contrasting the different parts of the electromagnetic spectrum in terms of wavelength, frequency, and energy, and relate them to phenomena and applications.

Remarks/Examples:
Describe the electromagnetic spectrum (i.e., radio waves, microwaves, infrared, visible light, ultraviolet, X-rays and gamma rays) in terms of frequency, wavelength and energy. Solve problems involving wavelength, frequency, and energy.

VERY GOOD ALIGNMENT GOOD ALIGNMENT FAIR ALIGNMENT POOR ALIGNMENT **VERY POOR/NO ALIGNMENT**
Justification:
No Florida Standards. Only Next Generation Science Standards (national).

44. **SC.912.P.12.10:** Interpret the behavior of ideal gases in terms of kinetic molecular theory.

Remarks/Examples:
Using the kinetic molecular theory, explain the behavior of gases and the relationship between pressure and volume (Boyle's law), volume and temperature (Charles's law), pressure and temperature (Gay-Lussac's law), and number of particles in a gas sample (Avogadro's hypothesis).

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

Justification:
No Florida Standards. Only Next Generation Science Standards (national).

45. **SC.912.P.12.11:** Describe phase transitions in terms of kinetic molecular theory.

Remarks/Examples:
Explain, at the molecular level, the behavior of matter as it undergoes phase transitions.

VERY GOOD ALIGNMENT GOOD ALIGNMENT FAIR ALIGNMENT POOR ALIGNMENT **VERY POOR/NO ALIGNMENT**
Justification:
No Florida Standards. Only Next Generation Science Standards (national).

46. **SC.912.P.12.12:** Explain how various factors, such as concentration, temperature, and presence of a catalyst affect the rate of a chemical reaction.

Remarks/Examples:
Various factors could include: temperature, pressure, solvent and/or solute concentration, sterics, surface area, and catalysts. The rate of reaction is determined by the activation energy, and the pathway of the reaction can be shorter in the presence of enzymes or catalysts. Examples may include: decomposition of hydrogen peroxide using manganese (IV) oxide nitration of benzene using concentrated sulfuric acid hydrogenation of a C=C double bond using nickel.

VERY GOOD ALIGNMENT GOOD ALIGNMENT FAIR ALIGNMENT POOR ALIGNMENT **VERY POOR/NO ALIGNMENT**
Justification:
No Florida Standards. Only Next Generation Science Standards (national).

47. **SC.912.P.12.13:** Explain the concept of dynamic equilibrium in terms of reversible processes occurring at the same rates.

Remarks/Examples:
Identify and explain the factors that affect the rate of dissolving (e.g., temperature, concentration, surface area, pressure, mixing). Explain that equilibrium is established when forward and reverse-reaction rates are equal.

VERY GOOD ALIGNMENT GOOD ALIGNMENT FAIR ALIGNMENT POOR ALIGNMENT **VERY POOR/NO ALIGNMENT**
Justification:
No Florida Standards. Only Next Generation Science Standards (national).

48. **LAFS.910.RST.1.1:** Cite specific textual evidence to support analysis of science and technical texts, attending to the precise details of explanations or descriptions.

VERY GOOD ALIGNMENT GOOD ALIGNMENT FAIR ALIGNMENT POOR ALIGNMENT **VERY POOR/NO ALIGNMENT**
Justification:
No Florida Standards. Only Next Generation Science Standards (national).

49. **LAFS.910.RST.1.2:** Determine the central ideas or conclusions of a text; trace the text's explanation or depiction of a complex process, phenomenon, or concept; provide an accurate summary of the text.

VERY GOOD ALIGNMENT GOOD ALIGNMENT FAIR ALIGNMENT POOR ALIGNMENT **VERY POOR/NO ALIGNMENT**
Justification:
No Florida Standards. Only Next Generation Science Standards (national).

50. **LAFS.910.RST.1.3:** Follow precisely a complex multistep procedure when carrying out experiments, taking measurements, or performing technical tasks, attending to special cases or exceptions defined in the text.

VERY GOOD ALIGNMENT GOOD ALIGNMENT FAIR ALIGNMENT POOR ALIGNMENT **VERY POOR/NO ALIGNMENT**
Justification:
No Florida Standards. Only Next Generation Science Standards (national).

51. **LAFS.910.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 9–10 texts and topics.

VERY GOOD ALIGNMENT GOOD ALIGNMENT FAIR ALIGNMENT POOR ALIGNMENT **VERY POOR/NO ALIGNMENT**
Justification:
No Florida Standards. Only Next Generation Science Standards (national).

52. **LAFS.910.RST.2.5:** Analyze the structure of the relationships among concepts in a text, including relationships among key terms (e.g., force, friction, reaction force, energy).

VERY GOOD ALIGNMENT GOOD ALIGNMENT FAIR ALIGNMENT POOR ALIGNMENT **VERY POOR/NO ALIGNMENT**
Justification:
No Florida Standards. Only Next Generation Science Standards (national).

53. **LAFS.910.RST.2.6:** Analyze the author's purpose in providing an explanation, describing a procedure, or discussing an experiment in a text, defining the question the author seeks to address.

VERY GOOD ALIGNMENT GOOD ALIGNMENT FAIR ALIGNMENT POOR ALIGNMENT **VERY POOR/NO ALIGNMENT**
Justification:
No Florida Standards. Only Next Generation Science Standards (national).

54. **LAFS.910.RST.3.7:** Translate quantitative or technical information expressed in words in a text into visual form (e.g., a table or chart) and translate information expressed visually or mathematically (e.g., in an equation) into words.

VERY GOOD ALIGNMENT GOOD ALIGNMENT FAIR ALIGNMENT POOR ALIGNMENT **VERY POOR/NO ALIGNMENT**
Justification:
No Florida Standards. Only Next Generation Science Standards (national).

55. **LAFS.910.RST.3.8:** Assess the extent to which the reasoning and evidence in a text support the author's claim or a recommendation for solving a scientific or technical problem.

VERY GOOD ALIGNMENT GOOD ALIGNMENT FAIR ALIGNMENT POOR ALIGNMENT **VERY POOR/NO ALIGNMENT**
Justification:
No Florida Standards. Only Next Generation Science Standards (national).

56. **LAFS.910.RST.3.9:** Compare and contrast findings presented in a text to those from other sources (including their own experiments), noting when the findings support or contradict previous explanations or accounts.

VERY GOOD ALIGNMENT GOOD ALIGNMENT FAIR ALIGNMENT POOR ALIGNMENT **VERY POOR/NO ALIGNMENT**
Justification:
No Florida Standards. Only Next Generation Science Standards (national).

57. **LAFS.910.RST.4.10:** By the end of grade 10, read and comprehend science/technical texts in the grades 9–10 text complexity band independently and proficiently.

VERY GOOD ALIGNMENT GOOD ALIGNMENT FAIR ALIGNMENT POOR ALIGNMENT **VERY POOR/NO ALIGNMENT**
Justification:
No Florida Standards. Only Next Generation Science Standards (national).

58. **LAFS.910.SL.1.1:** Initiate and participate effectively in a range of collaborative discussions (one-on-one, in groups, and teacher-led) with diverse partners on grades 9–10 topics, texts, and issues, building on others' ideas and expressing their own clearly and persuasively.

a. Come to discussions prepared, having read and researched material under study; explicitly draw on that preparation by referring to evidence from texts and other research on the topic or issue to stimulate a thoughtful, well-reasoned exchange of ideas.
b. Work with peers to set rules for collegial discussions and decision-making (e.g., informal consensus, taking votes on key issues, presentation of alternate views), clear goals and deadlines, and individual roles as needed.
c. Propel conversations by posing and responding to questions that relate the current discussion to broader themes or larger ideas; actively incorporate others into the discussion; and clarify, verify, or challenge ideas and conclusions.
d. Respond thoughtfully to diverse perspectives, summarize points of agreement and disagreement, and, when warranted, qualify or justify their own views and understanding and make new connections in light of the evidence and reasoning presented.

VERY GOOD ALIGNMENT GOOD ALIGNMENT FAIR ALIGNMENT POOR ALIGNMENT **VERY POOR/NO ALIGNMENT**
Justification:
No Florida Standards. Only Next Generation Science Standards (national).

59. **LAFS.910.SL.1.2:** Integrate multiple sources of information presented in diverse media or formats (e.g., visually, quantitatively, orally) evaluating the credibility and accuracy of each source.

VERY GOOD ALIGNMENT GOOD ALIGNMENT FAIR ALIGNMENT POOR ALIGNMENT **VERY POOR/NO ALIGNMENT**
Justification:
No Florida Standards. Only Next Generation Science Standards (national).

60. **LAFS.910.SL.1.3:** Evaluate a speaker's point of view, reasoning, and use of evidence and rhetoric, identifying any fallacious reasoning or exaggerated or distorted evidence.

VERY GOOD ALIGNMENT GOOD ALIGNMENT FAIR ALIGNMENT POOR ALIGNMENT **VERY POOR/NO ALIGNMENT**
Justification:
No Florida Standards. Only Next Generation Science Standards (national).

61. **LAFS.910.SL.2.4:** Present information, findings, and supporting evidence clearly, concisely, and logically such that listeners can follow the line of reasoning and the organization, development, substance, and style are appropriate to purpose, audience, and task.

VERY GOOD ALIGNMENT GOOD ALIGNMENT FAIR ALIGNMENT POOR ALIGNMENT **VERY POOR/NO ALIGNMENT**
Justification:
No Florida Standards. Only Next Generation Science Standards (national).

62. **LAFS.910.SL.2.5:** Make strategic use of digital media (e.g., textual, graphical, audio, visual, and interactive elements) in presentations to enhance understanding of findings, reasoning, and evidence and to add interest.

VERY GOOD ALIGNMENT GOOD ALIGNMENT FAIR ALIGNMENT POOR ALIGNMENT **VERY POOR/NO ALIGNMENT**
Justification:
No Florida Standards. Only Next Generation Science Standards (national).

63. **LAFS.910.WHST.1.1:** Write arguments focused on discipline-specific content.

a. Introduce precise claim(s), distinguish the claim(s) from alternate or opposing claims, and create an organization that establishes clear relationships among the claim(s), counterclaims, reasons, and evidence.
b. Develop claim(s) and counterclaims fairly, supplying data and evidence for each while pointing out the strengths and limitations of both claim(s) and counterclaims in a discipline-appropriate form and in a manner that anticipates the audience's knowledge level and concerns.
c. Use words, phrases, and clauses to link the major sections of the text, create cohesion, and clarify the relationships between claim(s) and reasons, between reasons and evidence, and between claim(s) and counterclaims.
d. Establish and maintain a formal style and objective tone while attending to the norms and conventions of the discipline in which they are writing.
e. Provide a concluding statement or section that follows from or supports the argument presented.

VERY GOOD ALIGNMENT GOOD ALIGNMENT FAIR ALIGNMENT POOR ALIGNMENT **VERY POOR/NO ALIGNMENT**
Justification:
No Florida Standards. Only Next Generation Science Standards (national).

64. **LAFS.910.WHST.1.2:** Write informative/explanatory texts, including the narration of historical events, scientific procedures/ experiments, or technical processes.

a. Introduce a topic and organize ideas, concepts, and information to make important connections and distinctions; include formatting (e.g., headings), graphics (e.g., figures, tables), and multimedia when useful to aiding comprehension
b. Develop the topic with well-chosen, relevant, and sufficient facts, extended definitions, concrete details, quotations, or other information and examples appropriate to the audience's knowledge of the topic.
c. Use varied transitions and sentence structures to link the major sections of the text, create cohesion, and clarify the relationships among ideas and concepts.
d. Use precise language and domain-specific vocabulary to manage the complexity of the topic and convey a style appropriate to the discipline and context as well as to the expertise of likely readers.
e. Establish and maintain a formal style and objective tone while attending to the norms and conventions of the discipline in which they are writing.
f. Provide a concluding statement or section that follows from and supports the information or explanation presented (e.g., articulating implications or the significance of the topic).

VERY GOOD ALIGNMENT GOOD ALIGNMENT FAIR ALIGNMENT POOR ALIGNMENT **VERY POOR/NO ALIGNMENT**
Justification:
No Florida Standards. Only Next Generation Science Standards (national).

65. **LAFS.910.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:
No Florida Standards. Only Next Generation Science Standards (national).

66. **LAFS.910.WHST.2.5:** Develop and strengthen writing as needed by planning, revising, editing, rewriting, or trying a new approach, focusing on addressing what is most significant for a specific purpose and audience.

VERY GOOD ALIGNMENT GOOD ALIGNMENT FAIR ALIGNMENT POOR ALIGNMENT **VERY POOR/NO ALIGNMENT**
Justification:
No Florida Standards. Only Next Generation Science Standards (national).

67. **LAFS.910.WHST.2.6:** Use technology, including the Internet, to produce, publish, and update individual or shared writing products, taking advantage of technology's capacity to link to other information and to display information flexibly and dynamically.

VERY GOOD ALIGNMENT GOOD ALIGNMENT FAIR ALIGNMENT POOR ALIGNMENT **VERY POOR/NO ALIGNMENT**
Justification:
No Florida Standards. Only Next Generation Science Standards (national).

68. **LAFS.910.WHST.3.7::** Conduct short as well as more sustained research projects to answer a question (including a self-generated question) or solve a problem; narrow or broaden the inquiry when appropriate; synthesize multiple sources on the subject, demonstrating understanding of the subject under investigation.

VERY GOOD ALIGNMENT GOOD ALIGNMENT FAIR ALIGNMENT POOR ALIGNMENT **VERY POOR/NO ALIGNMENT**
Justification:
No Florida Standards. Only Next Generation Science Standards (national).

69. **LAFS.910.WHST.3.8:** Gather relevant information from multiple authoritative print and digital sources, using advanced searches effectively; assess the usefulness of each source in answering the research question; integrate information into the text selectively to maintain the flow of ideas, avoiding plagiarism and following a standard format for citation.

VERY GOOD ALIGNMENT GOOD ALIGNMENT FAIR ALIGNMENT POOR ALIGNMENT **VERY POOR/NO ALIGNMENT**
Justification:
No Florida Standards. Only Next Generation Science Standards (national).

70. **LAFS.910.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:
No Florida Standards. Only Next Generation Science Standards (national).

71. **LAFS.910.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:
No Florida Standards. Only Next Generation Science Standards (national).

72. **MAFS.912.F-IF.2.4:** For a function that models a relationship between two quantities, interpret key features of graphs and tables in terms of the quantities, and sketch graphs showing key features given a verbal description of the relationship. Key features include: intercepts; intervals where the function is increasing, decreasing, positive, or negative; relative maximums and minimums; symmetries; end behavior; and periodicity.

VERY GOOD ALIGNMENT GOOD ALIGNMENT FAIR ALIGNMENT POOR ALIGNMENT **VERY POOR/NO ALIGNMENT**
Justification:
No Florida Standards. Only Next Generation Science Standards (national).

73. **MAFS.912.F-IF.3.7:** Graph functions expressed symbolically and show key features of the graph, by hand in simple cases and using technology for more complicated cases.

a. Graph linear and quadratic functions and show intercepts, maxima, and minima.
b. Graph square root, cube root, and piecewise-defined functions, including step functions and absolute value functions.
c. Graph polynomial functions, identifying zeros when suitable factorizations are available, and showing end behavior.
d. Graph rational functions, identifying zeros and asymptotes when suitable factorizations are available, and showing end behavior.
e. Graph exponential and logarithmic functions, showing intercepts and end behavior, and trigonometric functions, showing period, midline, and amplitude, and using phase shift.

VERY GOOD ALIGNMENT GOOD ALIGNMENT FAIR ALIGNMENT POOR ALIGNMENT **VERY POOR/NO ALIGNMENT**
Justification:
No Florida Standards. Only Next Generation Science Standards (national).

74. **MAFS.912.G-MG.1.2:** Apply concepts of density based on area and volume in modeling situations (e.g., persons per square mile, BTUs per cubic foot).

VERY GOOD ALIGNMENT GOOD ALIGNMENT FAIR ALIGNMENT POOR ALIGNMENT **VERY POOR/NO ALIGNMENT**
Justification:
No Florida Standards. Only Next Generation Science Standards (national).

75. **MAFS.912.N-Q.1.1:** Use units as a way to understand problems and to guide the solution of multi-step problems; choose and interpret units consistently in formulas; choose and interpret the scale and the origin in graphs and data displays.

VERY GOOD ALIGNMENT GOOD ALIGNMENT FAIR ALIGNMENT POOR ALIGNMENT **VERY POOR/NO ALIGNMENT**
Justification:
No Florida Standards. Only Next Generation Science Standards (national).

76. **MAFS.912.N-Q.1.3:** Choose a level of accuracy appropriate to limitations on measurement when reporting quantities.

VERY GOOD ALIGNMENT GOOD ALIGNMENT FAIR ALIGNMENT POOR ALIGNMENT **VERY POOR/NO ALIGNMENT**
Justification:
No Florida Standards. Only Next Generation Science Standards (national).

77. **MAFS.912.S-IC.2.6:** Evaluate reports based on data.

VERY GOOD ALIGNMENT GOOD ALIGNMENT FAIR ALIGNMENT POOR ALIGNMENT **VERY POOR/NO ALIGNMENT**
Justification:
No Florida Standards. Only Next Generation Science Standards (national).

78. **MAFS.912.S-ID.1.1:** Represent data with plots on the real number line (dot plots, histograms, and box plots).

Remarks/Examples:
In grades 6 – 8, students describe center and spread in a data distribution. Here they choose a summary statistic appropriate to the characteristics of the data distribution, such as the shape of the distribution or the existence of extreme data points.

VERY GOOD ALIGNMENT GOOD ALIGNMENT FAIR ALIGNMENT POOR ALIGNMENT **VERY POOR/NO ALIGNMENT**
Justification:
No Florida Standards. Only Next Generation Science Standards (national).

79. **MAFS.912.S-ID.1.2:** Use statistics appropriate to the shape of the data distribution to compare center (median, mean) and spread (interquartile range, standard deviation) of two or more different data sets.

Remarks/Examples:
In grades 6 – 8, students describe center and spread in a data distribution. Here they choose a summary statistic appropriate to the characteristics of the data distribution, such as the shape of the distribution or the existence of extreme data points.

VERY GOOD ALIGNMENT GOOD ALIGNMENT FAIR ALIGNMENT POOR ALIGNMENT **VERY POOR/NO ALIGNMENT**
Justification:
No Florida Standards. Only Next Generation Science Standards (national).

80. **MAFS.912.S-ID.1.3:** Interpret differences in shape, center, and spread in the context of the data sets, accounting for possible effects of extreme data points (outliers).

Remarks/Examples:
In grades 6 – 8, students describe center and spread in a data distribution. Here they choose a summary statistic appropriate to the characteristics of the data distribution, such as the shape of the distribution or the existence of extreme data points.

VERY GOOD ALIGNMENT GOOD ALIGNMENT FAIR ALIGNMENT POOR ALIGNMENT **VERY POOR/NO ALIGNMENT**
Justification:
No Florida Standards. Only Next Generation Science Standards (national).

81. **MAFS.912.S-ID.1.4:** Use the mean and standard deviation of a data set to fit it to a normal distribution and to estimate population percentages. Recognize that there are data sets for which such a procedure is not appropriate. Use calculators, spreadsheets, and tables to estimate areas under the normal curve.

VERY GOOD ALIGNMENT GOOD ALIGNMENT FAIR ALIGNMENT POOR ALIGNMENT **VERY POOR/NO ALIGNMENT**
Justification:
No Florida Standards. Only Next Generation Science Standards (national).

82. **MAFS.912.S-ID.2.5:** Summarize categorical data for two categories in two-way frequency tables. Interpret relative frequencies in the context of the data (including joint, marginal, and conditional relative frequencies). Recognize possible associations and trends in the data.

VERY GOOD ALIGNMENT GOOD ALIGNMENT FAIR ALIGNMENT POOR ALIGNMENT **VERY POOR/NO ALIGNMENT**
Justification:
No Florida Standards. Only Next Generation Science Standards (national).

83. **MAFS.912.S-ID.2.6:** Represent data on two quantitative variables on a scatter plot, and describe how the variables are related.

a. Fit a function to the data; use functions fitted to data to solve problems in the context of the data. Use given functions or choose a function suggested by the context. Emphasize linear, and exponential models.
b. Informally assess the fit of a function by plotting and analyzing residuals.
c. Fit a linear function for a scatter plot that suggests a linear association.

Remarks/Examples:
Students take a more sophisticated look at using a linear function to model the relationship between two numerical variables. In addition to fitting a line to data, students assess how well the model fits by analyzing residuals.

VERY GOOD ALIGNMENT GOOD ALIGNMENT FAIR ALIGNMENT POOR ALIGNMENT **VERY POOR/NO ALIGNMENT**
Justification:
No Florida Standards. Only Next Generation Science Standards (national).

84. **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:
No ESOL accommodations.

85. **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:
No ESOL accomodations.