Science Fifth Grade

An Integrated Approach
Next Generation Science Standards
<table>
<thead>
<tr>
<th>Topic</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Overview</td>
<td>3</td>
</tr>
<tr>
<td>Standards Overview</td>
<td>6</td>
</tr>
<tr>
<td>Scope and Sequence</td>
<td>17</td>
</tr>
<tr>
<td>Matter and Its Interactions</td>
<td>26</td>
</tr>
<tr>
<td>Energy of Organisms</td>
<td>28</td>
</tr>
<tr>
<td>Ecosystem Dynamics</td>
<td>29</td>
</tr>
<tr>
<td>Earth’s Systems</td>
<td>31</td>
</tr>
<tr>
<td>Human Impact on Earth</td>
<td>32</td>
</tr>
<tr>
<td>Forces</td>
<td>33</td>
</tr>
<tr>
<td>Earth and the Universe</td>
<td>34</td>
</tr>
</tbody>
</table>
COURSE OVERVIEW

The Next Generation Science Standards provide a consistent, clear understanding of what students are expected to learn, so teachers and parents know what they need to do to help them. The standards are designed to be robust and relevant to the real world, reflecting the knowledge and skills that our young people need for success in college and careers. With American students fully prepared for the future, our communities will be best positioned to compete successfully in the global economy.

The Burlington City Public School Science department has adopted and implemented the Next Generation Science Standards as the cornerstone of the curriculum. Areas of study within the Science department are designed to be rigorous, college-preparatory courses in which students will be exposed to a variety of nonfiction texts, science processing, laboratory skills along with communication and presentation skills.

The NJ Department of Education, in developing a Model Curriculum for elementary school, middle school and high school science courses, has published the following:

**Mission:** Scientifically literate individuals possess the knowledge and understanding of scientific concepts and processes required for personal decision-making, participation in civic and cultural affairs, and economic productivity.

**Vision:** The science standards are designed to help realize a vision for education in the sciences and engineering in which students, over multiple years of school, actively engage in scientific and engineering practices and apply crosscutting concepts to deepen their understanding of the core ideas in these fields. The learning experiences provided for students should engage them with fundamental questions about the world and with how scientists have investigated and found answers to those questions. Throughout grades K-12, students should have the opportunity to carry out scientific investigations and engineering design projects related to the disciplinary core ideas (pp. 8-9, NRC, 2012).

The curriculum guide has been generated to not only help students achieve the Next Generation Science Standards, but to ensure that students will be prepared for college and career opportunities following high school graduation. It closely mirrors the expectations set forth in the NJ Model Curriculum. It represents opportunities from cross-curricular collaboration and creative thinking skills. The diagram shown below illustrates the thought process to be employed for problem solving in all science classes. This model is an integral component of STEM education.
There are many standards included in this curriculum. The Next Generation Science Standards encourage a multi-discipline approach to topics that encompass many standards in mathematics and English language arts. Standards overview for all these areas is provided in this document. As the curriculum is implemented, many of the activities and resources will be reviewed and revised as more information becomes available.

Activities in science classes may include, but not be limited to the following:
- Journal writing, science notebook, lab experiments, independent research, supplemental reading, projects, technology applications, assessments, performance tasks, presentations, and group activities.
Primary Resource(s)

Next Generation Science Standards http://www.nextgenscience.org/search-standards-dci
New Jersey Center for Learning https://www.njctl.org/courses/science/
American Society for Engineering Education http://www.egfi-k12.org/about/
State of New Jersey Department of Education http://www.state.nj.us/education/aps/cccs/science/mc.htm
ReadWorks.org http://www.readworks.org/welcome-readworks
Project 2061 Atlas of Science Literacy, Volumes 1 and 2

Textbook Resources
Title: Science Explorer
Publisher: Prentice Hall
Copyright: 2002
Series Title: Life Science, Earth Science and Physical Science

Title: Discovery Works
Publisher: Houghton Mifflin
Copyright: 2003

Title: Classroom Complete Press
Publisher: Classroom Complete Press
Copyright: 2007
Series Title: Waste Management, Ecology & The Environment, Properties of Matter, Simple Machines

Supplemental/Other
Magazines
National Geographic Explores

Trade Books
Frontier Home by Raymond Bial
Sky Pioneer by Corinne Szabo
The Southeast by Elspeth Leacock
Manatees by Patricia A Fink Martin
The Wright Brothers by Russell Freedman
Can We Be Friends? By Alexandra Wright
5-PS1 Matter and Its Interactions

Students who demonstrate understanding can:

5-PS1-1. Develop a model to describe that matter is made of particles too small to be seen. [Clarification Statement: Examples of evidence supporting a model could include adding air to expand a basketball, compressing air in a syringe, dissolving sugar in water, and evaporating salt water.] [Assessment Boundary: Assessment does not include the atomic-scale mechanism of evaporation and condensation or defining the unseen particles.]

5-PS1-2. Measure and graph quantities to provide evidence that regardless of the type of change that occurs when heating, cooling, or mixing substances, the total weight of matter is conserved. [Clarification Statement: Examples of reactions or changes could include phase changes, dissolving, and mixing that form new substances.] [Assessment Boundary: Assessment does not include distinguishing mass and weight.]

5-PS1-3. Make observations and measurements to identify materials based on their properties. [Clarification Statement: Examples of materials to be identified could include baking soda and other powders, metals, minerals, and liquids. Examples of properties could include color, hardness, reflectivity, electrical conductivity, thermal conductivity, response to magnetic forces, and solubility; density is not intended as an identifiable property.] [Assessment Boundary: Assessment does not include density or distinguishing mass and weight.]

5-PS1-4. Conduct an investigation to determine whether the mixing of two or more substances results in new substances.

5-PS2 Motion and Stability: Forces and Interactions

Students who demonstrate understanding can:

5-PS2-1. Support an argument that the gravitational force exerted by Earth on objects is directed down. [Clarification Statement: “Down” is a local description of the direction that points toward the center of the spherical Earth.] [Assessment Boundary: Assessment does not include mathematical representation of gravitational force.]

5-PS3 Energy

Students who demonstrate understanding can:

5-PS3-1. Use models to describe that energy in animals’ food (used for body repair, growth, motion, and to maintain body warmth) was once energy from the sun. [Clarification Statement: Examples of models could include diagrams, and flow charts.]

5-LS1 From Molecules to Organisms: Structures and Processes

Students who demonstrate understanding can:

5-LS1-1. Support an argument that plants get the materials they need for growth chiefly from air and water. [Clarification Statement: Emphasis is on the idea that plant matter comes mostly from air and water, not from the soil.]
5-LS2 Ecosystems: Interactions, Energy, and Dynamics
Students who demonstrate understanding can:
5-LS2-1. Develop a model to describe the movement of matter among plants, animals, decomposers, and the environment. [Clarification Statement: Emphasis is on the idea that matter that is not food (air, water, decomposed materials in soil) is changed by plants into matter that is food. Examples of systems could include organisms, ecosystems, and the Earth.] [Assessment Boundary: Assessment does not include molecular explanations.]

5-ESS1 Earth’s Place in the Universe
Students who demonstrate understanding can:
5-ESS1-1. Support an argument that differences in the apparent brightness of the sun compared to other stars is due to their relative distances from the Earth. [Assessment Boundary: Assessment is limited to relative distances, not sizes, of stars. Assessment does not include other factors that affect apparent brightness (such as stellar masses, age, stage).]
5-ESS1-2. Represent data in graphical displays to reveal patterns of daily changes in length and direction of shadows, day and night, and the seasonal appearance of some stars in the night sky. [Clarification Statement: Examples of patterns could include the position and motion of Earth with respect to the sun and selected stars that are visible only in particular months.] [Assessment Boundary: Assessment does not include causes of seasons.]

5-ESS2 Earth’s Systems
Students who demonstrate understanding can:
5-ESS2-1. Develop a model using an example to describe ways the geosphere, biosphere, hydrosphere, and/or atmosphere interact. [Clarification Statement: Examples could include the influence of the ocean on ecosystems, landform shape, and climate; the influence of the atmosphere on landforms and ecosystems through weather and climate; and the influence of mountain ranges on winds and clouds in the atmosphere. The geosphere, hydrosphere, atmosphere, and biosphere are each a system.] [Assessment Boundary: Assessment is limited to the interactions of two systems at a time.]
5-ESS2-2. Describe and graph the amounts and percentages of water and fresh water in various reservoirs to provide evidence about the distribution of water on Earth. [Assessment Boundary: Assessment is limited to oceans, lakes, rivers, glaciers, ground water, and polar ice caps, and does not include the atmosphere.]

5-ESS3 Earth and Human Activity
Students who demonstrate understanding can:
5-ESS3-1. Obtain and combine information about ways individual communities use science ideas to protect the Earth’s resources and environment.
3-5-ETS1 Engineering Design

Students who demonstrate understanding can:

3-5-ETS1-1. Define a simple design problem reflecting a need or a want that includes specified criteria for success and constraints on materials, time, or cost.

3-5-ETS1-2. Generate and compare multiple possible solutions to a problem based on how well each is likely to meet the criteria and constraints of the problem.

3-5-ETS1-3. Plan and carry out fair tests in which variables are controlled and failure points are considered to identify aspects of a model or prototype that can be improved.

Common Core Mathematics Standards and Practices for Fifth Grade Overview

Grade 5 Overview

Operations and Algebraic Thinking

5.OAA.1, 5.OAA.2, 5.OAB.3

- Write and interpret numerical expressions.
- Analyze patterns and relationships.

Number and Operations in Base Ten

5.NBT.A.1, 5.NBT.A.2, 5.NBT.A.3, 5.NBT.A.4, 5.NBT.B.5, 5.NBT.B5.NBT.B.5.7

- Understand the place value system.
- Perform operations with multi-digit whole numbers and with decimals to hundredths.

Number and Operations—Fractions

• Use equivalent fractions as a strategy to add and subtract fractions.
• Apply and extend previous understandings of multiplication and division to multiply and divide fractions.

**Measurement and Data**


• Convert like measurement units within a given measurement system.
• Represent and interpret data.
• Geometric measurement: understand concepts of volume and relate volume to multiplication and to addition.

**Geometry**


• Graph points on the coordinate plane to solve real-world and mathematical problems.
• Classify two-dimensional figures into categories based on their properties.

**Mathematical Practices**

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

**Common Core Language Arts Standards and Practices for Fifth Grade Overview**
Reading: Literature

Key Ideas and Details:
CCSS.ELA-Literacy.RL.5.1
Quote accurately from a text when explaining what the text says explicitly and when drawing inferences from the text.
CCSS.ELA-Literacy.RL.5.2
Determine a theme of a story, drama, or poem from details in the text, including how characters in a story or drama respond to challenges or how the speaker in a poem reflects upon a topic; summarize the text.
CCSS.ELA-Literacy.RL.5.3
Compare and contrast two or more characters, settings, or events in a story or drama, drawing on specific details in the text (e.g., how characters interact).

Craft and Structure:
CCSS.ELA-Literacy.RL.5.4
Determine the meaning of words and phrases as they are used in a text, including figurative language such as metaphors and similes.
CCSS.ELA-Literacy.RL.5.5
Explain how a series of chapters, scenes, or stanzas fits together to provide the overall structure of a particular story, drama, or poem.
CCSS.ELA-Literacy.RL.5.6
Describe how a narrator's or speaker's point of view influences how events are described.

Integration of Knowledge and Ideas:
CCSS.ELA-Literacy.RL.5.7
Analyze how visual and multimedia elements contribute to the meaning, tone, or beauty of a text (e.g., graphic novel, multimedia presentation of fiction, folktale, myth, poem).
CCSS.ELA-Literacy.RL.5.8
(RL.5.8 not applicable to literature)
CCSS.ELA-Literacy.RL.5.9
Compare and contrast stories in the same genre (e.g., mysteries and adventure stories) on their approaches to similar themes and topics.

Range of Reading and Level of Text Complexity:
CCSS.ELA-Literacy.RL.5.10
By the end of the year, read and comprehend literature, including stories, dramas, and poetry, at the high end of the grades 4-5 text complexity band independently and proficiently.

Reading: Informational Text
Key Ideas and Details:
CCSS.ELA-Literacy.RI.5.1
Quote accurately from a text when explaining what the text says explicitly and when drawing inferences from the text.
CCSS.ELA-Literacy.RI.5.2
Determine two or more main ideas of a text and explain how they are supported by key details; summarize the text.
CCSS.ELA-Literacy.RI.5.3
Explain the relationships or interactions between two or more individuals, events, ideas, or concepts in a historical, scientific, or technical text based on specific information in the text.

Craft and Structure:
CCSS.ELA-Literacy.RI.5.4
Determine the meaning of general academic and domain-specific words and phrases in a text relevant to a grade 5 topic or subject area.
CCSS.ELA-Literacy.RI.5.5
Compare and contrast the overall structure (e.g., chronology, comparison, cause/effect, problem/solution) of events, ideas, concepts, or information in two or more texts.
CCSS.ELA-Literacy.RI.5.6
Analyze multiple accounts of the same event or topic, noting important similarities and differences in the point of view they represent.

Integration of Knowledge and Ideas:
CCSS.ELA-Literacy.RI.5.7
Draw on information from multiple print or digital sources, demonstrating the ability to locate an answer to a question quickly or to solve a problem efficiently.
CCSS.ELA-Literacy.RI.5.8
Explain how an author uses reasons and evidence to support particular points in a text, identifying which reasons and evidence support which point(s).
CCSS.ELA-Literacy.RI.5.9
Integrate information from several texts on the same topic in order to write or speak about the subject knowledgeably.

Range of Reading and Level of Text Complexity:
CCSS.ELA-Literacy.RI.5.10
By the end of the year, read and comprehend informational texts, including history/social studies, science, and technical texts, at the high end of the grades 4-5 text complexity band independently and proficiently.

Reading: Foundational Skills

Phonics and Word Recognition:
CCSS.ELA-Literacy.RF.5.3
Know and apply grade-level phonics and word analysis skills in decoding words.
CCSS.ELA-Literacy.RF.5.3.a
Use combined knowledge of all letter-sound correspondences, syllabication patterns, and morphology (e.g., roots and affixes) to read accurately unfamiliar multisyllabic words in context and out of context.

Fluency:
CCSS.ELA-Literacy.RF.5.4
Read with sufficient accuracy and fluency to support comprehension.
CCSS.ELA-Literacy.RF.5.4.a
Read grade-level text with purpose and understanding.
CCSS.ELA-Literacy.RF.5.4.b
Read grade-level prose and poetry orally with accuracy, appropriate rate, and expression on successive readings.
CCSS.ELA-Literacy.RF.5.4.c
Use context to confirm or self-correct word recognition and understanding, rereading as necessary.

Writing

Text Types and Purposes:
CCSS.ELA-Literacy.W.5.1
Write opinion pieces on topics or texts, supporting a point of view with reasons and information.
CCSS.ELA-Literacy.W.5.1.a
Introduce a topic or text clearly, state an opinion, and create an organizational structure in which ideas are logically grouped to support the writer’s purpose.
CCSS.ELA-Literacy.W.5.1.b
Provide logically ordered reasons that are supported by facts and details.
CCSS.ELA-Literacy.W.5.1.c
Link opinion and reasons using words, phrases, and clauses (e.g., consequently, specifically).
CCSS.ELA-Literacy.W.5.1.d
Provide a concluding statement or section related to the opinion presented.
CCSS.ELA-Literacy.W.5.2
Write informative/explanatory texts to examine a topic and convey ideas and information clearly.
CCSS.ELA-Literacy.W.5.2.a
Introduce a topic clearly, provide a general observation and focus, and group related information logically; include formatting (e.g., headings), illustrations, and multimedia when useful to aiding comprehension.
CCSS.ELA-Literacy.W.5.2.b
Develop the topic with facts, definitions, concrete details, quotations, or other information and examples related to the topic.
CCSS.ELA-Literacy.W.5.2.c
Link ideas within and across categories of information using words, phrases, and clauses (e.g., in contrast, especially).
CCSS.ELA-Literacy.W.5.2.d
Use precise language and domain-specific vocabulary to inform about or explain the topic.

CCSS.ELA-Literacy.W.5.2.e
Provide a concluding statement or section related to the information or explanation presented.

CCSS.ELA-Literacy.W.5.3
Write narratives to develop real or imagined experiences or events using effective technique, descriptive details, and clear event sequences.

CCSS.ELA-Literacy.W.5.3.a
Orient the reader by establishing a situation and introducing a narrator and/or characters; organize an event sequence that unfolds naturally.

CCSS.ELA-Literacy.W.5.3.b
Use narrative techniques, such as dialogue, description, and pacing, to develop experiences and events or show the responses of characters to situations.

CCSS.ELA-Literacy.W.5.3.c
Use a variety of transitional words, phrases, and clauses to manage the sequence of events.

CCSS.ELA-Literacy.W.5.3.d
Use concrete words and phrases and sensory details to convey experiences and events precisely.

CCSS.ELA-Literacy.W.5.3.e
Provide a conclusion that follows from the narrated experiences or events.

Production and Distribution of Writing:
CCSS.ELA-Literacy.W.5.4
Produce clear and coherent writing in which the development and organization are appropriate to task, purpose, and audience. (Grade-specific expectations for writing types are defined in standards 1-3 above.)

CCSS.ELA-Literacy.W.5.5
With guidance and support from peers and adults, develop and strengthen writing as needed by planning, revising, editing, rewriting, or trying a new approach. (Editing for conventions should demonstrate command of Language standards 1-3 up to and including grade 5 here.)

CCSS.ELA-Literacy.W.5.6
With some guidance and support from adults, use technology, including the Internet, to produce and publish writing as well as to interact and collaborate with others; demonstrate sufficient command of keyboarding skills to type a minimum of two pages in a single sitting.

Research to Build and Present Knowledge:
CCSS.ELA-Literacy.W.5.7
Conduct short research projects that use several sources to build knowledge through investigation of different aspects of a topic.

CCSS.ELA-Literacy.W.5.8
Recall relevant information from experiences or gather relevant information from print and digital sources; summarize or paraphrase information in notes and finished work, and provide a list of sources.

CCSS.ELA-Literacy.W.5.9
Draw evidence from literary or informational texts to support analysis, reflection, and research.
Apply grade 5 Reading standards to literature (e.g., "Compare and contrast two or more characters, settings, or events in a story or a drama, drawing on specific details in the text [e.g., how characters interact]").

Apply grade 5 Reading standards to informational texts (e.g., "Explain how an author uses reasons and evidence to support particular points in a text, identifying which reasons and evidence support which point[s]"").

Range of Writing:

Write routinely over extended time frames (time for research, 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.

Speaking & Listening

Comprehension and Collaboration:

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.

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.

Follow rules for collegial discussions, track progress toward specific goals and deadlines, and define individual roles as needed.

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.

Acknowledge new information expressed by others and, when warranted, modify their own views.

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.

Delineate a speaker’s argument and specific claims, evaluating the soundness of the reasoning and the relevance and sufficiency of the evidence.

Presentation of Knowledge and Ideas:
CCSS.ELA-Literacy.SL.7.4
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.

CCSS.ELA-Literacy.SL.7.5
Include multimedia components and visual displays in presentations to clarify claims and findings and emphasize salient points.

CCSS.ELA-Literacy.SL.7.6
Adapt speech to a variety of contexts and tasks, demonstrating command of formal English when indicated or appropriate. (See grade 7 Language standards 1 and 3 here for specific expectations.)

**Language**

**Conventions of Standard English:**

**CCSS.ELA-Literacy.L.5.1**
Demonstrate command of the conventions of standard English grammar and usage when writing or speaking.

**CCSS.ELA-Literacy.L.5.1.a**
Explain the function of conjunctions, prepositions, and interjections in general and their function in particular sentences.

**CCSS.ELA-Literacy.L.5.1.b**
Form and use the perfect (e.g., *I had walked; I have walked; I will have walked*) verb tenses.

**CCSS.ELA-Literacy.L.5.1.c**
Use verb tense to convey various times, sequences, states, and conditions.

**CCSS.ELA-Literacy.L.5.1.d**
Recognize and correct inappropriate shifts in verb tense.*

**CCSS.ELA-Literacy.L.5.1.e**
Use correlative conjunctions (e.g., *either/or, neither/nor*).

**CCSS.ELA-Literacy.L.5.2**
Demonstrate command of the conventions of standard English capitalization, punctuation, and spelling when writing.

**CCSS.ELA-Literacy.L.5.2.a**
Use punctuation to separate items in a series.*

**CCSS.ELA-Literacy.L.5.2.b**
Use a comma to separate an introductory element from the rest of the sentence.

**CCSS.ELA-Literacy.L.5.2.c**
Use a comma to set off the words *yes* and *no* (e.g., *Yes, thank you*), to set off a tag question from the rest of the sentence (e.g., *It's true, isn't it?*), and to indicate direct address (e.g., *Is that you, Steve?*).

**CCSS.ELA-Literacy.L.5.2.d**
Use underlining, quotation marks, or italics to indicate titles of works.
CCSS.ELA-Literacy.L.5.2.e
Spell grade-appropriate words correctly, consulting references as needed.

Knowledge of Language:
CCSS.ELA-Literacy.L.5.3
Use knowledge of language and its conventions when writing, speaking, reading, or listening.
CCSS.ELA-Literacy.L.5.3.a
Expand, combine, and reduce sentences for meaning, reader/listener interest, and style.
CCSS.ELA-Literacy.L.5.3.b
Compare and contrast the varieties of English (e.g., dialects, registers) used in stories, dramas, or poems.

Vocabulary Acquisition and Use:
CCSS.ELA-Literacy.L.5.4
Determine or clarify the meaning of unknown and multiple-meaning words and phrases based on grade 5 reading and content, choosing flexibly from a range of strategies.
CCSS.ELA-Literacy.L.5.4.a
Use context (e.g., cause/effect relationships and comparisons in text) as a clue to the meaning of a word or phrase.
CCSS.ELA-Literacy.L.5.4.b
Use common, grade-appropriate Greek and Latin affixes and roots as clues to the meaning of a word (e.g., photograph, photosynthesis).
CCSS.ELA-Literacy.L.5.4.c
Consult reference materials (e.g., dictionaries, glossaries, thesauruses), both print and digital, to find the pronunciation and determine or clarify the precise meaning of key words and phrases.
CCSS.ELA-Literacy.L.5.5
Demonstrate understanding of figurative language, word relationships, and nuances in word meanings.
CCSS.ELA-Literacy.L.5.5.a
Interpret figurative language, including similes and metaphors, in context.
CCSS.ELA-Literacy.L.5.5.b
Recognize and explain the meaning of common idioms, adages, and proverbs.
CCSS.ELA-Literacy.L.5.5.c
Use the relationship between particular words (e.g., synonyms, antonyms, homographs) to better understand each of the words.
CCSS.ELA-Literacy.L.5.6
Acquire and use accurately grade-appropriate general academic and domain-specific words and phrases, including those that signal contrast, addition, and other logical relationships (e.g., however, although, nevertheless, similarly, moreover, in addition).
## Unit 1: Matter and Its Interactions

### Essential Questions

- What is matter and what is it made of?
- What happens to the mass of matter as it goes through its different forms (solid, liquid, gas)?
- What are the identifiable properties of a substance?
- When two substances are mixed together, is something completely new and different always made?

### Knowledge & Skills

By the end of this unit, students will know:

- Matter is a term that applies to all of the stuff around us and it is made of particles that are too small to see.
- When substances are heated, cooled, or mixed the total weight before and after is always the same.
- Substances can be identified based on observable and measurable properties.
- Sometimes when two substances are mixed, each of the substances keeps its original properties and sometimes a new substance is formed.
By the end of this unit, students will be able to:

- Give an example of what is matter
- Describe how gases are made from matter particles that are too small to be seen. (Ex: an inflated balloon)
- Measure and graph the weights of matter before and after being heated, cooled, or mixed.
- Identify materials based on various observable properties.
- Determine whether the mixing of two substances always results in the formation of new substances or not and provide examples.
- Identify the differences between soluble and insoluble solutions.

Unit 2: Energy of Organisms

Essential Questions

- What is the flow of energy?
- What does the sun contribute to the energy cycle?
- How is the sun’s energy made usable?
- Where do plants get the materials they need for growth and development?
- What is photosynthesis?
- What happens to food once it is consumed?
- Where did the energy in food come from?
- How do animals use the energy they get from food?

Knowledge & Skills

By the end of this unit, students will know:

- 5-PS3-1
- 5-LS2-1
- RI.5.7
- SL.5.5
- MP.2
- MP.4

25 Days
November-December

study guide.

World Languages
- Identify root word origins when introducing new vocabulary, thermo from the Greek and struct from the Latin.

Career Education
- Skype with a local meteorologist from the NOAA station in Mt. Holly New Jersey.

Health/PE
- Discuss the effects nutrition has on the human body.

English Language Arts & Literacy
- Compare the weather prediction of the Farmer’s Almanac with the weather prediction made by NOAA by writing an compare and contrast summary.

Math
- Collect and evaluate data collected during the experiment process in order to create a graph to help in data
- The sun is the primary source of energy for both plants and animals.
- Plants get the materials they need for growth from the air and water.
- Food that animals consume provides energy for body growth, body repair, motion, and warmth.
- The process of photosynthesis is a chemical process that converts the energy of the sun into food for plants and animals.

By the end of this unit, students will be able to:
- Describe/chart the flow of energy from the sun, through plants and animals.
- Explain that without the sun’s energy animal growth, and body repair would not be possible.
- Identify the properties of the sun and how they affect both plants and animals.
- Explain how plants convert energy from the sun into food for plants and animals.

Unit 3: Ecosystem Dynamics

**Essential Questions**

- How can a food web be used to help observe interactions between organisms in an environment?
- What are the roles of producers, consumers and decomposers and the Sun in an ecosystem?
- How is matter transferred through an ecosystem?
- How can an organism maintain its population in an ecosystem?
- What factors can threaten a species?

| 5-LS2-1 | Ri.5.7 | SL.5.5 | MP.2 | MP.4 | 25 Days | January – February |

History/Social Studies
- Identify the weather and climate factors that had an impact on the Great American Dust Bowl.

Technical Subjects
- Use Microsoft excel to create a plant growth data table.

World Languages
- Identify root word origins when introducing new vocabulary, cyci from the Greek and tempo from the Latin.

Career Education
- Research current career trends in science and generate a list of skills needed for a career path in the sciences.

Health/PE
- Identify behaviors that but the human body a risk of illness and disease.

English Language Arts & Literacy
- Write a Letter to the Editor of the Burlington County Times that discusses the need for analysis of plant growth.
**Knowledge & Skills**

**By the end of this unit, students will know:**
- All food webs rely on the sun for its energy source and producers to create their own food.
- Energy and mass are transferred from one organism to the next as it is eaten.
- Decomposers take dead material and recycle it back into usable material.
- Ecosystems are very fragile and require a perfect balance of predator and prey.

**By the end of this unit, students will be able to:**
- Create a food web.
- Explain the importance of producers, consumers and decomposers in an ecosystem.
- Observe and analyze factors that aid decomposition.
- Describe the flow of energy and mass through a food web.
- Make conclusions about an ecosystem’s chances for survival based on factors such as overpopulation or overhunting.

---

**Unit 4: Earth’s Systems**

**Essential Questions**

- What are the four major systems that make up our Earth and how do they interact?
- What are the four layers of the Earth and what are the characteristics of each?
- What are the components of our atmosphere and how is the atmosphere affected by animals and plants?
- Where is the water on Earth located? How much of this water is usable by humans?

<table>
<thead>
<tr>
<th>5-ESS2-1</th>
<th>5-ESS2-2</th>
<th>RI.5.1</th>
<th>RI.5.7</th>
<th>RI.5.8</th>
<th>RI.5.9</th>
<th>W.5.1</th>
<th>W.5.8</th>
<th>SL.5.5</th>
<th>MP.2</th>
<th>MP.4</th>
</tr>
</thead>
</table>

---

**Mid-year Summative Benchmarking in January**

**Performance Assessment in January**

---

**green-space for local community gardens.**

**Math**
- Use ratios to describe the relationship between decomposers, and produces in an ecosystem.

**History/Social Studies**
- Research the primary use of land during the Jamestown settlement.

**Technical Subjects**
- Use Prezi software to explain a food chain.

**World Languages**
- Identify root word origins when introducing new vocabulary, geo from the Greek and uni from the Latin.

**Career Education**
- Research current career trends in private space travel.

**Health/PE**
- Design an experiment that compares name brand sunscreen with generic sunscreen.

**English Language Arts & Literacy**
- Cite specific textual evidence to support analysis of the need for UV protection.
• What effect does ocean water have on the nearby land?

Knowledge & Skills

By the end of this unit, students will know:
• Earth is a nonliving object that is made up of four major systems.
• The Earth’s geosphere is composed of four distinct layers.
• Animals and plants rely on each other to create the gases needed for survival.
• The ozone layer protects us from the Earth’s harmful UV rays.
• The vast majority of water on Earth is salt water and unusable. Most of the water that is usable is trapped in glaciers.
• Areas that are near water will have milder climate changes because the ocean will slowly absorb and release heat.

By the end of this unit, students will be able to:
• Explain the four major systems of the Earth.
• Differentiate between the different layers of the Earth based on distinct characteristics.
• Explain the relationship between plants and animals when it comes to the production of oxygen and carbon dioxide.
• Describe how life on Earth would be different if the ozone layer continues to be depleted.
• Interpret and create graphs that represent the location of both salt and fresh water on Earth.
• Analyze lab results that suggest that areas near water will see milder temperature fluctuations than areas that are further inland.

Math
- Recognize and represent proportional relationships between quantities of freshwater to ocean water.

History/Social Studies
- Create a timeline of the of Earth’s history.

Technical Subjects
- Continue to develop word processing skills by using Prezi to represent Earth’s water supply.

World Languages
- Identify root word origins when introducing new vocabulary, hydro form the Greek and cent from the Latin.

Career Education
- Research the job
## Unit 5: Human Impact on Earth

### Essential Questions
- What impacts, both positive and negative, do humans have on the Earth?
- What is Global Change?
- How can humans reduce their impact on Earth?

### Knowledge & Skills

#### By the end of this unit, students will know:
- How humans negatively impact Earth systems.
- How humans positively impact Earth systems.
- The impact of human activities and consumption of natural resources.

#### By the end of this unit, students will be able to:
- Describe humanities’ impact on Earth systems.
- Explain the impact that increasing human populations have on natural resources.
- Identify changes humans can make to lessen their impact on the Earth’s systems.

---

<table>
<thead>
<tr>
<th>5-ESS3-1</th>
<th>RI.5.1</th>
<th>RI.5.7</th>
<th>RI.5.9</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>W.5.8</td>
<td>W.5.9</td>
<td>MP.2</td>
</tr>
<tr>
<td></td>
<td>MP.4</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

25 Days

April

---

- Health/PE
  - Identify behaviors that put the human body at risk of illness and disease.

- English Language Arts & Literacy
  - Write a summary explaining the Clean Water Act.

- Math
  - Collect and evaluate data collected during the experiment process in order to create a graph to help in data analysis of the rate of pollution in the Delaware river.

- History/Social Studies
  - Discuss the changing attitudes behind using fossil fuels.

- Technical Subjects
  - Continue to develop word processing skills by creating a unit word collage.

- World Languages
  - Identify root word origins when introducing new vocabulary, mega from the Greek and vac from the Latin.

---

requirements of solar panel installer.
Unit 6: Forces

Essential Questions

- How is motion measured?
- How is speed calculated?
- What are contact forces (applied, frictional and normal)?
- What are non-contact forces?
- How do you know if forces are balanced or unbalanced?
- How do magnetic fields work?
- How do electrical fields work?
- How did scientists learn about gravitational force?
- When objects are dropped, which object will hit the ground first?
- How does increasing the distance between two objects change the force of gravity between those objects?
- How does changing the mass of two objects change the force of gravity between those objects?

Knowledge & Skills

By the end of this unit, students will know:

- How motion and speed are measured and calculated.
- The difference between contact and non-contact forces.
- The forces that act on a falling object.
- The history of our understanding of gravity.
- The relationship between mass and distance and how they relate to the force of gravity.
- An object’s mass does not influence the force of Earth’s gravity on it.

Career Education
- Research the job requirements of an air plane engineer.

Health/PE
- Identify factors that can cause concussions in athletes.

English Language Arts & Literacy
- Write a summary explaining Newton’s Laws.

Math
- Collect and evaluate data collected during the experiment process in order to create a graph to help in data analysis of the speed vs. distance of an object.

History/Social Studies
- Research the first rocket launch into space.

Technical Subjects
- Continue to develop word processing skill by using Excel to make a line graph for distance vs speed.

World Languages
- Identify root word origins when introducing new vocabulary, meter for the Greek and quad from the Latin.
By the end of this unit, students will be able to:
- Calculate speed, distance and time.
- Differentiate between contact and non-contact forces.
- Describe contact forces – applied, frictional and normal.
- Describe non-contact forces – magnetic, electrical and gravitational.
- Explain how the concept of gravity was observed throughout history.
- Form hypotheses about the rate at which objects will fall when dropped.
- Explain how mass and distance relate to the strength of gravity.

Unit 7: Earth and the Universe

Essential Questions
- How does relative distance affect the brightness of a star?
- What causes night and day?
- Why are some constellations only visible during certain times of the year?
- Why do shadows appear larger at certain times of the day and shorter at other times?

Knowledge & Skills
By the end of this unit, students will know:
- That a star’s distance from Earth affects how bright it appears to be.
- That the length of shadows decrease during the day until they reach a certain point, then the shadows gradual start to get larger.
- That the rotation of Earth causes night and day.
- That the path of the sun changes from month to month.

<table>
<thead>
<tr>
<th>5-ESS1-1</th>
<th>5-ESS1-2</th>
</tr>
</thead>
<tbody>
<tr>
<td>RI.5.1</td>
<td>RI.5.7</td>
</tr>
<tr>
<td>RI.5.8</td>
<td>RI.5.9</td>
</tr>
<tr>
<td>W.5.1</td>
<td>W.5.8</td>
</tr>
<tr>
<td>SL.5.5</td>
<td>MP.2</td>
</tr>
<tr>
<td>MP.4</td>
<td>5.NBT.A.2</td>
</tr>
<tr>
<td>5.G.A.2</td>
<td></td>
</tr>
</tbody>
</table>

25 Days
May – June

Career Education
- Research the job requirements for satellite developers.

Health/PE
- Create a poster that shows items that are needed to keep astronauts healthy in space.

English Language Arts & Literacy
- Write a speech that argues the need for additional funding for space exploration.

Math
- Collect and evaluate data collected during the experiment process in order to create a graph to help in data analysis of the impact of space
month.
- That the locations of constellations change due to the rotation and revolution of Earth.

By the end of this unit, students will be able to:
- Create an argument that relative brightness of the Sun compared to other stars is a function of the distance to those stars.
- Explain how day turns into night
- Explain why the sun casts different sized shadows.
- Explain that the location of constellations in the night sky appear in different locations due to the rotation and revolution of the Earth.

junk and object’s impact diameter.

History/Social Studies
- Research myths associated with the constellations of the Northern Hemisphere as told by Native American tribes.

Technical Subjects
- Continue to develop word processing skills by using Microsoft tools when writing a lab summary.

World Languages
- Identify root word origins when introducing new vocabulary, cosm from the Greek and re from the Latin.
Unit One: Matter and Its Interactions

<table>
<thead>
<tr>
<th>DCI Standard</th>
<th>Disciplinary Core Idea with corresponding performance expectation</th>
<th>Student Learning Objectives (SLO)</th>
<th>References/Resources</th>
<th>Suggested Instructional Activities</th>
<th>Suggested Student Output</th>
<th>Assessments: Portfolios, Evaluations, &amp; Rubrics</th>
<th>Multimedia Integration</th>
<th>Accommodation of Special Needs Students (SE, ELL, 504, G&amp;T)</th>
</tr>
</thead>
<tbody>
<tr>
<td>PS1.A: Structure and Properties of Matter</td>
<td>Matter of any type can be subdivided into particles that are too small to see, but even then the matter still exists and can be detected by other means. A model shows that gases are made from matter particles that are too small to see and are moving freely around in space can explain many observations, including the inflation and shape of a balloon; the effects of air on larger particles or objects. (5-PS1-1) The amount (weight) of matter is conserved when it changes form, even in transitions in which it seems to vanish. (5-PS1-2) Measurements of a variety of properties can be used to identify materials. (Boundary: At this grade level, mass and weight are not distinguished, and no attempt is made to</td>
<td>Give an example of what is matter Describe how gases are made from matter particles that are too small to be seen. (Ex: an inflated balloon) Measure and graph the weights of matter before and after being heated, cooled, or mixed. Identify materials based on various observable properties.</td>
<td>Science Explorer Physical Science TB Science Explorer Physical Science Unit 1 Resources Chemical Building Blocks</td>
<td>Describing Matter Section 1-1 Review and Reinforce pgs. 16-17 Mass of Air Investigation Lab Stations 1-4 The Conservation of Mass PPT and notes. Measuring Matter Section 1-2 review and Reinforce pgs. 20-21</td>
<td>Students will identify the specific properties of three brands of paper towels. Students will design an experiment to test the properties of paper towels that is clearly written and easy to follow. Students will present the analysis of data collected during the experimentation process and present findings to the class.</td>
<td>Project Rubric Assessment Test Lab Reflection Sheet Science Notebook Entries including: • Experiments • Journal entries • Do nows • Exit tickets</td>
<td>Video: <a href="https://www.brainpop.com/science/energy/waves/">https://www.brainpop.com/science/energy/waves/</a> <a href="https://www.brainpop.com/science/matterandchemistry/measuringmatter/">https://www.brainpop.com/science/matterandchemistry/measuringmatter/</a> <a href="https://www.brainpop.com/science/matterandchemistry/propertychanges/">https://www.brainpop.com/science/matterandchemistry/propertychanges/</a> Whiteboard: <a href="http://www.njctl.org/courses/science/5th-grade-science/matter-and-its-interactions/">http://www.njctl.org/courses/science/5th-grade-science/matter-and-its-interactions/</a> Online Review: <a href="http://www.helpsteaching.com/questions/Matter/Grade_5">http://www.helpsteaching.com/questions/Matter/Grade_5</a></td>
<td>*Media &amp; Technology Audio CD English – Spanish 1 1-2 *Leveled Reading Passages *Modifications as outlined in student’s 504 and/or IEP *Student choice in enrichment activities * Differentiate student learning activities to meet the varied needs of the various student groups * Collaboration with inclusion teacher(s), child study team, and ELL specialists</td>
</tr>
</tbody>
</table>
## Unit One: Matter and Its Interactions

<table>
<thead>
<tr>
<th>DCI Standard</th>
<th>Disciplinary Core Idea with corresponding performance expectation</th>
<th>Student Learning Objectives (SLO)</th>
<th>References/Resources</th>
<th>Suggested Instructional Activities</th>
<th>Suggested Student Output</th>
<th>Assessments: Portfolios, Evaluations, &amp; Rubrics</th>
<th>Multimedia Integration</th>
<th>Accommodation of Special Needs Students (SE, ELL, 504, G&amp;T)</th>
</tr>
</thead>
<tbody>
<tr>
<td>PS1.B: Chemical Reactions</td>
<td>When two or more different substances are mixed, a new substance with different properties may be formed. (5-PS1-4) No matter what reaction or change in properties occurs, the total weight of the substances does not change. (Boundary: Mass and weight are not distinguished at this grade level.) (5-PS1-2)</td>
<td><strong>Determine</strong> whether the mixing of two substances always results in the formation of new substances or not and provide examples. <strong>Identify</strong> the differences between soluble and insoluble solutions.</td>
<td>Discovery Works Houghton Mifflin Discovery Works Houghton Mifflin Teacher Resource Book Matter and Energy</td>
<td>Properties of Matter pgs. C12-C15 Compounds and Mixtures pgs. C26-C30 Properties of Matter Mixing Substances Investigation Lab Stations 1-4 Conservation of Mass in Chemical Reactions Demonstration Lab</td>
<td>Students will complete the Collecting and Displaying Samples of Matter project pgs. 16-17. Project Rubric Assessment Test Lab Reflection Sheet Science Notebook Entries including: Experiments Journal entries Do nows Exit tickets</td>
<td>Video: <a href="https://www.brainpop.com/science/matterandchemistry/compoundsandmixtures/">https://www.brainpop.com/science/matterandchemistry/compoundsandmixtures/</a> Whiteboard: <a href="http://studyjams.scholastic.com/studyjams/jams/science/matter/changes-of-matter.htm">http://studyjams.scholastic.com/studyjams/jams/science/matter/changes-of-matter.htm</a> Online Review: <a href="https://www.brainpop.com/games/mattersorter/">https://www.brainpop.com/games/mattersorter/</a></td>
<td>*Media &amp; Technology Audio CD English – Spanish 16-1-5</td>
<td>*Leveled Reading Passages *Modifications as outlined in student’s 504 and/or IEP *Student choice in enrichment activities *Differentiate student learning activities to meet the varied needs of the various student groups * Collaboration with inclusion teacher(s), child study team, and ELL specialists</td>
</tr>
</tbody>
</table>

## Unit Two: Energy in Organisms

Page 27 of 34
<table>
<thead>
<tr>
<th>Domain &amp; Standard</th>
<th>Grade...</th>
<th>Student Learning Objectives (SLO)</th>
<th>References/ Resources</th>
<th>Suggested Instructional Activities</th>
<th>Suggested Student Output</th>
<th>Assessments: Portfolios, Evaluations, &amp; Rubrics</th>
<th>Multimedia Integration</th>
<th>Accommodatio n of Special Needs Students (SE, ELL, 504, G&amp;T)</th>
</tr>
</thead>
</table>

**Unit Three: Ecosystem Dynamics**
<table>
<thead>
<tr>
<th>Domain &amp; Standard</th>
<th>Grade...</th>
<th>Student Learning Objectives (SLO)</th>
<th>References/ Resources</th>
<th>Suggested Instructional Activities</th>
<th>Suggested Student Output</th>
<th>Assessments: Portfolios, Evaluations, &amp; Rubrics</th>
<th>Multimedia Integration</th>
<th>Accommodation of Special Needs Students (SE, ELL, 504, G&amp;T)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>LS2.A: Interdependent Relationships in Ecosystems</strong></td>
<td>The food of almost any kind of animal can be traced back to plants. Organisms are related in food webs in which some animals eat plants for food and other animals eat the animals that eat plants. Some organisms, such as fungi and bacteria, break down dead organisms (both plants or plants parts and animals) and therefore operate as “decomposers.” Decomposition eventually restores (recycles) some materials back to the soil. Organisms can survive only in environments in which their particular needs are met. A healthy ecosystem is one in which multiple species of different types are each able to meet their needs in a relatively stable web of life. Newly introduced species can damage the balance of an ecosystem. (5-LS2-1)</td>
<td><strong>Create a food web.</strong> <strong>Explain the importance of producers, consumers and decomposers in an ecosystem.</strong> <strong>Observe and analyze factors that aid decomposition.</strong> <strong>Make conclusions about an ecosystem’s chances for survival based on factors such as overpopulation or overhunting.</strong></td>
<td>Ecology &amp; The Environment Series Classroom Complete Press CC4503 Science Explorer Life Science TB Science Explorer Life Science Unit 5 Resources Ecology Producers, Consumers, &amp; Decomposers pgs. 23-26. <strong>Food Chains &amp; Food Webs</strong> pgs. 27-30 <strong>Elbow Room</strong> Try This Activity pg. 699</td>
<td>Students will conduct and analysis data collected in The Rabbit Bean Population Lab pg. 44.</td>
<td><strong>Performance Rubric Assessment</strong> <strong>Test</strong> <strong>Lab Reflection Sheet</strong> <strong>Science Notebook Entries including:</strong> • Experiments • Journal entries • Do nows • Exit tickets</td>
<td>Video: <a href="http://studyjams.scholastic.com/studyjams/jams/science/ecosystem/population_growth.htm">http://studyjams.scholastic.com/studyjams/jams/science/ecosystem/population_growth.htm</a> Whiteboard: <a href="http://exchange.smartech.com/details.htm?id=76faefba-996f-4531-9382-552de959f8bd">http://exchange.smartech.com/details.htm?id=76faefba-996f-4531-9382-552de959f8bd</a> Online Review: <a href="http://exchange.smartech.com/details.htm?id=5ad21bd0-f0e6-44a-9050-590d6950f54">http://exchange.smartech.com/details.htm?id=5ad21bd0-f0e6-44a-9050-590d6950f54</a> <a href="http://www.njctl.org/courses/science/5th-grade-science/ecosystem-dynamics/">http://www.njctl.org/courses/science/5th-grade-science/ecosystem-dynamics/</a></td>
<td><em>Media &amp; Technology Audio CD English – Spanish 22:1-4</em> <em>Leveled Reading Passages</em> <em>Modifications as outlined in student's 504 and/or IEP</em> <em>Student choice in enrichment activities</em> <em>Differentiate student learning activities to meet the varied needs of the various student groups</em> <em>Collaboration with inclusion teacher(s), child study team, and ELL specialists</em></td>
<td></td>
</tr>
<tr>
<td><strong>LS2.B: Cycles of Matter and Energy Transfer in Ecosystems</strong></td>
<td>Matter cycles between the air and soil and among plants, animals, and microbes as these organisms live and die. Organisms obtain gases, and water, from the environment, and release waste matter (gas, liquid, or solid) back into the environment. (5-LS2-1)</td>
<td><strong>Describe the flow of energy and mass through a food web.</strong></td>
<td>Science Explorer Life Science TB Science Explorer Life Science Unit 5 Resources Ecology <strong>Interactions Among Living Things</strong> Section 22-3 Review and Reinforce Activity pgs. 18-19.</td>
<td>Students will read Animal Overpopulation How Can People Help? Science and Society pg. 702 and the write a persuasive essays.</td>
<td>Persuasive Essay Rubric Assessment <strong>Vocabulary Quiz</strong> <strong>Lab Reflection Sheet</strong> <strong>Science Notebook Entries including:</strong> • Experiments • Journal entries • Do nows</td>
<td></td>
<td><em>Leveled Reading Passages</em> <em>Modifications as outlined in student’s 504 and/or IEP</em> <em>Student choice in enrichment activities</em> <em>Differentiate student learning activities to meet the varied needs of the various student groups</em> <em>Collaboration with inclusion teacher(s), child study team, and ELL specialists</em></td>
<td></td>
</tr>
</tbody>
</table>
### Unit Three: Ecosystem Dynamics

<table>
<thead>
<tr>
<th>Domain &amp; Standard</th>
<th>Grade...</th>
<th>Student Learning Objectives (SLO)</th>
<th>References/ Resources</th>
<th>Suggested Instructional Activities</th>
<th>Suggested Student Output</th>
<th>Assessments: Portfolios, Evaluations, &amp; Rubrics</th>
<th>Multimedia Integration</th>
<th>Accommodation of Special Needs Students (SE, ELL, 504, G&amp;T)</th>
</tr>
</thead>
</table>

#### ESS2.A: Earth Material and Systems
- Earth’s major systems are the geosphere (solid and molten rock, soil, and sediments), the hydrosphere (water and ice), the atmosphere (air), and the biosphere (living things, including humans). These systems interact in multiple ways to affect Earth’s surface materials and processes. The ocean supports a variety of ecosystems and organisms, shapes landforms, and influences climate. Winds and clouds in the atmosphere interact with the landforms to determine patterns of weather. (5-ESS2-1)

#### Suggested Instructional Activities
- Explain the four major systems of the Earth.
- Differentiate between the different layers of the Earth based on distinct characteristics.
- Explain the relationship between plants and animals when it comes to the production of oxygen and carbon dioxide.
- Describe how life on Earth would be different if the ozone layer continues to be depleted.
- Analyze lab results that suggest that areas near water will see milder temperature fluctuations than

<table>
<thead>
<tr>
<th>Domain &amp; Standard</th>
<th>Grade...</th>
<th>Student Learning Objectives (SLO)</th>
<th>References/ Resources</th>
<th>Suggested Instructional Activities</th>
<th>Suggested Student Output</th>
<th>Assessments: Portfolios, Evaluations, &amp; Rubrics</th>
<th>Multimedia Integration</th>
<th>Accommodation of Special Needs Students (SE, ELL, 504, G&amp;T)</th>
</tr>
</thead>
</table>

#### ESS2.B: Earth’s Atmosphere
- What’s is Earth’s Structure? Investigation 1 pgs. E66-E67
- Where Does the Water Come From? Discover Activity pg. 360.
- Major Watersheds of the United States Interpreting Maps Activity pg. 369.
- You and Your Environment Real World Lab pgs. 502-503.
- Layers of the Atmosphere Section 15-4 Review and Reinforce pgs. 22-23.
- Currents and Climates Section Review 13-4 Review and Reinforce pgs. 78-79.

#### Suggested Student Output
- Students will create a Prezi explaining the four major systems and the interaction between them that make life on Earth possible.
- Project Rubric Assessment:
  - Test
  - Lab Reflection Sheet
  - Science Notebook Entries including:
    - Experiments
    - Journal entries
    - Do nows
    - Exit tickets

#### Assessments: Portfolios, Evaluations, & Rubrics
- Video: [https://www.brainpop.com/science/earthsystem/watersupply/](https://www.brainpop.com/science/earthsystem/watersupply/)
- *Level Reading Passages
- *Modifications as outlined in student’s 504 and/or IEP
- *Student choice in enrichment activities
- *Differentiate learning activities to meet the varied needs of the various student groups
- *Collaboration with inclusion teacher(s), child study team, and ELL specialists

### Unit Four: Earth’s Systems

<table>
<thead>
<tr>
<th>Domain &amp; Standard</th>
<th>Grade...</th>
<th>Student Learning Objectives (SLO)</th>
<th>References/ Resources</th>
<th>Suggested Instructional Activities</th>
<th>Suggested Student Output</th>
<th>Assessments: Portfolios, Evaluations, &amp; Rubrics</th>
<th>Multimedia Integration</th>
<th>Accommodation of Special Needs Students (SE, ELL, 504, G&amp;T)</th>
</tr>
</thead>
</table>

#### ESS2.A: Earth Material and Systems
- Explain the four major systems of the Earth.
- Differentiate between the different layers of the Earth based on distinct characteristics.
- Explain the relationship between plants and animals when it comes to the production of oxygen and carbon dioxide.
- Describe how life on Earth would be different if the ozone layer continues to be depleted.
- Analyze lab results that suggest that areas near water will see milder temperature fluctuations than

<table>
<thead>
<tr>
<th>Domain &amp; Standard</th>
<th>Grade...</th>
<th>Student Learning Objectives (SLO)</th>
<th>References/ Resources</th>
<th>Suggested Instructional Activities</th>
<th>Suggested Student Output</th>
<th>Assessments: Portfolios, Evaluations, &amp; Rubrics</th>
<th>Multimedia Integration</th>
<th>Accommodation of Special Needs Students (SE, ELL, 504, G&amp;T)</th>
</tr>
</thead>
</table>

#### Suggested Instructional Activities
- Explain the four major systems of the Earth.
- Differentiate between the different layers of the Earth based on distinct characteristics.
- Explain the relationship between plants and animals when it comes to the production of oxygen and carbon dioxide.
- Describe how life on Earth would be different if the ozone layer continues to be depleted.
- Analyze lab results that suggest that areas near water will see milder temperature fluctuations than

### ESS2.B: Earth’s Atmosphere
- What’s is Earth’s Structure? Investigation 1 pgs. E66-E67
- Where Does the Water Come From? Discover Activity pg. 360.
- Major Watersheds of the United States Interpreting Maps Activity pg. 369.
- You and Your Environment Real World Lab pgs. 502-503.
- Layers of the Atmosphere Section 15-4 Review and Reinforce pgs. 22-23.
- Currents and Climates Section Review 13-4 Review and Reinforce pgs. 78-79.

#### Suggested Student Output
- Students will create a Prezi explaining the four major systems and the interaction between them that make life on Earth possible.
- Project Rubric Assessment:
  - Test
  - Lab Reflection Sheet
  - Science Notebook Entries including:
    - Experiments
    - Journal entries
    - Do nows
    - Exit tickets

#### Assessments: Portfolios, Evaluations, & Rubrics
- Video: [https://www.brainpop.com/science/earthsystem/watersupply/](https://www.brainpop.com/science/earthsystem/watersupply/)
- *Level Reading Passages
- *Modifications as outlined in student’s 504 and/or IEP
- *Student choice in enrichment activities
- *Differentiate learning activities to meet the varied needs of the various student groups
- *Collaboration with inclusion teacher(s), child study team, and ELL specialists

Page 30 of 34
<table>
<thead>
<tr>
<th>Domain &amp; Standard</th>
<th>Grade...</th>
<th>Student Learning Objectives (SLO)</th>
<th>References/Resources</th>
<th>Suggested Instructional Activities</th>
<th>Suggested Student Output</th>
<th>Assessments: Portfolios, Evaluations, &amp; Rubrics</th>
<th>Multimedia Integration</th>
<th>Accommodation of Special Needs Students (SE, ELL, 504, G&amp;T)</th>
</tr>
</thead>
<tbody>
<tr>
<td>ESS2.C: The Roles of Water in Earth’s Surface Processes</td>
<td>Nearly all of Earth’s available water is in the ocean. Most fresh water is in glaciers or underground; only a tiny fraction is in streams, lakes, wetlands, and the atmosphere. (5-ESS2-2)</td>
<td>Interpret and create graphs that represent the location of both salt and fresh water on Earth.</td>
<td>Science Explorer Life Science TB Science Explorer Life Science Unit 1 Resource Cells &amp; Heredity Science Explorer Life Science Laboratory Manual</td>
<td>Major Ocean Currents Interpreting Maps pg. 447.</td>
<td>It All Goes Down Hill activity including a clay model. Research the size of the glaciers in Glacier National Park over the past 100 years and graph the results. National Geographic Explores article review on flooding in the Mid-West during the 2015 spring-summer season. Drinking Water from the Sea desalinization lab. [<a href="http://www.planetsee">http://www.planetsee</a> d.com/laboratory/drink ing-water-sea](<a href="http://www.planetseed.com/laboratory/drink">http://www.planetseed.com/laboratory/drink</a> ing-water-sea)</td>
<td>Students will create a poster that displays a factional representation of Earth’s water. Poster Rubric Performance Assessment Test Lab Reflection Sheet Science Notebook Entries including: Experiments Journal entries Do nows Exit tickets</td>
<td>*Media &amp; Technology Audio CD English – Spanish 11-1-4, 15-1-4, 13-4. *Leveled Reading Passages *Modifications as outlined in student’s 504 and/or IEP *Student choice in enrichment activities * Differentiate student learning activities to meet the varied needs of the various student groups * Collaboration with inclusion teacher(s), child study team, and ELL specialists</td>
<td></td>
</tr>
</tbody>
</table>

**Unit Four: Earth’s Systems**

**Unit Five: Human Impacts on Earth**
<table>
<thead>
<tr>
<th>Domain &amp; Standard</th>
<th>Grade...</th>
<th>Student Learning Objectives (SLO)</th>
<th>References/Resources</th>
<th>Suggested Instructional Activities</th>
<th>Suggested Student Output</th>
<th>Assessments: Portfolios, Evaluations, &amp; Rubrics</th>
<th>Multimedia Integration</th>
<th>Accommodation of Special Needs Students (SE, ELL, 504, G&amp;T)</th>
</tr>
</thead>
<tbody>
<tr>
<td>ESS3.C: Human Impacts on Earth Systems</td>
<td>Human activities in agriculture, industry, and everyday life have had major effects on the land, vegetation, streams, ocean, air, and even outer space. But individuals and communities are doing things to help protect Earth’s</td>
<td><strong>Describe</strong> humans’ impact on Earth systems. <strong>Explain</strong> the impact that increasing human populations have on natural resources. <strong>Identify</strong> changes humans can make to lessen their impact on the Earth’s systems.</td>
<td>Managing Our Waste Series Classroom Complete Press CC5767</td>
<td>Waste Management: At the Source pgs. 9-29. Chart Your Waste Hands-On Activity #1 pg. 44 Toxic Waste Hands-On Activity #2 pg. 45 Water Management: Prevention, Recycling and Conservation pgs. 52-83 Reuse Contest Hands-On Activity #2 pg. 88 Recycling Audit Hands-On Activity #3 pg. 89 Classroom Composting Hands-On Activity #4 pg. 90. Waste Management: The Global View pgs. 95-125 Zero Waste School Plan Hands-On Activity #5 pg. 132.</td>
<td>Students will complete the Product Life Cycles diorama pg. 47</td>
<td>Diorama Rubric Assessment Test Lab Reflection Sheet Science Notebook Entries including: Experiments Journal entries Do nows Exit tickets</td>
<td>Video: <a href="https://www.brainpop.com/science/ourfragileenvironment/waterpollution/">https://www.brainpop.com/science/ourfragileenvironment/waterpollution/</a> Whiteboard: <a href="http://exchange.smarttech.com/details.html?id=cf20403-17f3-46a1-b544-511566b10a5a">http://exchange.smarttech.com/details.html?id=cf20403-17f3-46a1-b544-511566b10a5a</a> Online Review: <a href="http://www.njctl.org/courses/science/5th-grade-science/human-impacts-on-earth/">http://www.njctl.org/courses/science/5th-grade-science/human-impacts-on-earth/</a></td>
<td>*Media &amp; Technology Audio CD English – Spanish 2-1-4 *Leveled Reading Passages *Modifications as outlined in student’s 504 and/or IEP *Student choice in enrichment activities * Differentiate student learning activities to meet the varied needs of the various student groups * Collaboration with inclusion teacher(s), child study team, and ELL specialists</td>
</tr>
</tbody>
</table>

**Unit Six: Forces**

Page 32 of 34
<table>
<thead>
<tr>
<th>Domain &amp; Standard</th>
<th>Grade...</th>
<th>Student Learning Objectives (SLO)</th>
<th>References/Resources</th>
<th>Suggested Instructional Activities</th>
<th>Suggested Student Output</th>
<th>Assessments: Portfolios, Evaluations, &amp; Rubrics</th>
<th>Multimedia Integration</th>
<th>Accommodation of Special Needs Students (SE, ELL, 504, G&amp;T)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Calculate speed, distance and time. Differentiate between contact and non-contact forces. Describe contact forces – applied, frictional and normal. Describe non-contact forces – magnetic, electrical and gravitational. Explain how the concept of gravity was observed throughout history. Form hypotheses about the rate at which objects will fall when dropped. Explain how mass and distance relate to the strength of gravity.</td>
<td>Science Explorer Physical Science Unit 3 Resource Motion, Forces and Energy Science Explorer Physical Science Laboratory Manual</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Unit Seven: Earth and the Universe**

Page 33 of 34
<table>
<thead>
<tr>
<th>Domain &amp; Standard</th>
<th>Grade...</th>
<th>Student Learning Objectives (SLO)</th>
<th>References/Resources</th>
<th>Suggested Instructional Activities</th>
<th>Suggested Student Output</th>
<th>Assessments: Portfolios, Evaluations, &amp; Rubrics</th>
<th>Multimedia Integration</th>
<th>Accommodation of Special Needs Students (SE, ELL, 504, G&amp;T)</th>
</tr>
</thead>
<tbody>
<tr>
<td>ESS1.B: Earth and the Solar System</td>
<td>The orbits of Earth around the sun and of the moon around Earth, together with the rotation of Earth about an axis between its North and South poles, cause observable patterns. These include day and night; daily changes in the length and direction of shadows; and different positions of the sun, moon, and stars at different times of the day, month, and year. (S-ESS1-2)</td>
<td>Explain how day turns into night. Explain why the sun casts different sized shadows. Explain that the location of constellations in the night sky appear in different locations due to the rotation and revolution of Earth.</td>
<td>Science Explorer Earth Science TB Science Explorer Earth Science Unit 6 Astronomy Science Explorer Earth Science Laboratory Manual</td>
<td>Earth in Space Section 19-1 Review &amp; Reinforce p. 10-11. Build a Simple Sundial Section 19-1 Enrich pg. 12 Reasons for the Seasons Skills Lab 1 pgs. 25-27. Star Systems and Galaxies Section 21-2 Review and Reinforce.</td>
<td>Students will complete the Where’s the Moon? Project pgs. 6-8 Project Rubric Assessment Test Lab Reflection Sheet Science Notebook Entries including: • Experiments • Journal entries • Do nows • Exit tickets</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>