

Toms River Science Curriculum

Board Approved: April 2016

Course: Life Science
Grade Level: 5

Title of Unit: Matter and Energy in Organisms and Ecosystems

Stage 1 - Desired Results

Understandings:

Students will understand that.....

- Food provides animals with the materials and energy they need for body repair, growth, warmth and motion. Plants acquire material for growth chiefly from air, water, and process matter and obtain energy from sunlight, which is used to maintain conditions necessary for survival.
- The food of almost any 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, while decomposers restore some materials back to the soil.
 - Matter cycles between the air and soil and among organisms as they live and die.
 - Energy can be “produced,” “used,” or “released” by converting stored energy. Plants capture energy from sunlight, which can later be used as fuel or food.

Essential Questions:

- How did energy from the sun become the energy found in animals’ food that is used for body repair, growth, motion, and to maintain body warmth?
- How do plants get the materials they need for growth chiefly from air and water?
- How does matter move among plants, animals, decomposers, and the environment?

Knowledge:

Students will know.....

- Organisms are related in food webs in which some animals eat plants for food and other animals eat the animals that eat plants.
 - The energy released from food was once energy from the sun that was captured by plants in the chemical process that forms plant matter.
 - 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.
 - Plants get the materials they need for growth mainly from air and water, not soil.
 - Matter that is not food (air, water, decomposed materials in soil) is changed by plants into matter that is food.

Skills:

Students will be able to.....

- Describe the steps of a food chain for animals in an ecosystem.
- Describe how an animal is affected by the elimination of a part of a food chain.
- Show how energy is transferred from the sun into food into an animal through the chemical process.
 - Present ideas of ecosystems that can be described as healthy.
 - Describe the growth cycle of plants and the necessary factors for their growth.
 - Describe the process in which plants turn matter that is not food into matter that is food.

Standards: (Note: Include reference to relevant standards in the Core Content Area as well as technology and 21st-century life and careers.)

NGSS:

5-PS3-1. Use models to describe that energy in animals' food (used for body repair, growth, and motion and to maintain body warmth) was once energy from the sun.

5-LS1-1. Support an argument that plants get the materials they need for growth chiefly from air and water.

5-LS2-1. Develop a model to describe the movement of matter among plants, animals, decomposers, and the environment.

CCSS:

- ELA
- Mathematics

Stage 2- Assessment Evidence:

Performance Tasks and other evidence:

- Summative Assessments
 - RST- Research Simulation Task
 - Associated Unit tests, quizzes
 - Labs and engineering based projects
 - Create a food chain with at least five pieces, including the sun, a producer, consumers, and a decomposer
- Formative Assessments
 - Graphic Organizers & Guided Note Taking
 - Directed Reading
 - Cooperative Group Learning
 - Journal Entries/Foldables
 - Use diagrams and flowcharts to model how energy in animals' food was once energy from the sun.

Stage 3 – Learning Plan

Suggested EDP Activities/Probes: (handouts provided)

- Hands-on Activity: Biodomes Engineering Design Project: Lessons 2-6
[Biodomes Lessons 2-6/Teach Engineering](#)
- Students develop a model to describe the movement of matter among plants, animals, decomposers, and the environment.
[Ecosystem Model](#)
- [Several good activities for this unit based on NGSS](#)
- Cleaning Oil Spills
- Is It Living?
- Functions of Living Things
- Is It Made of Cells?
- Wet Jeans
- Is It an Animal?
- Habitat Change

Learning Activities:

- Create murals of different ecosystems
- Create a diagram of photosynthesis
- Replicate a live food chain using yarn
- Create a consumer and producer poster
- Food chain collage

Digital information and technology integration: Indicate any special considerations as well as materials, resources (online, print, video, audio) or equipment.

- Learn How Early Aztec Chinampas Were the Precursor to Hydroponics
<http://www.history.com/videos/aztec-ingenuity#aztec-ingenuity>
- Free wildlife photos and videos
www.arkive.org
- Animal Universe Game
www.iknowthat.com/com/L3?Area=Habitats
- Build an Online Habitat
<http://switchzoo.com/games/habitatgame.htm>
- How to Set Up a Terrarium
<http://www.carolina.com/teacher-resources/Video/how-to-set-up-a-terrarium-video/tr11209.tr>
- Collection of Sites: PBS Learning Media, Study Jams, Bill Nye, Discovery, Etc..
<http://www.watchknowlearn.org/Category.aspx?CategoryID=2309>
- Collection of Resources on Plants
http://www.internet4classrooms.com/science_elem_plants.htm
- Kids Do Ecology
<http://kids.nceas.ucsb.edu/biomes/index.html#terrestrial>
- NASA Mission: Biomes
<http://earthobservatory.nasa.gov/Experiments/Biome/index.php>
- Biomes
<http://www.ucmp.berkeley.edu/glossary/gloss5/biome/>
[Windows to the Universe: Information on biomes and ecosystems](#)
- Virtual Lab: Energy Pyramid
http://www.mhhe.com/biosci/genbio/virtual_labs/BL_02/BL_02.html
- University of California, Activities, Games, Quizzes
<http://www.lawrencehallofscience.org/kidsite/>
- Simulations
<http://phet.colorado.edu/en/simulations/category/by-level/elementary-school>
- Interactive Food Web
http://www.harcourtschool.com/activity/food/food_menu.html
- Webcams, Animal Guides, Activities
<http://www.montereybayaquarium.org/animals-and-experiences>
- Articles, Webcams, Interactive Activities
<http://nationalzoo.si.edu/education/>
- Oregon Zoo

<http://www.oregonzoo.org/discover/animals>

- Conservation
<http://www.worldwildlife.org/places>
- New Jersey Endangered and Threatened Wildlife
<http://www.state.nj.us/dep/fgw/tandespp.htm>
- Interactive Activity
<http://www.sheppardsoftware.com/content/animals/kidscorner/games/foodchaingame.htm>
- NJ Osprey Population Data
http://www.conservewildlifenj.org/downloads/cwnj_320.pdf
- Modeling Interdependence
<http://concord.org/stem-resources/experiment-ecosystems>
- Virtual Ecosystem
<http://concord.org/stem-resources/virtual-ecosystem>
- Teacher Guide for Virtual Ecosystem
http://concord.org/sites/default/files/projects/er/materials/TeacherGuide_Activity10-TXMO-final.pdf
- Effect of Climate on Ecosystems
<http://concord.org/stem-resources/variations-and-adaptations>
- Use a Model to Study the Effect of Competition
<http://concord.org/stem-resources/competition>
- Performance Tasks grades 5-8
<http://pals.sri.com/tasks/tasks5-8.html>

Modifications: (ELLs, Special Education, Gifted and Talented)

- * Follow all IEP modifications/504 plan
- * Teacher tutoring
- * Peer tutoring
- * Cooperative learning groups
- * Modified assignments
- * Differentiated instruction

Presentation accommodations allow a student to:

- * Listen to audio recordings instead of reading text
- * Learn content from audio books, movies, videos and digital media instead of reading print versions
- * Work with fewer items per page or line and/or materials in a larger print size
- * Have a designated reader
- * Hear instructions orally
- * Record a lesson, instead of taking notes
- * Have another student share class notes with him
- * Be given an outline of a lesson
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Response accommodations allow a student to:

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- * Use a spelling dictionary or electronic spell-checker
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- * Use a calculator or table of "math facts"

Setting accommodations allow a student to:

- * Work or take a test in a different setting, such as a quiet room with few distractions
- * Sit where he learns best (for example, near the teacher)
- * Use special lighting or acoustics
- * Take a test in small group setting
- * Use sensory tools such as an exercise band that can be looped around a chair's legs (so fidgety kids can kick it and quietly get their energy out)

Timing accommodations allow a student to:

- * Take more time to complete a task or a test
- * Have extra time to process oral information and directions
- * Take frequent breaks, such as after completing a task

Scheduling accommodations allow a student to:

- * Take more time to complete a project
- * Take a test in several timed sessions or over several days
- * Take sections of a test in a different order
- * Take a test at a specific time of day

Organization skills accommodations allow a student to:

- * Use an alarm to help with time management
- * Mark texts with a highlighter
- * Have help coordinating assignments in a book or planner
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Assignment modifications allow a student to:

- * Complete fewer or different homework problems than peers
- * Write shorter papers
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Curriculum modifications allow a student to:

- * Learn different material (such as continuing to work on multiplication while classmates move on to fractions)
- * Get graded or assessed using a different standard than the one for classmates

Course: Physical Sciences Grade Level: Fifth	Title of Unit: Structures and Property of Matter
Stage 1 - Desired Results	
Understandings: <i>Students will understand that.....</i> <ul style="list-style-type: none"> ● Since matter exists as particles that are too small to see, matter is always conserved even if it seems to disappear. Measurements of a variety of observable properties can be used to identify particular materials. ● Chemical reactions occur when substances are mixed together and a new substance is formed. The properties of a chemical reaction will be different, but the total mass remains the same. 	Essential Questions: <ol style="list-style-type: none"> 1. How can I describe matter when it is made up of particles too small to be seen? 2. Why is the total weight of matter conserved regardless of the type of change that occurs when heating, cooling, or mixing substances? 3. How can I use a material's properties to identify the material? 4. How can I use two or more different substances to make a new substance, and why will this result in a change of properties?
Knowledge: <i>Students will know.....</i> <ul style="list-style-type: none"> ● matter is made of particles too small to be seen through basic observations or demonstration. (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) ● no matter what reaction or change in properties occurs, the total weight of the substances does not change. (5-PS1-2) ● when two or more different substances are mixed, a new substance with different properties may be formed. (5-PS1-3) ● examples of observable properties could include color, hardness, reflectivity, electrical conductivity, thermal conductivity, response to magnetic forces, and solubility. (5-PS1-4) 	Skills: <i>Students will be able to.....</i> <ul style="list-style-type: none"> ● discuss that matter is too small to be seen ● explain that matter has mass and takes up space ● use a balance to measure the mass of different objects ● identify the various properties of matter, such as mass, texture, hardness, elasticity, odor, magnetism, mass, and if it reacts to heat ● describe the process of adding matter to an enclosed area and observing the physical and chemical changes ● describe the process of mixing matter and observing the results of the interaction ● prove that the total weight of matter remains constant (the same) when there is a change in property. ● explain the properties that are formed when two different substances are mixed together ● identify and compare materials by their observable properties

Standards: (Note: Include reference to relevant standards in the Core Content Area as well as technology and 21st-century life and careers.)

NGSS:

- 5-PS1-1. Develop a model to describe that matter is made of particles too small to be seen.
- 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.
- 5-PS1-3. Make observations and measurements to identify materials based on their properties.
- 5-PS1-4. Conduct an investigation to determine whether the mixing of two or more substances results in new substances.

CCSS: ELA

- 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.
- 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*.
- W.5.1 Write opinion pieces on topics or texts, supporting a point of view with reasons and information.
- W.5.2 Write informative/explanatory texts to examine a topic and convey ideas and information clearly.
- W.5.7 Conduct short research projects that use several sources to build knowledge through investigation of different aspects of a topic.

CCSS: Mathematics

- 5.MD.A.1 Convert among different-sized standard measurement units within a given measurement system (e.g., convert 5 cm to 0.05 m), and use these conversions in solving multi-step, real world problems.
- 5.MD.B.2 Make a line plot to display a data set of measurements in fractions of a unit ($\frac{1}{2}$, $\frac{1}{4}$, $\frac{1}{8}$). Use operations on fractions for this grade to solve problems involving information presented in line plots. *For example, given different measurements of liquid in identical beakers, find the amount of liquid each beaker would contain if the total amount in all the beakers were redistributed equally.*

Stage 2- Assessment Evidence:

Performance Tasks and other evidence:

Summative Assessments

- RST- Research Simulation Task
- Associated Unit tests, quizzes
- Labs and engineering based projects
- Suggested assessment-
 - Students manipulate a model that shows gases are made from matter, particles, that are too small to see and that move freely in space.
 - Students should be able to use the model to make observations that include the inflation and shape of a balloon, as well as the effects of air on larger particles and/or objects.

Formative Assessments

- Graphic Organizers and/or Guided Note Taking
- Directed Reading
- Cooperative Group Learning
- Journal Entries

Stage 3 – Learning Plan

Suggested EDP Activities/Probes: (handouts provided)

- Creative Juices Engineering Experiment/Blue-Green Activity
- Drops of Water on a Penny
- Magic Milk
- Chromatography Garden
- Wonderful Water Colors
- Lava Lamp
- Explore Density of Three Liquids
- Cookie Crumbles
- Is It Melting?
- Is It Matter?
- Talking About Gravity

Learning Activities:

- Students act out (with a small ball, yarn ball, etc) how particles move in the three states of matter
- Create an acrostic poem about matter
<http://www.readwritethink.org/files/resources/interactives/acrostic/>
- Cooperative Group Activity-Create a matter poster where children must label and be able to explain the the three states of matter
- Create a Superhero of one form of matter
- Students blow into a balloon (in order to demonstrate that matter is made of particles too small to be seen)
- Add air to expand a basketball
- Dissolve sugar or salt in water
- Evaporate salt water
<https://thewaterproject.org/resources/lesson-plans/evaporation-experiment>
http://www.education.com/pdf/earth-science_sun-dried/
- Investigating a Chemical Change Experiment (Elementary Science Text pp. B38-B39)
- A lesson that has students Develop a model to describe that matter is made of particles too small to be seen. http://betterlesson.com/next_gen_science/browse/2161/ngss-5-ps1-1-develop-a-model-to-describe-that-matter-is-made-of-particles-too-small-to-be-seen

Digital information and technology integration: Indicate any special considerations as well as materials, resources (online, print, video, audio) or equipment.

- Scholastic Jams video and quiz on physical and chemical changes
<http://studyjams.scholastic.com/studyjams/jams/science/matter/changes-of-matter.htm>
- Scholastic Jams Video on Solids, Liquids, and Gases
<http://studyjams.scholastic.com/studyjams/jams/science/matter/solids-liquids-gases.htm>
- Engineering a mobile launcher that is light, but strong
[Light but Strong Engineering Activity](#)
- Links to Interactive Activities on Matter: Physical and Chemical Changes
<http://interactivesites.weebly.com/matter-chemical--physical.html>
- Structure and Properties of Matter Teacher's Unit Guide
[Structure & Properties of Matter Unit](#)
- Video about the particle model of matter
[States of Matter Particle Model Website](#)
- Interactive web site with activities and quizzes about states of matter
[Changing State Interactive Website](#)
- Lesson plan about states of matter and game
[Lesson Plan for BrainPop -States of Matter](#)
- Matter review quizlet game
[quizlet vocabulary practice](#)
- Lesson plans about heating and cooling of a liquid
[Heating and Cooling of a Liquid](#)
- Links for lessons and videos about matter
[several Lessons on physical changes](#)
- Simulations about gas properties
[PHET simulation on gas properties](#)

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- * Get graded or assessed using a different standard than the one for classmates

Course: Physical Sciences Grade Level: Fifth	Title of Unit: Space Systems: Stars and the Solar System
Stage 1 - Desired Results	
Understandings: <i>Students will understand that.....</i> <ul style="list-style-type: none"> ● Stars range greatly in size and distance from Earth, and this can explain their relative brightness. ● The Earth's orbit and rotation and the orbit of the moon around Earth cause observable patterns. 	Essential Questions: <ol style="list-style-type: none"> 1. How does the force of gravity impact life on Earth? 2. Why does the sun appear brighter than other stars? 3. How does Earth's position, relative to the sun, impact the length of day and night, the seasonal appearance of some stars, and the direction of shadows?
Knowledge: <i>Students will know.....</i> <ul style="list-style-type: none"> ● the sun is a star that appears larger and brighter than other stars because it is closer. ● stars are all different sizes and distances from the Earth. Stars that are brighter are closer to the Earth. ● the gravitational force of Earth acting on an object near Earth's surface pulls that object toward the planet's center. ● the length of each day and the direction of shadows are affected by the orbit of both the Earth and the Moon. ● patterns can be seen in the Earth's orbit around the sun and the moon's orbit around the Earth. These patterns include day and night. 	Skills: <i>Students will be able to.....</i> <ul style="list-style-type: none"> ● describe the relative size of the Sun compared to other recognized stars. ● create a model that shows the gravitational force on Earth pulling objects to the center of the planet. ● describe how the gravitational force may be different in other places in the solar system. ● show how the length of day and night is affected by the rotation and orbit of both the Earth and the moon. ● describe seasons and how they are impacted by the Earth's orbit and rotation on its axis. ● explain why shadows change throughout the day. ● explain why the sun, moon, and stars are at different positions at different times of the day, month, and year.
Standards: (Note: Include reference to relevant standards in the Core Content Area as well as technology and 21 st -century life and careers.) NGSS: <ul style="list-style-type: none"> ● 5-PS2-1. Support an argument that the gravitational force exerted by Earth on objects is directed down. ● 5-ESS1-1. Support an argument that differences in the apparent brightness of the sun compared to other stars is due to their relative distance from Earth. ● 5-ESS1-2. Represent data in graphical displays to reveal patterns of daily changes in the length and direction of shadows, day and night, and the seasonal appearance of some stars in the night sky. 	

CCSS:ELA

- 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.
- 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*.
- W.5.1 Write opinion pieces on topics or texts, supporting a point of view with reasons and information.
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CCSS:Mathematics

- 5.NBT.A.2. Explain patterns in the number of zeros of the product when multiplying a number by powers of 10, and explain patterns in the placement of the decimal point when a decimal is multiplied or divided by a power of 10. Use whole-number exponents to denote powers of 10.

Stage 2- Assessment Evidence:

Performance Tasks and other evidence:

- Summative Assessments
 - RST- Research Simulation Task
 - Associated Unit tests, quizzes
 - Labs and engineering based projects
 - Utilize cross-curricular standards-aligned lessons and assessments to create a model representing various phenomenon of Earth <chrome-extension://bpmcpldpdmajfigpchkicefoigmkfalx/views/app.html>
- Formative Assessments
 - Graphic Organizers & Guided Note Taking
 - Directed Reading
 - Cooperative Group Learning
 - Journal Entries/Foldables

Stage 3 – Learning Plan

Suggested EDP Activities/Probes: (handouts provided)

- Darkness at Night
- Emmy's Moon and Stars
- Objects in the Sky
- Darkness at Night
- Emmy's Moon and Stars
- Objects in the Sky
- Gazing at the Moon

Learning Activities:

- Students participate in a lab about gravity and motion
[Phet simulation of gravitational force](#)
- Measuring the Earth's Tilt: Shadows and Movement of the Earth
[Changing Shadows](#)
- Viewing the North Polar Constellations
[Constellation Activities](#)
- Webquest on the Constellations and Seasons
[webquest on constellations and seasons](#)
- Earth, Moon, and Sun Unit with Resources
[Earth, Moon & Sun Unit](#)
- Lessons observing day and night
[observing day and night](#)
- Shadow and light lessons
[Many lessons on shadow and light](#)
- Unit about constellations and earth movement
[Star Unit activities](#)
- Write an essay to counter the statement, "The force of gravity does not exist on Earth."
- Write an informative text comparing the distance of the sun and other stars from Earth chrome-extension://bpmcpldpdmajfigpckkicefoigmkfalcv/views/app.html

Digital information and technology integration: Indicate any special considerations as well as materials, resources (online, print, video, audio) or equipment.

- STEM lesson designing a model that explains how rotation of the Earth and Moon to help explain a change in time as well as patterns we see on Earth.
[Travel in Time Unit](#)
- ELA Curricular Connections
[Teaching through trade books](#)
- Information about the planets and solar system
[NASA Solar System Exploration](#)
- Temperature Trends and Seasons-Data Climate Collection
<http://www.stem4teachers.org/category/elementary-inquiry/>
- A website with a plethora of STEM websites
[STEM Exploration Resources](#)
- Lesson plan to explore size and distance relationships among planets
[Solar System Scale and Size](#)
- Webquest for collaboration among groups in exploring planets
[5th Grade Solar System Webquest](#)
- Website that contains resources and facts about galaxies and stars
[Many space resources](#)
- Resource students can use while researching information about astronomy
[Astronomy for kids - Planet Resources](#)
- Lesson on light and shadows
<https://www.nsta.org/elementaryschool/connections/2012105ELesson.pdf>
- Create a solar system using toilet paper and measuring the distance between planets

[Toilet paper Solar System Change of Seasons](#)

- Interactive website demonstrating why we have seasons

[Change of Seasons](#)

- Interactive website that demonstrates Earth's gravitational pull and thrust

[Gravity activities](#)

Modifications: (ELLs, Special Education, Gifted and Talented)

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Course: Earth Sciences Grade Level: Fifth	Title of Unit: Earth Systems
Stage 1 - Desired Results	
Understandings: <i>Students will understand that.....</i> <ul style="list-style-type: none"> ● some events happen very quickly; others occur very slowly over ● four major Earth systems interact. ● rainfall helps to shape the land and affects the types of living things found in a region. ● most of Earth's water is in the ocean and much of the Earth's freshwater is in glaciers or underground. ● social activities have a major impact on land, oceans, atmosphere, and outer space. Society does things to protect Earth's resources and environments. ● humans and other organisms will be affected in many different ways if Earth's global mean temperature continues to rise. 	Essential Questions: <ol style="list-style-type: none"> 1. How much water can be found in different places on Earth? 2. How are saltwater and freshwater is distributed on Earth? 3. How do the geosphere, biosphere, hydrosphere, and/or atmosphere interact? 4. How do individual communities use science ideas to protect the Earth's resources and environment?
Knowledge: <i>Students will know.....</i> <ul style="list-style-type: none"> ● the Earth's systems are the geosphere (solid and molten rock, soils, and sediments), the hydrosphere (water and ice), the atmosphere (air), and the biosphere (living things, including humans). ● the Earth's systems interact in a variety of ways that affect earth's surface materials and processes ● the ocean supports a variety of ecosystems and organisms, shapes landforms and influences climate ● the atmosphere affects landforms and ecosystems through weather and climate. ● winds and clouds in the atmosphere interact with the landforms to determine patterns of weather ● human activities in agriculture, industry, and everyday life have had major effects on the land, vegetation, streams, ocean, air, and even outer space. 	Skills: <i>Students will be able to.....</i> <ul style="list-style-type: none"> ● develop a model using an example to describe ways in which the geosphere, biosphere, hydrosphere, and or atmosphere interact ● investigate Earth's major systems and describe their similarities and differences. ● provide examples of ways that show that Earth's systems interact with one another. ● demonstrate the impact that the ocean has on each of the following: ecosystems, landform shape, and climate. ● prove that mountain ranges impact the winds and the clouds. ● study and graph the amounts of water on the planet other than the oceans. ● provide ways humans can protect our land, vegetation, waterways, and outer space.

Standards: (Note: Include reference to relevant standards in the Core Content Area as well as technology and 21st-century life and careers.)

NGSS:

- 5-ESS2-1. Develop a model using an example to describe ways the geosphere, biosphere, hydrosphere, and/or atmosphere interact.
- 5-ESS2-2. Describe and graph the amounts of saltwater and freshwater in various reservoirs to provide evidence about the distribution of water on Earth.
- 5-ESS3-1. Obtain and combine information about ways individual communities use science ideas to protect the Earth's resources and environment.

CCSS:ELA

- 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.
- 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*.
- W.5.1 Write opinion pieces on topics or texts, supporting a point of view with reasons and information.
- W.5.2 Write informative/explanatory texts to examine a topic and convey ideas and information clearly.

CCSS: Mathematics

- 5.MD.B.2 Make a line plot to display a data set of measurements in fractions of a unit ($\frac{1}{2}$, $\frac{1}{4}$, $\frac{1}{8}$). Use operations on fractions for this grade to solve problems involving information presented in line plots. *For example, given different measurements of liquid in identical beakers, find the amount of liquid each beaker would contain if the total amount in all the beakers were redistributed equally.*
- 5.G.A.2 Represent real world and mathematical problems by graphing points in the first quadrant of the coordinate plane, and interpret coordinate values of points in the context of the situation.

Stage 2- Assessment Evidence:

Performance Tasks and other evidence:

- Summative Assessments
 - RST- Research Simulation Task
 - Associated Unit tests, quizzes
 - Labs and engineering based projects
 - Create a project to demonstrate how to protect the Earth's resources and environment
- Formative Assessments
 - Graphic Organizers & Guided Note Taking
 - Directed Reading
 - Cooperative Group Learning
 - Journal Entries/Foldables

Stage 3 – Learning Plan

Suggested EDP Activities/Probes: (handouts provided)

- Beach Sand
- Mountain Age
- Make Rain in a Jar
- Make a Terrarium
- Mountain Age
- Is It a Rock? (Version 1)
- Is It a Rock? (Version 2)
- Mountaintop Fossil
- Beach Sand

Learning Activities:

- Lesson about the ratio of water on Earth
[A Drop in the Bucket](#) lesson presentation
- Develop a model using an example the ways the geosphere, biosphere, hydrosphere, and/or atmosphere interact
<http://climatekids.nasa.gov/next-generation-standards/review//>
- Lab Experiment to learn about the percentage of fresh drinking water
<http://www.earthsciweek.org/classroom-activities/groundwater-movement>
- The Global Sun Temperature Project to interact with classes around the world
<http://www.ciese.org/curriculum/tempproj/>
- Lesson plan for the exploration of erosion
[Going With the Flow](#)
- Design an excel spreadsheet to represent the portion of fresh water in a variety of bodies of water
- Work in a group to research how the parts of Earth interact

Digital information and technology integration: Indicate any special considerations as well as materials, resources (online, print, video, audio) or equipment.

- Lesson plan about stormwater transport and water pollution
[Follow the River to Clean Water](#)
- Lessons about air pollution
[Various Engineering Ideas](#)
- Lesson about the movement of groundwater
[Ground Water Activity](#)
- Video and information about the ocean and salt water
<http://climatekids.nasa.gov/ocean/>
- Lesson plan about the distribution of water around the world
[Water Water Everywhere lesson plan](#)
- Lesson plan for the scientific investigation of water
[Water Quality/Quantity](#)
- Information and table of global water distribution
[The USGS Water Science School](#)
- Videos to integrate into Science lessons

https://sites.google.com/a/msad60.org/k-5_science/fifth-grade/file-cabinet-1

- Design a water filtration system
<http://www.earthsciweek.org/classroom-activities/water-filtration>
- Hands-On activities about erosion
http://www.siemensscienceday.com/activities/erosion_rates.cfm

Modifications: (ELLs, Special Education, Gifted and Talented)

- * Follow all IEP modifications/504 plan
- * Teacher tutoring
- * Peer tutoring
- * Cooperative learning groups
- * Modified assignments
- * Differentiated instruction

Presentation accommodations allow a student to:

- * Listen to audio recordings instead of reading text
- * Learn content from audiobooks, movies, videos and digital media instead of reading print versions
- * Work with fewer items per page or line and/or materials in a larger print size
- * Have a designated reader
- * Hear instructions orally
- * Record a lesson, instead of taking notes
- * Have another student share class notes with him
- * Be given an outline of a lesson
- * Use visual presentations of verbal material, such as word webs and visual organizers
- * Be given a written list of instructions

Response accommodations allow a student to:

- * Give responses in a form (oral or written) that's easier for him
- * Dictate answers to a scribe
- * Capture responses on an audio recorder
- * Use a spelling dictionary or electronic spell-checker
- * Use a word processor to type notes or give responses in class
- * Use a calculator or table of "math facts"

Setting accommodations allow a student to:

- * Work or take a test in a different setting, such as a quiet room with few distractions
- * Sit where he learns best (for example, near the teacher)
- * Use special lighting or acoustics
- * Take a test in small group setting
- * Use sensory tools such as an exercise band that can be looped around a chair's legs (so fidgety kids can kick it and quietly get their energy out)

Timing accommodations allow a student to:

- * Take more time to complete a task or a test
- * Have extra time to process oral information and directions
- * Take frequent breaks, such as after completing a task

Scheduling accommodations allow a student to:

- * Take more time to complete a project
- * Take a test in several timed sessions or over several days
- * Take sections of a test in a different order
- * Take a test at a specific time of day

Organization skills accommodations allow a student to:

- * Use an alarm to help with time management
- * Mark texts with a highlighter
- * Have help coordinating assignments in a book or planner
- * Receive study skills instruction

Assignment modifications allow a student to:

- * Complete fewer or different homework problems than peers
- * Write shorter papers
- * Answer fewer or different test questions
- * Create alternate projects or assignments

Curriculum modifications allow a student to:

- * Learn different material (such as continuing to work on multiplication while classmates move on to fractions)
- * Get graded or assessed using a different standard than the one for classmates