

**Secaucus  
Board of  
Education**

# **Grade 2 Science Curriculum**

Course Code: 4211

*Curriculum and Instruction Department*



Written on August 1, 2015  
Aligned to New Jersey Student  
Learning Standards - Science (2014)  
Approved by the Secaucus Board of  
Education on August 27, 2015

**District Equity Statement**

The Board of Education directs that all students enrolled in the schools of this district shall be afforded equal educational opportunities in strict accordance with the law. No students shall be denied access to or benefit from any educational program or activity or from a co-curricular or athletic activity on the basis of the student's race, color, creed, religion, national origin, ancestry, age, marital status, affectional or sexual orientation, gender, gender identity or expression, socioeconomic status, or disability...The Board directs the Superintendent to allocate faculty, administrators, support staff members, curriculum materials, and instructional equipment supplies among and between the schools and classes of this district in a manner that ensures equivalency of educational opportunity throughout this district. The school district's curricula in the following areas will eliminate discrimination, promote mutual acceptance and respect among students, and enable students to interact effectively with others, regardless of race, color, creed, religion, national origin, ancestry, age, marital status, affectional or sexual orientation, gender, gender identity or expression, socioeconomic status, or disability:

1. School climate/learning environment
2. Courses of study, including Physical Education
3. Instructional materials and strategies
4. Library materials
5. Software and audio-visual materials
6. Guidance and counseling
7. Extra-curricular programs and activities
8. Testing and other assessments.

Excerpt from Secaucus Board of Education, Policy 5750, Edited September 2016

### **Second Grade Science Course Description**

The Second Grade Science Curriculum is taught using *New Jersey Center for Teaching and Learning Progressive Science Initiative* coursework. All components of these units present a balance of Biological, Physical, Earth/Space and Environmental Science topics. The units covered in this course include: Matter, Role of Water on Earth, Wind, Water & Land, Changing of Earth's, Biodiversity & Humans, and Plants. All courses are designed to prepare students for The New Jersey Assessment of Skills and Knowledge (NJASK), Middle school science courses, and for scientific problems and issues in their everyday lives.

The material is presented at a moderate pace. Lessons are based on discussions and student-driven activities. Hands-on activities are meant to show connections to real-life science applications and to promote critical thinking and problem solving skills. Students who are placed in this course based on ESL placement will also receive accommodations based upon their ESL level. Students receiving Special Education services will receive modifications and accommodations to information and assessments as indicated in their Individual Education Plan.

**Course Modifications (ELLs, Special Education, Gifted and Talented)**

The course instructor will determine, with the assistance of guidance counselors, teacher assistant/aides, and/or special education teachers, what modifications will be made for his/her students. Such examples of modifications can include, but not be limited to:

- Extended time as needed
- Modification of tests and quizzes
- Preferential seating
- Alternative/Formative assessment (projects)
- Effective teacher questioning (ranging from simple recall to higher order critical thinking questions)
- Supplemental materials
- Cooperative learning
- Teacher tutoring
- Peer tutoring
- Differentiated Instruction

### Interdisciplinary Connections

*The following NJSLS Standards for ELA and Mathematics depict what standards align to the science standards taught in this 2<sup>nd</sup> Grade Science Course.*

#### ***NJSLS - ELA/Literacy:***

- RI.2.1 Ask and answer such questions as who, what, where, when, why, and how to demonstrate understanding of key details in a text. (2-PS1-4) RI.2.3 Describe the connection between a series of historical events, scientific ideas or concepts, or steps in technical procedures in a text. (2-PS1-4)
- RI.2.8 Describe how reasons support specific points the author makes in a text. (2-PS1-2),(2-PS1-4)
- W.2.1 Write opinion pieces in which they introduce the topic or book they are writing about, state an opinion, supply reasons that support the opinion, use linking words (e.g., because, and, also) to connect opinion and reasons, and provide a concluding statement or section. (2-PS1-4) W.2.7 Participate in shared research and writing projects (e.g., read a number of books on a single topic to produce a report; record science observations). (2-PS1-1),(2-PS1- 2),(2-PS1-3)
- W.2.8 Recall information from experiences or gather information from provided sources to answer a question. (2-PS1-1),(2-PS1-2),(2-PS1-3)
- W.2.7 Participate in shared research and writing projects (e.g., read a number of books on a single topic to produce a report; record science observations). (2-LS2-1)
- W.2.8 Recall information from experiences or gather information from provided sources to answer a question. (2-LS2-1)
- SL.2.5 Create audio recordings of stories or poems; add drawings or other visual displays to stories or recounts of experiences when appropriate to clarify ideas, thoughts, and feelings. (2-LS2-2)
- W.2.7 Participate in shared research and writing projects (e.g., read a number of books on a single topic to produce a report; record science observations). (2-LS4-1)

- W.2.8 Recall information from experiences or gather information from provided sources to answer a question. (2-LS4-1)
- RI.2.1 Ask and answer such questions as who, what, where, when, why, and how to demonstrate understanding of key details in a text. (2-ESS1-1)
- RI.2.3 Describe the connection between a series of historical events, scientific ideas or concepts, or steps in technical procedures in a text. (2-ESS1-1)
- W.2.6 With guidance and support from adults, use a variety of digital tools to produce and publish writing, including in collaboration with peers. (2-ESS1-1)
- W.2.7 Participate in shared research and writing projects (e.g., read a number of books on a single topic to produce a report; record science observations). (2-ESS1-1)
- W.2.8 Recall information from experiences or gather information from provided sources to answer a question. (2-ESS1-1)
- SL.2.2 Recount or describe key ideas or details from a text read aloud or information presented orally or through other media. (2-ESS1-1)
- RI.2.3 Describe the connection between a series of historical events, scientific ideas or concepts, or steps in technical procedures in a text. (2-ESS2-1)
- RI.2.9 Compare and contrast the most important points presented by two texts on the same topic. (2-ESS2-1)
- W.2.6 With guidance and support from adults, use a variety of digital tools to produce and publish writing, including in collaboration with peers. (2-ESS2-3)
- W.2.8 Recall information from experiences or gather information from provided sources to answer a question. (2-ESS2-3)
- SL.2.5 Create audio recordings of stories or poems; add drawings or other visual displays to stories or recounts of experiences when appropriate to clarify ideas, thoughts, and feelings. (2-ESS2-2)
- RI.2.1 Ask and answer such questions as who, what, where, when, why, and how to demonstrate understanding of key details in a text. (K-2-ETS1-1)

- W.2.6 With guidance and support from adults, use a variety of digital tools to produce and publish writing, including in collaboration with peers. (K-2-ETS1-1),(K-2-ETS1-3)
- W.2.8 Recall information from experiences or gather information from provided sources to answer a question. (K-2-ETS1-1),(K-2-ETS1-3)
- SL.2.5 Create audio recordings of stories or poems; add drawings or other visual displays to stories or recounts of experiences when appropriate to clarify ideas, thoughts, and feelings. (K-2-ETS1-2)

***NJSLS – Mathematics:***

- MP.2 Reason abstractly and quantitatively. (2-PS1-2)
- MP.4 Model with mathematics. (2-PS1-1),(2-PS1-2) MP.5 Use appropriate tools strategically. (2-PS1-2)
- 2.MD.D.10 Draw a picture graph and a bar graph (with single-unit scale) to represent a data set with up to four categories. Solve simple put-together, take-apart, and compare problems using information presented in a bar graph. (2-PS1-1),(2-PS1-2)
- MP.2 Reason abstractly and quantitatively. (2-LS2-1)
- MP.4 Model with mathematics. (2-LS2-1),(2-LS2-2) MP.5 Use appropriate tools strategically. (2-LS2-1)
- 2.MD.D.10 Draw a picture graph and a bar graph (with single-unit scale) to represent a data set with up to four categories. Solve simple put-together, take-apart, and compare problems. (2-LS2-2)
- MP.2 Reason abstractly and quantitatively. (2-LS4-1)
- MP.4 Model with mathematics. (2-LS4-1)
- 2.MD.D.10 Draw a picture graph and a bar graph (with single-unit scale) to represent a data set with up to four categories. Solve simple put-together, take-apart, and compare problems. (2-LS4-1)
- MP.2 Reason abstractly and quantitatively. (2-ESS1-1)
- MP.4 Model with mathematics. (2-ESS1-1)

- 2.NBT.A Understand place value. (2-ESS1-1)
- MP.2 Reason abstractly and quantitatively. (2-ESS2-1),(2-ESS2-2)
- MP.4 Model with mathematics. (2-ESS2-1),(2-ESS2-2) MP.5 Use appropriate tools strategically. (2-ESS2-1)
- 2.NBT.A.3 Read and write numbers to 1000 using base-ten numerals, number names, and expanded form. (2-ESS2-2)
- 2.MD.B.5 Use addition and subtraction within 100 to solve word problems involving lengths that are given in the same units, e.g., by using drawings (such as drawings of rulers) and equations with a symbol for the unknown number to represent the problem. (2-ESS2-1)
- MP.2 Reason abstractly and quantitatively. (K-2-ETS1-1),(K-2-ETS1-3)
- MP.4 Model with mathematics. (K-2-ETS1-1),(K-2-ETS1-3) MP.5 Use appropriate tools strategically. (K-2-ETS1-1),(K-2-ETS1-3)
- 2.MD.D.10 Draw a picture graph and a bar graph (with single-unit scale) to represent a data set with up to four categories. Solve simple put-together, take-apart, and compare problems using information presented in a bar graph. (K-2-ETS1-1),(K-2-ETS1-3)



**2nd Grade Science Curriculum Plan**

<p style="text-align: center;"><b>Unit 1: Matter</b></p> <p><b>PS1.A: Structure and Properties of Matter</b>                  Different kinds of matter exist and many of them can be either solid or liquid, depending on temperature. Matter can be described and classified by its observable properties.(2-PS1-1)                  Different properties are suited to different purposes (2- PS1-2),(2-PS1-3)                  A great variety of objects can be built up from a small set of pieces. (2-PS1-3)</p> <p><b>PS1.B: Chemical Reactions</b>                  Heating or cooling a substance may cause changes that can be observed. Sometimes these changes are reversible, and sometimes they are not.(2-PS1-4)</p>	<p style="text-align: center;"><b>Unit 2: Role of Water on Earth</b></p> <p><b>ESS2.C: The Roles of Water in Earth’s Surface Processes</b>                  Water is found in the ocean, rivers, lakes, and ponds.                  Water exists as solid ice and in liquid form (2-ESS2-3)</p> <p><b>ESS2.B: Plate Tectonics and Large-Scale System Interactions</b>                  Maps show where things are located. One can map the shapes and kinds of land and water in any area. (2-ESS2-2)</p>
<p style="text-align: center;"><b>Unit 3: Wind, Water &amp; Land</b></p> <p><b>ESS2.A: Earth Materials and Systems</b>                  Wind and water can change the shape of the land.(2-ESS2-1)</p> <p><b>ETS1.C: Optimizing the Design Solution</b>                  Because there is always more than one possible solution to a problem, it is useful to compare and test designs.                  (secondary to 2-ESS2-1)</p>	<p style="text-align: center;"><b>Unit 4: Changing of Earth</b></p> <p><b>ESS1.C: The History of Planet Earth</b>                  Some events happen very quickly; others occur very slowly, over a time period much longer than one can observe.(2-ESS1-1)</p>
<p style="text-align: center;"><b>Unit 5: Biodiversity &amp; Humans</b></p> <p><b>LS4.D: Biodiversity and Humans</b>                  There are many different kinds of living things in any area, and they exist in different places on land and in water.(2-LS4-1)</p>	<p style="text-align: center;"><b>Unit 6: Plants</b></p> <p><b>LS2.A: Interdependent Relationships in Ecosystems</b>                  Plants depend on water and light to grow. (2-LS2-1)                  Plants depend on animals for pollination or to move their seeds around.(2-LS2-2)</p> <p><b>ETS1.B: Developing Possible Solutions</b>                  Designs can be conveyed through sketches, drawings, or</p>

	<p>physical models. These representations are useful in communicating ideas for a problem's solutions to other people. (secondary to 2-LS2-2)</p>
--	---

Unit 1 Lesson Plan - Matter			
<b>Teacher:</b>	SBOE Faculty	<b>Time Frame:</b>	20 Days
<b>Grade:</b>	2	<b>School:</b>	Elementary School
<b>Subject:</b>	2 <sup>nd</sup> Grade Science		
<b>NJSLS - SCIENCE DCI</b> <b>PS1.A: Structure and Properties of Matter</b>	<p><b>Different kinds of matter exist and many of them can be either solid or liquid, depending on temperature. Matter can be described and classified by its observable properties. (2-PS1-1)</b></p> <p><b>Different properties are suited to different purposes. (2-PS1-2), (2-PS1-3)</b></p> <p><b>A great variety of objects can be built up from a small set of pieces. (2-PS1-3)</b></p> <p><b>Heating or cooling a substance may cause changes that can be observed. Sometimes these changes are reversible, and sometimes they are not. (2-PS1-4)</b>  <a href="http://www.nextgenscience.org/2ps1-matter-interactions">http://www.nextgenscience.org/2ps1-matter-interactions</a></p>		
<b>PS1.B: Chemical Reaction</b>			
<b>Instructional Objective:</b> 2-PS1-1	<b>Plan and conduct an investigation to describe and classify different kinds of materials by their observable properties.</b>		
<b>Instructional Objective:</b> 2-PS1-2	<b>Analyze data obtained from testing different materials to determine which materials have the properties that are best suited for an intended purpose.</b>		
<b>Instructional Objective:</b>	<b>Make observations to construct an evidence-based account of how an object made of a small set of pieces can be disassembled and made into a new object.</b>		

2-PSI-3		
<b>Instructional Objective:</b>  2-PSI-4	<b>Construct an argument with evidence that some changes caused by heating or cooling can be reversed and some cannot.</b>	
<b>Essential Questions</b>		
<b>(What questions will the student be able to answer as a result of the instruction?)</b>		
1. What are the different properties of matter? 2. What properties are best suited for different purposes? 3. What are the differences between a solid, a liquid and a gas? 4. How can a substance change? 5. Are changes to substances reversible or permanent?		
<b>Knowledge &amp; Skills</b>		
<b>(What skills are needed to achieve the desired results?)</b>		
By the end of this unit, students will know: <ul style="list-style-type: none"> <li>● Properties of matter such as strength, hardness, flexibility and texture.</li> <li>● What materials are best suited for different purposes.</li> <li>● An object built out of a small set of pieces can be deconstructed and built into a different object.</li> <li>● Properties of solids, liquids, and gas.</li> <li>● Some substances can experience reversible changes and some cannot.</li> </ul>	By the end of this unit, students will be able to: <ul style="list-style-type: none"> <li>● Determine different properties of objects.</li> <li>● Group objects according to their properties.</li> <li>● Construct an object out of a small set of pieces.</li> <li>● Conduct experiments to change the state of liquids and solids .</li> </ul>	

**Assessment****Acceptable evidence to show desired results**

During the Smart Notebook lesson designed to introduce concepts, students will be continually questioned on these concepts using a combination of class work, whole group discussion, and the SMART Response system. Classwork, homework, and experiments will be discussed as a class and misconceptions will be addressed by the teacher prior to evaluations listed below.

Lab: Absorbency

Lab: Ball Bounce

Texture Activity

House Design Challenge

Boat Design Challenge

Balloon States of Matter Activity

Molecules and States of Matter Activity

Inflate a Balloon Activity

What is Goop? Activity

Snowman Change of Matter Activity

Melting Crayons Activity

Ice Cream Activity

**Suggested Sequence**

Day	Topic	Classwork	Homework
1	Matter and Material Defined	Slides 4-14 Classwork 1	Homework 1
2	Matter and Material Defined	Slides 18-26 Texture Activity Classwork 2	Homework 2
3	Properties of Materials	Slides 30-43 Classwork 3	Homework 3
4	Explore Properties of Materials	Slides 48-63 Classwork 4	Homework 4
5	Explore Properties of Materials	Lab: Absorbency	N/A
6	Explore Properties of Materials	Lab: Ball Bounce	N/A
7	Building Objects	Slides 66-69 Design a House Challenge (Plan the house)	N/A

8	Building Objects	Design a House Challenge (Build, Test, Analyze)	N/A
9	Building Objects	Design a Boat Challenge (Plan the boat)  Classwork 5	Homework 5
10	Building Objects	Design a Boat Challenge (Build, Test, Analyze)	N/A
11	States of Matter	Slides 72-89  Balloon States of Matter Activity	N/A
12	States of Matter	Molecules and States of Matter Activity  Classwork 6	Homework 6
13	States of Matter	Inflate a Balloon Activity	N/A
14	States of Matter	What is Goop? Activity	N/A
15	Changing States of Matter	Slides 93-105  Snowman Change of Matter Activity	N/A
16	Changing States of Matter	Crayon Melting Activity	Homework 7

		Classwork 7	
17	Types of Changes to Matter	Slides 108-115 Classwork 8	Homework 8
18	Types of Changes to Matter	Make Ice Cream Activity	N/A
19	Unit Review	Study Guide	Study for Test
20	Performance Based Assessment	Testing	N/A



<b>Unit 2 Lesson Plan – Role of Water on Earth</b>			
Teacher:	SBOE Faculty	Time Frame:	15 days
Grade:	2 <sup>nd</sup> Grade	School:	Elementary School
Subject:	2nd Grade Science		
<b>NJSLS - SCIENCE DCI</b>  <b>ESS2.B: Structure and Properties of Matter</b>  <b>ESS2.C: The Roles of Water in Earth’s Surface Processes</b>		<p>Maps show where things are located. One can map the shapes and kinds of land and water in any area. (2-ESS2-2)</p> <p>Water is found in the ocean, rivers, lakes, and ponds. Water exists as solid ice and in liquid form. (2-ESS2-3)</p> <p><a href="http://www.nextgenscience.org/2ess2-earth-systems">http://www.nextgenscience.org/2ess2-earth-systems</a></p>	
<b>Instructional Objective:</b>  2-ESS2-2		Develop a model to represent the shapes and kinds of land and bodies of water in an area.	
<b>Instructional Objective:</b>  2-ESS2-3		Obtain information to identify where water is found on Earth and that it can be solid or liquid.	
<b>Essential Questions</b>			
(What questions will the student be able to answer as a result of the instruction?)			

- Where is water found on Earth?
- How can we find water on earth?
- In what forms does water exist?
- How does water cycle through its different forms?

**Knowledge & Skills**

(What skills are needed to achieve the desired results?)

By the end of this unit, students will know:

Water is found in oceans, rivers, lakes, and ponds.  
 We can use a map to find where water is located on Earth.  
 Water exists in liquid or ice forms.  
 Water cycles through its different forms via the water cycle.

By the end of this unit, students will be able to:

- Describe some of the distinguishing characteristics of oceans, rivers, lakes, and ponds.**
- Recognize and name different bodies of water in pictures and on maps.**
- Describe where water may exist as a liquid or as a solid (ice).**
- Draw and discuss the steps of the water cycle.**

**Assessment**

Acceptable evidence to show desired results

**During the Smart Notebook lesson designed to introduce concepts, students will be continually questioned on these concepts using a combination of class work/homework questions and the SMART Response system. Classwork and Homework questions will be discussed as a class and misconceptions will be addressed by the teacher prior to the formal evaluations listed below.**

**Earth’s Water Demo**

**Land Versus Water Activity**

<b>Bodies of Water Demo</b>			
<b>Bodies of Water Venn Diagram</b>			
<b>Landforms and Maps Activity</b>			
<b>States of Water Activity</b>			
<b>Water Cycle Activity</b>			
<b>Performance Based Assessment</b>			
Suggested Sequence			
<b>Day</b>	<b>Topic</b>	<b>Classwork</b>	<b>Homework</b>
<b>1</b>	<b>Earth's Water</b>	<b>Slides 4-7; Earth's Water Demo</b>	
<b>2</b>	<b>Earth's Water</b>	<b>Slides 8-20; Land Versus Water Activity</b>	
<b>3</b>	<b>Earth's Water</b>	<b>Slides 21-28; Classwork #1</b>	<b>Homework #1</b>
<b>4</b>	<b>Earth's Water</b>	<b>Slide 29 Bodies of Water Demo;</b>	

		<b>Bodies of Water Venn Diagram</b>	
<b>5</b>	<b>The Use of Maps</b>	<b>Slides 30-38; Landforms and Maps Activity Day 1</b>	
<b>6</b>	<b>The Use of Maps</b>	<b>Landforms and Maps Activity Day 2; Slides 39-42; Classwork #2</b>	<b>Homework #2</b>
<b>7</b>	<b>Water's Changing Forms</b>	<b>Slides 43-54; States of Water Activity Day 1</b>	
<b>8</b>	<b>Water's Changing Forms</b>	<b>States of Water Activity Day 2</b>	
<b>9</b>	<b>Water's Changing Forms</b>	<b>Slides 55-67 Classwork #3</b>	<b>Homework #3</b>

<b>10</b>	<b>Water Cycle</b>	<b>Slides 68-79; Water Cycle Activity Day 1</b>	
<b>11</b>	<b>Water Cycle</b>	<b>Slides 80-86; Water Cycle Activity Day 2</b>	
<b>12</b>	<b>Water Cycle</b>	<b>Slides 87-90; Classwork #4 Water Cycle Activity Day 3</b>	<b>Homework #4</b>
<b>13</b>	<b>Water Cycle</b>	<b>Water Cycle Activity Day 4 &amp; Analysis Questions</b>	
<b>14</b>	<b>Unit Review</b>	<b>Slides 90-111; Unit Review Handout</b>	<b>Study for Test</b>
<b>15</b>	<b>Performance Based Assessment</b>	<b>Testing</b>	<b>N/A</b>

\*While there are many slides for each topic, several slides within the notebook are hidden and won't be used during instructional time.

\*\*HW Problems are currently not scaffolded from least to most difficult, but are instead listed in order of topic. Teacher should pay special attention at the end of each class period when assigning HW so that only problems related to the topic that was taught are being assigned.

\*\*\*Pacing guide is based on 40 minute periods, you may need to adjust based on your school's schedule.

<b>Unit 3 Lesson Plan – Wind, Water &amp; Land</b>			
<b>Teacher:</b>	SBOE Faculty	<b>Time Frame:</b>	12 Days
<b>Grade:</b>	2	<b>School:</b>	Elementary Schools
<b>Subject:</b>	2 <sup>nd</sup> Grade Science		
<b>NJSLS - SCIENCE DCI:</b>  <b>ESS2.A: Earth Materials and Systems</b>  <b>ETS1.C: Optimizing the Design Solution</b>		<b>Wind and water can change the shape of the land. (2-ESS2-1)</b>  <b>Because there is always more than one possible solution to a problem, it is useful to compare and test designs. (secondary to 2-ESS2-1)</b>  <a href="http://www.nextgenscience.org/2ess2-earth-systems">http://www.nextgenscience.org/2ess2-earth-systems</a>	
<b>Instructional Objective:</b> 2-ESS2-1		<b>Compare multiple solutions designed to slow or prevent wind or water from changing the shape of the land.</b>	
<b>Essential Questions</b>			
<b>(What questions will the student be able to answer as a result of the instruction?)</b>			
<ol style="list-style-type: none"> <li>1. What are the effects of wind &amp; water on the land?</li> <li>2. What are landforms that help prevent wind and water erosion?</li> </ol>			

3. How does wind and water shape the land?
4. How can the effects of wind and water erosion be controlled or reduced?

**Knowledge & Skills**

**(What skills are needed to achieve the desired results?)**

By the end of this unit, students will know:

- What the effects of wind and water are on the land.
- How wind erosion creates landforms
- How water erosion creates landforms
- Animals use landforms as homes.

By the end of this unit, students will be able to:

- Explain how wind shapes the land.
- Explain how water shapes the land.
- Describe how wind erosion is reduced
- Describe how water erosion is reduced.

**Assessment**

**Acceptable evidence to show desired results**

During the Smart Notebook lesson designed to introduce concepts, students will be continually questioned on these concepts using a combination of class work, whole group discussion, and the SMART Response system. Classwork, homework, and experiments will be discussed as a class and misconceptions will be addressed by the teacher prior to evaluations listed below.

Anemometer Activity

Erosion Activity

Coastal Erosion Activity

**Suggested Sequence**



Day	Topic	Classwork	Homework
1	What is Wind?	Slides 1-18 Classwork #1	Homework #1 (Slides 19-21)
2	What is Wind?	Slide 22 Anemometer Activity	Finish lab questions
3	Wind Erosion	Slides 23-43 Classwork #2	Homework #2 (Slides 44-46)
4	Preventing Wind Erosion	Slides 47-58 Classwork #3	Homework #3 (Slide 59)
5	Water Erosion	Slides 60-72 Classwork #4	Homework #4 (Slide 73)
6	Wind and Water Erosion	Slide 74 Erosion Activity	N/A
7	Sudden Water Erosion	Slides 75-87 Classwork #5	Homework #5 (Slide 88)
8	Preventing Water Erosion	Slides 89-108	Homework #6

		Classwork #6	(Slide 109)
9	Preventing Water Erosion	Slide 110 Coastal Erosion Activity	Finish lab questions
10	Landforms as Homes	Slides 111-121 Classwork #7	Homework #7 (Slides 122-124)
11	Unit Review	Review for test Slides 125-127 Unit Review Handout	N/A
12	Performance Based Assessment	Testing	N/A

\*While there are many slides for each topic, several slides within the notebook are hidden and won't be used during instructional time.

\*\*HW Problems are currently not scaffolded from least to most difficult, but are instead listed in order of topic. Teacher should pay special attention at the end of each class period when assigning HW so that only problems related to the topic that was taught are being assigned.

\*\*\*Pacing guide is based on 40 minute periods, you may need to adjust based on your school's schedule.

<b>Unit 4 Lesson Plan – Changing of Earth</b>			
<b>Teacher:</b>	SBOE Faculty	<b>Time Frame:</b>	12 Days
<b>Grade:</b>	2	<b>School:</b>	Elementary School
<b>Subject:</b>	2 <sup>nd</sup> Grade Science		
<b>NJSLS - SCIENCE/DCI:</b>	<b>Some events happen very quickly; others occur very slowly, over a time period much longer than one can observe. (2-ESS1-1)</b>		
<b>ESS1.C: The History of Planet Earth</b>	<a href="http://www.nextgenscience.org/2ess1-earths-place-universe">http://www.nextgenscience.org/2ess1-earths-place-universe</a>		
<b>Instructional Objective:</b> 2-ESS1.1	<b>Use information from several sources to provide evidence that Earth events can occur quickly or slowly.</b>		
<b>Essential Questions</b>			
<b>(What questions will the student be able to answer as a result of the instruction?)</b>			
5. What types of events occur in cycles? 6. What types of events have a beginning and an end? 7. What type of events on Earth happen very quickly? 8. What types of events on Earth happen very slowly?			
<b>Knowledge &amp; Skills</b>			
<b>(What skills are needed to achieve the desired results?)</b>			
By the end of this unit, students will know:		By the end of this unit, students will be able to:	

<p>Be able to describe events occur in cycles, such as day and night. Identify events have a beginning and an end, like a volcanic eruption. Explain the impact of events can happen very quickly. Describe events can happen very slowly over a time period much longer than anyone can observe.</p>	<ul style="list-style-type: none"> <li>● Describe what a cycle is and give examples.</li> <li>● Describe events that have a beginning and an an end.</li> <li>● Describe events that happen quickly.</li> <li>● Describe events that happen very slowly.</li> </ul>
---	---

**Assessment**

**Acceptable evidence to show desired results**

During the Smart Notebook lesson designed to introduce concepts, students will be continually questioned on these concepts using a combination of class work, whole group discussion, and the SMART Response system. Classwork, homework, and experiments will be discussed as a class and misconceptions will be addressed by the teacher prior to evaluations listed below.

Earth, Sun and Moon Model

Seasons Activity

Rock Cycle Activity

Weathering Activity

**Suggested Sequence**

Day	Topic	Classwork	Homework
1	Earth and Moon Cycles	Slides 1-27 Classwork #1	N/A

2	Earth and Moon Cycles	Slides 28-42	Homework #1 (Slides 43-45)
3	Earth and Moon Cycles	Slide 46 Earth, Sun and Moon Model	N/A
4	Weather Cycles	Slides 47-62 Classwork #2	Homework #2 (Slides 63-65)
5	Weather Cycles	Slide 66 Seasons Activity	N/A
6	The Rock Cycle	Slides 67-89 Classwork #3	Homework #3 (Slides 90-92)
7	The Rock Cycle	Slide 93 Rock Cycle Activity	N/A
8	Defined Events	Slides 94-112 Classwork #4	Homework #4 (Slide 113)
9	Gradual Events	Slides 114-127 Classwork #5	Homework #5 (Slide 128)

10	Gradual Events	Slide 129 Weathering Activity	N/A
11	Unit Review	Review for test Slides 130-133 Unit Review Handout	Study for test
12	Performance Based Assessment	Testing	N/A

\*While there are many slides for each topic, several slides within the notebook are hidden and won't be used during instructional time.

\*\*HW Problems are currently not scaffolded from least to most difficult, but are instead listed in order of topic. Teacher should pay special attention at the end of each class period when assigning HW so that only problems related to the topic that was taught are being assigned.

\*\*\*Pacing guide is based on 40 minute periods, you may need to adjust based on your school's schedule.

<b>Unit 5 Lesson Plan – Biodiversity and Humans</b>			
<b>Teacher:</b>	SBOE Faculty	<b>Time Frame:</b>	22 days
<b>Grade:</b>	2 <sup>nd</sup>	<b>School:</b>	Elementary School
<b>Subject:</b>	2 <sup>nd</sup> Grade Science		
NJSLS - SCIENCE/DCI		<b>There are many different kinds of living things in any area, and they exist in different places on land and in water. (2-LS4-D)</b>	
<b>Instructional Objective:</b> (condition, behavior, standard)		<b>Make Observations of plants and animals to compare the diversity of life in different habitats.</b>	
<b>Essential Questions</b>			
<b>(What questions will the student be able to answer as a result of the instruction?)</b>			
<ol style="list-style-type: none"> <li>1. What is biodiversity?</li> <li>2. What is the relationship between producers, consumers and decomposers?</li> <li>3. What types of organisms live on land?</li> <li>4. What types of organisms live in water?</li> <li>5. How do organism structures relate to their ecosystem?</li> <li>6. How do humans impact biodiversity?</li> </ol>			

**Knowledge & Skills**

**(What skills are needed to achieve the desired results?)**

By the end of this unit, students will know:

- The meaning of biodiversity.
- That biodiversity is key to the planet’s health as a system.
- The roles of producers, consumers and decomposers on land and in water.
- Characteristics of several ecosystems.
- Organisms and their environments are directly related.
- How humans affect biodiversity.

By the end of this unit, students will be able to:

- Identify traits of organisms which help them survive in their environment
- Sort organisms into producers, consumers and decomposers.
- Sort animals into herbivores, carnivores and omnivores.

**Assessment**

**Acceptable evidence to show desired results**

Biodiversity Collage

Squirmy Wormy Lab

Living Things in Ecosystems Activity



Animal Teeth Activity			
Suggested Sequence			
Day	Topic	Classwork/Labs	Homework
1	Biodiversity	Slides 4 - 15	N/A
2	Biodiversity	Slides 16-17 Biodiversity Classwork	Biodiversity Homework (Slides 18-19)
3	Biodiversity	Slide 20 Activity: Biodiversity Collage	Finish collage
4	Biodiversity	Present Biodiversity Collages; Answer questions	Finish Collage questions
5	Types of Living Things	Slides 21-37	N/A
6	Types of Living Things	Slides 38-46; Types of Living Things	Types of Living Things Homework (Slide 47)

		Classwork	
7	Types of Living Things	Slide 48 Set-up Squirmy Wormy Lab	N/A
8	Types of Living Things	Analyze Squirmy Wormy Lab	N/A
9	Living Things on Land	Slides 49-58	N/A
10	Living Things on Land	Slides 59-65; Living Things on Land Classwork	Living Things on Land Homework (Slides 66-67)
11	Living Things in the Water	Slides 68-78	N/A
12	Living Things in the Water	Slides 79-87; Living Things in the Water Classwork	Living Things in the Water Homework (Slides 88-89)
13-14	Types of Living Things	Slide 90 Living Things and Ecosystems Activity	N/A

15	Ecosystems and Organisms	Slides 91-97	N/A
16	Ecosystems and Organisms	Slides 98-102; Ecosystems and Organisms Classwork	Ecosystems and Organisms Homework (Slides 103-104)
17	Ecosystems and Organisms	Slide 105 Animal Teeth Activity	N/A
18	Biodiversity and Humans	Slides 106-113	N/A
19	Biodiversity and Humans	Slides 114-124	N/A
20	Biodiversity and Humans	Slides 125-126; Biodiversity and Humans Classwork	Biodiversity and Humans Homework (Slides 127-129)
21	Unit Review	Unit Review Handout	N/A
22	Unit Assessment	PBA	N/A

\*While there are many slides for each topic, several slides within the notebook are hidden and won't be used during instructional time.

\*\*HW Problems are currently not scaffolded from least to most difficult, but are instead listed in order of topic. Teacher should pay special attention at the end of each class period when assigning HW so that only problems related to the topic that was taught are being assigned.

<b>Unit 6 Lesson Plan – Plants</b>			
<b>Teacher:</b>	SBOE Faculty	<b>Time Frame:</b>	15 days
<b>Grade:</b>	2	<b>School:</b>	Elementary School
<b>Subject:</b>	2 <sup>nd</sup> Grade Science		
<b>NJSLS - SCIENCE/DCI:</b> <b>LS2.A Interdependent Relationships in Ecosystems</b>	<ul style="list-style-type: none"> <li>• Plants depend on water and light to grow. (2-LS2-1)</li> <li>• Plants depend on animals for pollination or to move their seeds around.(2-LS2-2)</li> </ul>		
<b>Instructional Objective:</b> <b>2-LS2-1</b>	Plan and Conduct an investigation to determine if plants need sunlight and water to grow.		
<b>Instructional Objective:</b> <b>2-LS2-2</b>	Develop a simple model that mimics the function of an animal in dispersing seeds or pollinating plants.		
<b>Essential Questions</b>			
<b>(What questions will the student be able to answer as a result of the instruction?)</b>			
<ul style="list-style-type: none"> <li>· What resources are needed for plants to grow?</li> <li>· How does pollination occur?</li> <li>· How does seed dispersal occur?</li> </ul>			

Knowledge & Skills			
<b>(What skills are needed to achieve the desired results?)</b>			
<p>By the end of this unit, students will know:</p> <ul style="list-style-type: none"> <li>● The characteristics of plants.</li> <li>● The needs of plants.</li> <li>● The inputs and outputs of photosynthesis.</li> <li>● How pollination occurs.</li> <li>● How dispersal occurs.</li> </ul>	<p>By the end of this unit, students will be able to:</p> <ul style="list-style-type: none"> <li>• Plan and conduct an investigation that determines plants need sunlight and water to grow.</li> <li>• Describe what plants need to survive.</li> <li>• Describe photosynthesis.</li> <li>• Develop a simple model to show how animals disperse seeds or pollinate plants.</li> </ul>		
Assessment			
<b>Acceptable evidence to show desired results</b>			
<p>During the Smart Notebook lesson designed to introduce concepts, students will be continually questioned on these concepts using a combination of class work/homework questions and the SMART Response system. Classwork and Homework questions will be discussed as a class and misconceptions will be addressed by the teacher prior to the formal evaluations listed below.</p> <p>Lab: What do plants need?</p> <p>Activity: RAFT Napkin Nursery</p> <p>Design a Model: Pollination</p> <p>Lab: How do seeds travel?</p>			
Suggested Sequence			
	Topic	Classwork	Homework

Day			
1	Plant Growth Lab	Slide 4 Lab Set-up	N/A
2	What are plants?	Slides 5-19; What are plants? Classwork	What are plants? Homework (Slides 20-21)
3	Photosynthesis	Slides 22-24 Plant Growth Lab Analysis	Finish lab questions
4	Photosynthesis	Slides 25-39; Photosynthesis Classwork	Photosynthesis Homework (Slide 40)
5	Photosynthesis	Slide 41 Activity: RAFT Napkin Nursery	N/A
6	Pollination	Slides 42-57	N/A
7	Pollination	Slides 58-68	N/A

8	Pollination	Slides 69-78; Pollination Classwork	Pollination Homework (Slides 79-80)
9-10	Pollination	Slide 81 Design a Model: Pollination	N/A
11	Dispersal	Slides 82-95	N/A
12	Dispersal	Slides 96-103; Dispersal Classwork	Dispersal Homework (Slide 104-105)
13	Dispersal	Slide 106 Lab: How do seeds travel?	Finish lab questions
14	Unit Review	Unit Review	N/A
15	Unit Assessment	PBA	

\*While there are many slides for each topic, several slides within the notebook are hidden and won't be used during instructional time.



\*\*HW Problems are currently not scaffolded from least to most difficult, but are instead listed in order of topic. Teacher should pay special attention at the end of each class period when assigning HW so that only problems related to the topic that was taught are being assigned.