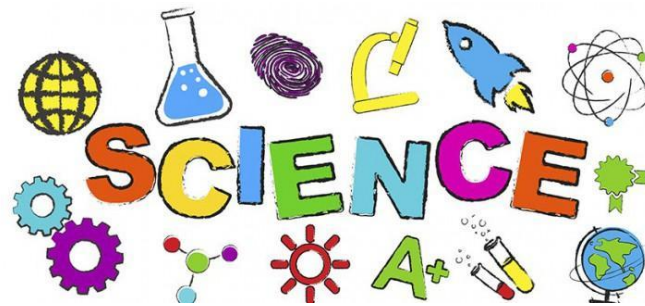


**Secaucus
Board of
Education**

Grade 1 Science Curriculum

Course Code: 4111

Curriculum and Instruction Department



Born on August, 2015
Aligned to the New Jersey Student Learning
Standards - Science (2016)
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

First Grade Science Course Description

The First 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: The Sun, Moon, Stars and Seasons, Waves, Information Technologies, Plant & Animal Structures, Functions & Information Processing, Plant & Animal Growth and Development, and Inheritance of Traits. 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 1st Grade Science Course.

NJSLS - ELA/Literacy:

- W.1.2 Write informative/explanatory texts in which they name a topic, supply some facts about the topic, and provide some sense of closure. (1-PS4-2)
- W.1.7 Participate in shared research and writing projects (e.g., explore a number of “how-to” books on a given topic and use them to write a sequence of instructions). (1-PS4- 1),(1-PS4-2),(1-PS4-3),(1-PS4-4)
- W.1.8 With guidance and support from adults, recall information from experiences or gather information from provided sources to answer a question. (1-PS4-1),(1-PS4-2),(1- PS4-3)
- SL.1.1 Participate in collaborative conversations with diverse partners about grade 1 topics and texts with peers and adults in small and larger groups. (1-PS4-1),(1-PS4-2),(1- PS4-3)
- RI.1.1 Ask and answer questions about key details in a text. (1-LS1-2)
- RI.1.2 Identify the main topic and retell key details of a text. (1-LS1-2)
- RI.1.10 With prompting and support, read informational texts appropriately complex for grade. (1-LS1-2)
- W.1.7 Participate in shared research and writing projects (e.g., explore a number of “how-to” books on a given topic and use them to write a sequence of instructions). (1-LS1- 1)
- RI.1.1 Ask and answer questions about key details in a text. (1-LS3-1)
- W.1.7 Participate in shared research and writing projects (e.g., explore a number of “how-to” books on a given topic and use them to write a sequence of instructions). (1-LS3- 1)

- W.1.8 With guidance and support from adults, recall information from experiences or gather information from provided sources to answer a question. (1-LS3-1)
- W.1.7 Participate in shared research and writing projects (e.g., explore a number of “how-to” books on a given topic and use them to write a sequence of instructions). (1-ESS1-1),(1-ESS1-2)
- W.1.8 With guidance and support from adults, recall information from experiences or gather information from provided sources to answer a question. (1- ESS1-1),(1-ESS1-2)
- 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.5 Use appropriate tools strategically. (1-PS4-4)
- 1.MD.A.1 Order three objects by length; compare the lengths of two objects indirectly by using a third object. (1-PS4-4)
- 1.MD.A.2 Express the length of an object as a whole number of length units, by layering multiple copies of a shorter object (the length unit) end to end; understand that the length measurement of an object is the number of same-size length units that span it with no gaps or overlaps. (1-PS4-4)

- 1.NBT.B.3 Compare two two-digit numbers based on the meanings of the tens and ones digits, recording the results of comparisons with the symbols $>$, $=$, and $<$. (1-LS1-2)
- 1.NBT.C.4 Add within 100, including adding a two-digit number and a one-digit number, and adding a two-digit number and a multiple of 10, using concrete models or drawings and strategies based on place value, properties of operations, and/or the relationship between addition and subtraction; relate the strategy to a written method and explain the reasoning uses. Understand that in adding two-digit numbers, one adds tens and tens, ones and ones; and sometimes it is necessary to compose a ten. (1-LS1-2)
- 1.NBT.C.5 Given a two-digit number, mentally find 10 more or 10 less than the number, without having to count; explain the reasoning used. (1-LS1-2)
- 1.NBT.C.6 Subtract multiples of 10 in the range 10-90 from multiples of 10 in the range 10-90 (positive or zero differences), using concrete models or drawings and strategies based on place value, properties of operations, and/or the relationship between addition and subtraction; relate the strategy to a written method and explain the reasoning used. (1-LS1-2)
- MP.2 Reason abstractly and quantitatively. (1-LS3-1) MP.5 Use appropriate tools strategically. (1-LS3-1)
- 1.MD.A.1 Order three objects by length; compare the lengths of two objects indirectly by using a third object. (1-LS3-1)
- MP.2 Reason abstractly and quantitatively. (1-ESS1-2) MP.4 Model with mathematics. (1-ESS1-2)
- MP.5 Use appropriate tools strategically. (1-ESS1-2)
- 1.OA.A.1 Use addition and subtraction within 20 to solve word problems involving situations of adding to, taking from, putting together, taking apart, and comparing, with unknowns in all positions, e.g., by using objects, drawings, and equations to represent the problem. (1-ESS1-2)
- 1.MD.C.4 Organize, represent, and interpret data with up to three categories; ask and answer questions about the total number of data points, how many in each category, and how many more or less are in one category than in another. (1-ESS1-2)
- 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)

1st Grade Science Curriculum Plan

Unit 1: The Sun, Moon, Stars and Seasons	Unit 2: Waves
<p>ESS1.A: The Universe and its Stars Patterns of the motion of the sun, moon, and stars in the sky can be observed, described, and predicted.(1-ESS1-1)</p> <p>ESS1.B: Earth and the Solar System Seasonal patterns of sunrise and sunset can be observed, described, and predicted.(1-ESS1-2)</p>	<p>PS4.B: Electromagnetic Radiation Objects can be seen only when light is available to illuminate them. Some objects give off their own light.(1- PS4-2) Some materials allow light to pass through them, others allow only some light through and others block all the light and create a dark shadow on any surface beyond them, where the light cannot reach. Mirrors can be used to redirect a light beam. (Boundary: The idea that light travels from place to place is developed through experiences with light sources, mirrors, and shadows, but no attempt is made to discuss the speed of light.) (1-PS4-3)</p> <p>PS4.A: Wave Properties Sound can make matter vibrate, and vibrating matter can make sound.(1-PS4-1)</p>
Unit 3: Information Technologies	Unit 4: Plant & Animal Structures, Functions & Information Processing
<p>PS4.C: Information Technologies and Instrumentation People also use a variety of devices to communicate (send and receive information) over long distances (1-PS4-4)</p>	<p>LS1.A: Structure and Function All organisms have external parts. Different animals use their body parts in different ways to see, hear, grasp objects, protect themselves, move from place to place, and seek, find, and take in food, water and air. Plants also have different parts (roots, stems, leaves, flowers, fruits) that help them survive and grow. (1-LS1-1)</p> <p>LS1.D: Information Processing Animals have body parts that capture and convey different kinds of information needed for growth and survival. Animals respond to</p>

	<p>these inputs with behaviors that help them survive. Plants also respond to some external inputs.(1-LS1-1)</p>
<p>Unit 5: Plant & Animal Growth and Development</p>	<p>Unit 6: Inheritance of Traits</p>
<p>LS1.B: Growth and Development of Organisms Adult plants and animals can have young. In many kinds of animals, parents and the offspring themselves engage in behaviors that help the offspring to survive.(1-LS1-2)</p>	<p>LS3.A: Inheritance of Traits Young animals are very much, but not exactly, like their parents. Plants also are very much, but not exactly, like their parents (1-LS3-1)</p> <p>LS3.B: Variation of Traits Individuals of the same kind of plant or animal are recognizable as similar but can also vary in many ways.(1-LS3-1)</p>

Unit 1 Lesson Plan – The Sun, Moon, Earth and Stars			
Teacher:	SBOE Faculty	Time Frame:	13 days
Grade:	1	School:	Elementary Schools
Subject:	1 st Grade Science		
<u>NJSLS - SCIENCE/DCI</u> ESS1.A: The Universe and Its Stars		Patterns of the motion of the sun, moon, and stars in the sky can be observed, described, and predicted. (1-ESS1-1) Make observations at different times of year to relate the amount of daylight to the time of year. (1-ESS1-2) http://www.nextgenscience.org/less1-earth-place-universe	
Instructional Objective:		Patterns of the sun, moon, and stars in the sky can be observed, described, and predicted.	
1-ESS1-1			
Instructional Objective:		Seasonal patterns of sunrise and sunset can be observed, described, and predicted.	
1-ESS1-1			
Essential Questions			
(What questions will the student be able to answer as a result of the instruction?)			
<ol style="list-style-type: none"> 1. What is the pattern of the sun’s movement? 2. Can the patterns of the day sky be predicted? 			

3. What are the four directions displayed on a compass?
4. What makes something a moon?
5. Does the Moon create its own light?
6. How does the Moon’s appearance change over time?
7. Why can we only see other distant stars at night?
8. What causes the seasons?
9. How does the Sun’s path across the sky differ during the summer and winter?

Knowledge & Skills

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

By the end of this unit, students will know:

- How the Sun appears to travel across the sky and that this is due to the Earth’s motion, not the Sun’s
- The four cardinal directions
- Moons are objects that revolve around planets
- The Moon shines because it is reflecting sunlight
- The Moon appears to grow and shrink in the sky based on how much reflected sunlight we can see
- Because the Sun is so close, its brightness keeps us from seeing other stars during the day
- Seasons are caused by the Earth’s tilt
- The Sun appears to be higher in the sky during the summer and lower in the winter

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

- Make predictions about the Sun’s location at various times of the day
- Label a compass rose
- Explain how moons are different than planets
- Make predictions about the Moon’s phases
- Explain how the Sun’s presence during the day keeps other stars from being seen
- Explain how the Earth’s tilt causes the seasons
- Compare and contrast the Sun’s location in the sky during the summer and winter months

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.

Assessments:

- Responder Questions used throughout unit.
- Teacher observation during completion of whole group activities.
- Unit Performance Assessment

Labs

- Lab 1: Energy from the Sun Activity
- Lab 2: The Sun’s Motion
- Lab 3: Shadow Tracking
- Lab 4: Compass Rose
- Lab 5: Shining Moon Activity
- Lab 6: Moon Phase Activity
- Lab 7: Where Do the Stars Go?
- Lab 8: Earth’s Tilt Activity
- Lab 9: Seasons Activity
- Lab 10: Seasonal Sun

Suggested Sequence

Day	Topic	Classwork	Homework

1	Energy from the Sun	Slides 1-9; Energy from the Sun Activity	Homework #1
2	The Sun's Motion	Slides 11-18; The Sun's Motion Activity	
3	Patterns of the Sun	Slides 19-26; Shadow Tracking Lab	Homework #2
4	Compass	Slides 29-37; Compass Rose Lab	
5	The Moon	Slides 38-47; Shining Moon Activity	
6	Moon Phases	Slides 48-54; Moon Phases Activity	Homework #3
7	Stars	Slides 57-69; Where Do the Stars Go Activity	Homework #4
8	Seasons / Earth's Tilt	Slides 71-73; Rotation-Revolution	

		Activity	
9	Seasons/ Earth's Tilt	Slides 74-77; Earth's Tilt Activity	Homework #5
10	Seasons / Hemispheres	Slides 79-83; Season's Activity	Homework #6
11	Seasonal Sun	Slides 85-89; Seasonal Sun Activity	Homework #7
12-13	Unit Assessment		

*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 scaffold 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.

*** Please note that lessons are based on 40 minute class periods. You may need to adjust the pacing guide based on your schedule.

Instructional Objective: 1-PS4-2:	Make observations to construct an evidence-based account that objects in darkness can be seen only when illuminated.	
Instructional Objective: 1-PS4-3:	Plan and conduct investigations to determine the effect of placing objects made with different materials in the path of a beam of light.	
Essential Questions		
(What questions will the student be able to answer as a result of the instruction?)		
<p>10. What is light? 11. How does light travel? 12. What is the difference between a natural light source and an artificial light source? 13. What does illuminate mean? 14. What is reflection and how light reacts to reflective surfaces? 15. How does light react with different surfaces including transparent, translucent, opaque, and refraction?</p>		
Knowledge & Skills		
(What skills are needed to achieve the desired results?)		
<p>By the end of this unit, students will know:</p> <ul style="list-style-type: none"> ● Light is energy we see. ● Shadows are areas of darkness behind an object that is illuminated. ● Light travels in a straight line. ● Natural sources include the sun while artificial sources include light bulbs and tv. ● Illuminate means to light up. ● Reflect means to bounce as seen when light hits a mirror and some metal objects. Depending on how the light hits, depends on what kind of image is formed. ● Transparent surfaces allow light to easily 	<p>By the end of this unit, students will be able to:</p> <ul style="list-style-type: none"> ● Define and apply the terms opaque, transparent, translucent, refraction, and reflection. ● Discover the differences between the terms opaque, transparent, translucent, refraction and reflection. ● Discover differences in shadows. ● Identify different sources of light. ● Plan and conduct investigations to determine the effect of placing objects made with different materials in the path of a beam of light. ● Use tools and materials to design and build a device that uses light or sound to solve the problem 	

<p>pass through like a window.</p> <ul style="list-style-type: none"> ● Translucent surfaces allow some light to pass through like wax paper. ● Opaque surfaces absorb light and reflect the color or colors we see such as a red apple. ● Refraction is the bending of light as it passes through water as seen with rainbows and rulers in water. 			
Assessment			
Acceptable evidence to show desired results			
<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> <ul style="list-style-type: none"> ● Lab: Light and Reflection ● Performance Based Assessment 			
Suggested Sequence			
Day	Topic	Classwork	Homework
1	What are Waves	<p style="text-align: center;">Slides 4-12</p> <p style="text-align: center;">Waves Demo</p> <p style="text-align: center;">What are Waves - CW</p>	

2	Sound	Waves & Sound Activity Slide 15	Waves and Sounds Homework
3	Sound	Slides 17-29	
4	Sound	Slides 30-31 Waves and Sound Classwork	
5	Sound	Sound Classwork	Sound Homework
6	Sight	Light Cave Explorer Activity Slide 37 Light Cave Classwork	
7	Sight	Slides 39-46	Sight Homework
8	What Happens When Light Hits Certain Objects	Slides 48-49; Objects in Light's Path Lab Slide 50	

9	What Happens When Light Hits Certain Objects	Slides 52-66 Light Hitting Objects CW	Light Hitting Objects Homework
10	Shadows	Slides 69-76	Shadow Homework
11	Communication	Slides 78-82; String Phone Lab Slide 83 String Phone Classwork	
12	Communication	Slides 85-90	Communications Homework
13-14	Unit Assessment		

*While there are many slides for each topic, several slides are interrelated and support each topic.

**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.

Unit Lesson Plan – Information Technologies			
Teacher:	SBOE Staff	Time Frame:	13 days
Grade:	1	School:	Elementary School
Subject:	1st Grade Science		
NJSLS - SCIENCE/DCI PS4.C: Information Technologies and Instrumentation		People also use a variety of devices to communicate (send and receive information) over long distances. (1-PS4-4) http://www.nextgenscience.org/1ps4-waves-applications-technologies-information-transfer	
Instructional Objective: 1-PS4-4		Use tools and materials to design and build a device that uses light or sound to solve the problem of communicating over a distance.	
Essential Questions			
(What questions will the student be able to answer as a result of the instruction?)			
16. What devices are used to communicate long distances? 17. What tools can be used to design or build a device that uses light or sound to solve a problem of communicating over a distance?			
Knowledge & Skills			
(What skills are needed to achieve the desired results?)			
By the end of this unit, students will know:		By the end of this unit, students will be able to:	
<ul style="list-style-type: none"> ● Devices that are used to communicate. ● Examples of devices they can design or build. 		<ul style="list-style-type: none"> ● Design or use tools to build a device that uses light or sound to solve a problem of communicating. ● List devices that are used to communicate long distances. 	

<ul style="list-style-type: none"> Technology is used to communicate by sending and receiving information. 			
Assessment			
Acceptable evidence to show desired results			
<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>Think Like a Computer Activity</p> <p>Braille Activity</p> <p>Flashlight Morse Code</p> <p>Marine Mammal Communication Activity</p>			
Suggested Sequence			
Day	Topic	Classwork	Homework
1	What is Technology	Slides 4-17	N/A
2	What is Technology?	Slides 18-25; Classwork #1	Homework #1 (Slide 26)

3	What is Technology?	Slide 27; Think Like a Computer Activity	N/A
4	Using Our Senses to Gain Information	Slides 28-47; Classwork #2	Homework #2 (Slide 48)
5	Using Our Senses to Gain Information	Slide 49; Braille Activity	N/A
6	Gaining Information Using Sound Waves	Slides 50-61; Classwork #3	Homework #3 (Slide 62)
7	Gaining Information Using Sound Waves	Slide 63; Marine Mammal Communication Activity	N/A
8	Gaining Information Using Radio Waves	Slides 64-73; Classwork #4	Homework #4 (Slides 74-75)
9	Gaining Information Using Light Waves	Slides 76-88; Classwork #5	Homework #5 (Slide 89)
10	Gaining Information Using Light Waves	Slide 90; Flashlight Morse Code	N/A

		Activity	
11	Unit Review	Slide 91; Underwater Adventure Activity	N/A
12	Unit Review	Slide 92; Underwater Adventure Presentations	N/A
13	Unit Assessment	Performance Based Assessment	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.

Unit 4 Lesson Plan – Plant & Animal Structures, Function & Information Processing			
Teacher:	SBOE Faculty	Time Frame:	18 days
Grade:	1	School:	Elementary Staff
Subject:	1 st Grade Science		
<p>NJSLS - SCIENCE/DCI:</p> <p>LS1.A: Structure and Function</p> <p>LS1.D: Information Processing</p>	<p>All organisms have external parts. Different animals use their body parts in different ways to see, hear, grasp objects, protect themselves, move from place to place, and seek, find, and take in food, water and air. Plants also have different parts (roots, stems, leaves, flowers, fruits) that help them survive and grow. (1-LS1-1)</p> <p>Animals have body parts that capture and convey different kinds of information needed for growth and survival. Animals respond to these inputs with behaviors that help them survive. Plants also respond to some external inputs.(1-LS1-1)</p>		
<p>Instructional Objective: (condition, behavior, standard)</p>	<p>Use materials to design a solution to a human problem by mimicking how plants and/or animals use their external parts to help them survive, grow, and meet their needs.</p>		
Essential Questions			
(What questions will the student be able to answer as a result of the instruction?)			
<p>18. What is structure and function? 19. How do animals use external structures to survive? 20. What are some examples of external parts of an animal? 21. What are the external structures of a plant?</p>			

22. How do plants and animals respond to their environments?

Knowledge & Skills

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

By the end of this unit, students will know:

- All organisms have external parts.
- Different animals use their body parts in different ways to see hear, grasp objects, protect themselves and survive.
- Plants have different parts that help them survive and grow.
- Plants and animals respond to their environments.

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

- Describe how structure relates to function.
- Describe/list external parts of an animal.
- Explain how plants and animals respond to their environment to help them survive.
- List parts of a plant (roots, stems, leaves, flower and fruit).

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.

- Structure and Function Lab
- Build a Monster Activity
- Why are Flowers Colorful Lab
- Walking Field Trip
- Plant Response Demo
- Design a Solution Activity

Suggested Sequence

Day	Topic	Classwork	Homework
1	What is Structure & Function?	Slides #5-22; Structure & Function Classwork	Structure & Function Homework (Slide #23)
2	What is Structure & Function?	Slide #24 Structure & Function Lab	N/A
3	Animal Structure and Function	Slides #25-31	N/A
4	Animal Structure and Function	Slides #32-51	N/A
5	Animal Structure and Function	Slides #52-63; Animal Structure and Function Classwork	Animal Structure and Function Homework (Slides #64-65)
6	Animal Structure and Function	Slide #66 Build a Monster Activity	Finish Monster

7	Plant Structure and Function	Slides #67-78	N/A
8	Plant Structure and Function	Slide #79 Why are Flowers Colorful? Lab	N/A
9	Plant Structure and Function	Slides #80-95; Plant Structure and Function Classwork	Plant Structure and Function Homework (Slides #96-97)
10	Plant Structure and Function	Slide #98 Walking Field Trip	N/A
11	Animal and Plant Responses	Slides #99-110	N/A
12	Animal and Plant Responses	Slides #111-119 Animal and Plant Responses Classwork	Animal and Plant Responses Homework (Slide #120)
13	Animal and Plant Responses	Slide #121 Discuss Plant Response Demo	N/A

14	Design a Solution	Slides #122-127 Begin brainstorming	N/A
15	Design a Solution	Continue Activity; Begin Student Presentations	N/A
16	Design a Solution	Finish Student Presentations	N/A
17	Unit Review	Unit Review	N/A
18	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.

Unit 5 Lesson Plan – Plant & Animal Growth and Development			
Teacher:	SBOE Faculty	Time Frame:	20 days
Grade:	1	School:	Elementary School
Subject:	Grade 1 Science		
NJSLS - SCIENCE/DCI		Adult plants and animals can have young. In many kinds of animals, parents and offspring themselves engage in behaviors that help the offspring to survive.	
LS1.B: Growth and Development of Organisms		http://www.nextgenscience.org/1ls1-molecules-organisms-structures-processes	
Instructional Objective:		Read texts and use media to determine patterns in behavior in parents and offspring that help offspring survive.	
1-LS1-2			
Essential Questions			
(What questions will the student be able to answer as a result of the instruction?)			
<ol style="list-style-type: none"> 1. What is one thing all living things have in common? 2. How do plants grow and develop? 3. How do eggs vary between animals? 4. What are different ways that animal offspring develop into adults? 5. What behaviors do parents and offspring engage in to help the offspring survive? 			

6. How do plants help their young to survive?

Knowledge & Skills

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

By the end of this unit, students will know:

- Adult plants and animals can have young.
- Animals can develop by direct development or metamorphosis.
- Plant parents help their offspring by creating seed coats and dispersal methods.
- Animal parents help their offspring to survive in many ways.

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

- Describe the stages of life for plants and animals.
- Describe how plants and animals grow and develop.
- Describe how plant and animal parents help their offspring survive.

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.

Germination Lab

Seed Lab

Egg Membrane Lab

How Strong is an Egg? Activity

Baby Robin Activity

Suggested Sequence			
Day	Topic	Classwork	Homework
1	Plants Grow and Develop	Slide 4 Set up the Germination Lab	N/A
2	All Living Things Grow	Slides 5-14	N/A
3	All Living Things Grow	Slides 15-16 All Living Things Grow Classwork	All Living Things Grow Homework (Slide 17)
4	Plants Grow and Develop	Slides 18-31	N/A
5	Plants Grow and Develop	Slides 32-33 What do plants need? Classwork	What do plants need? Homework (Slide 34)
6	Plants Grow and Develop	Slides 35-39 Seeds Classwork	Seeds Homework (Slide 40)
7	Plants Grow and Develop	Slide 41 Seed Lab	N/A

9	Animals Grow and Develop	Slides 42-43 Set up Egg Membrane Lab	N/A
10	Animals Grow and Develop	Slides 44-53	N/A
11	Animals Grow and Develop	Slide 54 Analyze Egg Membrane Lab	Finish Lab Questions
12	Animals Grow and Develop	Slides 55-65 Animals Grow and Develop Classwork	Animals Grow and Develop Homework (Slide 66)
13	Survival of Offspring	Slides 67-74	N/A
14	Survival of Offspring	Slide 75 How Strong is an Egg? Activity	Finish Lab Questions
15	Survival of Offspring	Slides 76-89 Animal Offspring Survival Classwork	Animal Offspring Survival Homework (Slides 90-91)

16	Survival of Offspring	Slide 92 Baby Robin Activity	Finish Lab Questions
17	Survival of Offspring	Slides 93-98 Plant Offspring Survival Classwork	Plant Offspring Survival Homework (Slide 99-100)
18	Plants Grow and Develop	Slide 101 Analyze Germination Lab	Finish Lab Questions
19	Unit Review	Unit Review	N/A
20	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.

Unit 6 Lesson Plan – Inheritance of Traits			
Teacher:	SBOE Faculty	Time Frame:	14 days
Grade:	1	School:	Elementary School
Subject:	Grade 1 Science		
NJSLS - SCIENCE/DCI LS3.A: Inheritance of Traits LS3.B: Variation of Traits		<p>Young animals are very much, but not exactly like their parents. Plants also are very much, but not exactly, like their parents.</p> <p>Individuals of the same kind of plant or animal are recognizable as similar but can also vary in many ways.</p> <p>http://www.nextgenscience.org/1ls3-heredity-inheritance-variation-traits</p>	
Instructional Objective: 1-LS3-1		<p>Make observations to construct an evidence-based account that young plants and animals are like, but not exactly like, their parents.</p>	

Essential Questions

(What questions will the student be able to answer as a result of the instruction?)

- 23. How are young animals like their parents?
- 24. How are young plants similar to full grown plants of the same kind?
- 25. What are the similarities and differences between plants and animals of the same kind/breed?
- 26. What characteristics do most plants share?
- 27. What characteristics do animals share?

Knowledge & Skills

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

By the end of this unit, students will know:

- Young animals are very much, but not exactly like their parents.
- Plants are very much, but not exactly, like their parents.
- Living things can have similarities but also differences.

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

- Describe the difference between an adult animal and a baby animal of the same kind.
- Describe the different features of plants of the same kind.

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.

Venn Diagram Activity			
Comparing Carrots Lab			
Suggested Sequence			
Day	Topic	Classwork	Homework
1	Similarities	Slides 4-13	N/A
2	Similarities	Slides 14-20	N/A
3	Similarities	Slides 21-27; Similarities Classwork	Similarities Homework (Slide 28)
4	Parent/Offspring Similarities	Slides 29-40	N/A
5	Parent/Offspring Similarities	Slides 41-47; Parent/Offspring Similarities Classwork	Parent/Offspring Similarities Homework (Slide 48)

6	Differences	Slides 49-60	N/A
7	Differences	Slides 61-65; Differences Classwork	N/A
8	Differences	Slide 66 Venn Diagram	Differences Homework (Slide 67)
9	Parent/Offspring Differences	Slides 68-77	N/A
10	Parent/Offspring Differences	Slides 78-85; Parent/Offspring Differences Classwork	Parent/Offspring Differences Homework (Slide 86)
11	Variation is Important	Slides 87-94	N/A
12	Variation is Important	Slides 95-103 Variation is Important Classwork	Variation is Important Homework
13	Variation is Important	Variation Lab	Finish Lab

14	Unit Assessment	PBA	
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**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.