

Unit 1 Summary: Earth's Place in the Universe

In this unit, students will explore patterns of the earth. They will demonstrate an understanding of the patterns of the motion of the sun, moon, and stars in the sky. They will understand that these patterns can be observed, described, and predicted. Students will demonstrate an understanding that seasonal patterns of sunrise and sunset can be observed, described, and predicted. They will demonstrate an understanding of how the amount of daylight changes depending on the time of year. Student focus will be on the relative comparisons to the amount of daylight in the winter to the amount of daylight in the spring or fall. Students will participate in collaborative conversations and will participate in planning and carrying out investigations to answer questions or test solutions to problems related to the studying of Earth's place in the Universe.

Title of Unit:	Subject Area:
Earth's Place in the Universe	Science

Next Generation Science Standards: 1-ESS1 Earth's Place in the Universe

Students who demonstrate understanding can:

1-ESS1-1 Use observations of the sun, moon, and stars to describe patterns that can be predicted

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-ESS1-2 Make observations at different times of year to relate the amount of daylight to the time of year.

ESS1-B: Earth and the Solar System: Seasonal patterns of sunrise and sunset can be observed, describe, and predicted

I Can Statements

I can observe the sun, moon, and stars to describe patterns.

I can observe, describe, and predict patterns of the sun, moon, and stars.

I can observe that there are different amounts of sunlight in different seasons.

I can explain the patterns of sunrise and sunset in the different seasons.

Academic Vocabulary	
INSTRUCTIONAL	ADVANCED
Sun	Motion
Moon	Cycle
Stars	Visible
Pattern	
Rise	
Set	
Observe	
Daylight	
Describe	
Predict	
Seasons	
Spring	
Summer	
Winter	
Fall	
Assessments	
<p>Formative</p> <p>Samples could be</p> <ul style="list-style-type: none"> --questioning (blooms) --accountable talk --Think, Pair, Share --Whip Around --Stand up/Sit down --Thumbs up/down <p>Common Formative</p> <p>Shadow Boxes</p> <p>Seasons – amount of light</p>	<p>Summative</p> <p>Attached in hard copy</p>

Lesson Sequence

Varies per teacher and class

Resources**--Stories**

- The Sun, the Moon, and the Stars by Nancy Elizabeth
- Earth Cycles by Michael Elsohn Ross
- The Sun: Our Nearest Star by Franklyn M. Branley
- The Moon Book by Gail Gibbons
- Faces of the Moon by Bob Crelin
- The Moon by Seymour Simon
- The Moon (Scholastic) by Melanie Chrismer
- Sunshine Makes The Seasons by Franklyn M. Branley
- Sun by Seymour Simon
- My Light by Molly Bang
- What Makes Day and Night by Franklyn M. Branley
- Earth by Seymour Simon
- On Earth by G. Brian Karas
- Come See The Earth Turn by Lori Mortensen
- Day and Night (First Step Nonfiction) by Robin Nelson
- Day and Night (Patterns in Nature) by Margaret Hall
- Earth Is Tilting (My Science Library) by Conrad J. Storad
- The Moon Seems to Change by Franklyn M. Branley

--Science A-Z

- Earth, Moon, Sun, and Stars
- The Solar System

--Reading A-Z

- Our Solar System
- The Sun, Earth and Moon

-Science Clubhouse Workshop lessons**--Read Works, Science Close Reading Passages**

- Sunlight in the Night
- A Day For Fishing
- What is the Solar System?
- Day to Night
- No Problem

Unit 2 Summary: Waves and Their Applications in Technologies for Information Transfer

In this unit, students will learn about sound and light. They will demonstrate an understanding that objects in darkness can be seen only when illuminated. Students will plan and conduct investigations to determine the effect of placing objects made with different materials in the path of a beam of light. Students will understand the concepts of transparent, translucent, opaque, and reflective and be able to give examples of each concept. Students will demonstrate an understanding that vibrating materials can make sound and that sound can make materials vibrate. They will give examples of vibrating materials that make sound as well as explain how sound can make matter vibrate. Students will use tools and materials to design and build a device that uses light or sound to solve the problem of communicating over a distance. Students will participate in collaborative conversations and will participate in planning and carrying out investigations to answer questions or test solutions to problems related to the studying of waves.

Title of Unit:

Waves and Their Applications in Technologies for Information Transfer

Subject Area:

Science

Next Generation Science Standards: 1-PS4 Waves and Their Applications in Technologies for Information Transfer

Students who demonstrate understanding can:

1-PS4-1 Plan and conduct investigations to provide evidence that vibrating materials can make sound and that sound can make materials vibrate.

PS4.A: Wave Properties: Sound can make matter vibrate, and vibrating matter can make sound.

1-PS4-2 Make observations to construct an evidence-based account that objects in darkness can be seen only when illuminated.

PS4.B: Electromagnetic Radiation: Objects can be seen if light is available to illuminate them or if they give off their own light.

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.

PS4.B: Electromagnetic Radiation: 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. Mirrors can be used to redirect a light beam.

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.

PS4.C: Information Technologies and Instrumentation: People also use a variety of devices to communicate (send and receive information) over long distances.

I Can Statements

I can explain that shaking and vibrating makes sound.

I can plan and conduct an investigation to show that vibrating materials can make sound.

I can show that we need light in order to see things.

I can show how some things let all light, some light, or no light go through them.

I can give examples of materials that allow light to pass through them, that allow only some light to pass through them, and that block all the light.

I can use tools and materials to send light or sound far away.

Essential Questions

How can we change the path of light using different materials?

How can we get an object to make sound?

What inventions can we make using light or sound to communicate with a friend?

What would it be like if there was no light?

Academic Vocabulary

INSTRUCTIONAL	ADVANCED
Light	Pitch
Reflection	Matter
Sound	Refraction
Sound Waves	
Vibrations	
Transparent	
Opaque	
Translucent	
Reflection	
Communication	
Illumination	

Assessments

Formative	Summative
Samples could be <ul style="list-style-type: none">- questioning (blooms)- accountable talk-Think, Pair, Share- Whip Around-Stand up/Sit Down-Thumbs up/down	- attached in hard copy
Common Formative <ul style="list-style-type: none">- In the News: Magazine Article (LIGHT)	

Lesson Sequence	Resources
Varies per teacher and class	<p data-bbox="716 140 812 170">--Stories</p> <ul data-bbox="760 176 1299 1171" style="list-style-type: none"> <li data-bbox="760 176 1209 239">• Sound Interesting: The Science of Acoustics by David Darling <li data-bbox="760 245 1299 338">• The Magic School Bus Gets a Bright Idea by Nancy White (can be viewed on youtube) <li data-bbox="760 344 1156 373">• Amy’s Light by Robert Nunn <li data-bbox="760 380 1198 443">• Light (First Discovery Books) by Scholastic <li data-bbox="760 449 1299 478">• Light is All Around Us by Wendy Pfeffer <li data-bbox="760 485 1271 577">• Light: Shadows, Mirrors and Rainbows (Amazing Science) by Natalie M. Rosinsky <li data-bbox="760 583 1252 655">• Day Light, Night Light: Where Light Comes From by Franklyn M. Branley <li data-bbox="760 661 1248 724">• All About Light (Rookie Read About Science) by Lisa Trumbauer <li data-bbox="760 730 1245 793">• Sound: Loud, Soft, High and Low by Natalie M. Rosinsky <li data-bbox="760 800 1255 829">• Sounds All Around by Wendy Pfeffer <li data-bbox="760 835 1252 865">• What is Sound? by Charlotte Guillain <li data-bbox="760 871 1281 934">• Sound Waves (Energy in Action) by Ian F. Mahaney <li data-bbox="760 940 1260 1012">• All About Sound (Rookie Read About Science) by Lisa Trumbauer <li data-bbox="760 1018 1263 1081">• Light by Margie Burton, Cathy French and Tammy Jones <li data-bbox="760 1087 1099 1117">• Beat It! By Ellen Tarlow <li data-bbox="760 1123 1213 1152">• Good Vibrations by Renee Rogers <li data-bbox="760 1159 1188 1188">• Hearing Sounds by Sally Hewitt <p data-bbox="716 1182 881 1211">--Science A-Z</p> <ul data-bbox="760 1218 1182 1247" style="list-style-type: none"> <li data-bbox="760 1218 1182 1247">• All About Light (differentiated) <p data-bbox="716 1253 902 1283">--Reading A –Z</p> <ul data-bbox="760 1289 1026 1318" style="list-style-type: none"> <li data-bbox="760 1289 1026 1318">• Sound All Around <p data-bbox="716 1325 1016 1354">--Science Studies Weekly</p> <ul data-bbox="760 1360 1021 1390" style="list-style-type: none"> <li data-bbox="760 1360 1021 1390">• Week 20 - Energy <p data-bbox="716 1396 1177 1425">--Science Clubhouse Workshop lessons</p> <ul data-bbox="760 1432 1258 1562" style="list-style-type: none"> <li data-bbox="760 1432 1138 1461">• Lesson 5 – Good Vibrations <li data-bbox="760 1467 1182 1497">• Lesson 6 – No Light, No Sight? <li data-bbox="760 1503 1122 1533">• Lesson 7 – Blocking Light <li data-bbox="760 1539 1258 1568">• Lesson 8 – The Best String Telephone <p data-bbox="716 1575 1284 1604">--Read Works, Science Close Reading Passages</p> <ul data-bbox="760 1610 1029 1703" style="list-style-type: none"> <li data-bbox="760 1610 1002 1640">• A Loud Concert <li data-bbox="760 1646 1029 1675">• How to See Sound <li data-bbox="760 1682 873 1711">• Light <p data-bbox="716 1709 803 1738">--Extra</p> <ul data-bbox="760 1745 1268 1774" style="list-style-type: none"> <li data-bbox="760 1745 1268 1774">• My Science Journal on Light Pathways <p data-bbox="716 1780 834 1810">--Youtube</p>

Unit 3 Summary: From Molecules to Organisms: Structures and Processes and Heredity: Inheritance and Variation of Traits

In this unit, students will learn about plants and animals. Students will study plants and animals and how they use their external parts to help them survive, grow, and meet their needs. Students will then design a solution to a human problem by mimicking what they know plants and animals would do to survive. Students will understand patterns of behavior of parents and offspring and how these patterns help offspring survive. Students will understand the concept that plants and animals are like, but not exactly like, their parents. Students will observe plants and animals develop a deeper understanding of this concept. Students will participate in collaborative conversations and will participate in planning and carrying out investigations to answer questions or test solutions to problems related to the studying of heredity and the inheritance and variation of traits.

Title of Unit: From Molecules to Organisms: Structures and Processes and Heredity: Inheritance and Variation of Traits.

Subject Area:
Science

Next Generation Science Standards: 1-LS1 From Molecules to Organisms: Structures and Processes and 1-LS3 Heredity: Inheritance and Variation of Traits

Students who demonstrate understanding can:

1-LS1- 1 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.

LS1.A: Structure and Function: All organisms have external parts. Different animals use their body parts in different ways. Plants also have different parts that help them survive

1-LS1-2 Read texts and use media to determine patterns in behavior of parents and offspring that help offspring survive.

LS1.B: Growth and Development of Organisms: In many kinds of animals, parents and the offspring themselves engage in behaviors that help the offspring to survive.

LS1.D: Information Processing: Animals have body parts that capture and convey different kinds of information needed for growth and survival.

1-LS3-1 Make observations to construct an evidence-based account that young plants and animals are like, but not exactly like, their parents.

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.

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.

I Can Statements

I can use materials to fix a problem using what I know about the parts of plants and animals.

I can read and use media to find patterns of behaviors that help babies/offspring survive.

I can show and explain that young plants and animals look a lot like their parents, but are not exactly the same.

I can tell you that all living things have external (outside) parts.

I can explain how animals use their body parts for protection, to see, hear, grasp objects, move, and to seek, find, and take in food, water and air.

I can explain how the different parts of plants help them survive and grow.

I can observe that living things react to different kinds of information needed for growth and survival.

Essential Questions

If I were to live outside, what things could I copy from plants and animals to survive there?

If you found a lost plant or animal, how would you know who his or her parent was?

If you were a baby animal, how would you get your parents to pay attention to you?

Academic Vocabulary

INSTRUCTIONAL	ADVANCED
Grow	Mimic
Survive	Offspring
External	Organisms
Needs	Young
Parents	
Babies/Children	
Behavior	
Pattern	
Observe	
Function	
Protect	
Roots, leaves, flower, fruit, stem	

Assessments

Formative	Summative
Samples could be - questioning (blooms) - accountable talk -Think, Pair, Share - Whip Around -Stand up/Sit Down -Thumbs up/down	- attached in hard copy
Common Formative - Adaptation Project Creation	

Lesson Sequence

Varies per teacher and class

Resources**--Stories**

- *Are You My Mother?* by P.D Eastman
- *How Animal Babies Stay Safe* by Mary Ann Fraser
- *Animal Mothers and Babies* by Dona Herweck-Rice
- *I Am Your Mother; a picture book of animal mothers and babies* by Cindy Bracken
- *Animal Mothers and Babies (Rhyming Children's Picture Book)* by Linda Groves
- *A Baby Elephant in the Wild* by Caitlin O'Connell
- *Me...Jane* by Patrick McDonnell
- *Disneynature chimpanzee Oscar and Freddy*
- *What If You Had Animal Hair?* by Sandra Markle
- *What If You Had Animal Teeth?* by Sanra Markle
- *Is Your Mama a Llama?* by Deborah Guarino
- *Baby Otter* by Ginjer L. Clarke
- *Fur and Feathers* by Claire Llewellyn and Thea Feldman
- *Seed to Plant* by Kristen Baird Rattini
- *A Tree Is a Plant* by Clyde Robert Bulla
- *Little Elephant's Trunk* by Hazel Lincoln
- *A Kangaroo Joey Grows Up* by Joan Hewett
- *The Magic School Bus: Plants Seeds*
- *The Reason For A Flower* by Ruth Heller
- *Galapagos George* by Jean Craighead George
- *Butterflies and Moths* by Bobbie Kalman and Tammy Everts
- *Chicks and Chickens* by Gail Gibbons
- *The Ant and the Grasshopper* by Diane Marwood and Gabriele Antonini
- *Plant Parts* by Louise and Richard Spilsbury

--Science A-Z

- *Adaptations*
- *Animals, Animals* (differentiated)

--Reading A -Z

- *Frogs and Toads*
- *Animal Ears*
- *Baby Animals*

--Science Studies Weekly

- Week 9 – Living Things
- Week 10 – Plants
- Week 11 – Animals
- Week 12 – People
- Week 13 – We Grow
- Week 15 - Families
- Week 16 – Homes

--Science Clubhouse Workshop lessons

- Lesson 2 – Are You My Parent?
- Lesson 3 –Best Animal Mothers
- Lesson 4 – Nature’s Engineers

--Read Works, Science Close Reading Passages

- A Baby Polar Bear Grows Up

--Extra

- Disneynature – Looking at Chimpanzees / Chimpanzee Adaptations
- Animal Skits

--Youtube