

***Standards listed in bold font are Utah Core Science Standards. Those that are not in bold are supplemental.**

****Words that are in bold font in the lesson are vocabulary words that your child should know by the end of the lesson.**

****The general supplemental science standards (1, 1.1, 1.1.1, 1.1.2, 1.1.3, 1.1.4, 1.1.5, 1.2, 1.2.1, 1.2.2, 1.2.3, 1.2.4, 1.3, 1.3.1, 1.3.3, and 1.3.4) are included naturally in the lessons and will not always be listed in the Standards Taught for each lesson**

Title of Lesson 1: Gears and Moving Parts

Standards Taught: K.S.3.2, K.S.3.2.a, K.S.3.2.b, K.S.1.1, K.S.1.1.1, K.S.1.1.2, K.S.1.1.3, K.S.1.1.5, K.S.1.2.3, K.S.1.1.1		
Materials: Set of play gears	Preparation:	Implementing the Lesson: First, ask your child to describe the gears. What colors do they see? What shapes? Are the gears together or separate from each other? Can they gears move if you don't touch them? Ask your child to build with the gears, fitting them together to create a working model. Encourage your child to investigate and experiment with the gears and their movement. When your child is ready, ask them to show you how the gears move. Can they make all of the gears in their system move by turning just one? If they answer yes, take a single gear out of the system. Ask your child to try turning all of the gears by touching only one again. Did it work? What is different? Why doesn't it work? If they answer no, help your child to see where the flaw in their system is and correct it. Then, go back to the previous paragraph. Next, replace the gear you took and ask your child if the system works better with all of the parts. Discuss a few other systems that would not work if a part was missing and what would happen. For example, a refrigerator would not be very good at keeping our food cold if the door was missing. All of the cold air would come out.

Title of Lesson 2: Types of Force

Standards Taught: K.S.K.3.1, K.S.K.3.2, K.S.3., K.S.3.1, K.S.3.1.a, K.S.3.1.b

Materials:	Preparation:	Implementing the Lesson:
Ball Bean bag		<p>Tell your child that today we will be learning about force. Explain that force is something that makes an object move. Give some examples of force in your everyday life (e.g. wind blowing leaves, a car driving down the road, a child on a swing, etc). Discuss the motion of each example and explain that a force is creating that motion.</p> <p>Set the ball on the floor. Ask your child if the ball will move by itself. Explain that the ball is not living and cannot move on its own. We need to exert a force on it to get it to move.</p> <p>Have your child to pick up the ball. Ask the following: Did the ball move? Why did it move? In what direction? Explain to your child that when they picked up the ball, they exerted a force upward, making the ball move.</p> <p>Have your child roll the ball by pushing it forward. Ask the following: Did the ball move? What direction did it move in? Why did it move? Explain that by pushing it, your child exerted a force to the forward and that force moved the ball.</p> <p>Repeat the action, this time asking your child to pull the ball and quickly let go. How was that the same? How was it different?</p> <p>Finally, ask your child to set the ball on a table and gently push the ball. Allow the ball to fall off the table. Ask the following: What happened to the ball? Which direction was it going while it was on the table? Which direction did it go after it fell off? Explain that the force of the gentle push made the ball travel across the table. Point out that there was a second force that made the ball fall down after it reached the edge of the table. That force is called gravity and it is exerted by the Earth, where we live. Gravity pulls us all down so that we don't float away.</p> <p>Put the ball away and get out the bean bag. Repeat the experiments, questions, and discussions in the same way, this time with the bean bag. Discuss the similarities and differences. Point out that the ball and bean bag are different weights and shapes, making movement change.</p> <p>Finally, allow your child to experiment with different ways of preventing motion. Ask them to do the experiments once again, this time trying to stop the object before it stops on its own. Ideas include placing your hand in the way, adding a block in the path of the object, rolling the object towards a wall, placing a chair at the end of the table so the ball doesn't fall, or pushing or pulling with a softer force so the object doesn't travel as far.</p>

Title of Lesson 3: A Week of Weather

Standards Taught: K.1.1, K.1.2, K.S.2, K.S.2.3, K.S.2.3.a, K.S.2.3.b, K.S.2.3.c, K.S.2.3.d

<p>Materials:</p> <p>Observation Sheet Lesson 3</p>	<p>Preparation:</p>	<p>Implementing the Lesson:</p> <p>*Our family checks the weather daily, discussing forecasts and articles of clothing that are appropriate for each type of weather. The standards for these activities are included in this lesson though they are covered every school day as well.</p> <p>This week’s science lesson is meant to go along with your Everyday Things weather check. Each day, look up the forecast before you begin school. As you do the weather chart, compare the forecast to what your child is seeing and discuss similarities and differences. Talk about what you may wear in response to the weather you see. Discuss what you may wear in response to the forecast. For example, if it is sunny now but a snowstorm is in the forecast, you may be fine in a light jacket now but want a snow jacket later. Discuss how this planning may help us to be more comfortable and safe.</p> <p>Using the observation sheet, ask your child to draw the weather pattern (sunny, cloudy, rain, snow, windy) in the box for the appropriate day. Do a single box per day. This project will take a week.</p> <p>At the end of the week, ask your child to show you their weather chart. Discuss any patterns you may see. Point out that it is (likely) cold now because it is winter. Ask your child what happens in the spring (it warms up), summer (it is very hot), and fall (it starts to cool down again). Discuss normal weather patterns in relation to the seasons for your area.</p>
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Observation Sheet Lesson 3

Monday	Tuesday	Wednesday	Thursday	Friday

Title of Lesson 4: Hot in the Sun

Standards Taught: K.S.1.3, K.S.1.4, K.S.2.2.c

Materials:	Preparation:	Implementing the Lesson:
Chocolate chips Ice cubes Wooden or plastic blocks Coins Paperclips Materials for your child to build a small shade (fabric, paper, popsicle sticks, etc) Paper or plastic plates Observation Sheet Lesson 4		<p>*This lesson best done on a warmer day. If you live in a cold area, work this lesson in for spring or summer.</p> <p>Tell your child that you are going to play a game. You will think of an object and your child needs to guess. Give your child the following clues: it is very big, it is in the sky, it gives us light and keeps us warm. (The sun).</p> <p>Briefly discuss ways the sun helps us, citing specific examples from your child's life (e.g. warms us up, helps plants grow, helps us see better, helps us wake up in the morning, gives us vitamins we need). Tell your child that today we will be learning about how the sun keeps things warm.</p> <p>Show your child the following items: chocolate chips, ice cubes, blocks, coins, and paper clips. Tell them that these things can be affected by the warmth the sun gives us. Create two sample groups on two different paper plates by asking your child to place one of each item on each of the plates. Ask your child to do observation sheet question 1.</p> <p>Next, ask your child to help you find a sunny and a shady spot. Place one plate in the sunny spot and one in the shade. Allow the plates to sit for 2 hours. Return with your child and observe what happened. Discuss the shady plate first. Did the items melt? Do they feel warmer? Did they change at all? Repeat the questions with the sunny plate and compare and contrast between the sun and the shade.</p> <p>Explain that it is warmer in the sun so those items were affected more. The shade blocked some of the warmth and protected the items. Point out what made the shade, explaining that that object is in between the sun and the plate. Ask your child to do observation sheet question 2.</p> <p>Tell your child that we are going to try the experiment again. This time, they will create 3 ways that may help their items stay safe from the hot sun. Allow your child to be creative. They may want to cover it in leaves, build a fabric shade, put another plate over the top, etc. Even if you know it won't work, let them try it out and learn on their own. Create three more plates, each with a different solution. Ask your child to do observation sheet question 3 and then place the items in the sun. Leave them there for 2 hours.</p> <p>Return to the plates, observing them one by one. Ask your child what they see. Did their solution protect the items? Do the items feel cooler or are they still very warm? Repeat the process for each plate. Then, compare and contrast the effectiveness of each solution with your child, looking for the one that worked the best. Complete the observation sheet.</p>

Observation Sheet Lesson 4

1. Draw a picture of the plates with the items on them before the experiment

2. Draw a picture of the plates with the items on them after the experiment

3. Draw a picture of the 3 ways you will protect your items

1. Draw a picture of the three plates. Circle the one that did the best

Title of Lesson 5: Classification

Standards Taught: K.2, K.2.1, K.2.1.c

Materials:	Preparation:	Implementing the Lesson:
Shiny Rock Stick Flower or leaf Sand Smooth Rock	Print and cut out the labels on Observation Sheet 5	<p>Show your child the labels you've printed out. Read them aloud to your child, asking them to describe or give an example of the word on each one. Hard, for examples, could be something that is not soft or a piece of wood. Discuss what each word looks and feels like and where your child may have seen it before.</p> <p>Next, give your child each of the materials, one at a time. Discuss what it looks like and feel like. Ask your child to place each item on the label that best describes it. Some items may fit into two different groups. Allow your child to choose where they feel it fits best.</p> <p>Explain to your child that this is called classifying. It's a way scientists sort things out so that we can learn more about them.</p> <p>Allow your child to search outside for more items that they could classify. Encourage them to observe and learn about each item they find by paying close attention to how each one feels and looks.</p>

Hard

Smooth

Rough

Shiny

Flat

Title of Lesson 6: Breaking It Down: Mountains, Boulders, Rocks, Pebbles, Sand

Standards Taught: Supplemental K.2, K.2.1, K.2.1.a

Materials:	Preparation:	Implementing the Lesson:
<p>Pictures from Observation Sheet 6</p> <p>Sand, Pebbles, Rock</p> <p>Sugar cube</p> <p>Piece of sandstone about the size of your hand or this video (https://www.youtube.com/watch?v=SC6tVJxH6yg)</p> <p>Glass of Water</p> <p>Bowl</p>		<p>Ask your child to tell you about the biggest rock they've ever seen. Ask them to describe the color, the size, and where it was.</p> <p>Next, point to a nearby mountain and/or show the picture from the observation sheet and tell your child that a mountain is really just a huge rock. Over time, mountains are broken by wind and water. The pieces that break off are often big rocks called boulders. Show your child the photo of a bolder, explaining that this bolder was once a part of a mountain.</p> <p>Explain that boulders also are broken by water and wind. They become smaller rocks. Show your child the rock you have and/or the photo of the rocks. Use the photos to compare the size of the mountain, boulder, and rocks.</p> <p>Show your child the pebbles and/or photo of the pebbles. Explain that, over time, rocks break down into very small rocks, called pebbles.</p> <p>Finally, show your child the photo of the sand. Explain that, after a very long time, the pebbles break down into sand.</p> <p>Lay out all of the pictures in order of break down from mountain to sand. Ask your child to review how a huge mountain can become as small as a piece of sand. Tell your child that when wind and water break down these rocks, it's called erosion. Other things, such as people building, animals walking, and storms, can cause rocks to break down, too.</p> <p>Give your child the sandstone (or watch the video). Allow them to crumble the stone with their hands, watching as it gets smaller and smaller. Ask your child what their rock turned into.</p> <p>Finally, allow your child to hold the sugar cube. Place the sugar cube in a bowl. Give your child the glass of water and ask them to pour water over the sugar cube. What happened? Point out that this is an example of erosion and shows us what water (and wind) can do to rocks. Explain that it takes much longer for mountains and rocks to break down because they are much harder than the sugar cube.</p>

Observation Sheet
6



Title of Lesson 7: Wind and Water

Standards Taught: Supplemental K.2, K.2.1, K.2.1.b

Materials:	Preparation:	Implementing the Lesson:
Small toy or tin foil boat Feather Fan Bathtub or container with water Observation Sheet 7 Water hose or shower head that you can move around		<p>Give your child the feather. Ask them to describe it to you. What does it feel like? Is it light or heavy? Soft or hard? Smooth or fluffy? What does it look like? What color is it?</p> <p>Ask your child to set down the feather where there is no air flowing. Does the feather move?</p> <p>Discuss how non-living objects cannot move unless something makes them move. There is always a force that forces them move. Review what force makes objects fall (gravity) and how we can push or pull items to make them move. Point out that when something is pushed or pulled, we can see where the force is coming from (our hands). With gravity, though, we cannot see anything touching the object.</p> <p>Next, place the feather by the fan and turn the fan on. Ask your child what happened. Why? Discuss how the air from the fan applied force to the feather, making it fly away. Point out that we cannot see the air, but it still applied force. Ask your child to record their observations (what happened to the feather) on the Observation Sheet.</p> <p>Tell your child that water can also apply force to non-living things and make them move. Ask your child to describe their boat to you. Is it big or small? Heavy or light? Smooth or rough?</p> <p>Ensure that the water is calm and there are no waves. Ask your child to place their boat on the water. Point out that it is not moving much. Next, spray the water hose or shower head near (but not onto) the boat. Ask your child to observe what happened. Explain that the water is putting a force on the boat and making it move.</p> <p>Next, place your hand above the water, but away from the boat. Push your hand downwards, through the water, creating waves. Ask your child to observe what happens to the movement of the boat. It is now moving up and down because the water around it is applying force in that direction. Allow your child to create waves of their own, blow on their boat, and experiment with spraying water to move their boat. Then, ask them to record what they learn on the Observation Sheet.</p>

Observation Sheet 7

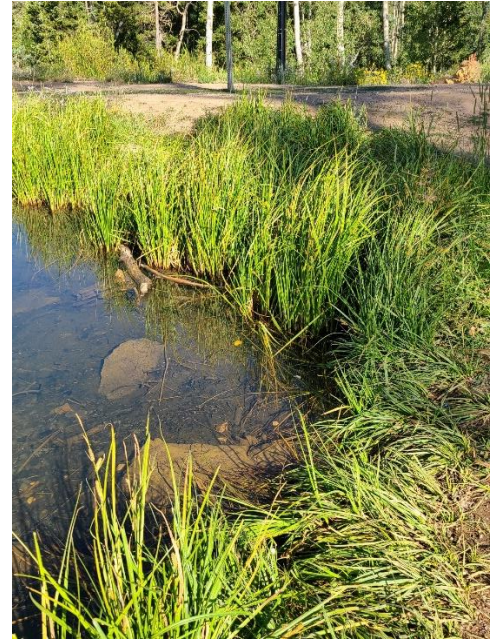
Draw a picture of the feather as the air from the fan blew it away

Draw a picture of the boat and how the water made it move

Title of Lesson 8: What Does a Living Thing Need?

Standards Taught: K.2.1, K.2.2		
Materials: Observation Sheet 8 Blank Paper Clipboard Pencil Crayons/Markers	Preparation:	Implementing the Lesson: Ask your child to review living vs. non-living by naming a few things that they can see in your home that fit into each category. Review the fact that living things can die if they do not have the things they need: water, shelter, air, and food. Ask your child to choose one plant and one animal from their examples of living things and tell you how each of those things gets water, shelter, and food. Next, show your child the images of plants from Observation Sheet 8. Ask your child to name and/or describe each plant shown. Discuss the differences between the plants and location they are growing in. Explain that the yellow flowers grow in a forest, the reeds are beside a pond, the cactus is in the desert, and the palm tree is beside an ocean. Discuss the different environments of each plant. For example, the forest is colder than the other areas, the pond has more water, the desert is dry and hot, and the beach has saltwater and is warm. Point out that each of these plants lives where it does because it has a need that is fulfilled by that environment. The flowers need water, soil, and sunlight, but they also need cooler weather. If it was too hot, they would wilt and die. The reeds need a lot more water than the flowers. The cactus can survive with very little water, and the palm tree needs warm weather and could not grow on the cool mountain. Point out that each environment has exactly what each plant needs. Take your child on a walk around your neighborhood. Give them the clipboard, pencil, and a few crayons or markers and ask them to draw the plants they see growing. Ask them to describe the environment and point out how the plants living in your area get what they need in that environment. Also discuss the different seasons, pointing out that because of the weather, the plant may look differently now than it would in the summer. Explain that this is because there are different things available to the plants in this season than there are in the summer. (e.g. it's colder, less water, etc). *Image Sources: Ashley Ulmer and Susie Forrest

Observation Sheet 8

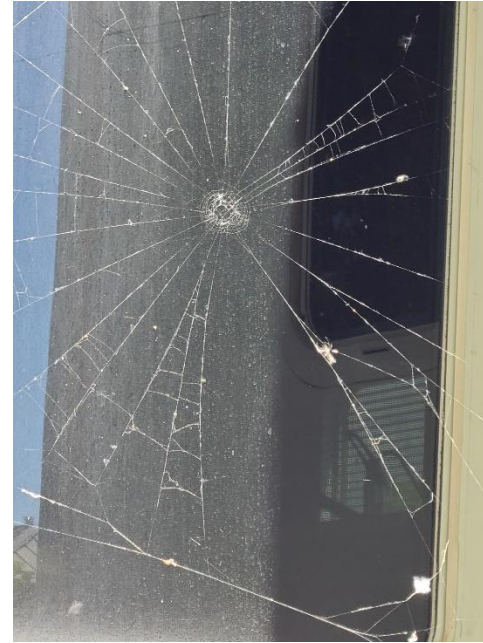


Title of Lesson 9: What Does a Living Thing Need? (Part 2)

Standards Taught: K.2.1, K.2.2

Materials:	Preparation:	Implementing the Lesson:
<p>Observation Sheet 9</p> <p>A living animal your child can care for (this could be a family pet, a friend's pet, or an animal at a shelter that will allow you to serve)</p>		<p>Ask your child to review living vs. non-living by naming a few things that they can see in your home that fit into each category. Review the fact that living things can die if they do not have the things they need: water, shelter, air, and food. Ask your child to choose one plant and one animal from their examples of living things and tell you how each of those things gets water, shelter, and food. Review the differences between the plants you discussed in the previous lesson, reminding your child that different environments fill different needs of living things.</p> <p>Next, show your child the images of plants from Observation Sheet 9. Ask your child to name and/or describe each animal shown. Discuss what each animal eats and where it lives. The chipmunk eats seeds and nuts and lives in trees, the spider eats the blood of insects and lives on a web, the fish eats bugs and lives underwater, and the snake eats small animals and lives in a hole in the ground. Discuss the differences between the animals and location they are living in. Explain that the chipmunk lives in a forest, the spider lives on a window seal, the fish is in a pond, and the snake is in a desert. Discuss the different environments of each animal. For example, the forest provides trees to shelter the chipmunk while giving him seeds to eat, the window seal shelters the spider from the weather while providing a place where she can build a web and capture food, the fish needs to be in the water of the pond to get air, and the desert is dry and hot, which is what the cold-blooded snake needs to live. Point out that each of these animals lives where it does because it has a need that is fulfilled by that environment. Explain that each environment has exactly what each animal needs.</p> <p>With help and supervision, allow your child to care for a living animal for a day. Show them how that animal gets the water, shelter, air, and food it needs. Emphasize the importance of a clean environment. Discuss the needs specific to that species and explain why it is cared for in the way it is.</p> <p>*Image Sources: Ashley Ulmer and Susie Forrest</p>

Observation Sheet 9

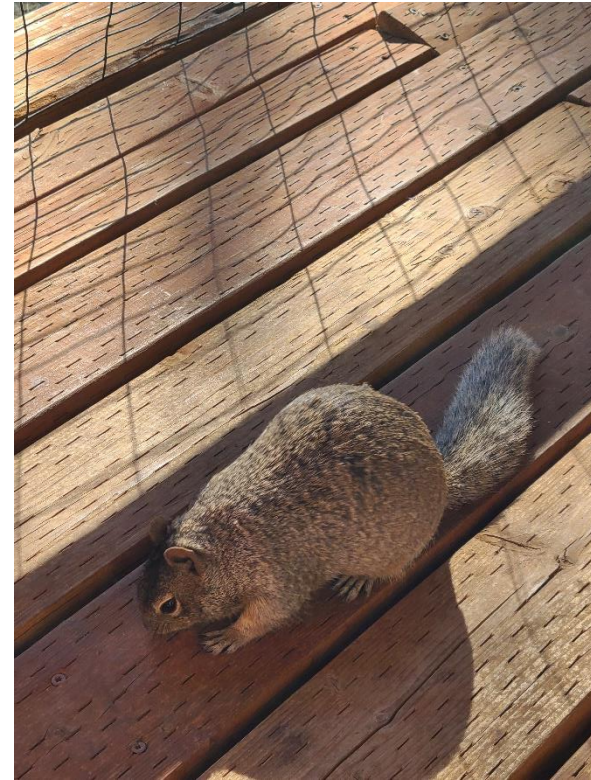


Title of Lesson 10: Changing the World

Standards Taught: K.2.1, K.2.2, K.2.3

Materials:	Preparation:	Implementing the Lesson:
Observation Sheet 10		<p>Review with your child the needs of plants and animals and how environments provide those needs in different ways based on the differences between species.</p> <p>Explain that each plant and animal works hard to get the things it needs. If those things are not easily available, the plant or animal will change over time so that they can get what they need. For example, humans need food, water, and shelter. In order to get those things, we plant gardens and crops, clean the water so it is safe to drink, and build houses. Discuss with your child how different their life would be if there was no food in the stores (grown by farmers), water in their pipes (cleaned by others), or homes to live in. Point out that before humans lived in the area, these things were not there. Ask your child to think of a few other ways humans change their environment to make life easier (build roads, make fences, etc). Discuss ways we should be respectful of and care for our environment (recycle, don't litter, don't waste resources, be kind to plants and animals, etc) and explain that Heavenly Father made the earth for us. It has all we need but He expects us to take care of what He has given us.</p> <p>Show your child the photo of the tree. Explain that this tree is growing in a forest on the side of a road. As it grew, the tree needed more and more water. Point to the roots, which are expanding from the bottom of the tree into the road, and explain that in order to get what it needed, the tree began to grow roots that could reach further and further, allowing it to get more and more water. As a result, the tree roots grew into the road and made it bumpy. The tree changed its environment to get what it needed.</p> <p>Point to the image of the squirrel. Explain that the squirrel lives in the same forest as the tree. Ask your child what a squirrel may do to change its environment to get what it needs. Examples are: burying nuts and seeds for storage or creating a shelter in a tree.</p> <p>Discuss how other animal may change their environments. Use the following links as examples, and discuss with your child what actions each animal took and how that helps them to get the things that they need.</p> <p>Beaver Dam (https://martinezbeavers.org/wordpress/wp-content/uploads/2018/08/ad0m4m.jpg)</p> <p>Bird's Nest (https://upload.wikimedia.org/wikipedia/commons/thumb/b/bc/Acrocephalus_arundinaceus_nest.jpg/1200px-Acrocephalus_arundinaceus_nest.jpg)</p> <p>Plant Growing Taller to Get Sun (https://www.sustainability-times.com/wp-content/uploads/2019/07/PRM00096_150267851_still_1600.jpg)</p> <p>*Image Sources Observation Sheet: Ashley Ulmer</p>

Observation Sheet 10



Title of Lesson 11: Changing the World (Part 2)

Standards Taught: K.2.1, K.2.2, K.2.3, K.2.4		
Materials:	Preparation:	Implementing the Lesson:
Observation Sheets 8-10 Papers Pencils Crayons/Markers		<p>Briefly review the needs of plants and animals with your child and how differences in the environment help them to get these things. Discuss how plants and animals may change their environment in order to get what they need. Review the need for good stewardship by humans.</p> <p>Explain that today they are going to discover how another animal changes its environment. Ask your child to choose one of the animals from the previous lessons, showing them the observation sheet images for reference. If they are interested in an animal or plant that was not covered, allow them to choose that, too. When your child has chosen their animal or plant, discuss the needs and environment specific to that species. Ask them to draw a picture of their animal, the environment, and its needs.</p> <p>Next, spend time researching with your child about that animal. Keep it age appropriate and brief. Wild Kratts is a great resource for animals (look for a YouTube video on that species). Information on plants can be found here or here as well as in other online resources.</p> <p>Finally, ask your child to draw a picture of a way their species changes the environment around them. For example, a snake may dig underground tunnels while a species of grass may spread out and cover the ground.</p>

Title of Lesson 12: In the Sky

Standards Taught: K.S.S.2, K.S.S.2.2, K.S.S.2.2.a, K.S.S.2.2.b		
Materials: This video (Timelapse of the sun moving in the sky through trees - YouTube) This video ("Super Blood Moon" - TimeLapse of the Eclipse - YouTube) Sidewalk Chalk An area where you can draw with sidewalk chalk Ball Flashlight Sticker	Preparation:	Implementing the Lesson: Briefly review with your child the ways in which plants, humans, and other animals change the earth. Remind them of a few examples if needed. Ask your child if these changes happen quickly or if they take time. Point out that some changes, like a squirrel hiding an acorn, can happen quickly. However, it takes a long period of time before the acorn grows into a tree. Discuss each example and the time it takes for changes to be made. Explain that there are several changes on the earth that take time. Some examples of this are: children growing into adults, flowers blooming, seasons changing, and eggs hatching. Point out that there are also slow-moving changes in the sky. Ask your child to name some differences between day and night. What do we do? What does it look like? What does it feel like? How do we know when it is day or night? Point out that one of the easiest ways to know that it is day or night is to look for the sun (in the day) or the moon (at night). Ask your child if they know how the sun and the moon trade places. Explain that the earth we live on turns around in a circle. This turning helps the sun and the moon change places. Demonstrate this concept by holding a ball in your hand as your child shines a flashlight on it. Point out which side of the ball has light on it, explaining that we are going to pretend that the flashlight is the sun. Mark that size of the ball with a sticker and slowly turn it, asking your child to hold the "sun" still. Stop when the sticker is in the darkness. Point out that the day and night traded places. This is what happens to the earth. Ask your child if they have ever seen the sun and moon move across the sky. Explain that the turning of the earth makes it look like the sun and moon are moving. Watch the videos provided in the materials section with your child, explaining that these are sped up so that you can see an entire day and an entire night quickly. In real life, the movement is very slow. Tell your child that we are going to see if we can tell if the sun is going across the sky today. Give your child the sidewalk chalk. Ask them to draw a circle on the sidewalk and stand inside it. Next, ask your child to put an "x" at the point in the circle they are facing. Finally ask your child to draw an arrow inside their circle, pointing to the direction the sun is from inside their circle. Remind them not to look directly at the sun because it can harm our eyes. Do this three times during the day: morning, noon, and evening. Ask your child to observe how much the sun has moved across the sky. Point out that it moves very slowly but, if we are patient, we can see the movement over time. You can also do this activity with the moon. *Now is the time to prepare for lesson 15. The goal of this lesson is to allow your child to observe a slow change over time. You can do this by planting a seed, growing caterpillars or lady bug larvae, hatching an egg, growing tadpoles into frogs, or some others slow-moving process. This website (www.nature-gifts.com) is a great resource.

Title of Lesson 13: Changing Seasons

Standards Taught: K.S.4, K.S.4.1.C, K.S.4.2.b		
Materials: This video Blank white paper folded into quarters Markers/Crayons The following colors of paper, ripped into small pieces: pink, green, yellow, red, brown, green, white Glue	Preparation:	Implementing the Lesson: Ask your child to review the slow changes that you observed in the last lesson as well as any other slow changes they may remember. Tell them that today we are going to learn about another slow change: seasons. Ask your child to name each season (spring, summer, fall, winter) and tell you what each one is like. What are some activities they like to do in each season? Discuss holidays and/or family traditions your family celebrate in each season. Watch the video with your child. Explain that the seasons change very slowly but one of the best places to see the change is to consider what a tree looks like in each season. Show your child this image and ask them to point to and name each season. Explain that the tree changes the way it looks over time so we don't notice it all at once. But, in each season the tree is very different. Give your child the blank paper. In each of the quarters, ask your child to write the name of one season. Then, ask them to draw a tree trunk and branches at the bottom of each quarter. Finally, ask your child to use the small pieces of paper to decorate their trees, matching the seasons that they labeled each rectangle with. The spring box, for example, would have pink and/or green papers on it to represent new leaves and blossoms. Ask your child to help you clean up when finished.

Title of Lesson 14: Slow Changes: Butterfly Life Cycle

Standards Taught: K.S.4, K.S.4.1, K.S.4.1.a, K.S.4.1.b, K.S.4.1.c		
Materials:	Preparation:	Implementing the Lesson:
<p>This Video</p> <p>This image</p> <p>Paper plate</p> <p>Brown, Green, Orange, White, and Black Construction paper</p> <p>Glue</p> <p>Scissors</p> <p>Small Stick</p> <p>Grains of white rice</p> <p>Pom Poms (any color)</p> <p>Marker</p>		<p>*Please adjust this lesson to match the slow-moving process that you choose to prepare for in lesson 12</p> <p>Ask your child to review a few of the slow-moving processes covered in previous lessons. Explain that we are going to learn about another slow change today: the life of a butterfly. Ask your child what a baby butterfly looks like. Use the image to explain that butterflies hatch from eggs into caterpillars. Those caterpillars then eat and grow for a long time. When they are ready, they create a chrysalis around their bodies. In the chrysalis, they change into adult butterflies, which takes a long time.</p> <p>Watch the video with your child. Explain that this video has been sped up to show weeks of work by the caterpillar. Ask your child to point out each stage of life as the caterpillar goes through it in the video. Explain that soon, you will get to observe these changes in real time, but it will take patience because it is very slow.</p> <p>Finally, give your child the paper plate. Draw a line across the plate, separating it into two sections. Then, rotate the plate 90° and draw another, separating the plate into quarters. Ask your child to write the numbers 1-4, one number in each quarter. Then, ask them what the first stage of a butterfly's life is. Allow them to use the image for reference if needed. Explain that butterflies lay their eggs on leaves so that the baby caterpillars will have something to eat when they hatch. Ask your child to cut a leaf from the green paper and glue it onto Stage 1 of their paper plate. Allow your child to glue a few grains of white rice onto the leaf, representing the egg.</p> <p>Ask your child what the next stage of a butterfly's life is. All them to glue pom poms in a line in the Stage 2 section of their paper plate. This represents the caterpillar.</p> <p>Ask your child what Stage 3 of a butterfly's life is. Explain that a chrysalis is a protective pouch that the caterpillar stays inside as he or she changes. The chrysalis is attached to something sturdy and hangs there until the butterfly is ready to come out. Have your child glue the stick across the Stage 3 section of their paper plate, roll or cut the brown paper into a chrysalis shape, and glue it hanging from the stick.</p> <p>Finally, allow your child to cut out, color, and glue a butterfly onto the Stage 4 section of their paper plate. Ask your child to review or teach someone else the stages of a butterfly's life. Keep the image, video, and craft for the next lesson.</p>

Title of Lesson 15: Slow Changes: Butterfly Life Cycle Observations

Standards Taught: K.S.4, K.S.4.1, K.S.4.1.a, K.S.4.1.b, K.S.4.1.c		
Materials:	Preparation:	Implementing the Lesson:
Life-cycle image, video, and craft from previous lesson Observation Sheet 15 Pencil Crayons/Markers Butterfly kit including live caterpillars, food, spray bottle, butterfly cage, sugar, and butterfly feeder Safe area where your caterpillars can grow		<p>*Please adjust this lesson to match the slow-moving process that you choose to prepare for in lesson 12</p> <p>Using the resources from the last lesson, ask your child to review the life cycle of a butterfly. Fill in any gaps they may leave and answer any questions they may have. Explain that today, we are going to begin overserving that life cycle in real time. Remind your child that it takes a long time for a caterpillar to turn into a butterfly and they need to be very patient. Point out that caterpillars and butterflies are living creatures and should be treated very carefully. They are smaller than us and are sensitive to movement and noise so we must be very careful not to bump them or be too loud.</p> <p>Show your child the live caterpillars. Explain that these are baby caterpillars that just hatched from their eggs. Ask your child to describe the caterpillars to you. What color are they? What is their size like? What are they doing? Point out that the caterpillars have all that they need to grow until they create their chrysalis. Place the caterpillars where your child can easily observe them, but where they will be safe (see directions included in kit).</p> <p>Give your child the observation sheet and ask them to draw the caterpillars exactly as they are now in the first box. Point out that there are several boxes on the observation sheet, one for each day of observing. Remind your child that it will take a long time and a lot of patience.</p> <p>Each day, allow your child to observe and record a picture of the caterpillars. Ask them to point out how the caterpillars change from day to day. Explain that though these changes are slow, we can see them if we observe over time. Encourage your child to include details about color, size, and shape of the caterpillars, chrysalis, and butterfly as they make their observational drawings. Remind them of the safety rules often. Follow the directions included in your kit to know when and how to care for the chrysalis and butterflies and allow your child to be involved as much as is safe.</p> <p>*This lesson will span about 2 weeks.</p>

Observation Sheet 15

Title of Lesson 16: More Changes

Standards Taught: K.S.4, K.S.4.1, K.S.4.1.a, K.S.4.1.b, K.S.4.1.c		
Materials:	Preparation:	Implementing the Lesson:
Hatching Egg Video		*Please adjust this lesson to match the slow-moving process that you choose to prepare for in lesson 12. Adjust the videos to show at least 3 slow-moving processes different than the one your child is observing.
Tadpole to Frog Video		Ask your child to tell you about how their butterflies are doing. Are they growing? Is it hard to be patient?
Child growing up Video		Tell your child that today we are going to watch a few other slow changes. The videos of these changes, however, are sped up so we can see it all happen quickly. Like the caterpillars, these things take a long time in real life.
Growing plant Video		Watch the videos with your child, discussing what is happening in each one.
Paper and Markers		Finally, ask your child to draw the life-cycle of their favorite change they watched today. Allow them to use the video of their choice for reference if needed. Encourage your child to include at least 4 stages in their life cycle. An example of this would be: egg, hatching, baby chick, chicken or tadpole, two legs, four legs, frog