

Science Grade Pre-K Scope & Sequence

Time Frame	Unit	NGSS Standard(s)/Outcome(s)	Learning Goals
September	Colors	<p>K-2-ETS1-1. Ask questions, make observations, and gather information about a situation people want to change to define a simple problem that can be solved through the development of a new or improved object or tool.</p> <p>K-2-ETS1-3. Analyze data from tests of two objects designed to solve the same problem to compare the strengths and weaknesses of how each performs.</p>	<ul style="list-style-type: none"> ● There are many different colors. ● Objects can be classified by color. ● A single color can have many different shades, from very light to very dark. ● Diluting colored water with clear water creates a lighter shade of the same color. ● Colors can be combined to make a new color. ● Something of one color against a background of a similar color may be hard to see. ● Something of one color against a background of a contrasting color is easy to see. ● Objects appear to be a different color when viewed through a transparent colored material. ● After passing through a transparent colored material, the color of the light looks like the color of the material. ● The colors visible in bubbles come from light reflecting on the bubble's surface.
October/ November	Shadows		<p>As children explore shadows, they will begin to understand the following key science concepts:</p> <ul style="list-style-type: none"> ● A shadow is made when an object blocks the light. ● You can make shadows with your body and other objects. ● A shadow can show the shape of an object, but it can't show colors

			<p>or details (such as a smile or a frown).</p> <ul style="list-style-type: none"> ● You can change the shape of a shadow by moving and turning your body or the object or by moving the light source. ● You can combine shadows to make different shadow shapes. ● Each light source directed at an object will create a shadow. ● As you move a light source around an object, the object's shadow moves and its length and shape may change. ● Indoors, you can change the size of a shadow by moving your body or the object closer to or farther from the light. (Shadows grow bigger and fuzzier as the object moves closer to the light source, and smaller and sharper as the object moves farther away.) ● Outdoors, a shadow's shape, size, and position change over the course of the day as the position of the sun changes. <p>Children will practice scientific skills as they learn about shadows. They will:</p> <ul style="list-style-type: none"> ● Observe, describe, draw, and compare shadows. ● Predict, measure, and record changes in size. ● Do simple experiments, talk about cause and effect, and share ideas.
February/ March	Ramps	K-PS2-1. Plan and conduct an investigation to compare the effects of different strengths or different directions of pushes	<p>As children explore ramps, they will begin to understand the following key science concepts:</p>

and pulls on the motion of an object. [Clarification Statement: Examples of pushes or pulls could include a string attached to an object being pulled, a person pushing an object, a person stopping a rolling ball, and two objects colliding and pushing on each other.]

[K-PS2-2.](#) Analyze data to determine if a design solution works as intended to change the speed or direction of an object with a push or a pull.* [Clarification Statement: Examples of problems requiring a solution could include having a marble or other object move a certain distance, follow a particular path, and knock down other objects. Examples of solutions could include tools such as a ramp to increase the speed of the object and a structure that would cause an object such as a marble or ball to turn.]

- A ramp is a surface with one end higher than the other.
- An object placed on an inclined plane will roll, slide, or stay put.
- The shape of an object affects whether it will roll or slide or stay put.
- Objects that slide are more likely to move on steeper inclines, and both rolling and sliding objects move faster down steeper inclines.
- The motion and speed of a rolling or sliding object is affected by the shape of the object and texture of the object and the texture of the surface on which it is rolling or sliding.
- When a rolling or sliding object hits an obstacle, it will stop or slow down and its direction may change.
- When a stationary object is hit by a rolling or sliding object, the force may knock the object over or cause it to move depending on how fast the object is going and how heavy it is.

Children will practice scientific skills as they learn about ramps and rolling and sliding objects. They will:

- observe and describe the way objects move when they are placed on ramps of different steepness and when they hit other objects.
- predict and compare the behavior of objects that roll versus objects that slide.
- predict, measure, and compare how different objects roll on different surfaces.

			<ul style="list-style-type: none"> ● do simple experiments, talk about cause and effect, and share ideas.
April/May	Plants	<p>K-LS1-1. Use observations to describe patterns of what plants and animals (including humans) need to survive. [Clarification Statement: Examples of patterns could include that animals need to take in food but plants do not; the different kinds of food needed by different types of animals; the requirement of plants to have light; and, that all living things need water.]</p>	<ul style="list-style-type: none"> ● There are many different types of plants and seeds. ● Plants grow from seeds. Some plants also grow from bulbs. ● Different plants grow from different seeds and bulbs. ● Plants need water and light to grow. ● Plants have different parts: roots, stems, leaves, and fruit. ● Some parts of the plant are below the ground and some are above. ● Plants outside grow in many places. Usually they grow in soil. ● A tree is a very large plant. There are many different types of trees. ● Many of the foods we eat come from plants. ● We eat certain leaves, roots, fruits, and seeds. ● Fruits have seeds. ● It is important to treat the environment with respect and care. <p>Children will practice scientific skills as they learn about plants. They will:</p>

			<ul style="list-style-type: none">● observe, describe, and sort various natural objects● predict and compare changes in their growing plants● do simple experiments, talk about cause and effect, and share ideas
May/June	Water		<p>As children explore water, they will begin to understand the following key science concepts:</p> <ul style="list-style-type: none">● Water takes the shape of its container.● You can use lots of different objects to move water.● Water can flow quickly or slowly.● Water sticks together to make drops.● Water flows downhill.● You can change the direction water flows.● You can stop the flow of water by building dams.● Water behaves differently on different surfaces.● Some surfaces absorb water; some don't.● Objects behave differently in water. Some float; some don't.● If you add enough weight to a floating object, it will sink. <p>Children will practice scientific skills as they learn about water. They will:</p>

			<ul style="list-style-type: none">● observe and describe how water looks and moves.● classify the way different objects behave in water.● do simple experiments, talk about cause and effect, and share ideas.
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