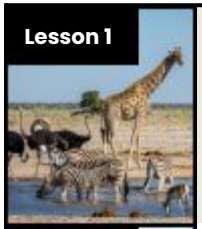
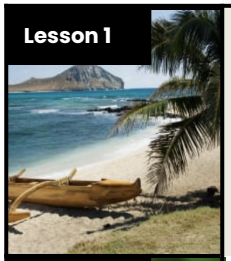
Animal Biodiversity Unit (Animal Adventures)

	Topic & Guiding Question	Student Objectives	New York State Science Learning Standards (2016)
 **Lesson 1**	**Biodiversity & Classification** How many different kinds of animals are there?	Students observe the traits of different animals and use that information to organize them into groups based on their characteristics.	**Foundational for 2-LS4-1.** Make observations of plants and animals to compare the diversity of life in different habitats.
 **Lesson 2**	**Habitat Diversity** Why would a wild animal visit a playground?	Students observe animals, plants, and the physical characteristics of two different habitats. They collect and analyze data to compare the biodiversity between the two habitats.	**2-LS4-1.** Make observations of plants and animals to compare the diversity of life in different habitats.
 **Lesson 3**	**Biodiversity, Habitats, & Species** Why do frogs say “ribbit”?	Students identify frogs based on their unique calls and use that information to determine the level of frog species diversity within multiple habitats.	**2-LS4-1.** Make observations of plants and animals to compare the diversity of life in different habitats.
 **Lesson 4**	**Biodiversity & Engineering** How could you get more birds to visit a bird feeder?	Students investigate which kinds of birds are likely to visit a bird feeder based on what they eat and design and build a prototype bird feeder that attracts a specific type of bird.	**2-LS4-1.** Make observations of plants and animals to compare the diversity of life in different habitats.

Plant Adaptations Unit (Plant Adventures)

	Topic & Guiding Question	Student Objectives	New York State Science Learning Standards (2016)
Lesson 1 	✨New!✨ **Seed Dispersal** How did a tree travel halfway around the world?	Students develop physical models of seed structures. They observe how structure affects the seed's function in dispersing away from the tree.	**Foundational for 2-LS2-2.** Develop a simple model that illustrates how plants and animals depend on each other for survival.
Lesson 2 	✨New!✨ **Animal Seed Dispersal** Why do seeds have so many different shapes?	Students develop a model of a furry animal and then use it to test how far seed models with different structures can travel.	**2-LS2-2.** Develop a simple model that illustrates how plants and animals depend on each other for survival.
Lesson 3 	**Water, Sunlight, & Plant Growth** Could a plant survive without light?	Students conduct an investigation to determine that plants need water and light to grow.	**2-LS2-1.** Plan and conduct an investigation to determine if plants need sunlight and water to grow.
Lesson 4 	⌛**Coming soon! August 2023** **Plant Needs & Habitats** How much water should you give a plant?	Students plan and conduct a series of virtual experiments in order to determine how much water and sunlight a set of mystery plants need in order to stay healthy and survive.	**2-LS4-1.** Make observations of plants and animals to compare the diversity of life in different habitats.

Erosion & Earth's Surface Unit (Work of Water)

	Topic & Guiding Question	Student Objectives	New York State Science Learning Standards (2016)
Lesson 1 	**Mapping & Earth's Surface Features** If you floated down a river, where would you end up?	Students develop a model of the Earth's surface and use it to discover an important principle about how rivers work: rivers flow downhill, from high places to low places.	**2-ESS2-2.** Develop a model to represent the shapes and kinds of land and bodies of water in an area **2-ESS2-3.** Obtain information to identify where water is found on Earth and that it can be solid or liquid.
Lesson 2 	**Rocks, Sand, & Erosion** Why is there sand at the beach?	Students investigate the effects of rocks tumbling in a river. Based on their observations, they construct an explanation for why rocks on the top of mountains are much bigger than the sand at the beach.	**2-ESS2-2.** Develop a model to represent the shapes and kinds of land and bodies of water in an area
Lesson 3 	**Mapping & Severe Weather** Where do flash floods happen?	Students use a model (i.e. a map) to examine the different factors, including the shapes and kinds of land, that contribute to flash floods. They use this to predict where flash floods are most likely to happen.	**2-ESS2-2.** Develop a model to represent the shapes and kinds of land and bodies of water in an area **2-ESS1-1.** Use information from several sources to provide evidence that Earth events can occur quickly or slowly.
Lesson 4 	**Erosion, Earth's Surface, & Landforms** What's strong enough to make a canyon?	Students create a model landform and investigate how some Earth events can occur quickly, while others occur slowly.	**2-ESS1-1.** Use information from several sources to provide evidence that Earth events can occur quickly or slowly.
Lesson 5 	**Erosion & Engineering** How can you stop a landslide?	Students compare multiple solutions for preventing erosion.	**2-ESS2-1.** Compare multiple solutions designed to slow or prevent wind or water from changing the shape of the land.

Material Properties Unit (Material Magic)

	Topic & Guiding Question	Student Objectives	New York State Science Learning Standards (2016)
Lesson 1 	**Material Properties & Engineering** Why do we wear clothes?	Students investigate different material properties, such as flexibility and absorbency, and use those properties to design and build a hat that protects them from the sun.	**2-PS1-1.** Plan and conduct an investigation to describe and classify different kinds of materials by their observable properties. **2-PS1-2.** Analyze data obtained from testing different materials to determine which materials have the properties that are best suited for an intended purpose.
Lesson 2 	**Classify Materials: Insulators** Can you really fry an egg on a hot sidewalk?	Students conduct an investigation of conductors and insulators in order to determine which are best suited for allowing people to handle hot items.	**2-PS1-2.** Analyze data obtained from testing different materials to determine which materials have the properties that are best suited for an intended purpose.
Lesson 3 	**Heating, Cooling, & Phases of Matter** Why are so many toys made out of plastic?	Student conduct an investigation of different materials in order to determine which are most and least easily melted.	**2-PS1-2.** Analyze data obtained from testing different materials to determine which materials have the properties that are best suited for an intended purpose. **2-PS1-4.** Construct an argument with evidence that some changes caused by heating or cooling can be reversed and some cannot.
Lesson 4 	**Inventions & Engineering** What materials might be invented in the future?	Students design a new invention that takes advantage of the unique properties of a futuristic material.	**2-PS1-1.** Plan and conduct an investigation to describe and classify different kinds of materials by their observable properties.
Lesson 5 	**Materials, Properties, & Engineering** Could you build a house out of paper?	Students construct an evidence- based account of how a structure built of paper can be disassembled and rebuilt in new ways.	**2-PS1-3.** Make observations to construct an evidence-based account of how an object made of a small set of pieces can be disassembled and made into a new object.
Lesson 6 	**Soil & Properties** How do you build a city out of mud?	Students conduct an investigation where they examine three different soil models. They use this information to determine which type of soil has the properties that will result in the best mud that can be used to build a house.	**2-PS1-1.** Plan and conduct an investigation to describe and classify different kinds of materials by their observable properties. **2-PS1-2.** Analyze data obtained from testing different materials to determine which materials have the properties that are best suited for an intended purpose.