Grade 4 Science

**Please note, this document does not represent the total number of science activities that constitute a Learning Period. Instead, you may find these activities and worksheets helpful in introducing a topic or assessing your child's understanding and mastery of the corresponding concepts or "I Can" Statements.

LP 1 Science Standards

- **4-LS1-1:** I can explain how the internal and external structures of plants help them survive, grow, act in certain ways, and reproduce. I can explain how the internal and external structures of animals help them survive, grow, act in certain ways, and reproduce.
- **4-LS1-2:** I can use a model to tell you about the ways that animals receive different types of information through their senses. I can use a model to show that animals use their brain to process information. I can use a model to show that animals respond to information in different ways.

Activity	Standard(s) Covered
Structure and Function Lesson Plan by Generation Genius • All plants & animals have structures that help them survive. • Each structure has a specific function. • Animal structures may appear similar or different depending on where they live. • Paper plane Challenge Use the engineering	• 4-LS1-1: I can explain how the internal and external structures of plants help them survive, grow, act in certain ways, and reproduce. I can explain how the internal and external structures of animals help them

design process to make a glider inspired by bird wings. Material List • Wooden skewer • Pair of scissors • Roll of tape • Handful of straws • Handful of coins • Sheets of sturdy construction paper	survive, grow, act in certain ways, and reproduce.

LP 2 Science Standards

- **4-ESS1-1:** I can talk about changes in the Earth's landscape over time using evidence found in rock formations and fossils in rock layers.
- **4-ESS2-1:** I can discuss the ways that water, ice, wind, or plant life can change the Earth's surface. I can make observations and measurements that show weather and/or erosion are taking place.
- **4-ESS2-2:** I can use information found on maps to discover patterns on Earth's surface.

Activity	**Standard(s) Covered**

Weathering and Erosion Activity lesson plan **Material List** • Bag of sand • Pen or pencil • Cup of small rocks • Large bottle of water • Baking tray (or similar sized container) **How It Works** When weathering breaks down the Earth's surface it forms small pieces of dirt, sand, and small rocks. All of this material can get moved through erosion - this happened in the model when flowing water in the riverbed moved some of the material down the hill. Eventually, these pieces ended up somewhere else. The process of the material being deposited at the bottom of the hill is called deposition.	• 4-ESS1-1: I can talk about changes in the Earth's landscape over time using evidence found in rock formations and fossils in rock layers.

LP 3 Science Standards

- **4-ESS3-1:** I can describe how energy and fuel are created by natural resources. I can give examples of how using energy and fuel can affect the environment.
- **4-ESS3-2:** I can come up with solutions to problems that some natural Earth processes, like earthquakes, volcanoes, or floods, can cause for humans.

Activity	**Standard(s) Covered**
Types of Energy lesson plan Brain Pop: Air Pollution Energy Resources **Lesson Objectives** • Describe nonrenewable energy resources. • Identify several renewable energy resources. • Outline world energy use and ways to conserve energy.	• 4-ESS3-1: I can describe how energy and fuel are created by natural resources. I can give examples of how using energy and fuel can affect the environment.

Lesson Vocabulary • conservation • fossil fuel • natural resource • nonrenewable resource • renewable resource	
[Theory of tectonic plates] **Lesson Objectives** • Describe what a plate is and how scientists can recognize its edges. • Explain how the plates move by convection in the mantle.	• 4-ESS3-2: I can come up with solutions to problems that some natural Earth processes, like earthquakes, volcanoes, or floods, can cause for humans.

• Describe the three types of plate boundaries and the features of each type of boundary. • Describe how plate tectonics processes lead to changes in Earth's surface features.	

LP 4 Science Standards

- **4-PS3-1:** I can explain how the speed of an object is related to the energy of that object.
- **4-PS3-2:** I can explain how energy can be transferred by sound, light, heat, and electricity.

Activity	Standard(s) Covered
Speed BrainPop Acceleration **Lesson Objectives** • Outline how to calculate the speed of a	• 4-PS3-1: I can explain how the speed of an object is related to the energy of that object.

moving object.	
Electricity: Sources and Functions	• 4-PS3-2: I can explain how energy can be transferred by sound, light, heat, and electricity.

LP 5 Science Standards

- **4-PS3-3:** I can ask and answer questions about the energy transfers that occur when two objects crash.
- **4-PS3-4:** I can use what I know about energy to create devices that convert energy from one form to another.

Activity	**Standard(s) Covered**
BrainPOP Electric Circuits **Lesson Objectives**	• 4-PS3-3: I can ask and answer questions about the energy transfers that occur when two objects crash.

• Identify the parts of an electric circuit. • Identify electric safety features and how to use electricity safely.	
BrainPop **Map a Route** Create a route in your home. Mark the starting and ending points on the floor. Then set a few obstacles in between those two points. Have your child close his or her eyes and follow your verbal instructions, such as take six steps forward, turn right, take three more steps, etc. After, have your child create a route and now you close your eyes as he or she gives the oral instructions.	• 4-PS3-4: I can use what I know about energy to create devices that convert energy from one form to another.

LP 6 Science Standards

- **4-PS4-1:** I can create a model of waves to show patterns in amplitude and wavelength. I can create a model of waves to show that waves can cause objects to move.
- **4-PS4-2:** I can create a model to show that light reflecting from an object and entering the eye allows the object to be seen.

Activity	Standard(s) Covered
Big Idea Activity create energy Big Idea:In this lesson students participate in an internet search to investigate the definition of energy and discover the two main types of energy, kinetic and potential energy.	• 4-PS4-1: I can create a model of waves to show patterns in amplitude and wavelength. I can create a model of waves to show that waves can cause objects to move.

LP 7 Science Standards

- **4-PS4-3:** I can compare different ways that patterns are used to transfer information.
- **3-5-ETS1-1:** I can find a design that needs to be fixed. I can define what a successful design would involve. I can plan the amount of materials, time, or money that it would take to complete the fix.

Activity	Standard(s) Covered
Students will identify the criteria and constraints of the solution for their design problem by considering scientific principles and potential impacts on people and the environment. Criteria are things the design needs to do in order to be successful--its requirements. Constraints are limitations on the design.	• 4-PS4-3: I can compare different ways that patterns are used to transfer information. • 3-5-ETS1-1: I can find a design that needs to be fixed. I can define what a successful design would involve. I can plan the amount of materials,

PBS Engineering for Good	time, or money that it would take to complete the fix.

LP 8 Science Standards

- **3-5-ETS1-2:** I can evaluate possible solutions to a problem when presented with more than one solution. I can discuss which solution would work best and tell you why.
- **3-5-ETS1-3:** I can test a model or prototype so that I can figure out what improvements are needed.

Activity	**Standard(s) Covered**
Design Challenge: Making a waterslide What You Need: Paper cups Paper tubes (such as paper towel rolls) Paper straws Plastic wrap Tupperware or container to make a “pool” at the bottom of the slide Glue Tape	• 3-5-ETS1-2: I can evaluate possible solutions to a problem when presented with more than one solution. I can discuss which solution would work best and tell you why. • 3-5-ETS1-3: I can test a model or prototype so that I can figure out what improvements are needed.

Small toy(s) Pen and paper for notetaking Any other supplies you find that can be upcycled!	