

Course Description:

Grade 4 Science includes the three main domains of science which are physical, life, and earth and space science. Learners will use various kinds of experimenting, including field studies, systematic observations, models, and controlled experiences. The course begins with the explanation of the scientific method which the students continue to use and build upon throughout the course. The big picture of the earth is examined as students review the life on planet earth, salt and fresh water, and fast and slow changes that occur on the planet. Students go beyond planet earth, though, as they study galaxies, the solar system and other planets. Students examine the ways that forces and motion can be measured and the concept that a single kind of matter can exist as a solid, liquid or gas. Grade 4 science uses many modes of instruction including video presentations, enrichment activities, and hands-on experimentation.

Module	Lesson Title	Objectives	Materials Needed
Using Scientific Methods	What Is Science?	<ol style="list-style-type: none"> 1. Define science, and describe why it's important. 2. List common steps in a scientific method. 3. Design and carry out your own simple experiment using the scientific method. 	
	Observations and The Scientific Method	<ol style="list-style-type: none"> 1. In this lesson you will learn about observation. 2. List common steps in a scientific method. 	Optional - shoebox or brown paper bag
	Living On Planet Earth	<ol style="list-style-type: none"> 1. Describe the shape of the Earth. 2. List and define common terms used to describe Earth. 3. Describe at least five reasons that life can exist on Earth. 4. List and describe at least five landforms that exist on Earth's surface. 	<p>One white paper plate</p> <p>Modeling clay in a range of colors (blue, brown, green, white, gray)</p> <p>10 toothpicks</p> <p>Black marker</p>

4th Grade Science Semester A Syllabus

Module	Lesson Title	Objectives	Materials Needed
	Ocean Features	<ol style="list-style-type: none"> 1. Describe the size and some benefits of the world ocean. 2. Name the five oceans on Earth that make up the world ocean. 3. Describe the role of an oceanographer. 4. Recognize important features of the ocean. 	
	Marine Life	<ol style="list-style-type: none"> 1. In this lesson you will learn about marine life. 	Poster board Optional - Magazines or internet images to make a collage
Freshwater on Earth	Freshwater on Earth	<ol style="list-style-type: none"> 1. Describe lakes, rivers, and other water sources. 2. Explain the water cycle and how it connects fresh and saltwater sources. 3. Define groundwater and key terms related to it. 	Optional - Poster board, markers, and magazines for making a collage Optional - Materials to demonstrate the states of water; pot, stove, freezer, ice cube tray etc.
	Weathering	<ol style="list-style-type: none"> 1. Describe how weathering can cause slow changes on Earth. 	
	Erosion	<ol style="list-style-type: none"> 1. Explain how erosion affects Earth over time. 	
	Deposition	<ol style="list-style-type: none"> 1. Describe the process of deposition and give two examples. 	Optional - Digital camera Optional - Colored pencils or crayons
	Rapid Changes on Earth	<ol style="list-style-type: none"> 1. Describe how volcanoes can cause rapid changes on Earth's surface. 2. Explain how earthquakes can cause rapid changes on Earth's surface. 3. Describe how natural disasters can rapidly cause changes to Earth's surface. 4. Define how mass wasting can rapidly change Earth's surface. 	Optional: Medium-sized box Scissors Plastic bottle (such as a 20 oz. water bottle) Masking tape Medium-sized bowl 1 cup flour 1 cup water Newspaper

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Module	Lesson Title	Objectives	Materials Needed
			Small, plastic (grocery) bag Water-based paints (red, green, brown and other colors) Paint brushes Rocks, sticks, and pieces of shrubs to decorate Funnel ¼ cup vinegar 2 Tbsp baking soda Red or orange gelatin granules
	Mountains and Ocean Ridges	1. Explain the formation of mountains in the context of the theory of plate tectonics. 2. Describe how fault block and folded mountains are formed. 3. Describe how ocean ridges and ocean trenches are formed.	
The Atmosphere and Air	The Atmosphere	1. Define the atmosphere and describe what it's made up of. 2. Name and describe the five layers of the atmosphere.	
	Characteristics of Air	1. Describe characteristics of water in the atmosphere, including humidity, dew point, evaporation, transpiration, and condensation.	Optional - Balloon Optional - Scale House plant Clear plastic bag
	Weather	1. Define weather and the ingredients needed to make weather.	2-Liter plastic bottle A Match
	Types of Weather and Clouds	1. Give examples of different types of weather and clouds.	

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Module	Lesson Title	Objectives	Materials Needed
	Observing Weather	1. Provide examples of instruments scientists use to measure and predict weather.	
	Understanding Climate	1. Identify several key factors that affect climate. 2. Describe several types of climate.	
	Types of Climate and the Seasons	1. Explain how climate is related to the seasons.	Inflatable Globe Lamp from your home or school Black marker
	Human Effects on Climate	1. Explain examples of human effects upon climate.	
Galaxies and Stars	The Universe	1. Be able to tell the difference between a solar system, a galaxy, and the universe.	
	The Sun and Other Stars	1. Identify key properties of the sun, including location and movement.	Straight pin
	The Solar System	1. Describe our solar system.	Optional - Marble, walnut, golf ball, acorn, basketball, soccer ball, softball, small grapefruit
	Inner and Outer Planets	1. Identify and describe the four inner planets.	
	The Inner Planets and Space Objects	1. Describe the inner planets and space objects.	
	The Outer Planets	1. Identify and describe the four outer planets.	
	Natural Resources	1. Identify several key types of natural resources.	

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	Renewable and Nonrenewable	1. Distinguish between renewable and nonrenewable natural resources.	
	Conservation	1. Explain how to conserve natural resources.	
Measurements and Instruments	Customary vs. Metric	1. Describe the differences between metric and customary units of measurement.	Liquid Measuring Cup 3 Liquids (pint of milk, bottle or water, can of juice etc.)
	Measuring Length	1. In this lesson you will learn about measuring length.	
	Measuring Mass	1. In this lesson you will learn about measuring mass.	
	Measuring Temperature	1. Learn about measuring temperature.	Rubbing alcohol Water bottle Food coloring (any color will work) Clear plastic drinking straw Modeling clay
	Science Instruments	1. Identify several important scientific instruments and describe how they are used.	
	Properties of Matter	1. Describe observable properties of matter.	2 Clear drinking glasses 2 eggs Table salt Measuring spoon
	Property of Measurement	1. In this lesson you will learn about the property of measurement.	2 Clear drinking glasses 2 eggs Table salt Measuring spoon
	Three Categories of Matter	1. Describe the three main categories of matter. 2. Identify the boiling and freezing/melting points of water.	

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Module	Lesson Title	Objectives	Materials Needed
	States of Matter	1. Name three common states of matter and describe their key properties.	Can of frozen-concentrate orange juice Large spoon Pitcher Several paper cups Wooden craft sticks Aluminum foil 2-Liter bottle of soda Balloon Watch or clock
	Conservation of Mass	1. Explain the law of conservation of mass.	
Building Blocks of Matter	Building Blocks	1. Describe the building blocks of matter: elements, atoms, and molecules.	Large leaf Bag of gumdrops Box of toothpicks
	Periodic Table	1. Form a basic understanding of the periodic table of elements.	
	Mixtures and Compounds	1. Explain the difference between a mixture and a compound.	
	Solutions	1. Define a solution, and give several examples.	3 Clear drinking glasses 3 Index cards Black marker Measuring cup Measuring spoon 4 and 1/2 teaspoons of regular granular sugar Clock or watch 6 Sugar cubes Spoon 8 glass jars with lids 1 Cup and 1/2 Teaspoon Vinegar 1/2 Teaspoon Rubbing alcohol 1/2 Teaspoon Solid

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Module	Lesson Title	Objectives	Materials Needed
			laundry soap 1/2 Teaspoon Liquid soap 1/2 Teaspoon Flour 1 Teaspoon Cooking oil 1/2 Teaspoon Ground up chalk 1/2 Teaspoon Dirt
	Motion	1. Define motion and position.	
	Forces and Movement	1. Explain how forces cause changes in motion.	
	Friction	1. Describe how the position and motion of an object can be changed.	3 Small toy cars of different sizes Flat piece of plywood 3 or 4 hard covered books Towel 3 or 4 pieces of sandpaper Mirror Ruler