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.

Materials Needed:

- Shoebox or brown paper bag
- One white paper plate
- Modeling clay in a range of colors (blue, brown, green, white, gray)
- 10 toothpicks
- Black marker
- Poster board
- Magazines or internet images to make a collage
- Materials to demonstrate the states of water; pot, stove, freezer, ice cube tray etc.
- Digital camera
- Colored pencils or crayons
- Medium-sized box
- Scissors
- 2 Tbsp baking soda
- Red or orange gelatin granules Balloon
- Scale
- House plant
- Clear plastic bag
- 2-Liter plastic bottle
- match
- Inflatable Globe
- Lamp from your home or school
- Black marker
- Straight pin
- Marble, walnut, golf ball, acorn, basketball, soccer ball, softball, small grapefruit
- Liquid Measuring Cup
- Several paper cups
- Wooden craft sticks
- Aluminum foil
- 2-Liter bottle of soda
- Watch or clock
- Large leaf
- Bag of gumdrops
- Box of toothpicks
- 3 Clear drinking glasses
- 3 Index cards
- 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

- Plastic bottle (such as a 20 oz. water bottle)
- Masking tape
- Medium-sized bowl
- 1 cup flour
- 1 cup water
- Newspaper
- 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
- 3 Liquids (pint of milk, bottle or water, can of juice etc.)
- Rubbing alcohol
- Water bottle
- Food coloring (any color will work)
- Clear plastic drinking straw
- Modeling clay
- 2 Clear drinking glasses
- 2 eggs
- Table salt
- Measuring spoon
- Can of frozen-concentrate orange juice
- Large spoon
- Pitcher
- 1/2 Teaspoon Rubbing alcohol
- 1/2 Teaspoon Solid 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
- 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

Module	Lesson Title	Objectives
Using Scientific Methods	What Is Science?	• Define science, and describe why it is important. • List common steps in a scientific method. • Design and carry out your own simple experiment using the scientific method.
	Observations and The Scientific Method	• In this lesson you will learn about observation. • List common steps in a scientific method.
	Living On Planet Earth	• Describe the shape of the Earth. • List and define common terms used to describe Earth. • Describe at least five reasons that life can exist on Earth. • List and describe at least five landforms that exist on Earth's surface.
	Ocean Features	• Describe the size and some benefits of the world ocean. • Name the five oceans on Earth that make up the world ocean. • Describe the role of an oceanographer. • Recognize important features of the ocean.
	Marine Life	• In this lesson you will learn about marine life.
Freshwater on Earth	Freshwater on Earth	• Describe lakes, rivers, and other water sources. • Explain the water cycle and how it connects fresh and saltwater sources. • Define groundwater and key terms related to it.
	Weathering	• Describe how weathering can cause slow changes on Earth.
	Erosion	• Explain how erosion affects Earth over time.
	Deposition	• Describe the process of deposition and give two examples.
	Rapid Changes on Earth	• Describe how volcanoes can cause rapid changes on Earth's surface. • Explain how earthquakes can cause rapid changes on Earth's surface.

Module	Lesson Title	Objectives
		• Describe how natural disasters can rapidly cause changes to Earth's surface. • Define how mass wasting can rapidly change Earth's surface.
	Mountains and Ocean Ridges	• Explain the formation of mountains in the context of the theory of plate tectonics. • Describe how fault block and folded mountains are formed. • Describe how ocean ridges and ocean trenches are formed.
The Atmosphere and Air	The Atmosphere	• Define the atmosphere and describe what it's made up of. • 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.
	Weather	• Define weather and the ingredients needed to make weather.
	Types of Weather and Clouds	• Give examples of different types of weather and clouds.
	Observing Weather	• Provide examples of instruments scientists use to measure and predict weather.
	Understanding Climate	• Identify several key factors that affect climate. • Describe several types of climate.
	Types of Climate and the Seasons	• Explain how climate is related to the seasons.
	Human Effects on Climate	• Explain examples of human effects upon climate.
	The Universe	• Be able to tell the difference between a solar system, a galaxy, and the universe.

Module	Lesson Title	Objectives
Galaxies and Stars	The Sun and Other Stars	• Identify key properties of the sun, including location and movement.
	The Solar System	• Describe our solar system.
	Inner and Outer Planets	• Identify and describe the four inner planets.
	The Inner Planets and Space Objects	• Describe the inner planets and space objects.
	The Outer Planets	• Identify and describe the four outer planets.
	Natural Resources	• Identify several key types of natural resources.
	Renewable and Nonrenewable	• Distinguish between renewable and nonrenewable natural resources.
	Conservation	• Explain how to conserve natural resources.
Measurements and Instruments	Customary vs. Metric	• Describe the differences between metric and customary units of measurement.
	Measuring Length	• In this lesson you will learn about measuring length.
	Measuring Mass	• In this lesson you will learn about measuring mass.
	Measuring Temperature	• Learn about measuring temperature.
	Science Instruments	• Identify several important scientific instruments and describe how they are used.

Module	Lesson Title	Objectives
	Properties of Matter	• Describe observable properties of matter.
	Property of Measurement	• In this lesson you will learn about the property of measurement.
	Three Categories of Matter	• Describe the three main categories of matter. • Identify the boiling and freezing/melting points of water.
	States of Matter	• Name three common states of matter and describe their key properties.
	Conservation of Mass	• Explain the law of conservation of mass.
Building Blocks of Matter	Building Blocks	• Describe the building blocks of matter: elements, atoms, and molecules.
	Periodic Table	• Form a basic understanding of the periodic table of elements.
	Mixtures and Compounds	• Explain the difference between a mixture and a compound.
	Solutions	• Define a solution, and give several examples.
	Motion	• Define motion and position.
	Forces and Movement	• Explain how forces cause changes in motion.
	Friction	• Describe how the position and motion of an object can be changed.