

4th Grade Science Teacher Guidelines

In 4th Grade Science, students explore many different science subjects. Topics covered include scientific method, properties of matter, forces, processes that create and change Earth's landforms, weather, plants and animals, and ecosystems. Labs and activities are included in every Unit. Please make sure all activities and investigations are completed safely.

Unit 1: Scientific Method and Plants

Unit 2: Animals

Unit 3: Ecosystems

Unit 4: Weather

Unit 5: Earth's Surface and Resources

Unit 6: Solar System

Unit 7: Matter

Unit 8: Forces and Energy

Unit 9: Heat and Electricity

Unit10: Sound and Light

Unit	Activity Name	Activity Description	Materials Needed	Finished Before
1	Make a Science Journal	Activity: Students create a science journal and write safety rules.	Composition notebook, permanent-ink pen or marker, crayons or colored pencils, ruler, pencil	Quiz 1
1	Soil	Investigation: Students use soil to practice observing, predicting, measuring, and making graphs.	Soil (enough to fill 500 mL beaker), hand lens, white paper, graduated cylinder, beaker, sieve, small-clear plastic container, pan balance, coffee filter, paper bag, gloves	Quiz 2
1	Seed Germination	Investigation: Students explore the life cycle of two different plants.	Two different types of annual seeds that have a fast life cycle, 2 different containers, metric ruler, soil	Quiz 3
2	Animal Observations	Investigation: Students observe animal behaviors.	Journal, mirror, pet cat or dog, pet treat	Quiz 1
2	Invertebrate Classifications	Investigation: Students make a classification chart of invertebrate animals.	poster board, computer, printer	Quiz 2
2	Vertebrate Classifications	Investigation: Students make a classification chart of vertebrate animals.	poster board, computer, printer	Quiz 3

3	Ecosystem Investigation	Investigation: Students observe an ecosystem at home or school.	Camera, collecting net, journal, computer, printer	Quiz 1
3	Design an Aquarium Ecosystem	Investigation: Students design and observe an aquarium ecosystem.	Aquarium set up (includes filter, pump, heater), rocks or gravel or sand, different types of fish, plants and other organisms, decorations, fish food	Quiz 2
3	Ecosystem Game	Activity: Students create a game to classify, predict, and communicate information about habitats, organisms, weather, and disasters.	Notecards, markers	Quiz 3
4	Weather Station	Activity: Students make a weather station to measure and record weather data.	Barometer, rain gauge, wind vane, anemometer, thermometer (Students can make some of these instruments with these materials.): BAROMETER: wide-mouthed glass jar, balloon, rubber band, scissors, plastic drinking straw, cardboard strip, glue, metric ruler, pencil, small piece of modeling clay, shoebox/RAIN GAUGE: plastic 2-Liter bottle, ruler, scissors, stones or large gravel, clear tape, water/WIND VANE: 2 paper plates, scissors, poster board, plastic drinking straw, straight pin, pencil with new eraser, clay, glue, compass, crayons/ANEMOMETER: 4 small paper cups, 4 plastic drinking straws, tape, scissors, straight pin, pencil with a new eraser, stapler	Quiz 1
4	Take Weather Data	Investigation: Students take measurements and record weather data from their weather station.	Thermometer, wind vane, anemometer, stop watch, barometer, rain gauge	Quiz 2
4	Weather Maps and Graphs	Investigation: Students make weather maps and	Journal	Quiz 3

		graphs of the data from the weather station.		
5	Soil	Investigation: Students test two different types of soil to decide which is better for growing plants.	2 different soil samples, 2 large containers, 2 small, plastic beakers, 2 plant pots, tape, marker, seeds, metric ruler	Quiz 1
5	River Model	Investigation: Students make a river model and test how different water flow speeds affect erosion and deposition.	3 pounds of cornmeal, 8 pounds of sand, water, empty one-gallon milk container, 1-liter plastic bottle, box cutter, marker, area with a small hill or slope, plastic sheet or tarp, empty paper-towel roll, metric ruler, 2 pencils	Quiz 2
5	Conservation Poster	Activity: Students make and present a poster with ideas about how to conserve natural resources.	Poster board, markers, computer, printer	Quiz 3
6	Moon Observations	Investigation: Students observe the moon for patterns over a period of 3 weeks.	Camera, two rocks or objects	Quiz 1
6	Shadows	Investigation: Students observe and record how their shadow changes over the course of the day.	Chalk, helper	Quiz 1
6	Moon Observations	Investigation: Students continue observations of the moon.	journal	Quiz 2
6	Constellations	Investigation: Students locate and draw constellations on a clear night.	(optional) binoculars or telescope	Quiz 3
6	Moon Observations	Investigation: Students continue observations of the moon.	journal	Quiz 3
7	Properties of Matter Poster	Activity: Students create a poster showing the different types of physical properties of matter.	Poster board, markers, crayons, glue, tape, paper, different items or drawings to represent physical properties	Quiz 1
7	Physical Properties	Investigation: Students observe and record the physical properties of different types of matter.	5 different items (one must be a metal paper clip), scale or balance, bowl large enough to	Quiz 1

			fit each item, water, magnet, metric ruler	
7	Making Ice Cream	Investigation: Students make ice cream with or without salt to observe its effect on state of matter changes.	Measuring spoons (1/4 tsp and tbsp), measuring cups (1/2 cup and 1 cup), sugar, half and half, vanilla extract, salt, 2 small sealable pint size plastic bags, 2 gallon-size sealable plastic bags, 8 cups of ice cubes, oven mitts, timer, refrigerator	Quiz 2
7	Mixture or Solution	Investigation: Students observe different mixtures and solutions and then come up with solutions for separating them.	Coffee filters, sieves of different sizes, hot plate, sugar, sand, gravel, magnet, small nails, paper clips, tongs, 3 different bowls, pot, water	Quiz 3
8	Design Your Own Experiment	Investigation: Students design their own experiment to test a force.	Materials vary based on experiment.	Quiz 1
8	Making a Compound Machine	Investigation: Students create their own compound machine.	Materials vary based on experiment.	Quiz 2
8	Types of Energy	Activity: Students will make a poster showing the different types of energy.	Poster board, markers, computer, printer	Quiz 3
9	Conductors and Insulators	Investigation: Students will test different materials to see how fast an ice cube melts.	5 different materials, 5 ice cubes, stopwatch	Quiz 1
9	Make a Circuit	Investigation: Students make a circuit and test what happens when the circuit is open and closed.	One 9-volt battery, one 9-volt light bulb, light bulb holder, two wires (one red, one black), light switch (optional), scissors or wire stripper, rubber gloves, safety goggles	Quiz 2
9	Safety Poster	Activity: Students make a safety poster about electricity.	Poster board, markers, computer, printer	Quiz 3
9	Make an Electromagnet	Investigation: Students make an electromagnet and explore its properties.	Large iron nail, 3 feet of thin-coated copper wire, 1 D-battery, small iron objects like paper clips or staples, wire strippers or scissors, tape,	Quiz 3

10	Sound Waves	Investigation: Students explore how sound travels through gases and solids.	wooden or plastic bowl, rubber gloves, safety goggles A partner, 20 meters of string, 10 cones or similar objects, scissors, 2 paper cups, 2 paper clips, meter stick	Quiz 1
	Ear Model	Investigation: Students make an ear model.	Pipe cleaner, straw, tape, plastic wrap, rubber band, empty paper towel roll, heavy paper (cardstock), metric ruler, scissors	Quiz 2