

Science (4)

Science

Grade(s) 4th, Duration 1 Year, 1 Credit
Required Course

Course Overview

Students will practice science inquiry throughout the year. They will focus on topics in nutrition, life sciences, physical sciences, and earth sciences.

Science (grade 4) courses typically explore complex systems, such as plant and animal adaptation, forces and motion, and physical and chemical changes in matter, or content consistent with state academic standards. Students may identify causes and effects of change, make predictions, and gather data from multiple sources.

Timeframe	Unit	Scope And Sequence Instructional Topics
Ongoing	Science Inquiry/Scientific Method	1. Scientific method
9 Day(s)	Health	1. Healthy living 2. Healthy eating 3. Body Awareness
35 Day(s)	Life Sciences	1. Life Processes 2. Life Cycle 3. Ecosystems
30 Day(s)	Earth Science	1. Water Cycle and Weather 2. Forces That Shape Earth's Surface 3. Renewable and Nonrenewable Resources
27 Day(s)	Physical Science	1. Properties of matter 2. Electricity 3. Sound 4. Solar System and Beyond

Materials and Resources

Scott Foresman teacher guide and student texts
Brain Pop, Jr.
Promethean Planet lessons

Prerequisites

Completion of third grade science.

Course Details

Unit: Science Inquiry/Scientific Method

Duration: Ongoing

Unit Overview

Introduced and assessed early in the year and practiced throughout the year. Mastery is demonstrated by November with independent science project.

Materials and Resources

Investigations in science text, Sandwich Bag Science Investigations
-Salt water investigations
-Static Electricity
-Sound unit investigations
-Salt, baking soda investigation
-DVD: Discovery Channel Young Scientists Competition
-Science Project Comic Book

Simple investigations so as to allow focus on the process.

Academic Vocabulary

problem, question, hypothesis, observation, reflection, variable, control, experiment, procedure, investigation, conclusion, materials, step-by-step directions, inquiry, scientists

Summative Assessment

Science Project (November)
Science Inquiry Vocabulary Quiz (August)

Topic: Scientific method

Duration: Ongoing

Topic Overview

Students will develop an understanding of the scientific method of inquiry, and will employ it efficiently throughout the school year.

Learning Targets

Scientific thinking

Students will answer the question, "What is scientific thinking?"

Using scientific inquiry skills

Science (4)

Science

Grade(s) 4th, Duration 1 Year, 1 Credit

Required Course

Students will use scientific inquiry skills in school for a variety of investigations. This will be accomplished through distributed practice.

Science project development and presentation.

Students will employ the scientific method to independently conduct an inquiry and present findings to an audience.

Unit: Health

Duration: 9 Day(s)

Unit Overview

MyPlate food groups, portion size, reading nutrition labels, combining foods into healthy meals, calories, exercise

Materials and Resources

www.myplate.gov

Health Textbook

Science for Today (nutrition section)

Speaker: Dietitian (hospital, Merc, Harvesters)

Academic Vocabulary

MyPlate, protein, carbohydrate, fat, nutrition, portion, nutrient, vitamin, mineral, food group, calorie, food label, balanced diet,

Summative Assessment

MyPlate Projects

Topic: Healthy living

Duration: Ongoing

Topic Overview

Exercise, physical fitness, personal hygiene, personal safety

Learning Targets

Personal safety

Students will discuss preventing personal injury by avoiding inappropriate risks and dangers. (bike safety, stranger danger, weather and water safety)

Personal hygiene

Students will discuss the importance of being clean, including dental hygiene and bathing.

Physical fitness

Students will move 20 minutes a day outside of PE class and recess.

Topic: Healthy eating

Duration: 8 Day(s)

Topic Overview

Students will expand their understanding of the components of a healthy diet through direct instruction, research, and art projects.

Learning Targets

Nutrition

Students will learn about fats, carbohydrates, proteins, vitamins, and calories.

Research about foods

Students will use a variety of resources to discover the nutritional components of favorite foods. Students will also compare and contrast menus from different restaurants.

Examples: www.myplate.gov; Brain Pop; nutrition labels; guest speakers

Creating a healthy meal (actual or model).

Students will plan a balanced meal and construct a model. Explain the reasoning behind their model electronically.

Example: Sock Puppets app on iPad

Topic: Body Awareness

Duration: 1 Day(s)

Topic Overview

Students will learn how their bodies will change through puberty. Parents are informed of this topic in advance and have the opportunity to opt out for their child.

Learning Targets

Planning for Puberty

School nurse will educate students on the process of puberty in gender segregated groups.

Science (4)

Science

Grade(s) 4th, Duration 1 Year, 1 Credit
Required Course

Unit: Life Sciences

Duration: 35 Day(s)

Unit Overview

Life Processes

Life Cycles

Ecosystems

Materials and Resources

Textbook Chapters 1, 3, 5 & 6 BrainPop, Nature Study Site, Active Inspire flipcharts, JumpStart Echo-Location, 321 Contact Orangutans, Magic School Bus Going Batty, Inherited Traits chart

Academic Vocabulary

Life Processes

life process, reproduce, give off waste, react to surroundings, release energy, grow and develop, take in materials

root, stem, leaf, seed, taproot, fibrous root, succulent, needle leaf, broadleaf, photosynthesis, chlorophyll

Life Cycles

life cycle, embryo, germinate, petals, pistil, stamen, egg, larva, adult, nymph, metamorphosis, complete metamorphosis, incomplete metamorphosis, life span, trait, inherit, life span

Ecosystems

ecosystem, soil, organic matter, environment, community, population, rain forest, prairie, desert, polar, temperate zone, producer, consumer, food chain, food web, predator, prey, carnivore, herbivore, omnivore, scavenger, decomposer, decay, recycling, microorganism

Summative Assessment

Textbook chapter tests

Ecosystem project

Make a food chain from one ecosystem (plant, herbivore, carnivore, omnivore)

Topic: Life Processes

Duration: 7 Day(s)

Topic Overview

Identify life processes, identify plant parts and their functions

Learning Targets

How are living things organized?

Students will understand that living things are made of cells and carry out life processes.

How do plants carry out life processes?

Students will understand that plants make their own food and are made up of three main parts.

Students will conduct an experiment to deprive growing plants of essential elements (air, water, sunlight) and report on the outcome.

Topic: Life Cycle

Duration: 8 Day(s)

Topic Overview

Explore life cycles of plants and insects.

Learning Targets

Plant life cycle

Students will explore the role of seeds in the life cycle of plants, describe the life cycle of a flowering plant, and compare life cycles of different plants.

Insect, amphibian, and animal life cycles

Students will identify the stages of complete and incomplete insect metamorphosis. Students will compare life cycles and life spans of different animals.

Offspring and traits

Students will recognize that most offspring grow into adults resembling their parents, and inherit certain traits.

Topic: Ecosystems

Duration: 15 Day(s)

Topic Overview

Observe and describe living & non-living things in a variety of ecosystems.

Learning Targets

Nonliving parts of ecosystems.

Students will identify and define the nonliving components of several different ecosystems.

Living parts of ecosystems

Students will identify and define living organisms (plants and animals) in a variety of different ecosystems.

Science (4)

Science

Grade(s) 4th, Duration 1 Year, 1 Credit
Required Course

Create a model ecosystem.

Students will create a model of an ecosystem including specific components as defined by the teacher.

Food chains and food webs

Students will describe and model food chains and food webs in specific ecosystems to include specific components as required by the teacher.

Unit: Earth Science

Duration: 30 Day(s)

Unit Overview

Students will develop an understanding of systems which affect changes in our Earth.

Materials and Resources

Text book, social studies text book, BrainPop, Water Cycle Song

Academic Vocabulary

evaporation, condensation, precipitation, water cycle, air mass, front, weather, climate, barometer, rain gauge, anemometer, weather vane

Summative Assessment

Draw & label water cycle

Chapter tests

Topic: Water Cycle and Weather

Duration: 6 Day(s)

Topic Overview

Students will name, discuss, draw, and sing about the water cycle. They become aware of the impact of the water cycle on weather and on the earth's surface.

Learning Targets

Water cycle review

Students will recall and extend prior instruction on the parts of the water cycle.

Model the water cycle

Students will illustrate and sing about the water cycle.

The role of the Sun

Students will understand the role of the sun's energy on the earth.

Topic: Forces That Shape Earth's Surface

Duration: 15 Day(s)

Topic Overview

Slow changes: weathering and erosion. Rapid changes: earthquakes, mudslides. volcanoes.

Learning Targets

Rapid changes

Students will understand that the earth's surface is constantly changing, that some changes take place quickly. They will also identify earthquakes, volcanic eruptions and mudslides as agents of rapid change.

Slow changes

Students will define weathering, and identify weathering and erosion as agents of slow changes in the earth's surface.

Investigation: Earthquake

Students will create a model of an earthquake using scientific inquiry processes.

Investigation: Volcano

Students will create a model of a volcano using scientific inquiry processes.

Investigation: Erosion

Students will create a model demonstrating erosion using scientific inquiry processes.

Topic: Renewable and Nonrenewable Resources

Duration: 5 Day(s)

Topic Overview

Students will identify renewable and nonrenewable resources, as well as classify resources. Students will also discuss conservation strategies.

Learning Targets

Renewable resources

Science (4)

Science

Grade(s) 4th, Duration 1 Year, 1 Credit

Required Course

Students will explain that resources can be classified as renewable or nonrenewable, and distinguish between these types. Given a sample, they will correctly identify its category.

Nonrenewable resources

Students will explain that resources can be classified as renewable or nonrenewable, and distinguish between these types. Given a sample, they will correctly identify its category.

Conservation of Resources

Students will identify reducing, reusing, and recycling as important ways to help extend the supply of resources.

Unit: Physical Science

Duration: 27 Day(s)

Unit Overview

Properties of matter, how matter changes; electricity, and sound; energy & motion

Materials and Resources

Text book, BrainPop, Science Cabinet materials on old stage and in classrooms, *They Might Be Giants* music videos on You Tube

Academic Vocabulary

matter, atom, molecule, states of matter, physical property, solid, liquid, gas, classification (color, size, shape, density & texture), physical & chemical property

metric system (mass, volume, weight) graduated cylinder, spring scale, balance scale

Summative Assessment

Chapter tests

Topic: Properties of matter

Duration: 10 Day(s)

Topic Overview

Students will explore many properties of matter through reading and hands-on activities.

Learning Targets

What makes up matter?

Students will identify and describe the three states of matter.

Physical and chemical properties of matter

Students will describe physical and chemical properties of matter.

Physical changes in matter

Students will define physical changes and demonstrate understanding of the concept through modeling.

Mixtures and solutions

Students will observe and describe mixtures and solutions using proper scientific terminology.

Chemical changes in matter

Students will observe the change when two materials react chemically to produce a new material. They differentiate this from physical change.

Topic: Electricity

Duration: 5 Day(s)

Topic Overview

Students will explore electricity through reading, observation and hands-on activities.

Learning Targets

Static electricity

Students will create and observe qualities of electric charges in matter.

Electric currents

Students will construct a complete circuit and understand the behavior of an electric current using scientific inquiry process.

Magnets

Students will observe and understand the effects of magnets on various objects.

Topic: Sound

Duration: 3 Day(s)

Topic Overview

Students will review and extend prior understanding of sound.

Learning Targets

Science (4)

Science

Grade(s) 4th, Duration 1 Year, 1 Credit
Required Course

Properties of sound

Students will understand that sound travels in waves produced by vibrations.

Construct musical instrument

Students will design and construct a functional musical instrument using non-standard materials.

Topic: Solar System and Beyond

Duration: 6 Day(s)

Topic Overview

Students will observe moon, stars, and sun as they affect the earth.

Learning Targets

The Sun's importance

Students will model how the Sun heats Earth's surface.
