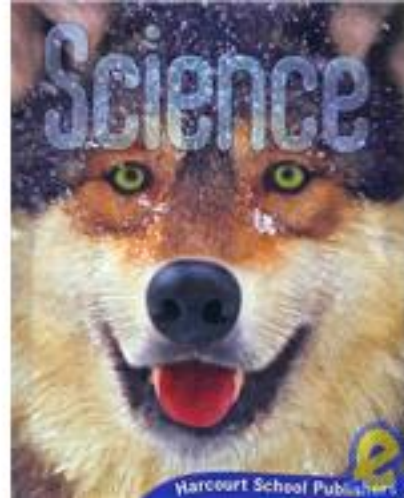


Science - Grade 5 - Text

Course Description

5th Grade Science uses Harcourt's Science textbook to introduce a wide array of topics from cell structures to planets. Throughout the year, students will learn to think and act like a scientist. Not only will students learn about many of life's wonders, but they will also get the chance to learn about some influential scientists of today. This course is driven by investigation, and students will have many opportunities to design and implement their own experiments. These investigations will aid in comprehension and will give students the chance to explore science as opposed to only reading about the concepts. Weekly assignments may include reading from the textbook, answering questions, conducting an experiment, or completing a quick *Insta-Lab*. Students will receive a lab kit and manual along with their textbook and course syllabus. Additional materials will be necessary for some of the labs, but most materials are readily available in your home or in a local store for minimal cost.



Learning Objectives

GRADE FIVE

Scientific progress is made by asking meaningful questions and conducting careful investigations. As a basis for understanding this concept and addressing the content in the other three strands, students should develop their own questions and perform investigations. Students will:

- a. Classify objects (e.g., rocks, plants, leaves) in accordance with appropriate criteria.
- b. Develop a testable question.
- c. Plan and conduct a simple investigation based on a student-developed question and write instructions others can follow to carry out the procedure.
- d. Identify the dependent and controlled variables in an investigation.
- e. Identify a single independent variable in a scientific investigation and explain how this variable can be used to collect information to answer a question about the results of the experiment.
- f. Select appropriate tools (e.g., thermometers, meter sticks, balances, and graduated cylinders) and make quantitative observations.
- g. Record data by using appropriate graphic representations (including charts, graphs, and labeled diagrams) and make inferences based on those data.
- h. Draw conclusions from scientific evidence and indicate whether further information is needed to support a specific conclusion.
- i. Write a report of an investigation that includes conducting tests, collecting data or examining evidence, and drawing conclusions.

Syllabus Sample

Week 2

Lesson Introduction:

This week you will have your first reading assignment in your textbook and conduct your first investigation. Last week you learned about some scientific tools in your lab kit. This week you will read more about them to learn how scientists use them to make measurements.

Lesson Instructions:

- A. **Textbook:** Read pages 2 through 13 in your textbook. Pay attention to the vocabulary words highlighted in yellow and make sure you understand their meanings before moving ahead. Also, at the end of each reading section you will see a question labeled *Main Idea and Details*. Make sure you know how to answer these questions and if you need to, go back and reread to help you get the main ideas. When you have finished reading answer these questions.
1. What does a spring scale measure?
 2. Why are different tools used to measure mass and weight?
 3. In what ways do tools help scientists make observations?
 4. You have a bottle of water that is half full. Describe three things you could measure about the water, and name the tools used for the measurements.
- B. **Lab:** Now it's time to put your tools and your knowledge about them to the test! Open your lab manual to page LM13 and take out your lab kit too. You are also going to need an empty balloon in order to conduct this experiment. Follow the directions on page LM13 to take measurements of the empty balloon and then repeat your measurements with the balloon blown up.
5. Copy the data table from page LM13 and record your measurements.
 6. How did the measurements change when you blew up the balloon? Why?
 7. Do you think that your measurement of the empty balloon or the blown up balloon was more accurate?
- C. **Inquiry:** For this Inquiry, you are going to need the following materials: magnifying box, water, vegetable oil, and liquid soap. Fill the bottom third of the magnifying box with water. Add an equal amount of oil.
8. Describe the appearance of this mixture.
 9. Put the lid on the box. Hold the box tight and gently shake it. Do the oil and water mix?
 10. Let the liquid stand for a minute. What happens?
 11. Open the box and add several drops of liquid soap. Cover the box and shake it again. What happens now?
 12. How does liquid soap affect a mixture of oil and water?

Congratulations! You have finished your second week of science. It is time to send your work to your teacher. Make sure you send, either by mail or email, the items listed below to your teacher. Remember to label your work with your name, date, and the Week #.

Homework Checklist

- ✓ Answers to questions 1-14 from Week 1.
- ✓ Answers to questions 1-12 from Week 2.

Outline for 5th Grade Science

Unit 1: Getting Ready for Science

Week 1: Course Introduction

- A) Get to know textbook.
- B) Explore lab kit

Week 2: What Tools Do Scientists Use?

- A) Scientific tools
- B) Quantitative observations
- C) Qualitative observations
- D) Conduct an investigation

Week 3: What Inquiry Skills Do Scientists Use?

- A) Dependent variables
- B) Controlled variables
- C) Identify independent variable in investigation

Week 4: How Do Scientists Record and Interpret Data?

- A) Record data
- B) Create charts or graphs
- C) Make inferences based on data

Week 5: What Is the Scientific Method?

- A) Learn the steps of Scientific Method
- B) Complete observations
- C) Make inferences

Week 6: Milestone Assignment #1

- A) Milestone Assignment #1: Design and Conduct Experiment

Unit 2: Elements and Compounds

Week 7: What Are Atoms and Elements?

- A) Matter
- B) Molecules
- C) Periodic Table
- D) Chemical and physical changes

Week 8: What Are Metals?

- A) Physical properties of metals
- B) People in science

Week 9: What Are the Properties of Some Common Substances?

- A) Properties of solids, liquids, and gases

B) Properties of carbon, water, salt

Week 10: How Are Chemical and Physical Properties Used?

- A) Differences between chemical and physical properties
- B) Separating mixtures
- C) Identifying compounds by properties
- D) Completing an inquiry

Week 11: What Are Chemical Reactions?

- A) Chemical reactions
- B) Common properties of salts

Week 12: Milestone Assignment #2

- A) Milestone Assignment #2: Designing and Conducting Experiment

Unit 3: Structures of Living Things

Week 13: How Do Organisms Transport Materials?

- A) Multicellular organisms' structures
- B) Transporting materials
- C) Plant cells
- D) Animal cells

Week 14: How Do the Circulatory and Respiratory Systems Work Together?

- A) Respiratory System
- B) Circulatory System
- C) People in Science

Week 15: How Do the Organs of the Digestive System Work Together? And How Do Plants and Animals Rid Themselves of Waste?

- A) Digestive System
- B) Excretory System
- C) Removing wastes from cells and body

Week 16: How Are Materials Transported in Vascular Plants?

- A) Nonvascular and vascular plants
- B) Sugar, water, and minerals transported in plants
- C) Xylem and phloem

Week 17: How Do Cells Get the Energy They Need?

- A) Plants use carbon dioxide and release oxygen
- B) Photosynthesis

Week 18: Milestone Assignment #3

- A) Review of material
- B) 1st Semester Exam - Milestone Assignment #3

Unit 4: The Water Cycle

Week 19: How Does Water Move from Earth to the Air and Back Again?

- A) Salt water on Earth
- B) Parts of the water cycle

Week 20: How Does Water Move from Earth to the Air and Back Again?

- A) Condensation
- B) Evaporation
- C) Melting glaciers

Week 21: How do Californians Get the Water they Need?

- A) Water usage in communities
- B) Watersheds

Week 22: How Can People Conserve Water?

- A) Water pollution
- B) Water conservation

Week 23: How Can People Conserve Water?

- A) Limited supply of fresh water
- B) Conserving fresh water supply

Week 24: Milestone Assignment #4

- A) Milestone Assignment #4: Designing and Conducting Experiment

Unit 5: Weather

Week 25: How Does Uneven Heating of Earth Affect Weather?

- A) Uneven heating of Earth
- B) Earth's pressure
- C) Atmosphere

Week 26: How Do the Oceans and the Water Cycle Affect Weather?

- A) Ocean's influence on weather
- B) Ocean currents

Week 27: How Do the Oceans and the Water Cycle Affect Weather?

- A) Water cycle's role in weather
- B) Precipitation

Week 28: How Is Weather Predicted?

- A) Weather maps and data
- B) Weather forecasts
- C) Methods of predicting the weather

Week 29: What Are the Causes and Effects of Severe Weather?

- A) Pacific storms
- B) Hurricanes and Other Cyclones
- C) Thunderstorms and Tornadoes

D) Safety tips in severe weather

Week 30: Milestone Assignment #5

A) Milestone Assignment #5: Create weather broadcast

Unit 6: The Solar System

Week 31: What Is the Sun?

- A) Composition of the Sun
- B) Sun in relation to the rest of solar system
- C) How the Sun produces energy

Week 32: What Makes Up the Solar System?

- A) Model the solar system
- B) Inner and outer planets

Week 33: What Makes Up the Solar System?

- A) Asteroids and comets
- B) Satellites

Week 34: What Holds the Moon and Planets in Place?

- A) Previous models of the solar system
- B) Orbits of planets
- C) Gravity and inertia
- D) People in science

Week 35: What Holds the Moon and Planets in Place?

- A) Phases of the moon
- B) Gravity in space

Week 36: Milestone Assignment #6

- A) 2nd Semester Exam - Milestone Assignment #6
- B) Course Evaluation