

Macmillan/McGraw-Hill Science: A Closer Look

Grade 3

Be a Scientist Lesson 1: Science Skills

The Scientific Method Lesson 2: Science Methods

Life Science

Unit A Living Things

Unit Opener

Unit Literature

Chapter 1 – A Look at Living Things

Lesson 1 – Living Things and Their Needs

OBJECTIVES:

- **Compare nonliving things and living things.**
- **Describe what living things need to survive.**
 - **Explore Activity:** What are living and nonliving things like?
 - What are living things? (needs/activities)
 - What do living things need?
 - What are living things made of?

Reading in Science: Microorganisms

Lesson 2 - Plants and Their Parts (10 pp)

- **OBJECTIVES:**
- **Relate plant structures to their functions.**
- **Describe how plants are classified.**
- **Explore Activity:** How are plants alike?
 - What are plants?
 - How do roots and stems help plants?
 - Why are leaves important?
 - How can you classify plants?

Inquiry Investigation: What do plants need to live?

Lesson 3 – Animals and Their Parts (8 pp)

OBJECTIVES:

- **Describe what an animal needs to survive.**
- **Relate how an animal meets its needs.**
- **Explore Activity:** What parts do animals have? (observe a snail)
 - What are animals?
 - How do animals get what they need?
 - How do animals stay safe?

Inquiry Skill Builder: Classify

Lesson 4 - Classifying Animals (10 pp)

OBJECTIVES:

- **Identify two major groups of animals.**
- **Classify animals into groups based on their structures.**
- **Explore Activity:** How can you classify animals?
- How can you classify animals?
- What are some invertebrates?
- What are some vertebrates?
- **What are mammals?**

Writing in Science

Math in Science

Chapter 1 Review (2 pp)

Chapter 2 – Living Things Grow and Change

Lesson 1 – Plant Life Cycles (10 pp)

OBJECTIVES:

- **Understand how plants grow and reproduce.**
- **Recognize the life cycles of different types of plants.**
- **Explore Activity:** What does a seed need to grow?
- How do plants grow?
- How do plants make seeds?
- What is the life cycle of some plants?
- How do plants grow without seeds?

Inquiry Skill Builder: Form a Hypothesis

Lesson 2 – Animal Life Cycles (8 pp)

OBJECTIVES:

- **Identify the different stages that animals go through in a life cycle.**
- **Compare the life cycles of different kinds of animals.**
- **Explore Activity:** how does a caterpillar grow and change?
- What are some animal life cycles? (insect, amphibian metamorphosis)
- How do reptiles, fish, and birds change as they grow?
- What is the life cycle of a mammal?

Writing in Science

Math in Science

Lesson 3 – From Parents to Young (6 pp)

OBJECTIVES:

- **Explain how some traits are inherited from parents.**
- **Distinguish between inherited and learned traits.**
- **Explore Activity:** How are organisms like their parents?
- What are inherited traits?
- Which traits are not inherited?

Reading in Science: Regeneration

Chapter 2 Review

Careers: Animal Trainer

Unit B – Ecosystems

Unit Opener (1 pp)

Unit Literature (2 pp)

Chapter 3 – Living Things in Ecosystems

Lesson 1– Food Chains and Food Webs (10 pp)

OBJECTIVES:

- **Define an ecosystem.**
- **Understand how energy moves through a food chain.**
- **Identify the roles of different organisms in a food web.**
- **Explore Activity:** What kind of food do owls need? (investigate owl pellets)
- What is an ecosystem?
- What is a food chain?
- What is a food web?
- Why are decomposers important?

Inquiry Skill Builder: Communicate

Lesson 2 – Types of Ecosystems (12 pp)

OBJECTIVES:

- **Identify different ecosystems.**
- **Describe the characteristics of different ecosystems.**
- **Explore Activity:** Can animals live and grow in salt and fresh water?
- How do we classify environments?
- What is a desert?
- What is a forest?
- What is an ocean?
- What is a wetland?

Reading in Science

Lesson 3 – Adaptations (12 pp)

OBJECTIVES:

- **Recognize adaptations that allow organisms to survive in certain environments.**
- **Explain how adaptations help organisms survive.**
- **Explore Activity:** Does fat help animals survive in cold environments?
- How are living things built to survive?
- What adaptations help desert plants and animals survive?
- What adaptations help forest plants and animals survive?
- What are adaptations help ocean organisms survive?
- What are adaptations to a wetland?

Inquiry Investigation

Chapter 3 Review

Chapter 4—Changes in Ecosystems

Lesson 1 –Living Things Change Their Environment (8 pp)

OBJECTIVES:

- **Identify ways that living things change their environment**

- **Explain how different organisms compete with each other for food, water, and shelter.**
- **Explore Activity:** How can worms change their environment?
- How do living things change their environment? (competition)
- How do people change their environment?
- How can people protect the environment?

Inquiry Skill Builder: Use Numbers

Lesson 2 – Changes Affect Living Things (10 pp)

OBJECTIVES:

- **Show how environmental changes affect living things.**
- **Explain what it means for an animals to be endangered.**
- **Explore Activity:** What happens to some plants when there is a flood?
- What are some ways environments change?
- How do plants and animals respond to environmental change?
- How do environmental changes affect an entire community?
- How does a living thing become endangered?

Writing in Science

Math in Science

Lesson 3 – Living Things of the Past (8 pp)

OBJECTIVES:

- **Explain how scientists learn about ancient plants and animals by studying fossils.**
- **Show how present-day organisms are similar to those that lived long ago.**
- **Explore Activity:** How do fossils tell us about the past?
- What can happen if the environment suddenly changes? (extinction)
- How can we learn about things that lived long ago? (fossils)
- How are living things today similar to those that lived long ago?

Reading in Science: Dinosaur Discoveries

- **Chapter 4 Review**
- **Careers: Fish and Wildlife Manager**

Earth Science

Unit C—Earth and Its Resources

Unit Opener

Unit Literature: One Cool Adventure

Chapter 5 – Earth Changes

Lesson 1- Earth’s Features (10 pp)

OBJECTIVES:

- **Identify Earth’s landforms and the features of the ocean floor.**
- **Describe the layers of Earth.**
- **Explore Activity:** Does land or water cover more of Earth’s surface?
- What covers Earth’s surface?

- What are some land and water features?
- What land features are in the oceans?
- What are the layers of Earth?

Inquiry Skill Builder: Make a Model

Lesson 2 - Sudden Changes to Earth (8 pp)

OBJECTIVES:

- **Describe earthquakes and volcanoes and identify their effects.**
- **Describe the effects of landslides and volcanoes.**
- **Explore Activity:** How does sudden movement change the land?
- What are earthquakes?
- What are volcanoes?
- What are landslides and floods?

Reading in Science : Slide on the Shore

Lesson 3 - Weathering and Erosion (8 pp)

OBJECTIVES:

- **Describe and identify the forces that cause weathering and erosion.**
- **Analyze how people change the land.**
- **Explore Activity:** How can rocks change in moving water?
- What is weathering?
- What is erosion?
- How can people change the land?

Writing in Science

Math in Science

Chapter 5 Review (2 pp)

Chapter 6 — Using Earth’s Resources

Lesson 1 - Minerals and Rocks (10 pp)

OBJECTIVES:

- **Compare and contrast properties of minerals.**
- **Describe how three main kinds of rocks form.**
- **Explore Activity:** How do a mineral’s color and mark compare?
- What are minerals?
- What are rocks?
- What are sedimentary and metamorphic rocks?
- How do we use minerals and rocks?

Writing in Science

Math in Science

Lesson 2 – Soil (8 pp)

OBJECTIVES:

- **Explore soil and identify its components.**
- **Compare and contrast different soils.**
- **Explore Activity:** What makes up soil?
- What is soil?
- How are soils different?

- Why is soil important?

Inquiry Skill Builder: Use Variables

Lesson 3 – Fossils and Fuels (8 pp)

OBJECTIVES:

- **Model and describe how fossils form.**
- **List examples of fossil fuels and other sources of energy.**
- **Explore Activity:** How do some fossils form?
- How are fossils formed?
- What are fossil fuels?
- What are some other sources of energy?

Reading in Science: Turning the Power On

Lesson 4 – Air and Water Resources (10 pp)

OBJECTIVES:

- **Describe how air and water are used as resources.**
- **Explain reasons and methods for conserving and protecting air and water.**
- **Explore Activity:** How is Earth’s water made clean?
- How do we use air and water?
- How do people get water?
- What can happen to air and water resources?
- How can you conserve resources?

Inquiry Investigation

Chapter 6 Review

Careers: Map Maker

Unit D— Weather and Space

Unit Opener (1 p)

Unit Literature: What a Difference Day Length Makes (2 pp)

Chapter 7—Changes in Weather

Lesson 1 – Weather (8 pp)

OBJECTIVES:

- **Define weather.**
- **Describe four characteristics of weather.**
- **Explore Activity:** How can you tell air is around you?
- What is weather?
- How can you describe the weather?
- How do we predict weather? (include weather map)

Inquiry Skill Builder: Interpret Data

Lesson 2 – The Water Cycle (12 pp)

OBJECTIVES:

- **Infer how condensation occurs and rain forms in the atmosphere.**
- **Describe the water cycle and relate it to weather.**
- **Explore Activity:** How do raindrops form?

- What are clouds?
- How do clouds form?
- What is the water cycle?
- What are some kinds of severe weather?
- How can you stay safe in severe weather?

Reading in Science: Tracking Twisters

Lesson 3 - Climate and Seasons (8 pp)

OBJECTIVES:

- **Explain why climate varies from place to place.**
- **Summarize how seasons differ from place to place.**
- **Explore Activity:** How do temperature and precipitation patterns compare?
- What is climate?
- What affects climate?
- What are seasons?

Writing in Science

Math in Science

Chapter 7 Review

Chapter 8 — Planets, Moons, and Stars

Lesson 1- The Sun and Earth (8 pp)

OBJECTIVES:

- **Explain what causes day and night and the seasons.**
- **Describe the Sun.**
- **Explore Activity:** How do shadows change throughout the day?
- Why is there day and night?
- Why are there seasons?
- What is the Sun like?

Writing in Science

Math in Science

Lesson 2 – The Moon and Earth (8 pp)

OBJECTIVES:

- **Identify the phases of the Moon and explain why the Moon seems to change shape.**
- **Describe features of the Moon.**
- **Explore Activity:** How does the Moon's shape seem to change?
- What are the phases of the Moon?
- Why does the Moon's shape seem to change?
- What is it like on the Moon?

Inquiry Investigation

Lesson 3 - The Planets (8 pp)

OBJECTIVES:

- **Describe our solar system.**
- **Describe the inner and outer planets.**
- **Explore Activity:** How do the planets move through space?
- What is our solar system?

- What are the planets like?
- How can we view the planets?

Inquiry Skill Builder: Observe

Lesson 4 - The Stars (6 pp)

OBJECTIVES:

- **Describe stars and constellations.**
- **Describe why different constellations can be seen during different seasons.**
- **Explore Activity:** Why do we see stars at night?
- What are stars?
- Why do we see different stars during different seasons?

Reading in Science: Meet Orsola De Marco

Chapter 8 Review

Careers: Aviation Meteorologist

Physical Science

Unit E—Matter

Unit Opener

Unit Literature

Chapter 9 — Observing Matter

Lesson 1 - Properties of Matter (8 pp)

OBJECTIVES:

- **Define matter as anything that has mass and takes up space**
- **Describe properties of matter and understand that properties can be used to identify matter.**
- **Explore Activity:** How do you describe objects?
- What is matter?
- What are some properties of matter?
- What is matter made of?

Reading in Science

Lesson 2 - Measuring Matter (8 pp)

OBJECTIVES:

- **Measure matter using tools that record standard units.**
- **Compare and contrast weight and mass.**
- **Explore Activity:** How can you measure length?
- How is matter measured?
- How do we measure mass?
- How are mass and weight different?

Inquiry Skill Builder: Measure

Lesson 3 – Solids, Liquids, and Gases (8 pp)

OBJECTIVES:

- **Define three common states of matter: solid, liquid, and gas.**

- **Explain the properties of solids, liquids, and gases.**
- **Explore Activity:** How are solids different from liquids?
- What are three forms of matter?
- What are liquids and gases?
- How do you use the states of matter?

Writing in Science

Math in Science

Chapter Review

Chapter 10 – Changes in Matter

Lesson 1 – Changes of State (8 pp)

OBJECTIVES:

- **Measure and record the temperature of water in different states.**
- **Identify the effects of heating and cooling matter.**
- **Explore Activity:** What happens when ice is heated?
- What happens when matter is heated?
- What happens when matter is cooled?
- How is water different from other kinds of matter?

Inquiry Skill Builder: Predict

Lesson 2- Physical Changes (8 pp)

OBJECTIVES:

- **Define physical changes as those that do not change the identity of a material.**
- **Describe how to make and separate mixtures.**
- **Explore Activity:** How can you change matter?
- What are physical changes?
- What are mixtures?
- How can you separate mixtures?

Reading in Science

Lesson 3 – Chemical Changes (6 pp)

OBJECTIVES:

- **Describe chemical changes.**
- **Understand that chemical changes are part of our everyday life.**
- **Explore Activity:** How can matter change?
- What are chemical changes?
- What are the signs of a chemical change?

Inquiry Investigation

Chapter 10 Review

Careers: Environmental Chemist

Unit F—Forces and Energy

Unit Opener

Unit Literature

Chapter 11—Forces and Motion

Lesson 1 - Position and Motion (8 pp)

OBJECTIVES:

- **Describe and relate position and motion.**
- **Define speed using distance and time.**
- **Explore Activity:** How can you describe an object's position?
- How can you describe position?
- What is motion?
- What is speed?

Reading in Science

Lesson 2 – Forces (8 pp)

OBJECTIVES:

- **Identify a force as a push or a pull, and relate force to motion.**
- **Define common forces, such as friction, gravity, and magnetism.**
- **Explore Activity:** How can pushes affect the way things move?
- What are forces?
- What are types of forces?
- What is friction?

Inquiry Investigation

Lesson 3 - Work and Energy (8 pp)

OBJECTIVES:

- **Define energy and work**
- **Discuss the forms of energy and how energy changes from one form to another.**
- **Explore Activity:** What is work?
- What is work?
- What is energy?
- How can energy change?

Inquiry Skill Builder: Infer

Lesson 4 - Simple Machines (10 pp)

OBJECTIVES:

- **Identify and describe simple machines and apply their uses to real world tasks.**
- **Define what a compound machine is and give several examples.**
- **Explore Activity:** How can a simple machine help you lift objects?
- What are machines?
- What are levers? (lever, pulley, wheel and axle)
- What are inclined planes? (inclined planes, screws, and wedges)
- How can machines work together?

Writing in Science

Math in Science

Chapter 11 Review

Chapter 12 – Forms of Energy

Lesson 1 – Heat (8 pp)

OBJECTIVES:

- **Describe how heat moves.**
- **Compare insulators and conductors.**
- **Explore Activity:** What happens to air when it is heated?
- What is thermal energy?
- How does heat affect matter?
- How can you control the flow of heat?

Inquiry Skill Builder: Experiment

Lesson 2 – Sound (8 pp)

OBJECTIVES:

- **Describe how vibrations produce sounds.**
- **Compare the pitch and volume of a sound.**
- **Explore Activity:** How can you make sounds?
- What is sound?
- How are sounds different?
- How do you hear sounds?

Inquiry Investigation

Lesson 3 - Light (10 pp)

OBJECTIVES:

- **Explore how light travels.**
- **Describe how colors are seen.**
- **Explore Activity:** How does light move?
- What is light?
- What happens when light hits different objects? (opaque, transparent, translucent)
- Why can you see colors?
- How do you see?

Reading in Science: Laser

Lesson 4 – Electricity (8 pp)

OBJECTIVES:

- **Describe electrical charge.**
- **Identify the part of a circuit.**
- **Explore Activity:** What makes a bulb light?
- What is electrical charge?
- What is electric current?
- What are conductors and insulators?

Writing in Science

Math in Science

Chapter 12 Review

Careers: Lighting Designer