

180 DAYS™

Lessons and Activities

Science for Fifth Grade

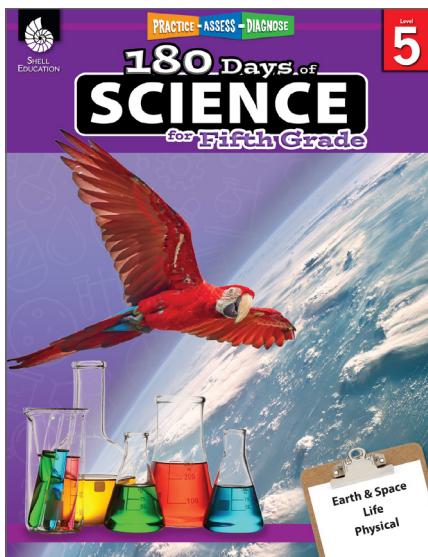
Table of Contents

Cover (1 page)

Table of Contents/Introduction (1 page)

How to Use This Book (3 pages)

Lesson Pages (5 pages)



How to Use This Book

Weekly Structure

All 36 weeks of this book follow regular weekly structure. The book is divided into three sections: Life Science, Physical Science, and Earth and Space Science. The book is structured to give students a strong foundation on which to build throughout the year. It is also designed to adequately prepare them for state standardized tests.

Each week focuses on one topic. Day 1 sets the stage by providing background information on the topic that students will need throughout the week. Days 2–5 move through guided steps to help students complete a solution. Final results from observations or investigations.

Day 1—Learning Content: Students read content and answer questions about it.

Day 2—Analyzing Data: Students will answer questions about it.

Day 3—Developing Questions: Students related to the topic, answer questions, and a question about the information.

Day 4—Planning Solutions: Students to the topic, answer questions, and de investigation.

Day 5—Communicating Results: Students communicate the results of an investigation throughout the week.

Three Strands of Science

This book allows students to explore the three strands of science: Earth and Space Science, Life Science, and Physical Science. Life science focuses on all plants and animals that inhabit ecosystems. Physics and chemistry concepts that will lay the foundation for their education. Earth and space science familiarize students with the sun, Earth, and the cosmos and the relationships between the sun, Earth, and space.

WEEK 9 DAY 5

Communicating Results

Directions: Look at the picture. Tally the stars you see on the tally chart. Add a scale to the graph, and graph the stars you tallied.

Tally Chart

| Brightness of Stars | Number of Stars |
|---------------------|-----------------|
| faint | |
| bright | |

Number of Faint and Bright Stars

| Brightness of Stars | Number of Stars |
|---------------------|-----------------|
| 0 | |
| 1 | |
| 2 | |
| 3 | |
| 4 | |
| 5 | |
| 6 | |
| 7 | |
| 8 | |
| 9 | |
| 10 | |

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PRACTICE - ASSESS - DIAGNOSE

Level

5

180 Days of SCIENCE for Fifth Grade



Earth & Space
Life
Physical

Table of Contents

| | |
|------------------------------|-----|
| Introduction | 3 |
| How to Use This Book | 4 |
| Standards Correlations | 9 |
| Daily Practice Pages | 14 |
| Answer Key | 194 |
| Teacher Resources | 207 |
| Digital Resources | 216 |

Introduction

With today's science and technology, there are more resources than ever to help students understand how the world works. Information about science experiments you can do at home is widely available online. Many students have experience with physics concepts from games.

While students may be familiar with many of the topics discussed in this book, it is not uncommon for them to have misconceptions about certain subjects. It is important for students to learn how to apply scientific practices in a classroom setting and within their lives.

Science is the study of the physical and natural world through observation and experiment. Not only is it important for students to learn scientific facts, but it is important for them to develop a thirst for knowledge. This leads to students who are anxious to learn and who understand how to follow practices that will lead them to the answers they seek.

The Need for Practice

To be successful in science, students must understand how people interact with the physical world. They must not only master scientific practices but also learn how to look at the world with curiosity. Through repeated practice, students will learn how a variety of factors affect the world in which they live.

Understanding Assessment

In addition to providing opportunities for frequent practice, teachers must be able to assess students' scientific understandings. This allows teachers to adequately address students' misconceptions, build on their current understandings, and challenge them appropriately. Assessment is a long-term process that involves careful analysis of student responses from discussions, projects, or practice sheets. The data gathered from assessments should be used to inform instruction: slow down, speed up, or reteach. This type of assessment is called *formative assessment*.

How to Use This Book

Weekly Structure

All 36 weeks of this book follow a regular weekly structure. The book is divided into three sections: Life Science, Physical Science, and Earth and Space Science. The book is structured to give students a strong foundation on which to build throughout the year. It is also designed to adequately prepare them for state standardized tests.

Each week focuses on one topic. Day 1 sets the stage by providing background information on the topic that students will need throughout the week. In Day 2, students analyze data related to the topic. Day 3 leads students through developing scientific questions. Day 4 guides students through planning a solution. Finally, Day 5 helps students communicate results from observations or investigations.



Day 1—Learning Content: Students will read grade-appropriate content and answer questions about it.



Day 2—Analyzing Data: Students will analyze scientific data and answer questions about it.



Day 3—Developing Questions: Students will read a scenario related to the topic, answer questions, and formulate a scientific question about the information.



Day 4—Planning Solutions: Students will read a scenario related to the topic, answer questions, and develop a solution or plan an investigation.



Day 5—Communicating Results: Students accurately communicate the results of an investigation or demonstrate what they learned throughout the week.

Three Strands of Science

This book allows students to explore the three strands of science: life science, physical science, and earth and space science. Life science teaches students about the amazing living things on our planet and how they interact in ecosystems. Physical science introduces students to physics and chemistry concepts that will lay the groundwork for deeper understanding later in their education. Earth and space science familiarizes students with the wonders of the cosmos and the relationships between the sun, Earth, moon, and stars.

How to Use This Book (cont.)

Weekly Topics

The following chart shows the weekly focus topics that are covered during each week of instruction.

| Unit | Week | Science Topic |
|-------------------------|------|-------------------------------------------------------|
| Life Science | 1 | Life Cycles |
| | 2 | The Life Cycle of Humans |
| | 3 | The Life Cycle of Reptiles |
| | 4 | Vertebrates and Invertebrates |
| | 5 | Human Traits |
| | 6 | Animal Traits |
| | 7 | Food Chains |
| | 8 | Food Chains in the Jungle |
| | 9 | Plant Needs |
| | 10 | The Role of Decomposers |
| | 11 | How Plants Create Food |
| | 12 | Ecosystems |
| Physical Science | 1 | Can Matter Disappear? |
| | 2 | How Do We Know Air is There? |
| | 3 | How Air Moves Things |
| | 4 | When Combining Matter, Mass Stays the Same |
| | 5 | Mass Stays the Same When Water Changes States |
| | 6 | Identifying Powers and Minerals |
| | 7 | Properties of Metals |
| | 8 | Creating New Substances—Physical and Chemical Changes |
| | 9 | Understanding Physical and Chemical Changes |
| | 10 | How Energy from the Sun Feeds Us |
| | 11 | How Energy Flows through Food Chains |
| | 12 | Gravity |
| Earth and Space Science | 1 | Oceans and Ecosystems |
| | 2 | Winds and Clouds in Mountain Ranges |
| | 3 | Fresh Water in Rivers and Lakes |
| | 4 | The Polar Ice Caps |
| | 5 | Agriculture, Industry, and the Environment |
| | 6 | Protecting Our Water Sources |
| | 7 | Earth's Orbit |
| | 8 | Day and Night on Earth |
| | 9 | Is the Sun Our Brightest Star? |
| | 10 | The Motion of the Stars |
| | 11 | Constellations Visible During Different Seasons |
| | 12 | The Movement of Shadows |

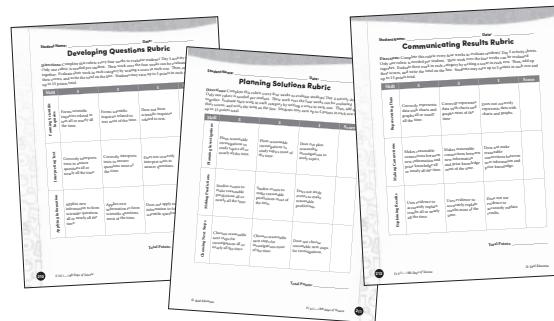
How to Use This Book (cont.)

Best Practices for This Series

- Use the practice pages to introduce important science topics to your students.
- Use the Weekly Topics chart on page 5 to align the content to what you're covering in class. Then, treat the pages in this book as jumping off points for that content.
- Use the practice pages as formative assessment of the science strands and key topics.
- Use the weekly themes to engage students in content that is new to them.
- Encourage students to independently learn more about the topics introduced in this series.
- Lead teacher-directed discussions of the vocabulary and concepts presented in some of the more complex weeks.
- Support students in practicing the varied types of questions asked throughout the practice pages.
- When possible, have students participate in hands-on activities to answer the questions they generate and do the investigations they plan.

Using the Resources

An answer key for all days can be found on pages 194–206. Rubrics for Day 3 (developing questions), Day 4 (planning solutions), and Day 5 (communicating results) can be found on pages 210–212 and in the Digital Resources. Use the answer keys and rubrics to assess students' work. Be sure to share these rubrics with students so that they know what is expected of them.





Name: _____ Date: _____

Directions: Read the text, and answer the questions.

The Life Cycle of Reptiles

Snakes and lizards are reptiles. Alligators and turtles are reptiles, too. All reptiles go through similar stages in their life cycles. The stages are egg, hatchling, juvenile, and adult. Many hatchlings and juveniles look just like tiny adults. However, they are much, much smaller!

Mothers usually bury their eggs in loose soil or sand. The number of eggs varies greatly by species. Some reptiles lay only one or two eggs, while others lay 100 or more. They typically do not stay with their young. When they hatch, the animals are on their own.



1. Which one of the following is **not** a reptile?
 - a. snake
 - b. frog
 - c. lizard
 - d. turtle
2. All reptiles _____.
 - a. live in water
 - b. have many teeth
 - c. have hair
 - d. have a hatchling stage
3. What are some ways a reptile's life cycle is different from your life cycle?

Name: _____ Date: _____

Directions: Plants A, B, and C are the same type of plant. Study the chart, and answer the questions.



| | Plant A | Plant B | Plant C |
|-----------------------------|----------|-------------|----------|
| Water given per week | 2 cups | 2 cups | 1 cup |
| Sunlight | full sun | partial sun | full sun |
| Growth in two weeks | 3 inches | 2 inches | 1 inch |

1. What is affecting the growth of the plants?
 - water
 - air
 - sunlight
 - water and sunlight
2. What is the best combination of water and sunlight for this type of plant?
 - two cups of water and full sun
 - two cups of water and partial sun
 - one cup of water and full sun
 - one cup of water and partial sun
3. Since plant A grew the most, it made the most _____.
 - food
 - water
 - air
 - sun

Developing Questions

Name: _____ Date: _____

Directions: Read the text, and answer the questions.

Aaron has two bottles of water that look identical. One is salt water, and one is fresh water. Both bottles of water look clear. He wants to know which is which.



1. What can he do to find out which bottle has the salt water?
 - a. Weigh them.
 - b. Look at them.
 - c. Listen to them.
 - d. Touch them.

2. What is another way that Aaron could find out which bottle has salt water?
 - a. He could let the water evaporate.
 - b. He could put food coloring in the water.
 - c. He could pour the water in the sink.
 - d. He could mix the two bottles of water together.

3. What is a question Aaron might ask about properties of the salt water?

4. Do you think you could ever add so much salt to water that it wouldn't dissolve? Why or why not?

Name: _____ Date: _____

Directions: Read the text, and answer the questions.

Carla and her family are going camping. They decide to bring two coolers with them. One cooler has 36 lbs. of ice cubes, and the other cooler has 24 lbs. of ice cubes. Carla is not sure if the coolers will be the same weight as they started when the ice melts.



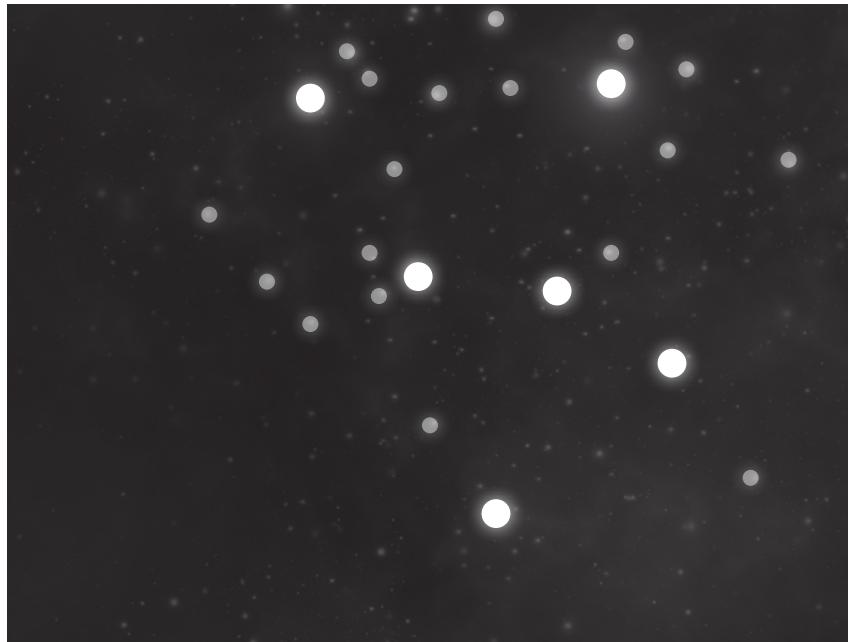
1. The ice fills the coolers to the top because there is a lot of space between the cubes. What will happen when the ice melts?
 - a. The water take up more space and overflow.
 - b. The water will take up less space than the ice.
 - c. The water will disappear when the ice melts.
 - d. The water will take up the same amount of space.
2. Would a solid block of ice take up a different amount of space than ice cubes?
 - a. Yes, because ice cubes have air between them, and a solid block doesn't.
 - b. Yes, because ice cubes expand more than a solid block of ice.
 - c. No, they take up the same amount of space.
 - d. No, it is impossible to create a solid block of ice.
3. How can Carla create an experiment with the two coolers to prove that the weight of ice is the same as the melted ice?

Name: _____ Date: _____

Directions: Look at the picture. Tally the stars you see on the tally chart. Add a scale to the graph, and graph the stars you tallied.

ABC

Communicating Results

**Tally Chart**

| Brightness of Stars | Number of Stars |
|---------------------|-----------------|
| faint | |
| bright | |

Number of Faint and Bright Stars