BIG SCIENCE 3

STUDENT BOOK

ALWAYS LEARNING

PEARSON

Scope and Sequence

	Units	Lessons
Science, Engineering, and Technology	**Unit 1: The Nature of Science** **What is science?**	Lesson 1: What kinds of skills do scientists use? Lesson 2: How do scientists find answers? Lesson 3: How do scientists collect and share data?
	Unit 2: Technology and Tools **How do people solve problems?**	Lesson 1: How do people design new things? Lesson 2: How do we use tools and machines?
Life Science	**Unit 3: Plants and Animals** **How do plants and animals live in their habitats?**	Lesson 1: What are some parts of animals? Lesson 2: What are the parts of plants? Lesson 3: Where do plants and animals live?
	Unit 4: Body and Growth **How do we grow and change?**	Lesson 1: What are the stages of human development? Lesson 2: How do some parts of our bodies change as we grow?
Earth Science	**Unit 5: Earth's Materials** **What is Earth made of?**	Lesson 1: What are some kinds of land and water? Lesson 2: How can people help protect Earth?
	Unit 6: The Solar System **What are the sun, moon, and planets like?**	Lesson 1: What is the sun? Lesson 2: What are the moon and stars? Lesson 3: What is the solar system?
	Unit 7: Weather **How does weather change over time?**	Lesson 1: How can you describe the weather? Lesson 2: How can you measure weather? Lesson 3: How can you stay safe in severe weather?
Physical Science	**Unit 8: Matter** **What is matter?**	Lesson 1: What are solids, liquids, and gases? Lesson 2: What are some ways matter can change? Lesson 3: How can water change?
	Unit 9: Energy, Motion, and Force **How do energy and forces make objects move?**	Lesson 1: What is sound? Lesson 2: What are motion and force? Lesson 3: What are magnets?

I will learn...	Key Words
• how to use science skills.	• *senses, experiment, results, observe, predict*
• why scientists repeat investigations.	• *investigate, conclusion, height, measurement, hypothesis*
• how to record and show data.	• *data, granite, basalt, pumice*
• how people design new things.	• *goal, material, soft, hard, light, heavy*
• how tools and simple machines work and how body parts can function as tools.	• *simple machine, lever, wedge, pulley, inclined plane*
• what animals need and how they use their body parts to meet their needs.	• *beak, camouflage, claws, spikes, horns, poison*
• the different parts of seed plants.	• *nutrients, roots, soil, stem, seeds, cone*
• that plants and animals live in habitats that meet their needs.	• *habitat, stalk, hump*
• the different stages of human development.	• *development, physical, mental, infancy, coordination, childhood, adolescence, adulthood, maturity*
• how some of my body parts change as I get older.	• *oxygen, skeleton, joint, contracting, relaxing*
• about land and water and Earth.	• *landform, ocean, lake, pond, stream, glacier*
• about ways to protect Earth.	• *pollution, reduce, reuse, recycle, refuge*
• what the sun is and why we need it.	• *sun, light, heat, sunrise, noon, sunset*
• what stars are and what the moon is like.	• *star, constellation, crater, phase*
• what objects make up the solar system.	• *orbit, solar system*
• how to describe different kinds of weather.	• *temperature, precipitation, hail, sleet, drought*
• how to measure different kinds of weather.	• *wind, anemometer, rain gauge, wind vane, thermometer*
• how to stay safe in severe weather.	• *severe weather, thunderstorm, thunder, lightning*
• that matter can be a solid, a liquid, or a gas.	• *state of matter, solid, liquid, gas*
• that matter can be changed in many ways.	• *physical change, clay, dough, mixture, evaporate*
• that water can be a solid, a liquid, or a gas.	• *matter, volume*
• what causes sound and what pitch and volume are.	• *vibrate, pitch, volume*
• that forces change the way objects move.	• *motion, zigzag, push, pull, force*
• that magnets can push or pull some metal objects.	• *attract, repel, pole*

Unit 1

The Nature of Science

What is science?

I will learn

- how to use science skills.
- why scientists repeat investigations.
- how to record and show data.

1 **Look and label the five senses. Then name the five sense organs.**

smell hearing touch sight taste





_____ _____ _____ _____ _____

2 **Look at the picture and circle *T* (true) or *F* (false).**

1. The trees produce a lot of apples. **T / F**
2. Many of the apples are ripe. **T / F**
3. The trees are not healthy. **T / F**
4. It is winter. **T / F**

3 **With the class, say which senses you can use to decide if each statement in activity 2 is true or false.**

Think!

What makes this boy a scientist?

Lesson 1 · What kinds of skills do scientists use?

Key Words

- senses
- observe
- experiment
- predict
- results

1 **Read and complete the statements.**

Different Ways to Learn

Scientists learn about the world around them. They use their **senses**.

Scientists do **experiments** to learn. They carry out experiments again and again to make sure they get the same **results**.

Scientists learn from each other, too. They ask each other, "How do you know?" and share what they learn. They give answers. They tell how they know.

experiments each other senses

Scientists carry out _____

Scientists use their _____

Scientists learn from _____.

2 **Read and match the questions with their answers.**

1. Why do scientists repeat their experiments?

To help answer each other's questions.

2. Why do scientists use their senses?

To make sure the results are the same.

3. Why do scientists share what they learn?

To learn about the world around them.

3 **Read, look, and mark (✓) the ripe apples. Then answer the questions.**

Observe

Scientists observe to find out about the world. You **observe** when you use your senses to find out about something. We have five senses: smell, hearing, touch, sight, and taste. We use a different part of our body for each sense. We use our nose for smell, our ears for hearing, our hands or fingers for touch, our eyes for sight, and our tongue for taste.

How do you know when an apple is ripe? You might look at the color. Some people tap it to hear how it sounds. You might feel it and smell it, too. You will know if it is ripe when you taste it!

1. Give a reason for your choice.

_____

2. What sense or senses did you use to make your decision?

_____

4 **How do you know this apple tree is healthy? Read, look, and say with a partner.**

Predict

Scientists use what they observe to predict. You **predict** when you tell what you think will happen.

How might scientists predict how many apples will grow? They can think about how many apples grew the year before.

5 **Read and underline four ways to classify apples.**

Classify

Scientists classify, or put things in groups. Scientists might classify kinds of apples by taste, shape, and color. There are many different kinds of apples. How do you know what kinds of apples are the smallest? You might group apples by size.

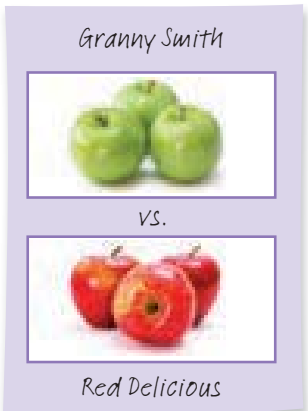
6 **Are red apples as sweet as green apples? How do you know? Read and say with a partner.**

Compare and Contrast

Scientists compare and contrast what they observe, too. They tell what is the same. They tell what is different.

7 **With a partner, select two different types of apples. Draw and label them. Then compare them using your senses and circle the answer.**

vs.



Apple A:

Apple B: _____

1. Apple ***A*** / ***B*** is sweeter.
2. Apple ***A*** / ***B*** is heavier.
3. Apple ***A*** / ***B*** is harder.
4. Apple ***A*** / ***B*** has a stronger smell.

Lesson 2 · How do scientists find answers?

Key Words

- investigate
- conclusion
- height
- measurement
- hypothesis

1 **Read. Then order the steps for carrying out investigations.**

Repeat Investigations

Scientists learn about the world around them. First, they ask questions. Then they investigate. You **investigate** when you look for answers.

Scientists repeat investigations before they draw conclusions. A **conclusion** is what you decide after you think about all you know. You should be able to draw similar conclusions when you repeat an investigation.

For example, one scientist measures the **height** of the tallest tree in a forest. Others repeat the **measurement**. They get similar answers. They draw a conclusion.

☐ investigate

☐ ask questions

☐ draw conclusions

3 repeat investigations

2 **What do you think the scientist in this picture is studying? Why? Look and talk about the question with the class.**

Scientists draw conclusions from what they learn when they investigate.

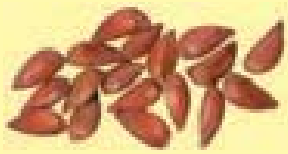
3 **Read, look, and follow the instructions.**

1. **Circle the question.**
2. **Underline the hypothesis.**
3. **Label the pots *water* and *no water*.**

Scientific Methods

Scientific methods are ways of finding answers. Scientists use scientific methods when they do experiments. Scientific methods can have these steps. Sometimes scientists do the steps in a different order. Scientists do not always do all of the steps.

Ask a question.
Ask a question that you want answered.



Do seeds need water to grow?

Make a hypothesis.
A **hypothesis** is a possible answer to your question.

The seeds that are watered will grow because seeds need water.

Plan a fair test.
Change only one thing. Keep everything else the same. Record your steps. Someone else should get the same answer if they follow your steps.

_____ _____

4 Read and match the headings with the corresponding information.

Do your test.	**Collect and record your data.**	**Tell your conclusion.**
Test your hypothesis. Repeat your test. See if your results are the same.	Keep records of what you observe. Use words, numbers, or drawings to help.	Think about the results of your test. Decide if your hypothesis is supported or not supported. Tell what you decide.

5 Look and draw what you think happened to the seedlings.

no water

water

Think!

If someone else follows the steps of this investigation and gets a different result, what might you conclude?

Lesson 3 · How do scientists collect and share data?

Key Words

- data
- basalt
- granite
- pumice

1 **Look and circle the words that describe the rocks.**

rough smooth sharp

rounded jagged large

small tall

2 **Read and circle *T* (true) or *F* (false).**

Collect Data

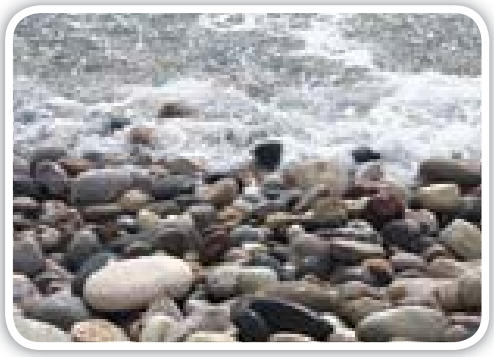
Scientists collect data to learn new things. **Data** is what you observe with your senses. Scientists record what they observe and measure. Scientists make conclusions from data and from what they already know.

1. Scientists collect data using their senses. **T / F**

2. Scientists use data to make conclusions. **T / F**

3. Scientists only make conclusions from data. **T / F**

3 **Look at the picture and circle one thing you can conclude about the rocks.**



1. The rocks are very light.

2. The rocks are smooth because of the ocean water.

3. Many animals live under the rocks.