

Table of Contents



Understanding Life Systems

Students will understand that a habitat provides the organisms that live in it with their basic needs such as food and water. They will also investigate the different types of habitats and how some living things survive in their habitats with their unique features. Human interactions with habitats and the impacts of human activities on habitats will also be discussed. Additionally, students will learn about the food chain and classify animals into three groups based on their diets.

Unit 1	Biomes	8
Unit 2	Habitats and Communities	14
Unit 3	Changes to Habitats	20
	Experiment	26
Unit 4	Our Interaction with Habitats	28
Unit 5	Food Chains	34
Unit 6	What Animals Eat	40
	Experiment	46
	Review	48
	Scientists at Work	54
	Cool Science Facts	55



Section
2

Understanding Structures and Mechanisms

Students will review the use of the six simple machines. They will then study two special kinds of wheels: pulleys and gears, and learn how they transfer, transform, change the speed and direction of motion, and change the amount of force needed to move objects. They will also identify and observe everyday machines that use gears and pulleys and study the advantages they provide.

Unit 1	Machines in the Past	60
Unit 2	Simple Machines	66
Unit 3	Gears	72
	Experiment	78
Unit 4	Gears around Us	80
Unit 5	Pulleys Everywhere	86
Unit 6	Pulley Power	92
	Experiment	98
	Review	100
	Scientists at Work	106
	Cool Science Facts	107

Table of Contents

Section 3

Understanding Matter and Energy

Students will study the properties of light and sound by investigating how they interact with various objects in the environment. They will discover that materials can be used to transmit, reflect, or absorb light and sound. The impact of technologies related to sound and light on our everyday lives, including their use of energy, will also be examined. Students will also learn that some protective equipment is necessary in protecting themselves from excess light or sound.

Unit 1	Light around Us	112
Unit 2	Light: Reflection and Refraction	116
Unit 3	Light: Transparency	120
	Experiment	124
Unit 4	What Is Sound?	126
Unit 5	What Happens to Sound	130
Unit 6	How We Use Light and Sound	134
	Experiment	138
	Review	140
	Scientists at Work	146
	Cool Science Facts	147



Understanding Earth and Space Systems

Students will be introduced to the study of rocks and minerals. They will study the properties of rocks and minerals and examine the different types of rocks and minerals found on Earth. They will investigate the unique characteristics and properties of rocks and minerals and how rocks were formed. Students will also become aware that human uses of rocks and minerals not only alter landscapes, but also affect the environment.

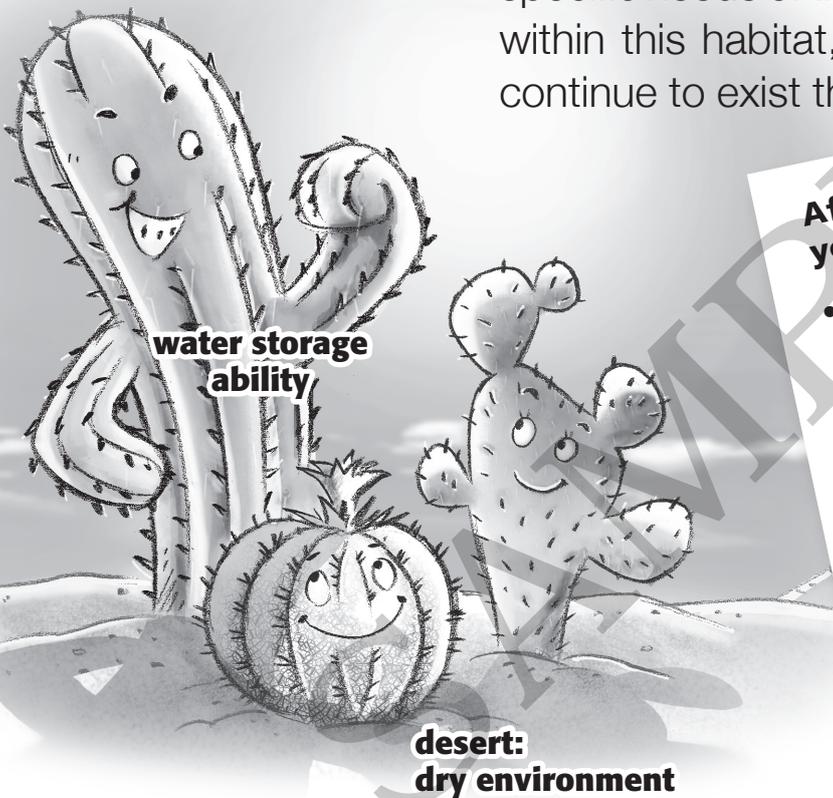
Unit 1	Rocks and Minerals	152
Unit 2	Minerals	156
Unit 3	Rocks	160
	Experiment	164
Unit 4	The Rock Cycle	166
Unit 5	How We Use Rocks	170
Unit 6	More about How We Use Rocks	174
	Experiment	178
	Review	180
	Scientists at Work	186
	Cool Science Facts	187
	Answers	191
	Trivia Questions	207

2 Habitats and Communities

Plants and animals live together and interact in a common habitat. They depend on their environment and each other to survive. The specific needs of the living things have to be met within this habitat, or they cannot continue to exist there.

After completing this unit, you will

- understand that living things depend on their habitats to meet their basic needs.
- know that some environmental elements affect the ability of living things to survive in a habitat.
- know that the unique features of some living things help them survive in their habitats.



water storage ability

**desert:
dry environment**

**Frogs' Habitat:
Pond**



Vocabulary

habitat: the place where a plant or an animal naturally or normally lives and grows

community: interacting species sharing a common habitat

adaptation: unique features of a living thing that make it fit into a specific environment

Extension

Have you ever visited a zoo? Zoos have different exhibits that mimic the natural habitats of animals from around the world. When you visit different exhibits at a zoo, make a record of the animals and plants that can be found there. Then describe the setting of the exhibit to show how it accommodates the needs of the animals and plants.

Tundra Exhibit

(covered with snow, very cold)

Animals: polar bears, Arctic foxes, snowy owls

Description: white hairs – blending into the snow

Plants: tiny leaves, growing close to the ground



Next time you visit a zoo, don't forget to make your own record.

A. Match each source with what it provides us. Write the letter.

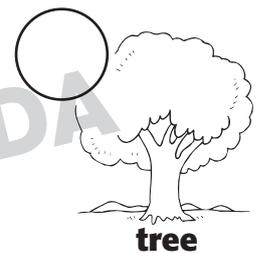
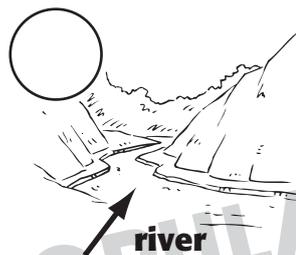
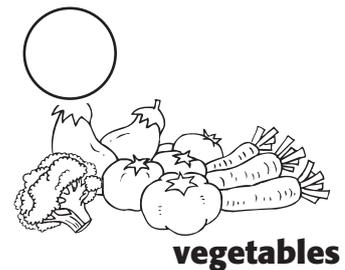
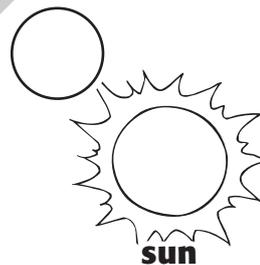
A clothes/bedding

B water

C heat/light

D food

E shelter

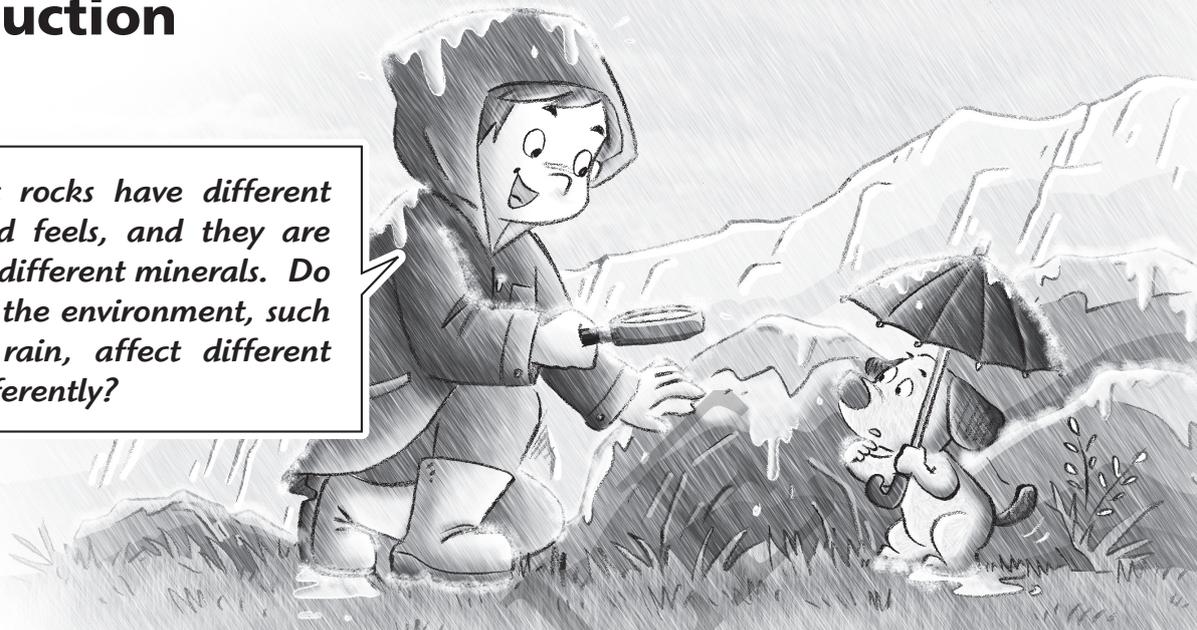




Experiment

Introduction

Different rocks have different looks and feels, and they are made of different minerals. Do things in the environment, such as acid rain, affect different rocks differently?



Hypothesis

Some rocks react with vinegar – an acid like acid rain – and some do not.

Steps

- Put the 5 to 10 different rock samples in an egg carton and number them.
- Place a rock sample in the cup and pour enough vinegar in the cup to cover the sample.

Materials

- 5 to 10 different rock samples
- an egg carton
- a cup
- a spoon
- vinegar



Rock Information

Limestone

- usually white/grey
- milky looking

Granite

- very grainy texture
- often has crystals in it

Quartz

- white/pink
- translucent

Chalk

- soft and white
- opaque

There are some bubbles.



3. Leave the rock for a few minutes. Observe and record what happens. Remove the rock from the cup with the spoon.
4. Repeat steps 2 and 3 with each rock sample.
5. Record.

Rock Sample	1	2	
Reaction (✓/X)			

Result

1. Did all, some, or none of the rocks react with the vinegar?

Conclusion

The hypothesis was: _____

My experiment _____ the hypothesis.
supported / did not support