

SCIENCE

Student Book

▶ **3rd Grade | Unit 3**

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SCIENCE 303

CHANGES IN ANIMALS AND ENVIRONMENTS

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LIFEPAC Test | **Pull-out**

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CHANGES IN ANIMALS AND ENVIRONMENTS

God created all of the **environments** on the earth. An environment is something that surrounds a living thing. For example, you live in a place that has land. The land around you is part of your environment. You also have air around you. The air is part of your environment, too. Perhaps you live near some water. The water would also be part of your environment. If you move to another part of the earth, your environment would change. The land, air, and water would be different in some ways.

In this LIFEPAC®, you will learn about four things that cause an environment to change. These four things are **temperature**, water, light, and soil. Environments are different throughout the earth because these four things change.

God also created many animals to live in the air, water, and land environments. Temperature, water, light, and soil must be just right if living things are to live, grow, and multiply in an environment. An animal is made in a special way to survive in its normal environment. God made many different kinds of animals for the many different environments of the earth.

Animals are different and alike in many ways. Three of the ways that animals are different or alike are (1) how they are made, (2) what they eat and how they get their food, and (3) how they **breathe**. You will learn more about the ways that animals are different and alike. These differences and likenesses allow scientists to arrange animals by groups or classes. You will learn more about different animals and their groups.

Finally, in this LIFE PAC, you will learn some of the ways that animals grow and change. You will see that God's plan for all the animals and environments on the earth is orderly and good.

Objectives

Read these objectives. The objectives tell you what you will be able to do when you have finished this LIFE PAC.

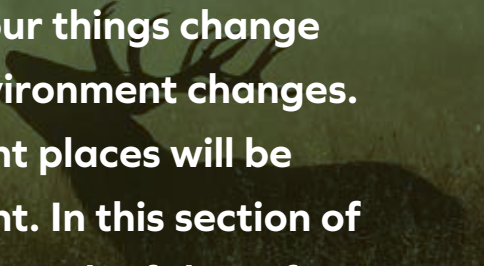
1. Tell what changes the environment in which animals grow.
2. Tell some ways in which animals are different.
3. Put some animals in groups or classes.
4. Describe changes in some of the animals that God has created.



1. WHAT CHANGES AN ENVIRONMENT?

When God created the earth, He made many different environments. Many kinds of animals were placed in these different environments to live. All the animals were made in special ways so that they would fit their environment. In this way, animals would be able to live, grow, and **multiply** in the right conditions.

What changes an environment? Each kind of environment is the way it is because of the temperature, the kind of soil, the amount of light, and the amount of water in that place. These four things change from place to place on the earth, and so the environment changes. The kinds of animals and plants living in different places will be different because the environments are different. In this section of the LIFEPAC, you will learn more about the way each of these four things—temperature, water, light, and soil—change an environment.



Vocabulary

Study these new words. Learning the meanings of these words is a good study habit and will improve your understanding of this LIFE PAC.

breathe (brēFH). To inhale and exhale.

Celsius (səl' sē əs). A scale of temperature.

energy (ě'n' ər jē). The ability to do work. An example is heat energy. Heat energy can change the temperatures of things.

environment (ě'n vī' rən mənt). The things around something.

evaporate (ī vāp' ə rāt). When a liquid, such as water, turns to vapor in the air.

expand (ěk spānd'). To become larger and take up more space.

Fahrenheit (fār' ən hīt). A scale of temperature.

moderate (mōd' ər ít). Between hot and cold.

moisture (mois' chər). Liquid water.

multiply (mül' tə plī). To increase.

observe (əb zûrv'). To look, see, and learn.

survive (sər vīv'). To stay alive.

temperature (těm' pər əchər). A measure of heat.

thermometer (thər mōm' ítər). An instrument that measures the temperature of something.

Note: All vocabulary words in this LIFE PAC appear in **boldface** print the first time they are used. If you are unsure of the meaning when you are reading, study the definitions given.

Pronunciation Key: **h**at, **ā**ge, **cā**re, **fā**r; **l**et, **ē**qual, **tē**rm; **i**t, **ī**ce; **h**ot, **ō**pen, **ō**rder; **o**il; **o**ut; **c**up, **p**ut, **r**ule; **ch**ild; **l**ong; **th**in; /FH/ for **th**en; /zh/ for **m**ea**s**ure; /u/ or /ə/ represents /a/ in **a**bout, /e/ in **t**ake**n**, /i/ in **p**encil, /o/ in **l**em**o**n, and /u/ in **c**irc**u**s.

Ask your teacher to say these words with you.



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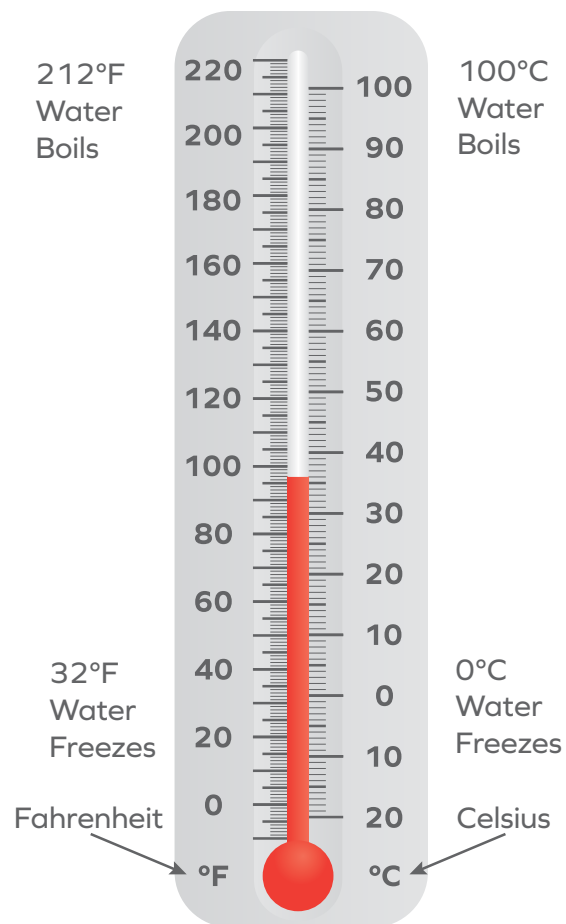
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Temperature

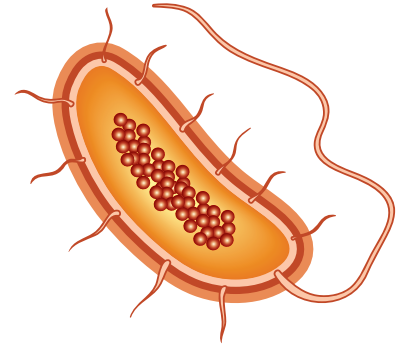
Temperature is the first condition that can change an environment. Some places on the earth have temperatures that are very hot. Other parts of the earth have temperatures that are very cold. Then, there are some parts of the earth where the temperatures are between hot and cold. That is, the temperature is **moderate**. Plants and animals are able to live everywhere on the earth in many different temperatures.

Each living thing is made just right so it can **survive** in its own environment at the normal temperature. For example, animals that live in environments where the temperature is very hot may have a special ability to store water or go for long periods with small amounts of water. Animals that live where the temperature is very cold may have a special ability to keep warm. Layers of fat and heavy coats of fur help these animals to survive in cold environments.

A **thermometer** is used to measure the temperature of places and things on the earth. Two different temperature scales are commonly used. Most common thermometers are designed to show important temperatures of water. These thermometers use either, or both, of these two scales. The thermometer scale will show 100 degrees **Celsius** (100°C) or 212 degrees **Fahrenheit** (212°F) as the point at which water boils. The thermometer scale will show 0 degrees Celsius (0°C) or 32 degrees Fahrenheit (32°F) when water freezes or ice melts. Water is the only thing on Earth that will boil at 212°F (100°C) and will freeze at 32°F (0°C).



Only some very tiny animals are able to live in places where the temperature is over the boiling point of water. Most animals cannot live at all in places where the temperature is this hot. The water in the oceans would **evaporate** if the temperature on the earth was over the boiling point. This does not happen because God created the earth so the temperatures would not get that hot.



| Some bacteria can live where temperatures are above 212° F.



Write your answers in the blanks.

1.1 Name one thing that you have learned so far in this LIFEPAC that changes an environment.

1.2 Water boils at 100° C or _____ ° F.

1.3 32° F (Fahrenheit) and 0° C (Celsius) is the temperature at which _____ freezes or _____ melts.

1.4 Why are some animals able to survive in very cold environments?

RECORD TEMPERATURE CHANGES



Record temperature change for one day.

You will need these things:

clock

thermometer with either Fahrenheit or Celsius scales or both

Follow these directions. Check the boxes as you do each step.

- 1. Choose an outside place at your school or home. Hang up or mount the thermometer so that it does not move. Wait a few minutes so the thermometer adjusts to the air temperature. Record the time and temperature on this chart. If you have a thermometer with both Celsius and Fahrenheit scales, record both numbers. Otherwise, use the correct column.
- 2. Wait one hour and read the temperature again. Record both the time and temperature on the chart.
- 3. Read and record the time and temperature every hour for one school day.

1.5 Record the temperatures from the study in this chart.

TIME	TEMPERATURE	
	°CELSIUS	°FAHRENHEIT



Teacher check:

Initials _____ Date _____

COMPARE TEMPERATURES



Record temperature at different locations.

You will need this thing:

thermometer with either Fahrenheit or Celsius scales or both

Follow these directions. Check the boxes as you do each step.

- 1. Go outside and measure the temperature in at least five different places. Wait a few minutes at each place so the thermometer adjusts to the air temperature. Record the place and temperature on this chart. If you have a thermometer with both Celsius and Fahrenheit scales, record both numbers. Otherwise, use the correct column.
- 2. Read the different temperatures. How are they different?

1.6 Record the temperatures in this chart.

NAME OF PLACE	TEMPERATURE	
	°CELSIUS	°FAHRENHEIT



Teacher check:

Initials _____ Date _____

1.7 What have you learned about the temperature at your school or home? _____

Water

Animals must have water to survive and they must have the right amount of water if they are to live, grow, and multiply properly. They are made in special ways to live on the amount of water that is found in their environment. Some animals need a lot of water and others need very little.



| Icy water in Alaska

Water is a special substance because it gets bigger or **expands** when it freezes. This is the reason why ice floats in a glass of water or on a lake or river. Have you noticed that ice floats? If you have not, **observe** how it floats the next time you put ice into water. Ice covers the tops of lakes during cold weather while the water underneath is still liquid. Because ice floats, the animals and plants that live in the water under the ice can survive. The ice acts like a blanket on top of the water. God designed it this way so that the animals would be taken care of during the cold winter months. God cares for all of His creation!

EXPLORE FREEZING TEMPERATURES



What happens when water freezes?

Follow these directions. Check the boxes as you do each step.

- 1. Fill an ice cube tray completely full of water.
- 2. Look at the water level.
- 3. Place the ice cube tray in the freezer. Be careful not to spill any water.
- 4. After the water freezes, look at the level of the ice cubes.

1.8 What was different between the level of the water and the level of the ice? _____

It takes a lot of heat **energy** to cause water to get warmer. Does it take more heat energy to heat water or soil? You will find out in this activity.



LEARN ABOUT HEAT ENERGY



Learn about the heat energy needed to heat or cool water and soil.

You will need these things:

two pint glass jars or bottles

water

two thermometers

soil

ruler

Follow these directions. Check the boxes as you do each step.

Part A

1. Tape or tie a thermometer in each of the two jars so it is off the bottom.
2. Put water in one jar or bottle. Measure the height.
3. Put soil in the second jar or bottle. Be sure to have it reach the same height.
4. Put both containers in a sunny place close together. Be sure one is not shading the other.
5. Read the temperature on each thermometer every five minutes and record the time and temperature in the chart.

1.9 Record the temperatures in the chart.

TIME	WATER		SOIL	
	°C	°F	°C	°F

Data Table for Part A: Heating Up Temperatures

(Continued on the next page)


Part B

- 1. Move the two jars or bottles to a shady place. Be sure they are still close together but are not in the sun.
- 2. Read the temperature on each thermometer every five minutes and record the time and temperature in the following chart.

1.10 Record the temperatures in the chart.

TIME	WATER		SOIL	
	°C	°F	°C	°F

Data Table for Part B: Cooling Off Temperatures

 **Teacher check:**
 Initials _____ Date _____



Study what happened to the temperatures in the two tables.

Write the correct answers.

1.11 Heat was taken in by the _____ faster than the _____.

1.12 Heat was lost by the _____ faster than by the _____.

1.13 The changes in heat show that the _____ will heat up faster than the _____ (land /ocean).

SELF TEST 1

Each answer = 1 point

Circle the correct answer.

- 1.01** What is the freezing point of water on the Celsius thermometer?
 a. 32° C b. 212° C c. 0° C
- 1.02** What is the melting point of ice in degrees Fahrenheit?
 a. 32° F b. 212° F c. 0° F
- 1.03** Why does ice float?
 a. it is cold b. it is hard c. it expands
- 1.04** Which heats faster?
 a. soil b. water
- 1.05** Which cools faster?
 a. soil b. water

Write the answers on the lines.

- 1.06** Name four things that change an environment from place to place on the earth. _____

- 1.07** What does a thermometer measure?

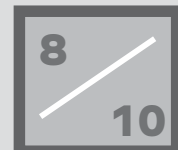


Teacher check:

Score _____

Initials _____

Date _____





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