

**Section: Asking About Life**

Think about this question:

How could you determine which animals have the best hearing?

Write your answers in your **science journal**.

**Section: Scientific Methods**

Complete these two tasks:

1. Describe an advertisement that cites research results.
2. Answer this question: Why is it important for scientists to write reports about their findings?

Write your answers in your **science journal**.

## **Section: Tools and Measurement**

Complete this task:

Give examples of how common items, such as calculators and computers, are used as scientific tools.

Write your answers in your **science journal**.

Be prepared to share and discuss your answers.

## **Section: Scientific Models and Knowledge**

Answer these questions:

1. What is a model?
2. Name several types of models.

Write your answers in your **science journal**.

**Section: Safety in Science**

Divide a page in your science journal into two columns. Make the left column about 2 inches wide and give the right column the rest of the space. Use the columns as follows:

Left column: List some safety rules for science classes.

Right column: Explain the purpose of each rule you listed.

**Section: Characteristics of Living Things**

Brainstorm characteristics of living things.

Write your answers in your **science journal**.

**Section: The Necessities of Life**

Most cells are made up of about 70% water. What would your mass be if there was no water in your body?

Write your answer in your **science journal**.

**Section: The Electromagnetic Spectrum**

Describe the weather conditions necessary to produce a rainbow.

Why do you think rainbows form?

Write your responses in your **science journal**.

**Section: Interactions of Light with Matter**

How do mirrors work?

What do mirrors do to light waves?

Write your answers in your **science journal**.

**Section: Refraction**

Can light bend?

What happens when light passes through water?

Write your answers in your **science journal**.

**Section: The Characteristics of Cells**

Identify some of the functions that all cells have in common.

Write your ideas in your **science journal**.

**Section: Eukaryotic Cells**

What are three differences between prokaryotic and eukaryotic cells?

Write your answer in your **science journal**.

**Section: The Organization of Living Things**

Why can't you use your tongue to breathe?

Why can't you use your arm muscles to digest food?

Write your answers in your **science journal**.

**Section: Cell Energy**

Why might cells need energy?

List ways that cells might get energy.

Write your answers in your **science journal**.

**Section: The Cell Cycle**

Explain why the following statement is true:

Biology is a science in which multiplication means the same thing as division.

Write your response in your **science journal**.

**Section: Mendel and His Peas**

Write a few sentences describing how you think traits are passed from parents to their offspring. Why do you think siblings look alike, but are not always identical?

Write your answer in your **science journal**.

**Section: Traits and Inheritance**

Why do you think Mendel thought each pea plant he used in his experiments contained two sets of instructions for each characteristic?

Write your answer in your **science journal**.

**Section: Meiosis**

Answer the following questions:

- Chromosomes contain DNA. What is DNA?
- What do you think is an important function of DNA?

Write your answers in your **science journal**.

**Section: What Does DNA Look Like?**

Give examples of the difference between traits and characteristics.

Where are genes found in cells?

Write your answers in your **science journal**.

**Section: How DNA Works**

Unscramble the two words below. Then, use both of them in one sentence.

tpsoneir

neesg

Write your answers in your **science journal**.

## Section: Earth's History

“The present is the key to the past” is the key to the uniformitarianism theory.

What can studying the present reveal about processes that occurred in the past?

Write your answers in your **science journal**.

## Section: Relative Dating

Use arrows and words to indicate the relationships between the following phrases regarding the parts of the rock cycle:

- sedimentary rock
- heat and pressure
- igneous rock
- melting and cooling
- metamorphic rock
- pressure and cementation
- weathering and erosion

Write your answers in your **science journal**.

## **Section: Absolute Dating**

How old is Earth?

What are some tools or methods that scientists might have used to determine the age of Earth?

Write your answers in your **science journal**.

**Section: Looking at Fossils**

Imagine that 65 million years from now, scientists discover the fossilized remains of today's living organisms. In a few sentences, describe the types of fossils that the scientists might find.

Write your description in your **science journal**.

**Section: Earth's Changing Continents**

Imagine that two large sections of Earth's crust are slowly colliding or separating. Over time, what might happen at the site of the collision or separation?

Write your answer in your **science journal**.

**Section: Time Marches On**

If the history of Earth was condensed into one calendar year, on what date do you think that modern humans would arrive?

Write your answer in your **science journal**.

**Section: Change Over Time**

Imagine that you have found fossils of crocodiles in several different layers of rock.

How would you compare the fossils to learn about the crocodiles?

Write your answer in your **science journal**.

**Section: How Does Evolution Happen?**

Darwin traveled around the world in a ship. What findings resulted from this trip that could not have been understood if he had stayed at home and studied nature?

Write your response in your **science journal**.

**Section: Natural Selection in Action**

Choose an environment anywhere in the world.  
Make a list of traits that would help an organism survive in that environment.

Write your answers in your **science journal**.

**Section: Sorting It All Out**

Write a few sentences describing how you think that scientists categorize organisms into groups.

Write your response in your **science journal**.

**Section: Domains and Kingdoms**

Write a short paragraph describing how shared derived characteristics play a role in classifying organisms.

Write your response in your **science journal**.

**Section: What Is a Plant?**

Compare plant cells to animal cells by making two lists. First, list the characteristics that are unique to plant cells. Then, list the characteristics that are shared by plant cells and animal cells.

Write your lists in your **science journal**.

**Section: Seedless Plants**

Which of the following groups of seedless plants produce sperm and egg cells that fuse during fertilization?

mosses

liverworts

hornworts

ferns

club mosses

Write your answer in your **science journal**.

**Section: Seed Plants**

Use the following terms to explain how you think plants produce seeds. You may use a drawing to help present your ideas.

pollen   flower   seeds   eggs

Write your response in your **science journal**.

**Section: Structures of Seed Plants**

What functions do plants need to be able to carry out? Which parts of a plant might carry out each of these functions?

Write your answers in your **science journal**.

**Section: Photosynthesis**

1. Where do you get the energy you need to survive?
2. What organelle is responsible for releasing energy within your cells?
3. Do all organisms on Earth get their energy from the same source(s) as you? If not, what are the exceptions?

Write your answers in your **science journal**.

**Section: Reproduction of Flowering Plants**

Complete the following sentences:

I think pollination occurs when

\_\_\_\_\_.

I think fertilization occurs when

\_\_\_\_\_.

Write your answers in your **science journal**.

**Section: Plant Development and Responses**

Make your best guess about how plants are able to change the way they grow when the amount of water or the amount of light increases or decreases.

Write your answers in your **science journal**.

**Section: What Is an Animal?**

What is the best material for washing a car – a cotton rag, a scratch pad, or an animal skeleton?

Explain your answer in your **science journal**.

**Section: The Animal Kingdom**

Brainstorm examples of how an organ or organ system in an animal helps the animal live in its environment.

Write your thoughts in your **science journal**.

**Section: Invertebrates**

Do you think most invertebrates reproduce sexually or asexually?

Write your thoughts in your **science journal**.

**Section: Vertebrates**

How do bones and muscles relate to how vertebrate animals move?

Explain your ideas in your **science journal**.

**Section: Body Organization**

Match each organ system with its correct function:

respiratory system

muscular system

digestive system

cardiovascular system

endocrine system

to pump blood

to enable movement

to send out chemical messages

to absorb oxygen

to break down food

Write your answers in your **science journal**.

**Section: The Skeletal System**

Brainstorm the problems you would have if you had no bones.

Write your response in your **science journal**.

**Section: The Muscular System**

List at least five parts of your body that you use to drink a glass of water.

Write your response in your **science journal**.

**Section: The Cardiovascular System**

Identify some of the organs and structures that work with the heart.

Predict what might happen if the heart stopped working.

Write your responses in your **science journal**.

**Section: Blood**

The levels of organization of in the human body are as follows:

cells → tissues → organs → organ systems → organism.

Which level of organization does blood belong to?

Write your answer in your **science journal**.

**Section: The Respiratory System**

What would happen if a person's lungs stopped working?

Write your answer in your **science journal**.

**Section: The Nervous System**

Write a brief paragraph about what happens to a person when a physician tests the person's reflexes by tapping his or her knee with a rubber mallet.

Write your response in your **science journal**.

**Section: Sensing the Environment**

Write a few sentences that describe how you think the human eye works.

Write your answers in your **science journal**.

**Section: Human Reproduction**

Use the words below to answer the questions that follow.

together

alone

sperm

eggs

1. What is one difference between the male and female reproductive systems?
2. What is one thing the male and female reproductive systems have in common?

Write your answers in your **science journal**.

**Section: Growth and Development**

Name the stages of physical development you have passed through in your life thus far.

Write your answers in your **science journal**.