

Interactive Notebooks

Grade
5

SCIENCE



- Ideal for organizing information and applying learning
- Perfect for addressing the needs of individual learners
- Includes step-by-step instructions for each page
- Great for introducing new science topics

Ecosystems

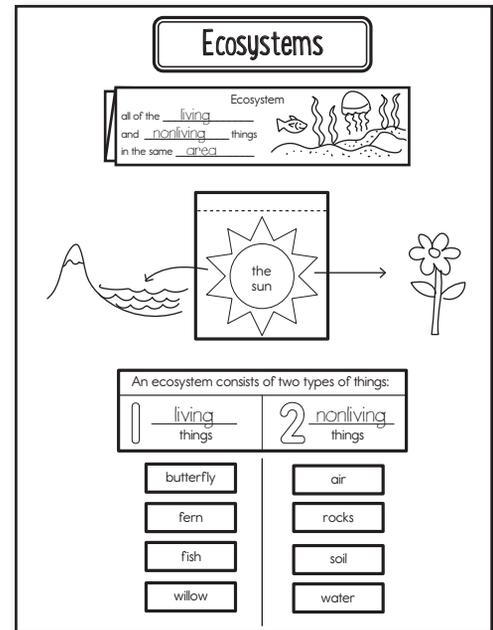
Introduction

Before the lesson, write the word *ecosystem* on the board. Use a self-stick note to cover the letters “eco.” Have students work in small groups to create definitions of the word *system*. Allow groups to share their definitions. Then, use them to create a class definition and write it on the board below the word. Remove the self-stick note. Discuss how the prefix changes the definition. Introduce the idea of an ecosystem.

Creating the Notebook Page

Guide students through the following steps to complete the right-hand page in their notebooks.

1. Add a Table of Contents entry for the Ecosystems pages.
2. Cut out the title and glue it to the top of the page.
3. Cut out the accordion piece. Fold on the dashed lines, alternating direction so that the largest section is on top. Apply glue to the back of the smallest section and attach it to the page below the title.
4. Write the name of an ecosystem, such as *Forest*, on the line in the top section. Complete the definition on each flap (Organism: a **single plant** or **animal**; Population: more than **one** of the **same plant** or **animal**; Community: all of the **living things** in the same **area**; Ecosystem: all of the **living** and **nonliving** things in the same **area**). Then, draw a picture to illustrate each term.
5. Cut out the sun flap. Apply glue to the back of the top section and attach it below the accordion fold. Under the flap, describe the importance of the sun to an ecosystem.
6. Draw arrows to the left and right of the sun flap to show the sun’s role in an ecosystem. For example, draw an arrow to a green plant to show photosynthesis at work, or an arrow to a water source to show the sun’s role in the water cycle.
7. Cut out the *An ecosystem consists* piece and glue it below the sun flap.
8. Discuss the two main parts of an ecosystem and complete the blanks (**living** things; **nonliving** things). Continue the vertical line straight down the page to create a T-chart.
9. Cut out the eight labels. Glue each label in the correct column on the T-chart.

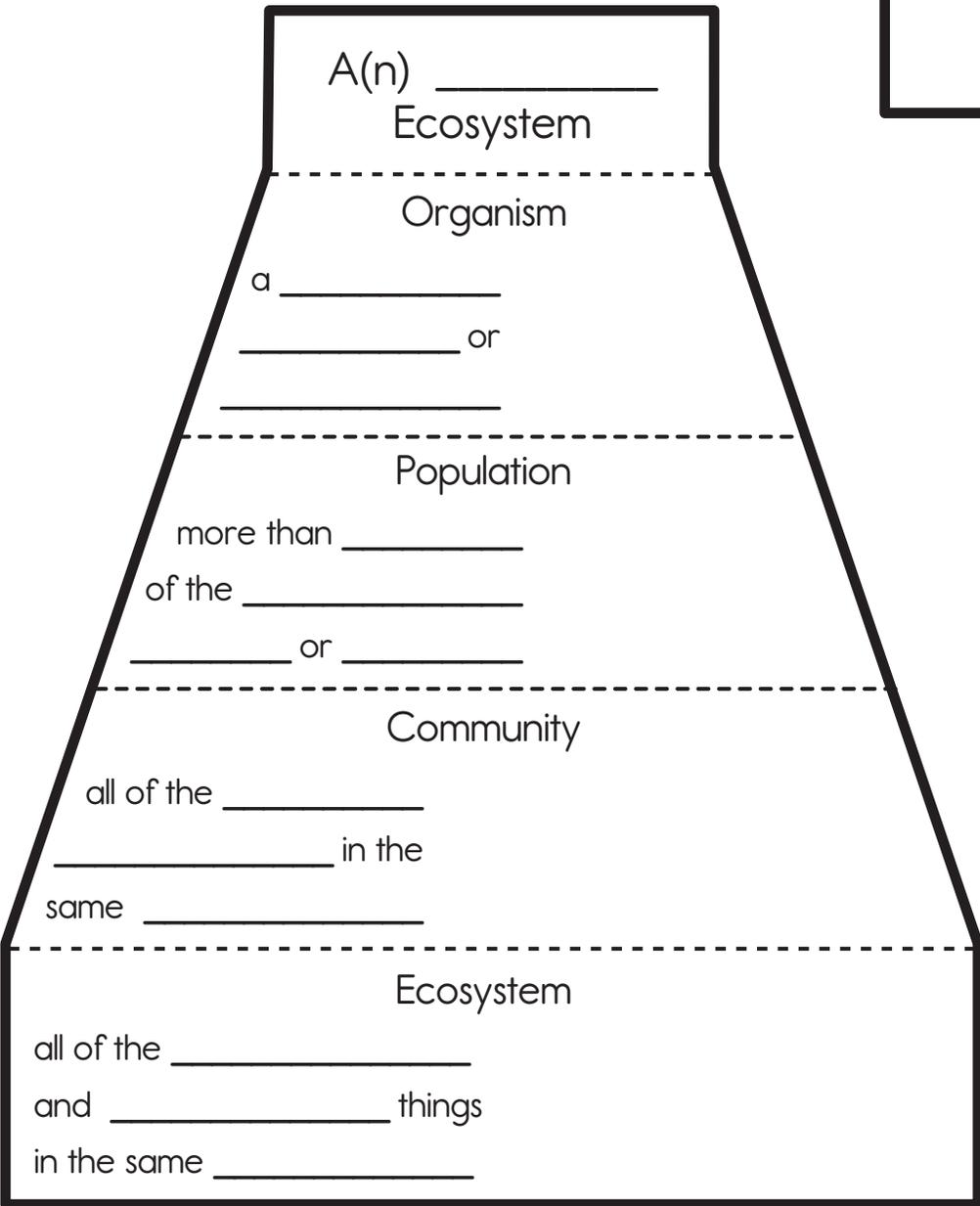
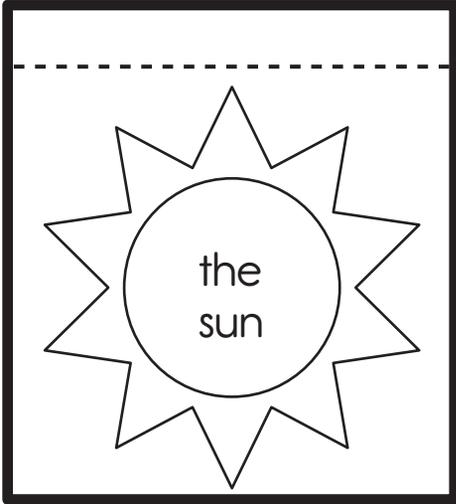


Reflect on Learning

To complete the left-hand page, have students choose an ecosystem and draw a picture of it. Students should include at least five different plants and five different animals. Have students label the living and nonliving parts of the ecosystem.

Ecosystems

air	butterfly	fern	fish	rocks	soil	water	willow
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An ecosystem consists of two types of things:

_____ things	2	_____ things
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Ecosystems: Oceans and Lakes

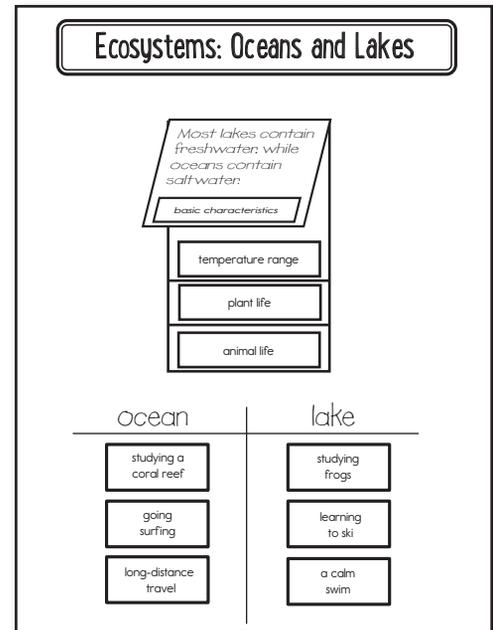
Introduction

Divide students into small groups. Give each group an ecosystem (ocean or lake) and one or two major characteristics. Have each group create a poster illustrating the characteristic(s) of each ecosystem. As a class, review the qualities of oceans and lakes. Focus on major characteristics (such as water type, temperature ranges, and surrounding landforms), animal life, and plant life.

Creating the Notebook Page

Guide students through the following steps to complete the right-hand page in their notebooks.

1. Add a Table of Contents entry for the Ecosystems: Oceans and Lakes pages.
2. Cut out the title and glue it to the top of the page.
3. Cut out the two rectangular pieces on the solid lines. Fold each rectangle on the dashed lines. Fold the piece with the gray glue section so that it is inside the fold. Apply glue to the gray glue section and place the other folded rectangle on top so that the folds are nested and create a book with four cascading flaps. Make sure that the inside pages are facing up so that the edges of both pages are visible. Glue the flip book below the title.
4. Cut out the four qualities labels. Glue one label along the bottom edge of each flap (from top to bottom: *basic characteristics*, *temperature range*, *plant life*, *animal life*).
5. On the top flap, write a statement to compare an important basic characteristic of a lake with one of an ocean. On the second flap, write a statement to compare the potential temperature range of a lake with that of an ocean. On the third flap, write a statement to compare the plant life in a lake with that of an ocean. On the last flap, write a statement to compare the animals found in a lake with those in an ocean.
6. Draw a T-chart at the bottom of the page. Label the sides *ocean* and *lake*.
7. Cut out the six activity pieces and glue them in the correct columns on the T-chart.



Reflect on Learning

To complete the left-hand page, have students explain whether they would rather visit a lake or an ocean, using facts about each ecosystem to explain their preferences.

Ecosystems: Oceans and Lakes

	glue	

basic characteristics
temperature range
plant life
animal life

a calm swim	going surfing
long-distance travel	learning to ski
studying a coral reef	studying frogs

Ecosystems: Forests and Grasslands

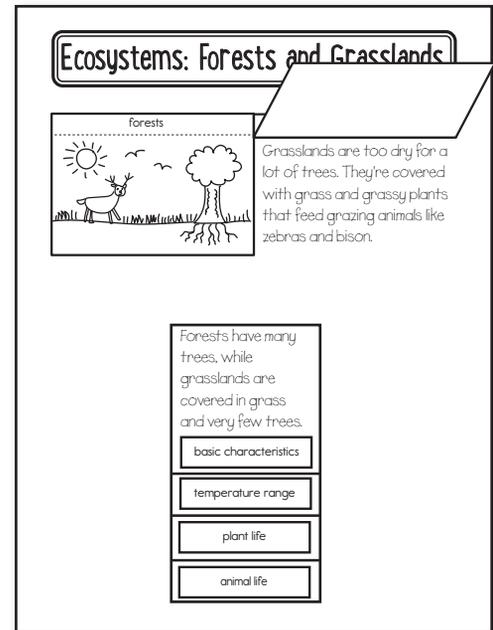
Introduction

Have students draw items they associate with the words *grassland* and *forest*. Students should include plants and animals in their drawings. Ask students to share their drawings and confirm correct answers, explaining incorrect ones. For example, a picture of the grasslands likely would not have trees because there is not enough rainfall or nutrients in the soil to support trees, but a zebra or antelope would be correct. However, a zebra or antelope would struggle to navigate a forest environment populated by trees.

Creating the Notebook Page

Guide students through the following steps to complete the right-hand page in their notebooks.

1. Add a Table of Contents entry for the Ecosystems: Forests and Grasslands pages.
2. Cut out the title and glue it to the top of the page.
3. Cut out the flap book. Cut on the solid line to create two flaps. Apply glue to the back of the top section and attach it below the title. Draw an example of each ecosystem on the flap. Then, write information about each ecosystem under the appropriate flap.
4. Cut out the two rectangular pieces on the solid lines. Fold each rectangle on the dashed lines. Fold the piece with the gray glue section so that it is inside the fold. Apply glue to the gray glue section and place the other folded rectangle on top so that the folds are nested and create a book with four cascading flaps. Make sure that the inside pages are facing up so that the edges of both pages are visible. Glue the flip book below the title.
5. Cut out the four labels. Glue one label along the bottom edge of each flap (from top to bottom: *basic characteristic*, *temperature range*, *plant life*, *animal life*).
6. On the top flap, write a statement to compare an important basic characteristic of a forest with one of a grassland. On the second flap, write a statement to compare the potential temperature range of a forest with that of a grassland. On the third flap, write a statement to compare the plant life of a forest with that of a grassland. On the last flap, write a statement to compare the animals found in a forest with those found in a grassland.



Reflect on Learning

To complete the left-hand page, have students write a story with a character (person or animal) who moves from the forest to the grassland (or vice versa). Have students describe how the character must adapt to the new habitat by overcoming the challenges of the new environment.

Ecosystems: Forests and Grasslands

	glue	

forests	grasslands

basic characteristics	temperature range
plant life	animal life

Ecosystems Review

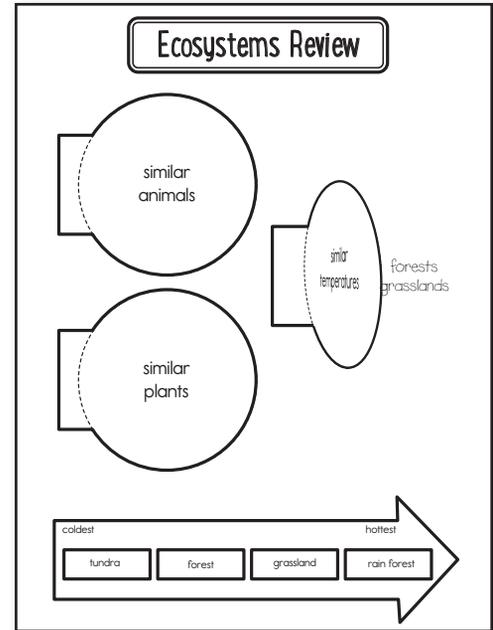
Introduction

Have students create brochures for ecosystems that the class has previously discussed. In addition to illustrating the covers, have students list details about the ecosystem in sections: special activities, animal life, plant life, and advice on how to dress, pack, or prepare for a visit.

Creating the Notebook Page

Guide students through the following steps to complete the right-hand page in their notebooks.

1. Add a Table of Contents entry for the Ecosystems Review pages.
2. Cut out the title and glue it to the top of the page.
3. Cut out the flaps. Apply glue to the back of the left sections and attach them to the page.
4. Under each flap, write at least two ecosystems that share the quality shown.
5. Cut out the arrow and glue it to the page below the flaps.
6. Cut out the names of the four ecosystems and glue them on the arrow in order, from coldest to hottest.



Reflect on Learning

To complete the left-hand page, have students write which ecosystem their favorite animal lives in. Students should support their opinions with details of how the plants, temperature, and basic characteristics of that ecosystem support the animal.

Answer Key

Similar temperatures: forest and grassland; Similar plants: forest and rainforest; Similar animals: ocean and lake; coldest to hottest: tundra, forest, grassland, rainforest

Ecosystems Review

similar
temperatures

similar
plants

similar
animals



- | | | | |
|--------|-------------|--------|-----------|
| forest | rain forest | tundra | grassland |
|--------|-------------|--------|-----------|

Making Energy

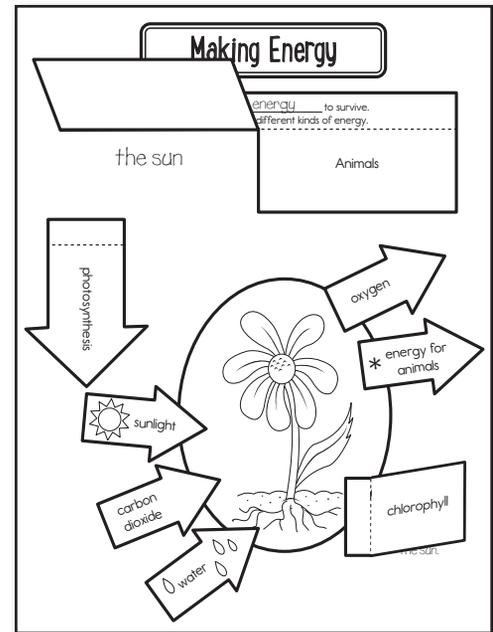
Introduction

Have students list their meals from the past week. Have them name the categories of foods people eat (such as meats, fruits, vegetables, and grains). Ask students what they think plants eat. Discuss how it is possible that life can be sustained by such different sources of energy.

Creating the Notebook Page

Guide students through the following steps to complete the right-hand page in their notebooks.

1. Add a Table of Contents entry for the Making Energy pages.
2. Cut out the title and glue it to the top of the page.
3. Cut out the *All living things* flap book. Cut on the solid line to create two flaps. Apply glue to the back of the top section and attach it to the page below the title.
4. Complete the explanation. (All living things need **energy** to survive.) Discuss how plants and animals differ in how they get their energy. Under each flap, write the main source of energy for each type of organism.
5. Cut out the *photosynthesis* flap. Apply glue to the back of the left section and attach it pointing downward from the *plants* flap.
6. Under the flap, describe the process of photosynthesis and how it relates to plants and energy.
7. Cut out the flower and glue it to the bottom of the page.
8. Cut out the five arrows and the *chlorophyll* flap.
9. Glue the arrows around the flower to demonstrate the process of photosynthesis. Glue carbon dioxide and sunlight entering the flower on the left, and water entering from the roots. Glue oxygen and energy for animals leaving the flower on the right. Apply glue to the back of the left section of the chlorophyll flap and attach it near the leaf. Under the flap, describe the role chlorophyll plays in photosynthesis.



Reflect on Learning

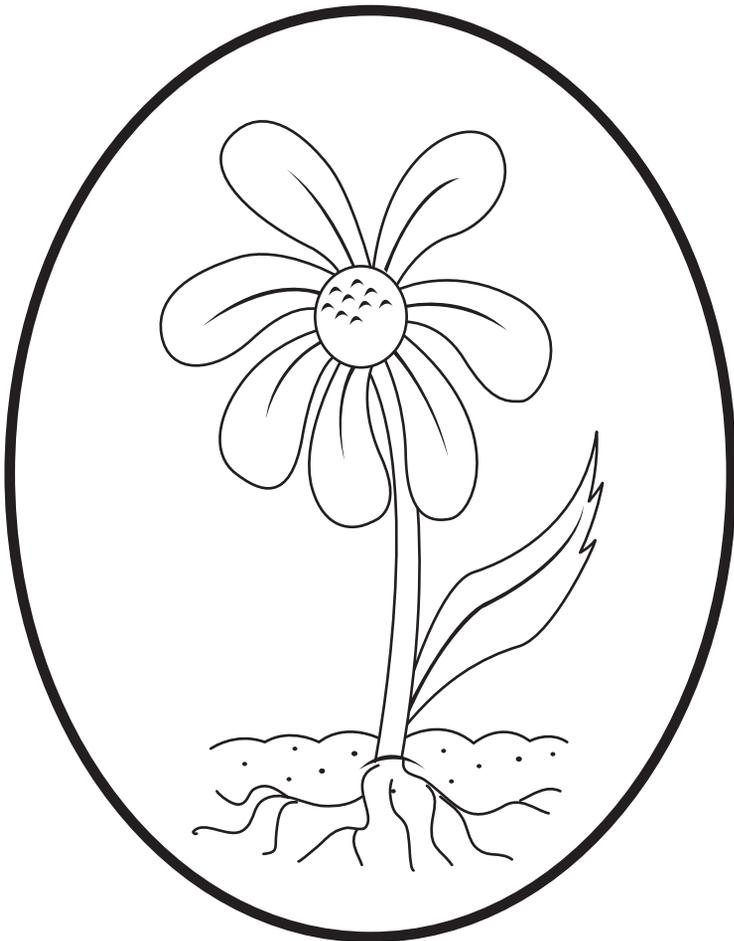
To complete the left-hand page, have students consider why the balance between plants and animals is so important. What would happen if all of one or the other were gone?

Making Energy

All living things need _____ to survive.
Different organisms use different kinds of energy.

Plants	Animals
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photosynthesis



carbon dioxide

water

sunlight

oxygen

* energy for animals

chlorophyll