Instructions for Copying

Answers are printed in non-reproducible blue. Copy pages on a light setting in order to make multiple copies for classroom use.
LIFE SCIENCE

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# Living Things and Their Needs

Complete the concept map about structures of plants and animals. Some examples have been done for you.

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<tr>
<th>What Living Things Need</th>
<th>Plant Structures</th>
<th>Animal Structures</th>
</tr>
</thead>
<tbody>
<tr>
<td>Food</td>
<td>▶ Energy from sunlight is taken in by</td>
<td>▶ Food is taken in by</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>▶ Water is taken in by</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Water</td>
<td>▶ Water is taken in by</td>
<td>▶ Water is taken in by</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>▶ Water flows through</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Gases</td>
<td>▶ Carbon dioxide is collected by</td>
<td>▶ Oxygen is taken in by</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Name** ___________________________ **Date** ___________________________
Plants and Their Parts

Use your textbook to help you fill in the blanks.

What are plants?

1. One way in which all plants are alike is that they make their own ____________.

2. Roots, stems, and leaves are some basic plant parts, or ____________.

How do roots and stems help plants?

3. Roots collect water from the ____________.

4. A carrot has a thick root, or ____________, that stores food.

5. Roots take in ____________ that help plants grow and stay healthy.

6. The plant part that holds up leaves to sunlight is the ____________.

7. Stems have ____________ that carry food and water through a plant.

8. A tree has a hard, woody stem called a(n) ____________.
Why are leaves important?

9. Leaves are important because _____________ is made in the leaves.

10. Plants get energy from the _____________ to make food.

11. Plants change carbon dioxide and water into _____________ that they use for food.

12. Plants have small tubes called _____________ that carry water from stems into leaves.

13. When you breathe, you take in _____________ that plants release.

How do we use plants?

14. A part of a plant that can be eaten is _____________.

15. Carrots and beets are the _____________, of a plant.

Critical Thinking

16. What are the jobs of roots, stems, and leaves?

______________________________________________________________________________

______________________________________________________________________________

______________________________________________________________________________

______________________________________________________________________________
Plants and Their Parts

Use the words in the box to fill in the blank.

<table>
<thead>
<tr>
<th>edible</th>
<th>leaf veins</th>
<th>root</th>
<th>structures</th>
</tr>
</thead>
<tbody>
<tr>
<td>leaf</td>
<td>nutrient</td>
<td>stem</td>
<td>sugar</td>
</tr>
</tbody>
</table>

1. A ____________ is a structure that holds up a plant.
2. A plant’s roots and leaves are _______________ .
3. The structure in which food is made is the _______________ .
4. Small tubes that carry water from the stems into the leaves are called _______________ .
5. A _______________ is a structure that takes in water.
6. A substance that helps living things grow and stay healthy is a _______________ .
7. A substance that is made in the leaves and used as food for the plant is _______________ .
8. Lettuce leaves, carrot roots, and celery stems are _______________ parts of plants.
Plants and Their Parts

Fill in the blanks. Use the words from the box.

<table>
<thead>
<tr>
<th>carbon dioxide</th>
<th>oxygen</th>
<th>structures</th>
</tr>
</thead>
<tbody>
<tr>
<td>leaves</td>
<td>sunlight</td>
<td>water</td>
</tr>
<tr>
<td>nutrients</td>
<td>reproduce</td>
<td></td>
</tr>
</tbody>
</table>

All plants have one thing in common. They can make their own food using the energy from _____________.

Plants make sugars from ____________ and water. Plants give off ____________, which animals need in order to live.

Most plants also have parts, or _____________.

in common. Flowers and cones help some plants _____________. Roots hold plants in place and take in ____________ and nutrients. Water, food, and ____________ flow through the tubes in stems. Stems help to hold up _____________. Inside a leaf, a plant makes food.
Animals and Their Parts

Use your textbook to help you fill in the blanks.

What are animals?

1. One characteristic that most animals have in common is that they can ________________.

2. Unlike plants, animals cannot make their own ________________.

3. Animals are able to ________________ to their environments in more noticeable ways than plants.

4. Wings and tails are ________________ that help animals get what they need.

5. Animals move toward food and away from ________________.

6. Wolves can run and jump because of their ________________.

7. Snails make a trail of ________________ to slide on.

8. Ducks and geese have ________________ that help them fly.

How do animals’ structures help them survive?

9. An elephant uses its ________________ to pull food to its mouth.
LESSON
Outline

10. Lions use their ____________ to lap up water.

11. Lungs and gills help animals take in ________________.

12. The sweat that helps cool your body down on a hot day comes from pores in your ________________.

How do animals stay safe?

13. A ____________ helps protect animals from bad weather.

14. The ground and ________________ are examples of safe places, or shelters, for animals.

15. A snail has a(n) ________________ to keep it safe in its environment.

Critical Thinking

16. Why do you think insects are classified as animals?

__________________________________________________________________________

__________________________________________________________________________

__________________________________________________________________________

__________________________________________________________________________

__________________________________________________________________________

__________________________________________________________________________

Chapter 1 • Living Things and Their Needs
Use with Lesson 2
Reading and Writing
Animals and Their Parts

Match the correct letter with the description.

| a. lung       | c. pores     | e. shelter  | g. trunk    |
| b. nest      | d. quills   | f. skin     | h. wings    |

1. _____ a kind of shelter for young birds
2. _____ a structure that takes in oxygen from air
3. _____ the outer covering of an animal
4. _____ a structure that helps elephants pull food to their mouths
5. _____ structures that help birds fly and glide through the air
6. _____ a safe place for animals
7. _____ structures that help protect a porcupine from other animals
8. _____ tiny holes in the skin
Animals and Their Parts

Fill in the blanks.

<table>
<thead>
<tr>
<th>air</th>
<th>food</th>
<th>skin</th>
<th>teeth</th>
</tr>
</thead>
<tbody>
<tr>
<td>move</td>
<td>respond</td>
<td>swim</td>
<td></td>
</tr>
</tbody>
</table>

Animals share certain characteristics that make them different from plants. Animals can fly, run, jump, or _____________. Unlike plants, they cannot make their own _____________. Animals ____________ to their environments more noticeably than plants.

Animals have a variety of structures. They have different kinds of ____________ for biting and chewing. Lungs help some animals get oxygen from _____________. Feet, legs, and wings help many different animals _____________. An animal's ____________ helps protect it from disease and keeps it warm. Tongues, beaks, and trunks help animals get water and food.
Resources in the Environment

Use your textbook to help you fill in the blanks.

What are living things?

1. Another name for a living thing, such as a plant or animal, is a(n) __________________.

2. A sunflower plant changes with age, or ________________.

3. A plant responds to shade when it bends toward ________________.

4. Trees reproduce by making ________________.

5. Turtles lay ________________ to make more of their own kind.

6. Water and sunlight are ________________ things in nature.

What do organisms need from their environment?

7. Living things get everything they need to survive from their ________________.

8. All the living things in an environment make up a ________________.

9. Food, water, air, space, sunlight, and shelter are some ________________ that organisms need.
LESSON
Outline

How do living things compete for resources?

10. The struggle among living things for resources is ______________.

11. The defined space that an animal defends against other animals is its ______________.

12. Elephants and lions get water from ______________.

13. A protected place to live is a ______________.

Can competition be avoided?

14. The job or role an organism has in its environment is its ______________.

15. Bay-breasted warblers and Cape may warblers both feed on ______________ in spruce trees.

Critical Thinking

Do humans compete with each other and other living things for resources? Explain your answer.
Resources in the Environment

Match the correct letter with the description.

| a. community | d. niche | g. resource |
| b. competition | e. organism | h. shelter |
| c. environment | f. reproduce |

1. ______ to make more of one's own kind
2. ______ the job or role an organism has in its environment
3. ______ all the living and nonliving things that surround an organism
4. ______ all the living things in an environment
5. ______ a protected place to live
6. ______ something that helps a living thing survive
7. ______ another name for a living thing
8. ______ the struggle among living things for resources
Resources in the Environment

Fill in the blanks. Use the words from the box.

community    niche    resources
environment  organisms  respond
living       reproduce

Living things, or ________________, have many characteristics in common. They ________________, or react, to the world around them. Living things ________________ to make new organisms. A thing without these characteristics is nonliving.

A living thing gets everything it needs from its ________________. The environment includes both ________________ and nonliving things. All the living things in an environment make up a ________________.

Living things compete with other organisms in their environment for ________________, such as food, water, sunlight, and shelter. However, not all organisms in an environment compete for the same needs. Each type of organism has its own ________________, or role in the environment.
Energy Relationships

Use your textbook to help you fill in the blanks below.

What are the basic needs of plants and animals?

1. All plants and animals need food, water, space, and ____________ in order to survive.

2. Living things need ____________ to break down food.

3. Living things need energy from ____________.

4. Earth’s air and water contain a(n) ____________ called oxygen.

5. Plants and animals need the gas ____________ in order to survive.

6. Living things need room, or ____________, to grow and find food.

What is a food chain?

7. To live and grow, organisms need ____________ from food.

8. The flow of energy in an environment can be shown in a(n) ____________.

9. Green plants and algae are ____________ that use the Sun’s energy to make food.

10. Organisms that get their energy from eating other organisms are called ____________.
How do organisms use their structures to get food?

11. Organisms have ____________ that help them obtain and consume food.

12. Plant’s have leaves of different shapes and sizes to help them capture energy from the _____________.

13. Sharks have very sharp ____________ that they use to tear food.

Critical Thinking


_________________________________________________________________
_________________________________________________________________
_________________________________________________________________
_________________________________________________________________
_________________________________________________________________
_________________________________________________________________
Energy Relationships

Match the correct letter to its description.

<table>
<thead>
<tr>
<th>Letter</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>a.</td>
<td>carbon dioxide</td>
</tr>
<tr>
<td>b.</td>
<td>consumer</td>
</tr>
<tr>
<td>c.</td>
<td>energy</td>
</tr>
<tr>
<td>d.</td>
<td>food chain</td>
</tr>
<tr>
<td>e.</td>
<td>oxygen</td>
</tr>
<tr>
<td>f.</td>
<td>producer</td>
</tr>
<tr>
<td>g.</td>
<td>structure</td>
</tr>
<tr>
<td>h.</td>
<td>water</td>
</tr>
</tbody>
</table>

1. ______ a gas that animals need to survive
2. ______ an organism that makes its own food
3. ______ diagram showing how energy passes from one organism to another in an environment
4. ______ an organism that eats other organisms
5. ______ a gas that plants use to make sugars
6. ______ living things get this from food
7. ______ a resource that helps living things break down food
8. ______ a part of a living thing that helps it get food, water, and other needs
Energy Relationships

Use the words in the box to fill in the blanks.

- carbon dioxide
- food chain
- structures
- consumers
- oxygen
- Sun
- energy
- producers
- water

Living things depend on one another and on many nonliving things around them. They need ______________ to break down food and get rid of waste. Plants and animals take in ______________ from the air or water. Plants also need a gas called ______________ in order to make food.

In an environment, ______________ passes from one organism to another. A diagram that shows how energy passes from one organism to the next is called a ______________.

Food chains begin with ______________ that make their own food. They use energy from the ______________. Organisms that cannot make their own food are called ______________. Organisms have special ______________ that help them meet their need.
The Moth that Needed the Tree

Write About It

Expository Writing  Research another example of how insects and plants depend on each other. Write a report with facts and details from your research.

Getting Ideas

Think about what you learned in this chapter and through your research. Fill in the chart below. Tell the main idea and two details about yucca trees and yucca moths.

<table>
<thead>
<tr>
<th>Main Idea</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Planning and Organizing

Mireya wrote three sentences. Write Main Idea next to the sentence that tells the main idea. Write Detail next to each sentence that tells a detail.

1. _________________  In spring, yucca moths crawl out of their cocoons.

2. _________________  The yucca moth and yucca tree need each other to live.

3. _________________  Female moths gather pollen from the yucca tree.
Revising and Proofreading

Mireya wrote some sentences. She did not include many details. Choose a word or set of numerals from the box. Write it on the line.

eggs  black  few  8-10

A yucca moth is about ________________ mm long. Its color is ________________ . In only a ________________ days, the female moth places about 3-5 ________________ in a yucca flower’s ovary.

Drafting

Begin your report. Start with a topic sentence. Tell the main idea of your report.

Now write your report. Use a separate piece of paper. Start with the sentence you wrote above. Include facts and details about the yucca tree and the yucca moth. At the end of your report, draw a conclusion about how they help each other.

Revising and Proofreading

Now revise and proofread your writing. Ask yourself:

- Did I include facts and details?
- Did I draw a conclusion at the end of the report?
- Did I correct all mistakes?
Living Things and Their Needs

Circle the letter of the best answer.

1. A diagram that shows low energy passes from one organism to another is a(n)
   a. structure.
   b. root.
   c. food chain.
   d. competition.

2. The living and nonliving things that surround an organism make up its
   a. shelter.
   b. environment.
   c. exoskeleton.
   d. structure.

3. The structure in which a plant makes food is a(n)
   a. stem.
   b. leaf.
   c. root.
   d. flower.

4. The plant structures that collect water and nutrients are
   a. roots.
   b. stems.
   c. leaves.
   d. flowers.

5. Every living thing can be called a(n)
   a. cell.
   b. invertebrate.
   c. vertebrate.
   d. organism.
Circle the letter of the best answer.

6. A structure that land animals use to breathe air is a(n)  
   a. lung.  
   b. gill.  
   c. carbon dioxide.  
   d. leaf.

7. An organism that makes its own food is a(n)  
   a. environment.  
   b. consumer.  
   c. animal.  
   d. producer.

8. Food, water, space, oxygen, carbon dioxide, and sunlight are examples of  
   a. environment.  
   b. producers.  
   c. resources.  
   d. organism.

9. The struggle among living things for resources is called  
   a. energy.  
   b. niche.  
   c. competition.  
   d. food chain.

10. An organism that eats other organisms for food is a(n)  
    a. plant.  
    b. producer.  
    c. food chain.  
    d. consumer.
# Life Stages of Living Things

Complete the chart below to show the stages in the life cycles of plants and animals. Some answers have been completed for you.

## Flowering Plants

<table>
<thead>
<tr>
<th>Seeds made in flowers</th>
<th>________</th>
<th>________</th>
<th>plant dies</th>
</tr>
</thead>
</table>

## Conifers

<table>
<thead>
<tr>
<th>Seeds made in ________</th>
<th>________</th>
<th>adult</th>
<th>plant dies</th>
</tr>
</thead>
</table>

## Amphibians and Most Insects

<table>
<thead>
<tr>
<th>Egg</th>
<th>Larva looks _____ parents.</th>
<th>________</th>
<th>________</th>
<th>animal dies</th>
</tr>
</thead>
</table>

## Reptiles and Fish

<table>
<thead>
<tr>
<th>________</th>
<th>Young animal looks _____ parents.</th>
<th>adult</th>
<th>animal dies</th>
</tr>
</thead>
</table>

## Birds

<table>
<thead>
<tr>
<th>________</th>
<th>Young animal looks like parents.</th>
<th>________</th>
<th>animal dies</th>
</tr>
</thead>
</table>

## Mammals

<table>
<thead>
<tr>
<th>________</th>
<th>Young animal looks _____ parents.</th>
<th>adult</th>
<th>animal dies</th>
</tr>
</thead>
</table>
Plant Life Cycles

Use your textbook to help you fill in the blanks.

How do plants grow?

1. The structure inside an apple that grows into a new plant is a(n) ______________.

2. A seed has stored food and nutrients to help the ______________ survive.

3. When conditions are right, a seed will begin to grow, or ______________.

4. An adult plant grows from a small plant called a(n) ______________.

How do plants make seeds?

5. The part of a flowering plant that makes seeds is a(n) ______________.

6. Seeds form when an egg joins with ______________.

7. Flowers have colors and smells that attract animals to drink their ______________.

8. You can find a fruit around the seeds of ______________.

9. In order to grow, seeds must get to the ______________.
What are some plant life cycles?

10. A seed germinates in the first stage of a flowering plant’s ____________.

11. When plants die, they add ____________ to the soil.

12. Two kinds of plants that reproduce by making seeds are flowering plants and ____________.

13. Pollen moves from small male cones to large female cones when the ____________ blows.

How do plants grow without seeds?

14. An onion can grow a new plant from its underground stem, or ____________.

Critical Thinking

15. What are the steps in the life cycle of a flowering plant? Use the terms *seed*, *germinate*, *seedling*, *flower*, and *pollination* in your answer.

________________________________________________________________________

________________________________________________________________________

________________________________________________________________________

________________________________________________________________________

________________________________________________________________________
Plant Life Cycles

Choose a word from the box that matches each clue below and write its letter in the space provided.

<table>
<thead>
<tr>
<th>a. cone</th>
<th>c. flower</th>
<th>e. life cycle</th>
<th>g. pollination</th>
</tr>
</thead>
<tbody>
<tr>
<td>b. embryo</td>
<td>d. fruit</td>
<td>f. pollen</td>
<td>h. seed</td>
</tr>
</tbody>
</table>

1. _____ a structure that can grow into a new plant

2. _____ a structure in flowering plants that makes seeds

3. _____ all the stages in an organism’s life

4. _____ the process that takes place when pollen moves from the male part of a flower to the female part of a flower

5. _____ a structure that holds seeds

6. _____ a young plant inside a seed

7. _____ a structure in conifers that makes seeds

8. _____ a powder made by the male part of a flower or cone
Plant Life Cycles

Use the words in the box to fill in the blanks below.

<table>
<thead>
<tr>
<th>adult</th>
<th>fruit</th>
<th>reproduce</th>
</tr>
</thead>
<tbody>
<tr>
<td>cones</td>
<td>germinate</td>
<td>wind</td>
</tr>
<tr>
<td>eggs</td>
<td>pollination</td>
<td></td>
</tr>
</tbody>
</table>

Plants go through stages known as a life cycle. Plants ____________ from seeds and grow into ____________ plants. Then the plants reproduce. When plants die, they return nutrients to the soil that new plants use.

Flowers help flowering plants ____________. Flowers produce pollen and ____________. Animals and ____________ move pollen to eggs. This movement is called ____________. After a flower is pollinated, a seed forms and is protected by a ____________ that grows around it. Conifers make seeds in ____________ instead of flowers. Wind blows pollen from small male cones to large female cones. The large cones grow seeds.
Animal Life Cycles

Use your textbook to help you fill in the blanks.

What are some animal life cycles?

1. A _______________ changes into a frog as it grows.

2. Animals change in different ways, but all change as part of their _______________.

3. After an animal is born, it grows, changes, _______________, and dies.

4. During their life cycles, some animals change form through the process of _______________.

5. Metamorphosis happens in the life cycles of amphibians and some _______________.

6. The life cycle of amphibians and insects begins with a(n) _______________.

7. A young amphibian that _______________ from an egg does not look like an adult.

8. Another name for an insect that has just hatched is _______________.

How do reptiles, fish, and birds change as they grow?

9. Fish lay their eggs in _______________.

Chapter 2 • Life Stages of Living Things
Reading and Writing
10. When reptiles and fish are young, they look similar to ________.

11. Unlike most reptiles and fish, ________________ protect their eggs and raise their young.

**What is the life cycle of a mammal?**

12. Mammals do not hatch from eggs, but are ________________.

13. Like birds, young mammals ________________ like adults.

14. Mammals look after their young until the young can ________________ on their own.

**Critical Thinking**

15. How are the life cycles of animals alike and different?

________________________________________________________________________

________________________________________________________________________

________________________________________________________________________

________________________________________________________________________

________________________________________________________________________

________________________________________________________________________
# Animal Life Cycles

Match the correct letter with its description.

<p>| | | | |</p>
<table>
<thead>
<tr>
<th></th>
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</tr>
</thead>
<tbody>
<tr>
<td>a.</td>
<td>adult</td>
<td>d.</td>
<td>larva</td>
</tr>
<tr>
<td>b.</td>
<td>egg</td>
<td>e.</td>
<td>life cycle</td>
</tr>
<tr>
<td>c.</td>
<td>hatching</td>
<td>f.</td>
<td>life stage</td>
</tr>
<tr>
<td>g.</td>
<td>metamorphosis</td>
<td>h.</td>
<td>pupa</td>
</tr>
</tbody>
</table>

1. _____ a structure containing food and nutrients that young animals need in order to grow

2. _____ the stages through which animals grow, change, reproduce, and die

3. _____ the process by which an animal breaks out of an egg

4. _____ a young insect that has just hatched

5. _____ the stage of an animal’s life cycle when it reproduces

6. _____ the stage in which an insect is changing into an adult

7. _____ a process by which an organism’s body changes form

8. _____ a step in the life cycle of an organism
Animals grow, change, and reproduce in different ways. All animals change during their \underline{life cycles}. Animals are hatched from eggs or born \underline{live}. At the end of their life cycles, all animals \underline{die}. Most reptiles, fish, and birds \underline{lay eggs} but mammals are born live. Young birds and mammals look similar to their \underline{parents}. When they \underline{hatch}, young reptiles and fish look just like their parents. Amphibians and insects in the \underline{larva} stage look very different from their parents. Larvae hatch from eggs, and then change into \underline{metamorphosis} through a process called \underline{mammals}. They will then look like their parents.
The Little Lambs

Read the Writing in Science feature in your textbook.

Write About It

Personal Narrative Have you ever seen a plant or animal grow and change? Write about your experience. Describe the changes. Write what you observed, what you did, and how it made you feel.

Getting Ideas

Select a plant or animal to write about. Think about how it changed as it grew. Write three stages of its growth down in the sequence chart below.

Planning and Organizing

Jake wrote about his horse Wind Star. Here are three sentences that he wrote. Put them in time order. Write 1 next to the sentence that should come first. Write 2 next to the sentence that should come next. Write 3 next to the sentence that should come last.

1. ______ Wind Star got his first set of teeth when he was one.
2. ______ Now he is three years old and still growing.
3. ______ When Wind Star was a foal, he had no teeth.
Drafting

Write the first sentence of your narrative. Use “I” to refer to yourself. Describe something interesting about a plant or animal that you helped to care for.

Now complete your personal narrative. Use a separate piece of paper. Begin with the sentence you wrote above. Include details about how your plant or animal grew and changed. Put them in time order. Explain how watching these changes made you feel.

Revising and Proofreading

Here is part of the personal narrative that Jake wrote. He had a lot of trouble with homophones. Homophones are words that sound alike but have different spellings and different meanings. Proofread it. Find the five mistakes he made. Correct them.

My little foul looked so handsome. He had a white star write in the middle of his forehead. His coat was chestnut brown. His legs wobbled whenever he stood up. He was the cutest creature I had ever scene. I couldn’t weight for him to grow up sew that I could ride on him.

Now revise and proofread your own writing.
Ask yourself:

- Did I use the pronoun “I” to describe my own experience?
- Did I detail how the plant or animal grew and changed?
- Did I correct all mistakes?
From Parents to Young

Use your textbook to help you fill in the blanks.

What are inherited traits?

1. Features that make an organism unique are called ______________.
2. Examples of human traits are eye and hair ______________.
3. You can use traits to tell the ______________ between two people.
4. The passing on of a trait from parents to young is called ______________.
5. The features that your parents passed on to you are called ______________.
6. You look like your ______________ because of inherited traits.
7. Most organisms have a(n) ______________ of traits from both parents.
8. An organism will look ______________ like the parent that passes on visible traits.
9. If a gray dog and a yellow dog have yellow puppies, yellow is a more ______________ trait than gray.
10. Both parents pass on traits to their young, otherwise known as ______________.
Which traits are not inherited?

11. Traits that people and animals learn over time are called _____________.

12. Learned traits and traits caused by the environment are not _____________.

13. A scar is a trait caused by the _____________.

14. An example of a trait caused by the environment is a tree losing its _____________.

Critical Thinking

15. What is the difference between traits that are inherited and traits that are not inherited? Give examples in your answer.

__________________________________________________________

__________________________________________________________

__________________________________________________________

__________________________________________________________

__________________________________________________________

__________________________________________________________

__________________________________________________________

__________________________________________________________
From Parents to Young

Fill in the blanks.

1. Traits that come from parents are called ____________.

2. You may look more like one of your parents than the other one because that parent passed on ____________ traits.

3. New skills you gain that were not passed on from your parents are called ____________.

4. The passing on of traits from parents to young is called ____________.

5. A unique feature of a living thing is a(n) ____________.

6. Hair that gets lighter from the Sun is an example of a trait caused by the ____________.

7. Another word for an organism's young is ____________.
From Parents to Young

Use the words in the box to fill in the blanks below.

environment   learned traits   offspring
inherited traits   mixture   skills

The features that make an organism unique are called traits. Some traits are passed from parents to their ______________. These traits are called ______________. Organisms look like both parents because they get a(n) ______________ of traits from both parents. However, an organism may look more like the parent that has passed on the more visible traits.

Other traits are new ______________, such as learning to read. They are not inherited. Skills that an animal learns are called ______________. Learned traits can change or appear because of the ______________. For example, green leaves may turn yellow if a plant needs water.
Meet Darrel Frost

Read the text below.

A fence lizard is soaking up warmth from the Sun when a hawk soars overhead. The hawk spots the lizard, then swoops down to grab a meal. The lizard has no time to scurry away. How can it escape the hawk’s claws?

If the hawk catches the lizard’s long tail, the tail will break off. The bird will be left holding a wriggling tail while the lizard runs away. In time, the lizard will grow a new tail. Growing new body parts is a trait called regeneration.

Regeneration is one of the many amazing traits that Darrel Frost studies. Darrel is a scientist at the American Museum of Natural History. He travels all over the world to learn about different kinds of lizards. Then he observes their traits. Finally, he uses his observations to find out how different kinds of lizards are related.

Rewrite the first two sentences using the words first, second, third, and fourth.
Write About It

**Sequence** Read the article with a partner. Fill in a sequence-of-events chart to show how Darrel learns about lizards. Then use your chart to write a summary about Darrel and his work.

<table>
<thead>
<tr>
<th>First</th>
</tr>
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<tbody>
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<table>
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<th>Next</th>
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<table>
<thead>
<tr>
<th>Last</th>
</tr>
</thead>
<tbody>
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</tbody>
</table>

**Summarize**

Write your summary on the lines below. Use your own words. Include the ideas in the boxes above. Be sure your summary tells what happens first, next, and last.

________________________________________________________________________

________________________________________________________________________

________________________________________________________________________
Life Stages of Living Things

Circle the letter of the best answer.

1. Which structure of a flowering plant holds seeds?
   a. cone
   b. fruit
   c. egg
   d. embryo

2. Which structure contains food and nutrients for developing animals?
   a. fruit
   b. egg
   c. seed
   d. pupa

3. When pollen joins an egg in the ovary of a flower, what is formed?
   a. a seed
   b. a cone
   c. a flower
   d. a fruit

4. Which is an example of a learned trait?
   a. flower shape
   b. eye color
   c. speaking a language
   d. a scar

5. Which young animal looks very different from its parents?
   a. kitten
   b. alligator
   c. chick
   d. beetle larva

6. Which plant structure makes seeds?
   a. cone
   b. fruit
   c. flower
   d. embryo
Circle the letter of the best answer.

7. Any feature of a living thing is called a(n)
   a. instinct.
   b. trait.
   c. inherited trait.
   d. learned trait.

8. Inherited traits come from
   a. parents.
   b. skills.
   c. environment.
   d. offspring.

9. The inside of a seed contains a(n)
   a. egg.
   b. fruit.
   c. larva.
   d. embryo.

10. In which stage does an insect change into an adult?
    a. life cycle
    b. metamorphosis
    c. larva
    d. pupa

11. What must happen before a seed forms in a flower or a cone?
    a. pollination
    b. metamorphosis
    c. heredity
    d. germination

12. Which structure in conifers makes seeds?
    a. flower
    b. fruit
    c. cone
    d. embryo

13. What is another word which means an organism’s young?
    a. trait
    b. fruit
    c. offspring
    d. pupa
Living Things and Their Environments

Complete the concept map with the information you learned about the climates and adaptations in Earth’s environments. Some answers have been completed for you.

<table>
<thead>
<tr>
<th>Environment</th>
<th>Climate and Other Characteristics</th>
<th>Traits of Organisms</th>
</tr>
</thead>
<tbody>
<tr>
<td>desert</td>
<td></td>
<td>plants:______________________________</td>
</tr>
<tr>
<td></td>
<td></td>
<td>animals:____________________________</td>
</tr>
<tr>
<td>temperate forest</td>
<td></td>
<td>leaves have grooves and “drip tips”</td>
</tr>
<tr>
<td></td>
<td></td>
<td>plants:______________________________</td>
</tr>
<tr>
<td></td>
<td></td>
<td>animals:____________________________</td>
</tr>
<tr>
<td></td>
<td>warmer in shallow areas, colder in deeper areas</td>
<td>plants:______________________________</td>
</tr>
<tr>
<td></td>
<td></td>
<td>animals:____________________________</td>
</tr>
</tbody>
</table>

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Chapter 3 • Living Things and Their Environments
Reading and Writing
Types of Environments

Use your textbook to help you fill in the blanks below.

How do environments differ?

1. An environment’s long-term weather conditions are called its ____________.
2. Plants grow well in environments that have ____________ rich in humus.
3. Grasslands, forests, oceans, and ponds ________________ in the types of plants and animals they have.

What is a desert?

4. A desert is an environment that gets very little ____________.
5. Deserts have few plants because the soil is mostly ____________, which does not provide them with enough water to survive.
6. Most desert animals search for food at ____________ when temperatures are cooler.

What is a forest?

7. A(n) ____________ forest is an environment that is warm and rainy all year long.
8. The temperatures and rainfall change each season in a(n) ____________ forest.
What is an ocean?

9. The largest environment on Earth is a body of water called a(n) ________________.

10. In the ocean, a ridge made of tiny animals called ________________ attracts many fish.

What is a wetland?

11. An environment in which water covers the ________________ for most of the year is a wetland.

12. Plants grow well in wetlands because the soil is full of ________________.

13. Wetlands help prevent ________________ because they absorb water.

Critical Thinking

14. What are three characteristics that make Earth’s environments different from one another? Give an example of each characteristic.

________________________________________________________________________

________________________________________________________________________

________________________________________________________________________

________________________________________________________________________

________________________________________________________________________
# Types of Environments

Match the words in the box to their definitions below. Write the correct letter in the space provided.

| a. climate | d. ocean | g. tropical forest |
| b. desert  | e. soil   | h. wetland         |
| c. forest  | f. temperate |

1. ______ an environment in which water covers the soil for most of the year
2. ______ the long-term weather conditions of an area
3. ______ an environment that has many trees
4. ______ the type of forest environment found in North America, Europe, and Asia
5. ______ a mixture of broken-down rocks and humus
6. ______ an environment that has a dry climate
7. ______ the largest environment on Earth
8. ______ the type of forest that is hot and damp
Earth’s environments differ in many ways. They have different types of _______________ , soil, plants, and animals. The largest environment is the _______________ . Most ocean organisms live in _______________ water. Few animals live deep in the ocean because they would not get any light from the _______________ . Wetlands can have _______________ water. In a _______________ , the land is _______________ and has few plants.

The environment that gets the most rain is the _______________ forest. It is _______________ there year long. The _______________ has few nutrients. A temperate forest has four _______________ and soil that is rich in _______________ . Many animals can be found in temperate forests.
Survival in Different Environments

Use your textbook to help you fill in the blanks below.

How are living things built to survive?

1. A frog’s sticky tongue helps it __________ in its environment.
2. Some animals escape from danger by using __________ to blend in with their environment.
3. In cold climates, some animals have __________ to keep their bodies warm.

What traits help desert plants and animals survive?

4. Desert plants have __________ to keep animals from eating them.
5. Coyotes are __________, meaning that they sleep during the day and hunt at night.
6. Jackrabbits have large __________ that help them stay cool.

What traits help forest plants and animals survive?

7. Trees in temperate forests conserve energy during the winter by losing their __________.
8. An organism that imitates another is using __________.
9. Some animals ____________ during the winter.

**What traits help ocean plants and animals survive?**

10. Plantlike organisms that live in the ocean and make their own food are called ______________.

11. Algae without roots have ______________ to help them float on the water’s surface.

**What traits do wetland organisms have?**

12. Wetland plants must have a way to survive changing ______________.

13. During dry seasons, wetland catfish breathe ______________ from the air.

**Critical Thinking**

14. What are three ways in which traits help organisms survive? Give an example of each.

________________________________________

________________________________________

________________________________________

________________________________________
Survival in Different Environments

Use the words in the box to fill in the blanks below.

air bladders  camouflage  migrate  nocturnal
blubber  hibernate  mimicry

1. Animals that are active at night are ____________.
2. A layer of fat under the skin of some animals who live in cold climates is ____________.
3. When animals move from one place to another, they ____________.
4. Blending into one’s environment is called ____________.
5. When one living thing imitates another in color or shape, it is using ____________.
6. Animals go into a deep sleep when they ____________.
7. Balloon-like structures that help algae float are called ____________.
Living things have traits that help them find food and water. Desert plants have long ____________ to find water. Algae use ____________ to float on the ocean’s surface to get ____________. Deep in the ocean, the ____________ has a light that attracts its food.

Some animals use ____________ to blend into their environment. Animals in the desert are ____________, or active at night. Some forest animals ____________ during the winter when food is hard to find. Fish have ____________ so that they can breathe underwater. Some animals ____________ when the seasons change. Plant and animal traits can be found in every environment.
Changes Affect Living Things

Use your textbook to help you fill in the blanks.

What are some ways environments change?

1. An environment can change when a(n) __________ washes away plants and soil.
2. Living things are harmed when they do not get enough water during a(n) __________.
3. Floods and droughts are types of __________.
4. Animals can lose their homes when lightning starts a(n) __________.
5. Some bacteria and mold can cause __________ that harm many living things.

What are exotic species?

6. New kinds of organisms that people bring into an environment are called __________.
7. The wooly adelgid, an insect, was brought to America from __________.
8. An exotic species that cannot be easily controlled is a(n) __________.
In what other ways do people change their environments?

9. People cut down ______________ in order to make wood products.

10. Harmful materials that get into the air, land, and water are called ______________.

Critical Thinking

11. Would animals in a forest be harmed if a disease spread that only affected plants? Explain why or why not.

________________________________________________________________________

________________________________________________________________________

________________________________________________________________________

________________________________________________________________________
Changes Affect Living Things

Match the word with its correct description below. Write the letter of the word in the space provided.

1. ______ a long period of time with no rain
2. ______ species that are new to an environment
3 ______ can be caused by bacteria or mold
4. ______ can start when lightning strikes a dry area
5. ______ a kind of organism
6. ______ a flood is an example of this
7. ______ harmful materials that get into air, land, or water
8. ______ an exotic species that cannot be easily controlled

Words:

- disease
- drought
- exotic species
- invasive species
- natural disaster
- pollution
- species
- wildfire
Changes Affect Living Things

Use the words in the box to fill in the blanks below.

floods  humans  pollution
exotic species  plants  water

Besides diseases, natural disasters such as
__________ and droughts can change an
environment. When dry land is covered by water, soil
and ____________ can be washed away. During
a drought some organisms die from too little
__________.

__________ change their environment more
than any other organism. People sometimes being new
organisms, or ____________, into an environment.
They also change the environment when they clear land
to build new homes. The harmful materials that get into
air, land, and water are called ____________. When
resources become polluted, living things that rely on
them can die.
Populations

Use your textbook to help you fill in the blanks.

How do environmental changes affect an entire community?

1. All the coyotes in a prairie environment make up a _____________.

2. Populations in an environment ________________ on each other.

3. All the populations in an environment make up a _____________.

4. If disease killed prairie dogs in an environment, eagles and coyotes would lose a source of _____________.

5. If the prairie dogs are gone, ________________ may grow taller and thicker.

What are some thriving and threatened organisms found in Tennessee?

6. Organisms that are not in danger of dying out are _____________ organisms.

7. An organism that may become rare in the near future is _____________.
8. Many of the spotfin chub in the Tennessee River have been killed off by ____________.

How does an organism become endangered?

9. Threatened organisms may become endangered for ____________ reasons they become threatened.

10. When there are only a few living members of a kind of organism left, the organism is ____________.

11. Organisms can become endangered because of ____________ loss or destruction.

Critical Thinking

12. If one population in Tennessee becomes endangered, what could happen to other populations in the same community?

________________________________________________________________________

________________________________________________________________________

________________________________________________________________________

________________________________________________________________________

________________________________________________________________________

________________________________________________________________________
Populations

Match the word with its correct description below. Write the letter of the word in the space provided.

1. _______ all the organisms of one kind in an environment
2. _______ description of a kind of organism that has only a few living members of its population left
3. _______ all the living things in an environment
4. _______ description of a kind of organism that may become rare in the near future
5. _______ description of a kind of organism that is not in danger of dying out

a. community  c. population  e. thriving
b. endangered  d. threatened
Populations

Use the words in the box to fill in the blanks below.

- disease
- prairie dogs
- thrive
- endangered
- organism
- tunnels
- food
- threatened

Changes in an environment affects its living things. A change that affects one type of ___________ can eventually affect other populations. For example, coyotes eat ___________. Mice and snakes live in the ___________ that prairie dogs build. If a(n) ___________ destroyed the prairie dogs, all these other animals would be affected.

Changes affect different populations in different ways. If prairie dogs die out, the grasses they feed on will grow and ___________. However, the eagles that feed on prairie dogs would lose a source of ___________. There may be fewer eagles in the future. Eagles could become a ___________ organism. If, one day, there were only a few eagles living, the animal would be ___________.

Chapter 3 • Living Things and Their Environments
Reading and Writing

Use with Lesson 4 Populations
Save the Koala Bears

Read the Writing in Science feature in your textbook.

Write About It

Persuasive Writing Choose an endangered animal you care about. Research to find out why this animal is in trouble. Write a paragraph to convince readers that this animal should be saved. Be sure to end with a strong argument.

Getting Ideas

Fill out the chart below. Write your opinion about your endangered animal in the top oval. Write down the reasons that support your opinion in the bottom ovals.

Opinion

Reason

Reason

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Planning and Organizing

Isabella wrote about the giant panda bear. Does her sentence tell why we should protect the panda? If so, write yes. Write no if it does not.

1. If we do not protect the pandas, they could die out. ______

2. I saw a beautiful panda bear in the zoo. ______

Drafting

Pick an animal. Write a sentence that states your opinion about saving it.

Now write your paragraph on a separate piece of paper. Begin with the sentence that you wrote above.

Revising and Proofreading

Here are some sentences that Isabella wrote. Proofread them. Find the five spelling errors. Cross out each misspelled word. Write the correct spelling above it.

Panda bears have lived in bamboo forests for millions of years. If the jiant panda bear dyes out, the Earth will lose one of the most beautiful kreatures in the world. I beleive that people must take action now.

Now revise and proofread your writing. Ask yourself:

- Did I state my opinion about an endangered animal?
- Did I include convincing reasons?
- Did I correct all mistakes?
Living Things of the Past

Use your textbook to help you fill in the blanks.

What can happen if the environment suddenly changes?

1. People know about organisms that lived long ago because of remains called ______________.

2. A type of organism that has no living population is said to be ______________.

3. Large animals called ______________ became extinct about 10,000 years ago when the climate changed.

4. Ice covered much of Earth during the ______________.

5. Disease and dry weather caused the ______________ to become extinct in 2004.

How can we learn about things that lived long ago?

6. Scientists can tell what animals ate by studying their ______________.

7. Other fossils, such as bones, can show how an animal ______________.
8. Fish fossils found on land tell scientists that this land was once covered by ______________.

9. The ______________ fossils are usually deep below the surface of the ground.

10. The ______________ fossils are usually below ground but close to the surface.

How are living things of today similar to those that lived long ago?

11. Fossils do not show how organisms used their ______________.

12. Elephants today are similar to ______________ that lived long ago.

13. The pterodactyl was a flying lizard that used its beak and claws to catch fish, just as the ______________ does today.

Critical Thinking

14. Living tropical plants can be found where it is hot and rainy. Fossils of tropical plants have been found in a place where it is cold today. What can you infer from this finding?

__________________________

__________________________

__________________________

__________________________
Living Things of the Past

Who am I? What am I?

Choose a word from the box below that answers each question and write its letter in the space provided.

a. extinct
d. saber-toothed cat
b. fossil
e. St. Helena Olive tree
c. Ice Age f. woolly mammoth

1. _______ I am the remains of an organism that lived long ago. What am I?

2. _______ I am an ancient animal that used a trunk as elephants do today. Who am I?

3. _______ I was a living organism, but there are no more of my kind alive. What word describes me?

4. _______ I am a big animal that became extinct when the climate changed thousands of years ago. Who am I?

5. _______ I am a type of tree that is extinct because of disease and dry weather. What am I?

6. _______ During my time, large ice sheets covered much of the land. What am I?
Living Things of the Past

Use the words in the box to fill in the blanks below.

ate  
extinct  
similar  
body parts  
layers  
woolly mammoths  
Earth  
meteor

Scientists learn about ancient organisms by studying fossils. They learn how animals looked, how they moved, and what they ate. Some living things today look similar to organisms of long ago. Scientists can infer from them how ancient organisms used their body parts. For example, elephants look like woolly mammoths.

From fossils, scientists also learn how Earth has changed over time. They find fossils in its rock layers. Scientists think that some animals are extinct because of natural events. For example, dinosaurs may have died when a(n) meteor hit Earth. Other animals became extinct because of humans’ activities, competition, and disease.
Looking at Dinosaurs

Read the Reading in Science feature in your textbook.

Write About It

Fact and Opinion  What animal do you think dinosaurs are like? What animal do scientists think dinosaurs are like? Why do scientists think this?

Planning and Organizing

Answer the following questions.

What animal do you think dinosaurs are like?

What animal do scientists think dinosaurs are like? Why do scientists think this?
Drafting

Write a paragraph explaining how one of the previous answers is an opinion and the other is a fact. Use examples of dinosaur discoveries to support your writing.

________________________________________________________________________

________________________________________________________________________

________________________________________________________________________

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________________________________________________________________________
Living Things and Their Environments

Circle the letter of the best answer.

1. All the living things in an environment form a(n)
   a. community.
   b. population.
   c. drought.
   d. flood.

2. Which of these environment receives the least rain?
   a. forest
   b. desert
   c. ocean
   d. wetland

3. Soil and plants may be washed away during a
   a. drought.
   b. wildlife.
   c. flood.
   d. disease.

4. Organisms that are not in danger of dying out are said to be
   a. endangered.
   b. threatened.
   c. nocturnal.
   d. thriving.

5. Which organism is extinct?
   a. lizard
   b. eagle
   c. elephant
   d. woolly mammoth

6. Which environment has soil that is under water most of the year?
   a. desert
   b. wetland
   c. temperate forest
   d. tropical rain forest
Circle the letter of the best answer.

7. An animal that is active at night is said to be
   a. hibernating.
   b. migrating.
   c. nocturnal.
   d. using camouflage.

8. Scientists learn the most about ancient organisms by studying
   a. fossils.
   b. resources.
   c. natural disasters.
   d. adaptations.

9. When people bring a new organism into an environment, that organism is a(n)
   a. community.
   b. drought.
   c. fossil.
   d. exotic species.

10. Which is a natural disaster caused by too little rain?
    a. pollution
    b. disease
    c. drought
    d. flood

11. What is produced when harmful things are put in the air, water, or land?
    a. pollution
    b. competition
    c. extinction
    d. adaptation

12. When animals go into a deep sleep during winter, they are
    a. endangered.
    b. thriving.
    c. migrating.
    d. hibernating.
Monarch
by Marilyn Singer

Read the Unit Literature feature in your textbook.

Write About It

Response to Literature  This poem describes a caterpillar changing into a butterfly. All living things change as they grow. Write a poem about how you have changed as you have grown. Write about some exciting things you are waiting for.
Planet Earth and Its Materials

Complete the concept map about Earth and its resources. Some parts have been done for you.

The Solar System

Sun – at the center of the solar system

Planets:
1. Mercury
2. Venus
3. _________
4. Mars
5. _________
6. Saturn
7. Uranus
8. _________

Some of Earth’s Features

1. mountains
2. _________
3. _________
4. plateaus
5. _________
6. _________

Minerals and Rocks
Rocks are made up of _________

Types of Rocks:
1. _________
2. _________
3. metamorphic

Natural Resources

Resources:
1. plants
2. animals
3. _________
4. air

Nonrenewable Resources:
1. coal
2. _________
3. natural gas
The Solar System

Use your textbook to help you fill in the blanks.

What is our solar system?

1. The Sun and the objects that move around it make up a(n) _____________.

2. Large bodies of rock or gas that revolve around a star are called ______________.

3. There are _____________ planets that revolve around the Sun.

4. All the planets follow a(n) _____________ as they _______________ around the Sun.

What are the inner and outer planets?

5. The four planets closest to the Sun are called the _________________.

6. The names of the inner planets are _________________, Venus, ________________, and Mars.

7. The four planets farthest from the Sun are called the _________________.

8. The names of the outer planets are Jupiter, ________________, ________________, and Neptune.
9. The largest planet in our solar system is _______________.

What are other objects in our solar system like?

10. A moon is an object that revolves around a _______________.

11. Earth’s Moon’s surface is covered with _______________.

12. The Sun is a _______________ at the center of our solar system.

13. Even though the Sun is far away, it provides Earth with _______________ and heat.

How can we view the planets?

14. To see a planet’s surface, we can use a tool called a(n) _______________.

15. Telescopes have _______________ and _______________ that gather light.

Critical Thinking

16. Why was a telescope needed to discover the planets Uranus and Neptune?

________________________________________

________________________________________

________________________________________
The Solar System

Use the words in the box to fill in the blanks below.

<table>
<thead>
<tr>
<th>inner planets</th>
<th>outer planets</th>
<th>solar system</th>
<th>telescope</th>
</tr>
</thead>
<tbody>
<tr>
<td>moon</td>
<td>planet</td>
<td>Sun</td>
<td>year</td>
</tr>
</tbody>
</table>

1. A large body of rock or gas that revolves around a star is called a(n) ________________.
2. The four planets closest to the Sun are called the ________________.
3. A star and the objects that move around it make up a(n) ________________.
4. The star at the center of our Solar System is called the ________________.
5. The four planets farthest from the Sun are called the ________________.
6. It takes Earth one ________________ to complete a trip around the Sun.
7. One object that revolves around a planet is a ________________.
8. A tool used to make faraway objects appear larger is a(n) ________________.
The Solar System

Use the words in the box to fill in the blanks below.

<table>
<thead>
<tr>
<th>closest</th>
<th>light</th>
<th>solar system</th>
<th>Neptune</th>
</tr>
</thead>
<tbody>
<tr>
<td>farthest</td>
<td>moons</td>
<td>telescope</td>
<td></td>
</tr>
<tr>
<td>inner planets</td>
<td>outer planets</td>
<td>warmer</td>
<td></td>
</tr>
</tbody>
</table>

Earth and seven other planets revolve around the Sun. They form part of a(n) _________________. Planets do not make their own ________________ but reflect the Sun’s light. Some planets have ________________ that revolve around them.

Earth is one of the four _________________. This group of planets is ________________ to the Sun. This makes them ________________ than the other planets. The other planets are called the _________________. This group of planets is ________________ from the Sun. The planet that is farthest away is _________________. To see the planets beyond Saturn, we must use a(n) _________________. A tool called a space probe lands on planets and takes pictures of them.
Landforms and Bodies of Water

Use your textbook to help you fill in the blanks.

What covers Earth’s surface?

1. More than half of Earth is covered by ________________.

2. Most of Earth is covered by ________________, which are made up of salt water.

3. Rivers and glaciers are made up of ________________ water.

4. Water that is not ________________ is fresh water.

5. Earth’s ________________ make up seven great land areas.

What are some of Earth’s land and water features?

6. A deep, narrow valley with steep sides is a(n) ________________.

7. A landform with water all around it is a(n) ________________.

8. Rivers are bodies of ________________ water.

9. Land that is flat on top and higher than the land around it is called a(n) ________________.
What land features are below the oceans?

10. The land under an ocean at the edge of a continent is called a ____________.

11. Land that stretches for thousands of miles across the ocean is called the ____________.

12. Canyons called ____________ form the deepest parts of the ocean floor.

What are some Tennessee features?

13. To the west of the Appalachian mountains is the Cumberland ____________.

14. The highest waterfall in the eastern United States is the ____________ Falls.

15. The highest landform in Tennessee is ____________.

Critical Thinking

16. What can a map show you about Earth’s features?

___________________________________________

___________________________________________

___________________________________________
## Landforms and Bodies of Water

Match each word with its definition.

<p>| | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
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</thead>
<tbody>
<tr>
<td>a. abyssal plain</td>
<td>e. Clingman’s Dome</td>
<td>i. ocean</td>
</tr>
<tr>
<td>b. coast</td>
<td>f. Falls Creek falls</td>
<td>j. trench</td>
</tr>
<tr>
<td>c. continent</td>
<td>g. landform</td>
<td></td>
</tr>
<tr>
<td>d. continental shelf</td>
<td>h. mountain</td>
<td></td>
</tr>
</tbody>
</table>

1. _______ a large body of salt water
2. _______ the highest waterfalls in the eastern United States
3. _______ a large area of land
4. _______ the tallest kind of landform
5. _______ land that borders the ocean
6. _______ a canyon that is the deepest part of the ocean floor
7. _______ the highest landform in Tennessee
8. _______ a feature of land on Earth’s surface
9. _______ a plateau under the ocean at the edge of a continent
10. _______ a deep, flat part of the ocean floor that is thousands of kilometers wide

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Landforms and Bodies of Water

Fill in the blanks.

<table>
<thead>
<tr>
<th>abyssal plain</th>
<th>Cumberland</th>
<th>plain</th>
</tr>
</thead>
<tbody>
<tr>
<td>continental shelf</td>
<td>landforms</td>
<td>plateau</td>
</tr>
<tr>
<td>Clingman’s Dome</td>
<td>ocean</td>
<td></td>
</tr>
</tbody>
</table>

The seven large land areas of Earth are the continents. Continents have ____________ such as mountains and valleys. A high, flat landform with steep sides is a(n) ____________ . Another landform is a(n) ____________ , which is flat and wide.

Most of Earth is covered by salty ____________ water. Land under the ocean along a coast forms the ____________ . Farther out, the wide, flat ____________ makes up the ocean floor. A deep canyon in the ocean floor is called a trench.

In Tennessee, there are many different landforms. The highest landform in Tennessee is ____________ . To the west are the ____________ Plateau and the Gulf Coastal Plain.
Minerals and Rocks

Use your textbook to help you fill in the blanks.

What are minerals?

1. Solid, nonliving substances called ____________ are found in rocks and soil.

2. It is possible to tell one mineral from another because minerals have their own ____________.

3. Minerals cannot be identified by ____________ alone because some minerals come in many colors.

4. One property of minerals is the color of their powder, or ____________.

5. A mineral’s ____________ can be described by the way light bounces off of it.

6. Minerals are scratched in order to investigate the property called ____________.

What are rocks?

7. A rock with large grains has a coarse ____________.

8. A rock that forms from magma or lava is classified as a(n) ____________.

9. Granite forms underground from melted rock inside Earth called ____________.
10. Basalt forms above ground from melted rock on Earth’s surface called ____________.

What are sedimentary and metamorphic rocks?

11. A rock that forms from layers of sediment is classified as a(n) ____________.

12. Living things can be buried in layers of sediment and form ____________ inside sedimentary rocks.

13. Heating and squeezing rocks inside Earth can form a kind of rock called ____________.

How do we use minerals and rocks?

14. Minerals called ____________ are valued for their beauty.

15. People make cement from ____________ and burn ____________ for heat.

Critical Thinking

16. Choose three rocks or minerals mentioned in the textbook that you would use to make a necklace. Explain your choices based upon their qualities.
Minerals and Rocks

What am I?

Choose a word from the box that answers each question below.

- a. igneous rock
- b. luster
- c. metamorphic rock
- d. mineral
- e. sediment
- f. sedimentary rock

1. I am the property of a mineral that describes how light reflects from the mineral. What am I? ______

2. I am tiny bits of animals, plants, or weathered rock. What am I? ______

3. I am a solid, nonliving substance found in nature. What am I? ______

4. I formed when layers of sediment piled up and were pressed together. What am I? ______

5. I formed deep inside Earth. I was heated and squeezed by the weight of rocks above me. What am I? ______

6. I formed when melted rock cooled and hardened, either inside Earth or on Earth’s surface. What am I? ______

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Rocks are classified into three groups based on the way they form. A rock that formed from melted rock is called a(n) ________ rock. Igneous rocks with large mineral grains form from _________. Igneous rocks with small mineral grains form from _________. Shale is a(n) ________ rock because it forms when tiny bits of rocks are pressed together in layers. Other sedimentary rocks can contain tiny bits of ________ and ________ rock. When rocks are heated and squeezed inside Earth, new rocks called ________ rocks can form. All rocks are made of solid, nonliving materials called ________. They can be identified by their ________, ________, and streak. Rocks and minerals can be very useful.
Marble Memorials

Read the Writing in Science feature in your textbook.

Write About It

Descriptive Writing  Choose two objects made from rock. Write a paragraph that describes and compares them.

Getting Ideas

Write the names of the two objects above the ovals below. In the outer part of each oval, write how they are different. In the overlapping part, write how they are alike.

Planning and Organizing

Lily wrote two sentences. Write compare or contrast depending on whether each sentence is alike or different.

1. ________________  Both necklaces were made of blue stones.

2. ________________  Another necklace had black stones.
Drafting

Begin your paragraph by writing a sentence that identifies the two objects you will compare. Write a main idea about them.

Now write your paragraph. Use a separate piece of paper. Start with the sentence you wrote above. Then compare the two things and include details.

Revising and Proofreading

Here is part of a paragraph that Lily wrote. She made five mistakes. Proofread the sentences. Find the mistakes and correct them.

There are two statues that I like. Both of them are made of marble. One statue is made of white marble. It is a sculpture of a jack rabbit. The other statue is made of black marble. It is a sculpture of a giant black spider. The marble on both sculptures is very smooth and feels cold. Even when it’s hot outside the marble still feels cold.

Now revise and proofread your writing. Ask yourself:

- Did I compare two things made from rocks?
- Did I use details that show how they are alike and different?
- Did I correct all mistakes?
Human Needs and Natural Resources

Use your textbook to help you fill in the blanks.

What are natural resources?

1. Natural resources are materials that we get from ______________.

2. Some natural resources, such as soybeans and cotton, come from ______________ things.

3. Rock and mineral resources come from a ______________.

4. Two important natural resources found in Tennessee are ball clay and the ______________ sphalerite.

5. Ball clay is an important ingredient in making porcelain and fine ______________.

6. The metal zinc comes from ______________.

What are some types of natural resources?

7. Every source of energy comes from a ______________.

8. Plants, animals, water, and air are ______________ resources.

9. Coal, oil, and natural gas are ______________ resources.

10. A fossil fuel is a resource that forms from the remains of ancient plants and ______________.
How can pollution be prevented?

11. Factories in Copper Basin polluted the air with ______________.

12. A mineral with a valuable metal in it is an ______________.

13. When people make products from natural resources, ______________ often occurs.


How can people conserve Earth’s resources?

15. One thing people can do to protect natural resources is to practice the 3 Rs - ______________, ______________, and ______________.

16. When you practice the 3 Rs, you conserve ______________ and protect them from pollution.

Critical Thinking

17. Why are Earth’s air and water resources important? How might these resources be harmed by human activities?

________________________________________________________________________

________________________________________________________________________

________________________________________________________________________

________________________________________________________________________

________________________________________________________________________
Human Needs and Natural Resources

Match each word with its description. Then write its letter in the blank provided.

<p>| | | | | |</p>
<table>
<thead>
<tr>
<th></th>
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<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>a.</td>
<td>conservation</td>
<td>d.</td>
<td>non-renewable resource</td>
<td>g.</td>
</tr>
<tr>
<td>b.</td>
<td>fossil fuel</td>
<td>e.</td>
<td>pollution</td>
<td>h.</td>
</tr>
<tr>
<td>c.</td>
<td>natural resource</td>
<td>f.</td>
<td>recycle</td>
<td>i.</td>
</tr>
</tbody>
</table>

1. ______ harmful things that get into air, water, or land
2. ______ to use less of something
3. ______ a resource that forms from the remains of ancient plants and animals
4. ______ using resources wisely
5. ______ to use something again
6. ______ a resource that can be replaced or used again and again
7. ______ materials that come from nature
8. ______ a resource that cannot be easily replaced or reused
9. ______ to turn old thing into new things
Like all living things, humans need resources from their environment. Natural resources are materials that we get from nature. Crops, such as corn and cotton, are natural resources we get from _________ things. We get resources from nonliving things, too. Rocks and minerals come from a _________.

Some natural resources, such as oil and coal, are burned to make _________. Coal, oil, and natural gas are _________. Fossil fuels cannot be easily replaced. They are _________ resources. Plants, animals, water, and _________ are renewable resources.

When harmful materials get into air, water, or land, they are called _________. Pollution can make natural resources unusable. People can protect resources from pollution by using the 3Rs—reduce, reuse, and _________.

**Human Needs and Natural Resources**

Use the words in the box to fill in the blanks below.

<table>
<thead>
<tr>
<th>air</th>
<th>living</th>
<th>non-renewable</th>
</tr>
</thead>
<tbody>
<tr>
<td>energy</td>
<td>mine</td>
<td>recycle</td>
</tr>
<tr>
<td>fossil fuels</td>
<td>pollution</td>
<td></td>
</tr>
</tbody>
</table>
Planet Earth and Its Materials

Circle the letter of the best answer.

1. Which of the following is a solid, nonliving substance found in nature?
   a. a crop
   b. an ocean
   c. a mineral
   d. a fossil fuel

2. Which of the following best describes Jupiter?
   a. moon
   b. crater
   c. star
   d. planet

3. Which of the following is an example of a nonrenewable resource?
   a. air
   b. soil
   c. coal
   d. water

4. Which kind of rock forms from magma?
   a. metamorphic
   b. igneous
   c. sedimentary
   d. fossil

5. The Sun and planets are part of a(n)
   a. solar system.
   b. moon.
   c. telescope.
   d. continent.

6. Most of Earth is covered by
   a. ice.
   b. lakes.
   c. melted rock.
   d. oceans.
7. North America is an example of a(n)
   a. ocean.
   b. continent.
   c. Solar system.
   d. moon.

8. Rock formed by heat and pressure inside Earth is classified as
   a. bedrock.
   b. igneous rock.
   c. sedimentary rock.
   d. metamorphic rock.

9. Which of the following is Earth’s main source of heat and light?
   a. fossil fuels
   b. magma
   c. the Sun
   d. moving water

10. What kind of resource are plants, animals, water, and air?
    a. nonrenewable
    b. renewable
    c. energy
    d. limited

11. Which kind of rock forms from tiny bits of plants, animals, or weathered rock?
    a. sedimentary
    b. metamorphic
    c. igneous
    d. mineral

12. Which of the following is a natural resource that is burned to make electricity?
    a. magma
    b. solar energy
    c. pollution
    d. fossil fuel
Conditions in the Atmosphere

Complete the concept map with information that you learned about weather and clouds. Some information has been written for you.

1. The Sun heats water, causing it to _________.
   Temperature can be measured with a _________.

2. When water evaporates, it forms tiny drops called _________, which cannot be seen. It rises into the _________.

3. Clouds form when water vapor _________ around tiny dust particles in the air. Low fluffy clouds are called _________ clouds. Stratus clouds often mean _________ or snow is coming.

4. Precipitation, such as rain, _________, or sleet, falls to Earth. It can be measured with a _________.

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Measuring the Weather

Use your textbook to help you fill in the blanks below.

What is weather?

1. Weather is what the ________________ is like in the lowest layer of the atmosphere at a certain time and place.

2. Air is a(n) ________________ that takes up space and can move things.

3. The air that surrounds Earth makes up part of the ________________ .

4. Earth’s atmosphere consists of layers of ________________ and some ________________ .

5. The measure of how hot or cold something is can be found by taking its ________________ .

How can you describe the weather?

6. Weather is described in terms of amounts of ________________ and ________________ , as well as ________________ and air temperature.

7. A rain gauge measures the amount of ________________ .
LESSON 8.

8. Air that moves is called _______________.

9. You can measure how fast air is moving using a(n) _______________.

10. The weight of air pressing down on Earth is called _______________.

How do we predict weather?

11. Scientists collect data about the atmosphere by using _______________.

12. To observe weather from above Earth, ________________ are used.

13. Data from ________________, balloons, and satellites are used to ________________ weather.

Critical Thinking

14. What information would you need to collect to describe the weather in your town every day for a week?

________________________________________________________________________

________________________________________________________________________

________________________________________________________________________

________________________________________________________________________

________________________________________________________________________

________________________________________________________________________
Measuring the Weather

Match each word from the box to its definition.

a. anemometer  c. barometer  e. rain gauge  g. weather
b. atmosphere  d. precipitation  f. temperature  h. weather vane

1. ______ a tool for measuring air pressure
2. ______ water that falls to the ground from the atmosphere
3. ______ the measure of how hot or cold something is
4. ______ what air is like at a certain time and place
5. ______ the layers of gases and tiny bits of dust that surround Earth
6. ______ a tool that measures how fast the air is moving
7. ______ a tool that measures the amount of precipitation
8. ______ a tool that points out wind direction
Weather forms in the lowest layer of gases that surround Earth. This layer makes up part of Earth’s atmosphere. Scientists use a tool called a(n) thermometer to measure the temperature of air. Air takes up space and has weight. The weight of air as it presses down on Earth is called pressure.

Air also moves. This movement is called wind. Anemometers and wind vanes measure the speed and direction of wind.

Occasionally, precipitation falls from the atmosphere to Earth. Precipitation may be in the form of sleet, snow, or rain. A rain gauge can be used to measure precipitation.
Clouds and Weather

Use your textbook to help you fill in the blanks below.

What are some types of clouds?

1. A collection of tiny drops of water or ice that can be seen in the air is a(n) _______________.

4. Thin, wispy white clouds that form high in the sky are called _______________ clouds.

3. On a sunny day, it is possible to see white, puffy clouds with flat bottoms, or _______________ clouds.

2. Low, flat layers of clouds covering most of the sky are _______________ clouds.

How do clouds form?

5. A stratus cloud that forms near the ground is _______________.

6. Liquid water _______________ and becomes a(n) _______________ when the Sun shines on it.

7. Water vapor rises into the air, cools, and _______________ to form clouds.
How can clouds help you predict the weather?

8. You can make simple predictions about the weather just by looking at the ____________.

9. Dark, thick cumulonimbus clouds often bring rain, hail, thunder, and ____________.

10. Stratus clouds in the sky usually mean a light ____________ or drizzle may be coming.

What are some kinds of severe weather?

11. A powerful storm shaped like a tall funnel that forms over land is a(n) ____________.

12. A storm that forms over an ocean and brings heavy rain and strong winds is a(n) ____________.

13. A blizzard has strong winds, snow, and ____________ temperatures.

Critical Thinking

14. How can clouds help you predict weather?

________________________________________________________________________

________________________________________________________________________

________________________________________________________________________

________________________________________________________________________
Clouds and Weather

What am I?

Choose a word from the box below that answers each question. Write its letter in the space provided.

- a. cirrus cloud
- b. cloud
- c. condensation
- d. cumulus cloud
- e. hurricane
- f. stratus cloud
- g. tornado
- h. water vapor

1. I am white and puffy with a flat bottom. What am I? ______
2. I form over the ocean and come with strong winds and heavy rain. What am I? ______
3. I form when water vapor rises and cools around tiny dust particles. What am I? ______
4. I have a long funnel and cause damage on land. What am I? ______
5. I am a low, flat cloud that forms in layers. What am I? ______
6. I am water in its gas form. What am I? ______
7. I am the process by which a gas changes to a liquid. What am I? ______
8. I am a thin, wispy, or feathery cloud high in the sky. What am I? ______
Clouds and Weather

Use the words in the box to fill in the blanks below.

<table>
<thead>
<tr>
<th>clouds</th>
<th>fair</th>
<th>tornadoes</th>
</tr>
</thead>
<tbody>
<tr>
<td>cumulonimbus</td>
<td>evaporation</td>
<td>water vapor</td>
</tr>
<tr>
<td>dust</td>
<td>Sun</td>
<td>weather</td>
</tr>
</tbody>
</table>

Every day, water moves from Earth to the atmosphere and back again. The ____________ heats water on Earth’s surface. This causes the ____________ of water, changing it to a gas. The ____________ rises and condenses around ____________ particles in the atmosphere, forming ____________.

Hurricanes, thunderstorms, ____________, and blizzards are all types of severe weather. Clouds can help you predict the ____________. Cirrocumulus clouds usually mean ____________, cold, weather. Dark, thick ____________ clouds often bring thunderstorms or more severe weather.
Tracking Twisters

Read the text below, and answer the questions that follow.

When a tornado, or twister, touches down, it can destroy almost anything in its path. For this reason, scientists gather information about tornadoes to help predict where they may happen.

First, scientists observe and measure weather to see if conditions are right for a tornado to form. Tornadoes occur when warm, moist air near the ground mixes with cool, dry air above it and rises rapidly.

Doppler radar is used to track storms. Radar works by sending out radio waves from an antenna. Objects in the air, such as raindrops, bounce the waves back to the antenna. Doppler radar can track the direction and speed of a moving object, such as a tornado or other storm.

People called storm chasers get a close-up look at tornadoes from planes or cars. The information they gather is used to warn communities about tornadoes before they strike.

1. What might happen if a tornado touches down?

2. What is Doppler radar used to track?

3. How do storm chasers help communities?
Write About It

Predict What if there were no storm chasers? What if there was no technology to warn people of tornadoes? Write about what might happen.

Fill in the graphic organizer below.

<table>
<thead>
<tr>
<th>What I Predict</th>
<th>What Happens</th>
</tr>
</thead>
<tbody>
<tr>
<td>A(n) ____________ can damage people and objects.</td>
<td>It will ____________ anything in its path.</td>
</tr>
<tr>
<td>If scientists do not have ____________ , they will not be able to track storms.</td>
<td>They cannot track the ____________ and ____________ of a tornado.</td>
</tr>
<tr>
<td>Without ____________ to warn them, communities would not know to expect tornadoes.</td>
<td>Communities cannot be ____________ about tornadoes before they ____________ .</td>
</tr>
</tbody>
</table>

Write a paragraph telling what might happen if there were no storm chasers or technology to warn people about tornadoes.

________________________________________________________________________
________________________________________________________________________
________________________________________________________________________

100 Chapter 5 • Conditions in the Atmosphere
Reading and Writing
Condition in the Atmosphere

Circle the letter of the best answer.

1. Which tool measures how fast air is moving?
   a. thermometer.
   b. barometer.
   c. anemometer.
   d. rain gauge.

2. During condensation, a
   a. solid changes to a liquid.
   b. liquid changes to a solid.
   c. solid changes to a gas.
   d. gas changes to a liquid.

3. White puffy clouds that look like cotton balls are called
   a. cirrus clouds.
   b. nimbostratus clouds.
   c. stratus clouds.
   d. cumulus clouds.

4. The Sun's energy heats water and causes
   a. condensation.
   b. freezing.
   c. precipitation.
   d. evaporation.

5. What the air is like at a certain time and place is the
   a. wind.
   b. stratus.
   c. condensation.
   d. weather.

6. A thermometer is used to measure
   a. air pressure.
   b. the weight of air pressing on Earth.
   c. wind speed and direction.
   d. air temperature.
Circle the letter of the best answer.

7. Which type of cloud is thin and wispy and forms high above the ground?
   a. fog
   b. cirrus
   c. stratus
   d. cumulus

8. Which type of large, severe storm with strong winds and heavy rains forms over the ocean?
   a. tornado
   b. hurricane
   c. blizzard
   d. thunderstorm

9. A weather vane points out the direction of
   a. rivers.
   b. wind.
   c. temperature.
   d. seasons.

10. The layers of gases and dust that surround Earth make up the
    a. atmosphere.
    b. Sun’s rays.
    c. four seasons.
    d. fog.

11. Flat, gray or white layers of clouds that can cover most of the sky are called
    a. stratus clouds.
    b. cumulus clouds.
    c. cirrus clouds.
    d. cirrocumulus clouds.

12. Around which of the following items does water vapor condense to make clouds in the atmosphere?
    a. fog on the ground
    b. specks of dust
    c. hail
    d. sleet
One Cool Adventure

Read the Unit Literature feature in your textbook.

Write About It

Response to Literature This article tells about the first women to cross Antarctica on skis. What do you know about Antarctica or other places on Earth? Write about an imaginary trip around the world. What kinds of things might you see? Write about it.

[Blank lines for writing response]
# Investigating Matter

Complete the chart to show some of the physical properties of matter.

<table>
<thead>
<tr>
<th>Matter Has Certain Physical Properties</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Volume</strong></td>
</tr>
<tr>
<td>________________</td>
</tr>
</tbody>
</table>

| State of matter | | |
|-----------------|-----------------|-----------------|-----------------|
| A **solid** is matter with a definite volume and ________________ . A **liquid** is matter with a definite ________________, but not a definite shape. A(n) ________________ is matter with no definite shape or volume. |

<table>
<thead>
<tr>
<th>Heat conduction</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>A(n) ________________ is matter that heat travels through easily.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

## Heat Can Change the State of Matter

<table>
<thead>
<tr>
<th>solid</th>
<th>________________</th>
<th>gas</th>
</tr>
</thead>
<tbody>
<tr>
<td>________________</td>
<td>boil</td>
<td></td>
</tr>
<tr>
<td>freeze</td>
<td>________________</td>
<td></td>
</tr>
</tbody>
</table>

Physical properties can help separate mixtures

<table>
<thead>
<tr>
<th>Sifting</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>a _____ is used to separate objects of different sizes</td>
<td></td>
<td></td>
</tr>
<tr>
<td>__________</td>
<td>different objects float or sink in a liquid</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Evaporation</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>the liquid part of a solution ________________, leaving the solid behind</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

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Physical Properties

Use your textbook to help you fill in the blanks.

What is matter?

1. Everything that takes up space is ________________.

2. A large object has more volume than a(n) ________________ object.

3. An object’s ________________ is equal to the amount of matter it has.

4. A characteristic of matter is called a(n) ________________.

5. Two properties of matter are volume a(n) ________________.

6. A physical property can be observed without changing what the object is ________________.

What are the properties of solids liquids, and gases?

7. Three forms of matter are solid, liquid, and ________________.

8. All matter is made up of tiny ________________.

9. Matter that has a definite ________________ and shape is a solid.

10. A liquid takes the ________________ of its container.

11. When a gas like helium is used to fill balloons, it ________________ and takes the shape of the balloon.
What happens when matter is heated?

12. When something melts, it changes from a(n) _________ to a(n) _________ .

13. When something ____________, it changes from a liquid to a gas.

14. Liquids can change into a gas without boiling when they ____________ .

15. Water in the form of a gas is called _________ .

What happens when matter is cooled?

16. When a gas cools to the right temperature, it ____________, turning into a liquid.

17. When something freezes, it changes from a(n) _________ to a(n) _________ .

Critical Thinking

18. Explain how ice can change to eventually become water vapor. Tell what causes these changes.

_____________________________________________________________________________________

_____________________________________________________________________________________

_____________________________________________________________________________________

_____________________________________________________________________________________

_____________________________________________________________________________________
Physical Properties

Match the correct letter to its description.

- **a. condense**
- **b. evaporate**
- **c. gas**
- **d. liquid**
- **e. melt**
- **f. physical property**
- **g. solid**
- **h. states of matter**

1. _____ to change from a liquid to a gas without boiling
2. _____ matter that has a definite shape and volume
3. _____ to change from a gas to a liquid
4. _____ to change from a solid to a liquid
5. _____ matter that has no definite shape or volume
6. _____ forms that scientists call gases, solids, and liquids
7. _____ a characteristic of matter like mass, volume, shape, and color
8. _____ matter whose particles have definite volume and take the shape of the matter’s container
Physical Properties

Use the words in the box to fill in the blanks below.

boil    mass    solid
condense    matter    volume
liquids    physical properties    water vapor

Anything that takes up space is made of ___________. The amount of space an object takes up is its ___________. The amount of matter in an object is its ___________. Volume and mass are ___________ of matter.

Most solids melt when heated to a certain temperature. Once they melt, they become ___________. If more heat is added to the liquid, it will ___________ and turn into a gas. Water that has changed into a gas is called ___________. If that gas is allowed to cool enough, it will ___________ and turn into a liquid. If even more heat flows out of that liquid, it will eventually freeze and become a(n) ___________.
Describe Matter

Read the Writing in Science feature in your textbook.

**Write About It**

**Descriptive Writing** Think of an object you use every day, such as your book bag. How would you describe it to someone who has never seen it before? Use the object’s properties to write a description of the object.

**Getting Ideas**

Select one object. Write it in the center oval of the web below. Brainstorm details that describe it. Write them in the outer ovals.

**Planning and Organizing**

Here are two sentences that Malcolm wrote about his book bag. Write yes if the sentence includes details that describe the bag. Write no if it does not.

1. My book bag is soft and crinkly. _______

2. I carry my book bag to school every day. _______
Drafting
Write a sentence that begins your description. Identify the object that you are describing and the most important idea about it. This is your topic sentence.

Now write your description on a separate piece of paper. Begin with your topic sentence. Include details to help your readers picture the object.

Revising and Proofreading
Here is part of Malcolm’s description. Help him improve it by adding descriptive words.

My book bag is ____________ and yellow. These are my favorite colors. It has a(n) ____________ shape. It is not a simple rectangle, like most bags. Instead, it is shaped like a turtle. It is ____________ because it is made of cloth. When it is full, it is very ____________ . When it is empty, it is ____________ .

Now revise and proofread your writing. Ask yourself:
► Did I include details to describe how the object looks, sounds, feels, smells, or tastes?
► Did I put these details in an order that makes sense?
► Did I correct all mistakes?
Mixtures

Use your textbook to help you fill in the blanks.

How can matter change?

1. A change in the way matter looks is a(n) _________________.

2. Matter may ________________ after a physical change. However, it is still the ________________ of matter.

3. When different kinds of matter are put together, a(n) ________________ can form.

4. In a mixture, the ________________ of each part of the mixture do not change.

How can you separate a mixture?

5. Some physical properties help you ________________ mixtures.

6. A sieve is used to separate materials of different ________________.

7. Filters are screens that trap ________________ but let liquids flow through.

8. A magnet attracts certain types of ________________ like iron.

9. In some salad dressings, the vinegar will settle to the bottom because it is ________________ than the oil.
How can you separate a solution?

10. A kind of mixture in which matter is mixed evenly together is called a(n) ________________.

11. Brass is a solution of several ________________, including copper and zinc.

12. One way to separate the parts of a liquid solution is by ________________.

13. A liquid can be separated from a solution by using ________________.

What is crystallization?

14. A solid whose shape forms a fixed a pattern is a ________________.

15. Crystals can form when a solution is cooled or when it is ________________.

Critical Thinking

16. What physical changes do you make to salt water during distillation?

________________________________________________________________________

________________________________________________________________________

________________________________________________________________________

________________________________________________________________________
# Mixtures

## What am I?

Choose a word from the word box below that answers each question. Write the corresponding letter on the line.

<table>
<thead>
<tr>
<th>a. crystallization</th>
<th>c. filter</th>
<th>e. physical change</th>
</tr>
</thead>
<tbody>
<tr>
<td>b. distillation</td>
<td>d. mixture</td>
<td>f. solution</td>
</tr>
</tbody>
</table>

1. ______ I am a combination of two or more types of matter. Each type of matter keeps its own chemical properties in this kind of combination. What am I?

2. ______ I am a mixture in which one or more kinds of matter are mixed evenly into another kind of matter. What am I?

3. ______ I am the process of forming solids whose shape forms a fixed pattern. What am I?

4. ______ I am a tool that can be used to separate the parts of some mixtures. I am often used to separate a solid from a liquid. What am I?

5. ______ I am the process used to collect the liquid from a solution. What am I?

6. ______ I am a change to the way matter looks. What am I?
Mixtures

Fill in the blanks.

<table>
<thead>
<tr>
<th>crystals</th>
<th>filter</th>
<th>solution</th>
</tr>
</thead>
<tbody>
<tr>
<td>distillation</td>
<td>physical properties</td>
<td>sizes</td>
</tr>
<tr>
<td>evaporation</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

People use mixtures every day. Parts of a mixture can be separated by using their ________________ .

Some tools that can be used to separate mixtures are a magnet, a sieve, and a(n) ________________ .

Filtration is used to separate a solid from a liquid. Sifting separates solids of different ________________ .

Some substances can be mixed together to form a(n) ________________ . Many liquid solutions can be separated through ________________ , in which a liquid turns to a gas, and ________________ , in which the gas condenses. Mixtures can be separated because they have kept their own properties. When certain solutions evaporate, they form ________________ .
Heat

Use your textbook to help you fill in the blanks.

What is heat?

1. Heat always flows from a(n) ________________ object to a(n) ________________ one.

2. Earth's main source of heat is the ________________ .

3. Heat can travel through ________________, ________________, ________________, and space.

4. Fires produce heat as materials ________________ .

5. Lightbulbs and some stoves use ________________ to produce heat.

6. Rubbing two objects together can produce ________________ .

What is a conductor?

7. Pots are often made of ________________ .

8. A material that heat moves through easily is a(n) ________________ .

9. Conduction is the process of transferring ________________ directly from one material to another.
LESSON

Outline

10. To stay warm, we try to _____________ heat energy around our bodies.

11. A material that heat does not move through easily is a(n) _____________.

12. Some examples of insulators are ________________, cotton, and fur.

How can energy from the Sun change matter?

13. Energy from the Sun can cause ________________ to change.

14. The Sun’s energy causes liquids, such as ocean water, to ________________ and turn into a gas.

15. When clouds get heavy, water falls back to Earth as _________________, hail, sleet, or snow.

Critical Thinking

16. How would Earth be different without the Sun’s heat?

________________________________________________________________________
________________________________________________________________________
________________________________________________________________________
________________________________________________________________________

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Heat

Match the words in the box to their definitions below.

- a. conduction
- b. conductor
- c. heat
- d. insulator
- e. source
- f. Sun
- g. water vapor

1. _______ where something comes from
2. _______ energy that moves from a warmer object to a cooler object
3. _______ a material through which heat moves easily
4. _______ Earth’s main source of heat
5. _______ a material through which heat does not move easily
6. _______ the gas state of water
7. _______ the process of passing heat directly from one material to another
Heat

Use the words in the box to fill in the blanks below.

- blankets
- clouds
- conductor
- energy
- evaporate
- gases
- insulator
- source
- Sun

Heat is a form of ________ that moves from warmer objects to cooler objects. Heat can travel through solids, liquids, and ________. It can even move through space. Fires, lightbulbs, and stoves are some ________ of heat. Earth’s main source of heat is the ________. Energy from the Sun causes water on Earth to ________. This water vapor cools in the air and forms ________. When the clouds get heavy, the water falls to Earth as rain, snow, sleet, or hail.

Heat can move through some materials more easily than others. A material that heat can move through easily is a ________. Metals are good conductors. Materials that heat cannot move through easily are ________. Jackets, mittens, and ________ are insulators that keep people warm.
Investigating in Matter

Circle the letter of the best answer.

1. Peas and carrots together in a bowl are an example of a(n)
   a. chemical change.
   b. solution.
   c. mixture.
   d. property.

2. Water vapor turns into liquid water on the outside of a cold glass. The water has
   a. boiled.
   b. condensed.
   c. frozen.
   d. melted.

3. When a liquid evaporates, it
   a. becomes a solid.
   b. changes color.
   c. boils.
   d. becomes a gas.

4. Earth’s main source of heat is
   a. fire.
   b. electricity.
   c. the Sun.
   d. rubbing object’s together.

5. A screen used to separate solids from liquids is a(n)
   a. magnet.
   b. settler.
   c. filter.
   d. solution.
Circle the letter of the best answer.

6. Which of the following materials would make a good conductor?
   a. wool
   b. far
   c. copper
   d. cotton

7. What forms when one or more types of matter are mixed evenly with another type of matter?
   a. bubbles
   b. a solution
   c. an insulator
   d. a property

8. Anything that takes up space is
   a. solid.
   b. volume.
   c. energy.
   d. matter.

9. Heat always travels
   a. from a cooler object to a warmer object.
   b. from a warmer object to a cooler object.
   c. between all objects.
   d. through solids only.

10. To change from a solid to a liquid is to
    a. condense.
    b. boil.
    c. evaporate.
    d. melt.
Applied Forces

Complete the concept map with the information that you learned about forces and motion.

**Changing Motion**

Forces can start, ___________, or change an object’s motion.

Balanced forces do not cause a change in ___________.

___________ forces cause a change in motion.

Moving a large mass requires more ___________ than a small mass to move a certain distance.

**Sound**

Sound begins when something ___________, or moves back and forth.

How quickly the object vibrates affects the sound’s ___________.

Volume is how ___________ a sound is.

**Magnets**

Magnets are objects that have ___________.

Magnets attract objects made of certain ___________ like iron.

Magnets can move objects without ___________ them.
Changing Motion

Use your textbook to help you fill in the blanks.

What are forces?

1. To make an object start moving, a(n) ____________ must be applied to it.

2. A force that makes something move can be a(n) ____________ or a(n) ____________.

3. Forces can make objects start moving, ____________, ____________, or stop moving.

4. Forces can change the ____________ of a moving object.

What are types of forces?

5. An object has weight because ____________ pulls down on the object.

6. Forces that cancel each other out when acting together on a single object are ____________.

7. The force that occurs when one object rubs against another object is called ____________.

8. Unbalanced forces cause a change in ____________.
How do forces affect motion?

9. The motion of an object is affected when the size of the __________ acting on it changes.

10. A greater force pushes or pulls an object __________.

11. If you apply the same force to an object with more mass, the object moves a __________ distance.

What are contact and noncontact forces?

12. Contact forces happen between objects that __________.

13. Magnetism and gravity are examples of __________ forces.

Critical Thinking

14. In a baseball game, the first batter hit the ball far into the outfield. The second batter did not hit the ball as far and the ball only made it onto the infield. How do you know that the first batter used more force on the ball?

____________________________________________________________________

____________________________________________________________________

____________________________________________________________________
Changing Motion

Choose a word from the word box below that correctly fills in the blank.

<table>
<thead>
<tr>
<th>balanced</th>
<th>force</th>
<th>gravity</th>
<th>unbalanced</th>
</tr>
</thead>
<tbody>
<tr>
<td>contact</td>
<td>friction</td>
<td>mass</td>
<td>weight</td>
</tr>
</tbody>
</table>

1. The force that pulls objects toward Earth is called ____________.

2. Forces that are equal in size and opposite in direction are called ____________ forces.

3. Any push or pull is called a(n) ____________.

4. How much pull gravity has on an object is its ____________.

5. A force that occurs when objects rub together is ____________.

6. Forces that are not equal in size and are not opposite in direction are called ____________ forces.

7. More force is needed to move an object with a large ____________.

8. Forces that happen between objects that touch are called ____________ forces.
Changing Motion

Use the words in the box to fill in the blanks below.

balanced forces  farther  unbalanced forces
contact  friction
direction  speed

A moving object is affected by different forces.

These forces can change the ___________ of motion or change the object's ___________. Many different forces can act on an object at the same time.

If forces are equal in size and opposite in direction, they are called ___________. They do not cause a change in motion. If forces are not equal in size, they are called ___________. If you use more force to push an object, it will move ___________.

When two objects rub together, the force of ___________ works against their motion. Friction is an example of a ___________ force. Gravity and magnetism are noncontact forces.
Sound

Use your textbook to help you fill in the blanks.

What is sound?

1. Sound is produced when an object moves back and forth quickly, or ____________.

2. Sound is a form of _________ from vibrating objects.

3. When a sound is made, vibrations move through the air in ____________ in all directions.

4. Sound travels through all types of matter, but at different ____________.

5. Sound travels slowest through a(n) ____________.
   Sound travels more quickly through ____________ and most quickly through ____________.

How are sounds different?

6. The loudness of a sound is its ____________.

7. An object that vibrates with a lot of ____________ makes a loud sound.

8. How high or low a sound is its ____________.

9. Vibrating ____________ produces a high pitch while vibrating slowly produces a low pitch.
10. The __________ of a musical instrument’s strings affects pitch.

**How do you hear sounds?**

11. Vibrations in the air are collected by your ______________.
   
   The vibrations make your ______________ move back and forth.

12. Your vibrating eardrum makes three ______________ in your ear begin to vibrate.

13. The bones pass the vibrations to the ______________, where ______________ send a message to your brain.

14. Loud sounds can ______________ your ear because they carry so much ______________.

**Critical Thinking**

15. What would happen if the bones in your ears could not vibrate?

   __________________________________________________________
   __________________________________________________________
   __________________________________________________________
   __________________________________________________________
   __________________________________________________________
   __________________________________________________________
Sound

What am I?

Choose a word from the box below that answers each question. Write its letter in the space provided.

<table>
<thead>
<tr>
<th>a. eardrum</th>
<th>b. inner ear</th>
<th>c. outer ear</th>
<th>d. pitch</th>
<th>e. sound</th>
<th>f. vibration</th>
<th>g. volume</th>
<th>h. wave</th>
</tr>
</thead>
</table>

1. ______ I am how high or low a sound is. What am I?
2. ______ I am energy that comes vibrating objects. What am I?
3. ______ I am how loud a sound is. What am I?
4. ______ I collect sounds. What am I?
5. ______ I am the way that sound travels out in all directions. What am I?
6. ______ I am between your outer and inner ear. What am I?
7. ______ I am a quick back-and-forth motion. What am I?
8. ______ I am the place where vibrations make nerves send messages to the brain. What am I?
Sound

Use the words in the box to fill in the blanks below.

<table>
<thead>
<tr>
<th>eardrum</th>
<th>inner ear</th>
<th>outer ear</th>
<th>speed</th>
</tr>
</thead>
<tbody>
<tr>
<td>high-energy</td>
<td>nerves</td>
<td>pitch</td>
<td>waves</td>
</tr>
</tbody>
</table>

Sound is produced when an object vibrates, or moves back and forth quickly. Sound _______________ move out in all directions and reach your ear. Your _______________ collects these vibrations. They make your _______________ vibrate and move three tiny bones inside your ear. These movements cause _______________ in the _______________ to send messages to your brain, and you hear sound.

A sound’s _______________ may be high or low. Pitch depends on the _______________ of the vibration. A _______________ vibration will cause a louder sound than a low-energy vibration. Sound travels at different speeds through solids, liquids, and gases.
Magnets

Use your textbook to help you fill in the blanks.

What is a magnet?

1. When you bring two magnets together, they will either ________________ or attract each other.
2. A magnet is an object with a(n) ____________________.
3. The strongest parts of the magnet are called the ____________________.
4. When two magnets are brought together, a north pole and a(n) ________________ attract each other.
5. The magnetic force between two magnets is ________________ when the magnets are far apart.

How do magnets attract?

6. The force that pulls one magnet toward another magnet is magnetic ________________.
7. Permanent magnets ________________ have magnetic force.
8. Magnets attract certain ________________, such as iron, nickel, and cobalt.
What is a magnetic field?

9. A(n) ________________ is the area of magnetic force around a magnet.

10. When one magnet enters the ________________ of another magnet, it is either attracted or repelled.

11. The magnetic field is strongest ________________ the magnet’s poles.

12. Much of the inside of Earth is made of ________________.

13. The iron creates a magnetic field that ________________ our planet.

Critical Thinking

The needle in a compass is a tiny magnet. How does a compass work?

____________________________________________________________________

____________________________________________________________________

____________________________________________________________________

____________________________________________________________________

____________________________________________________________________
Magnets

Use the words in the box to fill in the blanks.

attract  magnetic attraction  poles
iron  magnetic field  south
magnet  magnetite

1. Every magnet has both a north and a ________________________ pole.
2. The force that pulls one magnet toward another is ________________________ .
3. A(n) ________________________ is any object with magnetic force.
4. A(n) ________________________ is the area of magnetic force around a magnet.
5. When two magnets are brought together, the north pole and the south pole ________________________ each other.
6. Magnets can attract certain metals like ________________________ , nickel, and cobalt.
7. The parts of a magnet where the magnetic force is strongest are called the magnetic ________________________ .
8. A natural magnet containing iron is ________________________ .
Magnets

Use the words in the box to fill in the blanks.

<table>
<thead>
<tr>
<th>magnetite</th>
<th>permanent</th>
<th>repel</th>
</tr>
</thead>
<tbody>
<tr>
<td>metal</td>
<td>point</td>
<td>temporary</td>
</tr>
<tr>
<td>north</td>
<td>poles</td>
<td></td>
</tr>
</tbody>
</table>

Magnets come in many shapes and sizes. A magnet that always has a magnetic force is a permanent magnet. The strongest parts of a magnet are the poles. Unlike poles attract each other and like poles repel each other. The mineral magnetite is a natural magnet containing iron. When you bring a magnet near certain objects such as paper clips, tiny particles in the object will line up. Normally, the tiny particles in the paper clip line up in all different directions. When a magnet is brought near the paper clip, the tiny particles line up. This creates facing a pole and a south pole. The paper clip becomes a permanent magnet. It can attract other metal objects as well!
Applied Forces

Circle the letter of the best answer.

1. One magnet can attract or repel another magnet that enters its
   a. pole.
   b. magnetic field.
   c. pitch.
   d. contact force.

2. A sound is produced when something
   a. contracts.
   b. expands.
   c. gets smaller.
   d. vibrates.

3. The force that pulls one magnet toward another magnet is
   a. magnetic field.
   b. magnetic pole.
   c. contact force.
   d. magnetic attraction.

4. What type of force CANNOT cause a change in motion?
   a. gravity.
   b. balanced force
   c. unbalanced force
   d. friction

5. Magnetic force is strongest at a magnet’s
   a. center.
   b. magnetic field.
   c. poles.
   d. pitch.

6. The pitch of a sound is how
   a. high or low the sound is.
   b. warm or cool the sound is.
   c. close to the ear the sound is.
   d. loud the sound is.
Circle the letter of the best answer.

7. Objects with magnetic force are called
   a. insulators.
   b. magnets.
   c. sounds.
   d. weights.

8. What is the force that pulls objects towards Earth?
   a. friction.
   b. gravity.
   c. magnetism.
   d. contact force.

9. When one team in a tug of war pulls harder on the rope than the other team does, the forces are
   a. active.
   b. balanced.
   c. unbalanced.
   d. magnetic.

10. An example of a change of motion caused by a contact force is
    a. gravity pulling you toward Earth.
    b. two magnets pushing each other apart.
    c. a book falling from your desk.
    d. hitting a baseball with a bat.

11. Sound travels fastest through
    a. space.
    b. gases.
    c. solids.
    d. liquids.

12. Objects that vibrate with a lot of energy produce sound with a
    a. high volume.
    b. low volume.
    c. low pitch.
    d. high pitch.
Mr. Mix-it
by Nicole Iorio
from Time for Kids

Read the Unit Literature feature in your textbook.

Write About It
Response to Literature  What type of job would you like to have when you grow up? What skills does it require? Write a paragraph about your plans.
What is technology?

Use your textbook to help you fill in the blanks.

1. Technology is all the ________________ we design, make, and use to solve problems.

2. All the things we use come from materials from Earth called ________________.

3. Transportation ________________ move people and things from one place to another.

4. The building of ________________ with machinery allowed large numbers of goods to be made at one time.

5. People sell ________________ and perform services for money.

Critical Thinking

6. Suppose trains and trucks could not transport goods for one month. Would you be able to buy everything you usually could?

_________________________________________________________________

_________________________________________________________________

_________________________________________________________________
What is technology?

Match each word in the box to its definition. Write its letter in the space provided.

<table>
<thead>
<tr>
<th>goods</th>
<th>services</th>
<th>technology</th>
</tr>
</thead>
<tbody>
<tr>
<td>natural resource</td>
<td>system</td>
<td></td>
</tr>
</tbody>
</table>

1. ________ the way we adapt or change nature to meet our needs
2. ________ objects people make and use
3. ________ a material from Earth that people use
4. ________ work performed for money
5. ________ a group of parts that work together to do something
What is technology?

Use the words in the box to fill in the blanks.

air  natural resources  vehicles
hand  parts
machines  tools

Technology includes all the ________________
we design and make to solve problems. All the things
made by technology come from materials on Earth
called ________________.

Transportation systems, like other kinds of systems,
have many ________________ that work together.
Today, we have transportation systems for land, water,
and ________________ . A transportation system by
land includes bridges, roads, and ________________ .

The way goods are made has changed through the
years. At first, goods were made by ________________.
Later, the invention of ________________ let people
make large numbers of goods. Those goods could be sent
throughout the world.
Are you there yet?

Read the Technology in Action feature in your textbook.

Write About It

Newspaper Article Research and write a newspaper article about GPS technology. What are the latest advances? How will they affect the future?

Getting Ideas

A newspaper article includes a headline, or title. The title should tell what the article is about. It should make a reader want to read the article. The article begins with a lead. This sentence or short paragraph tells a reader the most important or interesting detail. The body is the main part of the article. It answers such questions as who, what, where, when, and why? The ending, or last paragraph, gives a reader something to think about.

Write a Headline: _________________________________

Write the questions that you researched and the details you found in the chart below.
Planning and Organizing

For the following sentences, write “H” if it could be a headline. Write “D” if it gives a detail.

1. _________ Which Way Do We Go?
2. _________ A GPS satellite sends signals to receivers on Earth.
3. _________ Is GPS in Your Future?

Drafting

Write your lead sentence. Make sure it includes the most important or interesting information you found.

Now write your article on a separate piece of paper. Begin with your lead sentence. Be sure to write about the latest GPS technology and how it will affect people.

Revising and Proofreading

Here are some sentences Rene wrote. She made five mistakes. Find the errors. Then correct them.

Lost no Moor

One day soon, you’ll never get lost on a car trip again. That’s because there are new advances in GPS technology.

Now revise and proofread your writing. Ask yourself:

▶ Did I begin with a lead sentence?
▶ Did I include facts and details?
▶ Did I correct all mistakes?
Technology in Communications

Use your textbook to help you fill in the blanks.

1. You exchange ideas and information with people when you ________________.

2. A machine that sent messages as patterns of clicks over electric wires was the ________________.

3. A communication system has four basic parts: input, process, output, and ________________.

4. When you hit a key or click a mouse, you are ________________ data.

5. Early cameras and movies produced images on a light-sensitive material called ________________.

Critical Thinking

6. How is sending e-mail over the Internet similar to the telegraph system? How are they different?

________________________________________________________________________

________________________________________________________________________

________________________________________________________________________
Technology in Communications

Match each word in the box to its description. Write its letter in the space provided.

communicate  input  telegraph
digital camera  output  process
feedback

1. ________ information first entered into a communications system, such as a letter

2. ________ machine that allowed people to send Morse coded messages over electric wires

3. ________ to exchange ideas and information with others

4. ________ information that returns to you from a communication system, such as a reply letter

5. ________ devices that take pictures using tiny sensors that turn light into electrical energy

6. ________ how something is sent in a communications system

7. ________ the delivery part of a communications system, such as a letter being delivered to your friend
Technology in Communications

Use the words in the box to fill in the blanks.

<table>
<thead>
<tr>
<th>cell phones</th>
<th>film</th>
<th>movies</th>
</tr>
</thead>
<tbody>
<tr>
<td>electric</td>
<td>information</td>
<td>telegraph</td>
</tr>
<tr>
<td>feedback</td>
<td>memory card</td>
<td></td>
</tr>
</tbody>
</table>

All forms of communication involve an exchange of ________________ . Drums and smoke signals were early forms of communication. The invention of the ________________ let people communicate long distances over ________________ wires with a pattern of clicks. Many modern communication tools, such as ________________ , use radio waves.

Two kinds of communication systems are the postal system and the computer. Although different, they have the same basic parts—input, process, output, and ________________ .

Early cameras produced images on ________________ . A digital camera, however, sends the image to a ________________ . A computer can then read the image. Cameras made possible the invention of moving images, called motion pictures or ________________ .
Transmitting TV

Read the Technology in Action feature in your textbook.

Write About It

**Fantasy** Write a story from the point of view of a newscast traveling through the air to your TV. What happens along the way?

Getting Ideas

Think of a topic. The newscast can be sent from a TV studio or be sent live from the scene. Think about what happens in sequence as the broadcast travels to a TV in your home. Write details in the chart below.

### Planning and Organizing

Aaron pretended he was the newscast signal and wrote these sentences. Put them in 1, 2, 3 order.

1. _________ I reach your TV.

2. _________ A satellite over Japan picks up my signals and sends me to TV antennas in Tennessee.

3. _________ A TV news station transmits my signals of a tsunami as waves crash onto a Pacific island.

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Drafting

Begin your story. Write a sentence that introduces the topic of the TV broadcast. Describe what is happening.

Now write your story on a separate piece of paper. Start with the sentence you wrote above. Tell about how the newscast travels through the air to your TV.

Revising and Proofreading

Here are some sentences Lisa wrote. Combine each pair of sentences using the word in parentheses. Add a comma before the connecting word, if it is needed.

1. A transmitter sends out radio waves. Satellites pick up the waves. (and)

2. Sensors in the TV decode radio signals. The TV must be turned on to see the decoded signals as images. (but)

Now revise and proofread your writing. Ask yourself:

► Did I explain how a newscast reaches my TV?
► Did I write the steps in order?
► Did I correct all mistakes?
Technology in Medicine

Use your textbook to help you fill in the blanks.

1. Modern medicines are developed by the hand-in-hand work of technology and ________________.

2. In a medical technology system, feedback about a medicine comes from ________________.

3. A machine that uses certain light rays to take pictures of bones is a(n) ________________ machine.

4. Technology can hurt the environment, such as by using the weed killer ________________.

5. Using ladybugs to eat aphids and protect crops is an example of ________________.

Critical Thinking

6. Why is biotechnology safer to use than technology like DDT?

________________________________________________________________________

________________________________________________________________________

________________________________________________________________________
Technology in Medicine

What am I?
Choose a word from the word box to answer each question.

<table>
<thead>
<tr>
<th>biotechnology</th>
<th>folk medicine</th>
<th>traits</th>
</tr>
</thead>
<tbody>
<tr>
<td>DDT</td>
<td>stethoscope</td>
<td>X ray</td>
</tr>
</tbody>
</table>

1. I am a tool that helps doctors hear inside your chest.
   What am I? __________________

2. I was used by early humans to treat or cure sicknesses.
   What am I? __________________

3. I am a characteristic of a living thing, such as height.
   What am I? __________________

4. I am a beam of light that passes through some solid objects. What am I? __________________

5. I use living things or living systems to meet human needs. What am I? __________________

6. I am a chemical that poisoned water sources and caused problems for wildlife. What am I? __________________
Technology in Medicine

Use the words in the box to fill in the blanks.

<table>
<thead>
<tr>
<th>biotechnology</th>
<th>lasers</th>
<th>X ray</th>
</tr>
</thead>
<tbody>
<tr>
<td>environment</td>
<td>methods</td>
<td></td>
</tr>
<tr>
<td>foxglove</td>
<td>plants</td>
<td></td>
</tr>
</tbody>
</table>

Medical technology has been around for a long time. Early humans found that some ____________ could be used to treat sicknesses. Many drugs today are made with these same materials, such as ____________, which treats heart disease.

Medical technology also involves finding tools and ____________ to help people stay healthy. Older tools include stethoscopes and ____________ machines. Newer tools include CAT scanners, MRIs, robots, and ____________.

Technology has solved many problems. Yet some technology has not. The use of DDT to control pests has caused problems in the ____________. People hope that ____________ can be used to solve problems.
Not Just for Humans

Read the Technology in Action feature in your textbook.

Write About It

Descriptive Writing Describe how you would build an artificial limb for a pet. What different parts would it take to make it work? Draw a design of your idea.

Getting Ideas

A good description uses many details and information to create a picture in the reader’s mind about how something works. Choose a type of pet you would want to build a limb for. Write the name of the animal in the center oval. Brainstorm details about the limb (materials, size, its parts, how it works, how it attaches). Write details in the outer ovals.

Planning and Organizing

Erin wrote these sentences about her design. Write “yes” if the sentence includes descriptive details. Write “no” if it does not.

1. The limb is made of a hard plastic that bends in the middle. (yes)

2. The limb helps the animal. (yes)
Drafting

Write a sentence to describe the design of the artificial limb or other animal part. Identify which animal the limb or part is for. Also, identify why that part is important to the animal. Use this detail to write your topic sentence.

Now write your description on a separate piece of paper. Start with the sentence you wrote above. Include details and a drawing to help your readers picture the limb and understand how it works.

Revising and Proofreading

Here are some sentences Aaron wrote about designing an artificial beak for a bird. Help him improve the sentences by adding descriptive words.

A parrot needs a __________ beak to crack seeds. That is why I would make the artificial beak from a __________ material. The __________ half of the beak would be __________ than the shorter, bottom half of the beak.

Now revise and proofread your writing. Ask yourself:

► Did I describe my idea for an artificial limb for a pet?
► Did I write details about its different parts and draw a design?
► Did I correct all mistakes?