Student Lab Manual

Environment and Life

Sangari Active Science, 2nd Edition

sangari **active science**

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Environment and Life

Work designed and produced by Sangari Research and Development Center

sangari **active science**

Environment and Life

Dear Student,

What do people mean when they use the word *environment*? Does it have the same meaning in science as it has outside of science class? In this unit, you will study environments and the animals and plants that live in different environments. You will also learn about the interaction between humans and the environment. As you do the activities, you might think of questions you would like to learn the answers to. Or, you might want to learn even more about plants, animals, or environments that you find interesting. Look for books or videos from your library, or search on the Internet for answers to your questions, or to help you learn more about the life of organisms on Earth.

The Sangari Active Science Team

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Safety

Sangari Active Science

Safety is important. During science activities, make sure to pay attention to the following safety symbols in your Student Lab Manual.

SO	**WH**	**PM**	**GO**	**ES**	**DT**	**CU**
sharp object	wash hands	poisonous material	wear goggles	energy source	don't taste	clean up

Follow these safety tips:

1. Follow your teacher's instructions.
2. Do not touch your face, eyes, nose, or mouth during investigations.
3. Do not mix things together to see what will happen.
4. Tie back long hair, and roll up sleeves before doing investigations.
5. Move everything out of the way that you do not need for science.
6. Tell your teacher right away if you have any accidents or spill anything.

What Is An Environment?

How is an environment important?

What are the parts of an environment?

Lab Activity

What Makes Up An Environment?

1 Observe the *Environment and Living Things* cards. What environments do you see?

A. Discuss the following questions within your group.

- What types of fauna live there? Where do they live?
- What is the climate like? Is it hot or cold? Is it wet or dry? How does the weather change?
- What types of flora live in the environment?
- What would be required for humans to live there?

B. In your *Science Notebook*, describe what you can infer about each environment, using the photographs and the questions above.

2 Make an environment card for your classroom. What is the environment of the classroom? How does it differ from the environments on the deck of cards?

A. Make a card with a drawing of your classroom environment and explain what makes it special. Label as many elements of this environment as you can.

B. Share your drawings and ideas with your classmates.

Learn More

What Is An Environment?

Your classroom, your home, an ocean, and a forest all can be called *environments*. An *environment* includes everything around an organism, including "things" and conditions. For example, look at this photograph of a classroom. To describe the environment, you could describe the things (the objects) you see in it, but you could also describe conditions such as lighting, temperature, and noise level. All of these are part of an environment. In your *Science Notebook*, describe your ideas about the best environment for you to learn. You might be surprised to find out that not everyone in your class needs the same type of environment for learning.

Classrooms are learning environments. For students to learn, they need spaces to do activities, to talk with each other, and to work by themselves. They need materials to work with. They need lights and a comfortable temperature. And they need a teacher!

In science, *environment* means all the non-living things and the living organisms in a place. That includes the air, water, soil, plants (flora), and animals (fauna). Environments can be very different from one another. Because of this, they support very different types of organisms. For example, snakes that live in a hot climate would die in a cold environment.

The flowers and the bee in these photos rely on different aspects of the same environment to survive. What does each organism need? What does each one get from this environment?

Almost all environments support many living things. Often, they rely on each other to survive. How do bees and flowers help each other survive?

How Do Living Things Adapt To Their Environment?

What is the purpose of adaptation?

How is the hummingbird's long beak an adaptation to its environment?

Lab Activity

Adaptations

1 Observe general adaptations. Look at the sheet *Where I Live.* What makes each environment special?

A. Look at the sheet *Where I Live*. What makes each environment special?

B. Look at the sheet *Who Am I*? What kinds of animals and plants do you see? What adaptations do they have?

C. Cut out the images from the two sheets. Find the pages in your *Science Notebook* for organizing these images. Place the plant or animal with the environment in which it would be found, based on the adaptation highlighted. Discuss your ideas with your partner before gluing.

D. In your *Science Notebook,* record an adaptation for each animal or plant.

Giraffe

Spider Monkey

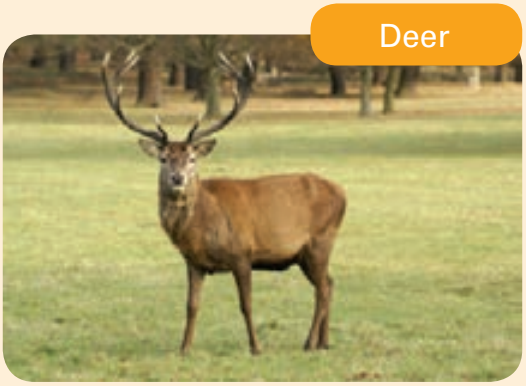
Rhino

2 Investigate physical adaptations. What adaptations does the deer pictured below have?

A. How are a deer's ears different from yours? What do they do for the deer?

- Stand about one meter apart with your partner. Decide who is Partner 1 and who is Partner 2.
- Partner 1 should cup his or her hands around the backs of the ears, with the palms forward.
- Partner 2 should whisper something.
- Partner 1 should turn the hands so that they are in front of the ears with the palms facing Partner 2.
- Partner 2 should whisper the same thing.
- Compare the two things whispered. Which hand position made it easier to hear? What was the difference?
- Describe how the adaptation of large, moving ears can help a deer detect predators in their environment.

Deer



Lab Activity

Adaptations continued

B. Pretend your hand is the webbed foot of a duck.

- Spread your fingers as wide as you can and put your hands into the water at one end of the pan. Move your hand slowly through the water.
- What was it like to move your hand through the water? How hard was it to move your hand? How much did the water move?
- Spread your fingers wide again, and then wrap your entire hand with plastic wrap.
- Drag your hand through the water again, being careful not to spill it.
- Was it harder or easier to move your wrapped hand through the water? Did you move more water?
- When you move more water, you swim faster. Do you think a webbed food is a good adaptation for a duck that has to swim a lot?

Learn More

Living Things Adapt To Survive

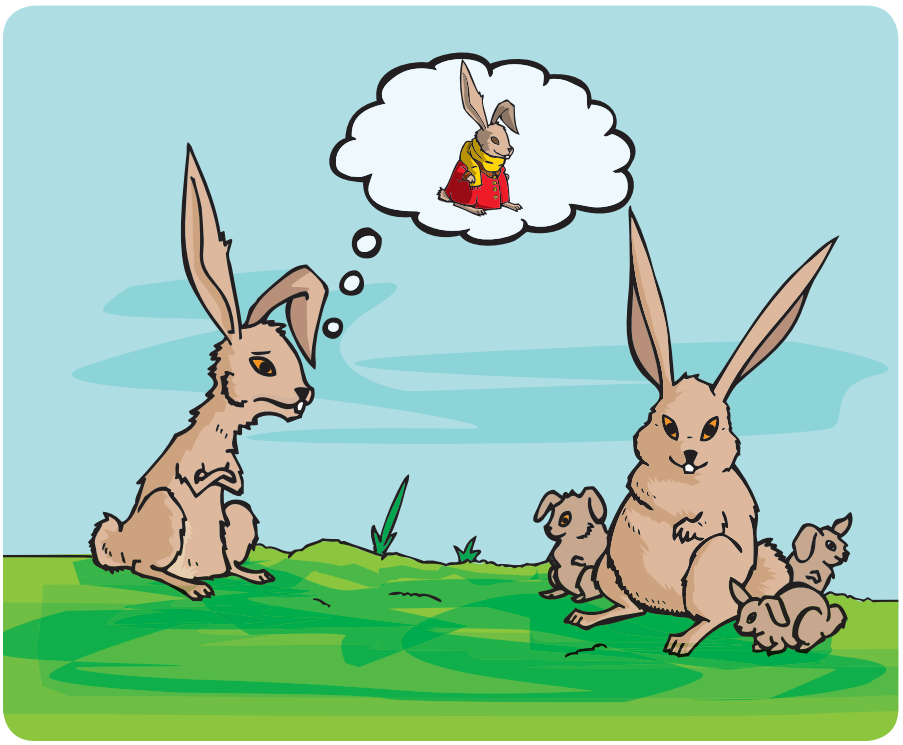
All organisms have adaptations that enable them to live in a particular environment. For example, sharks have long bodies and large fins. These adaptations help sharks, as they hunt, to be fast swimmers. A cactus plant is adapted to very dry environments, such as deserts. The leaves of a cactus are thin spines. They prevent water from evaporating better than flat leaves would do. The spines are sharp, which prevents animals in the environment from eating them or trying to get to the water from inside the cactus.

Cactus

Shark

The Process Of Adaptation

Adaptations take a long time to develop. They may take thousands or millions of years. Every adaptation is specific to an organism and its environment. The first part of the adaptation process happens as some individuals in a population are more successful and more likely to survive. Organisms with a trait that helps them survive in an environment are more likely to live and reproduce. When they reproduce, their offspring will more likely have the trait also. Over a long period of time, an entire population will have the trait that helps them survive. This is called *adaptation*.



An Adaptation Example

Some rabbits are born with fur that is a little longer than fur in some of the other rabbits. In cold environments, the rabbits with longer fur stay warmer (just as you would need warmer clothing to live in a cold climate). The rabbits with longer fur are more likely to survive. They spend less energy trying to stay warm. They can produce more offspring. Rabbits with long fur will likely produce some baby rabbits with long fur. (Some babies can also have short fur, just as tall parents can sometimes have short children.) The baby rabbits with long fur are more likely to survive in the cold than their siblings with short fur. They grow up and produce more babies with long fur. When this happens over and over again, the population will have fewer and fewer rabbits with short fur. After many generations, only rabbits with long fur are born, so eventually, all the rabbits in the population have long fur. This is an example of how animals adapt to their environment.

Where Do Products Come From?

Where can you find natural resources?

Why is it better to use local products?

Lab Activity

Investigating How Materials Are Processed

1 Observe the images on the cards. What do they show?

A. Put the cards in order to show the stages of production and process from raw material to finished product.

B. Compare your results with your classmates and discuss the production processes.

C. In your *Science Notebook*, explain how the bread and the aluminum can are manufactured. You can make a list, draw a diagram, or write a paragraph.

2 Look at the *Products: Origin and Destination* chart in your *Science Notebook*. Look at the first example, a sheet of paper. Where do you think it comes from and how is it processed?

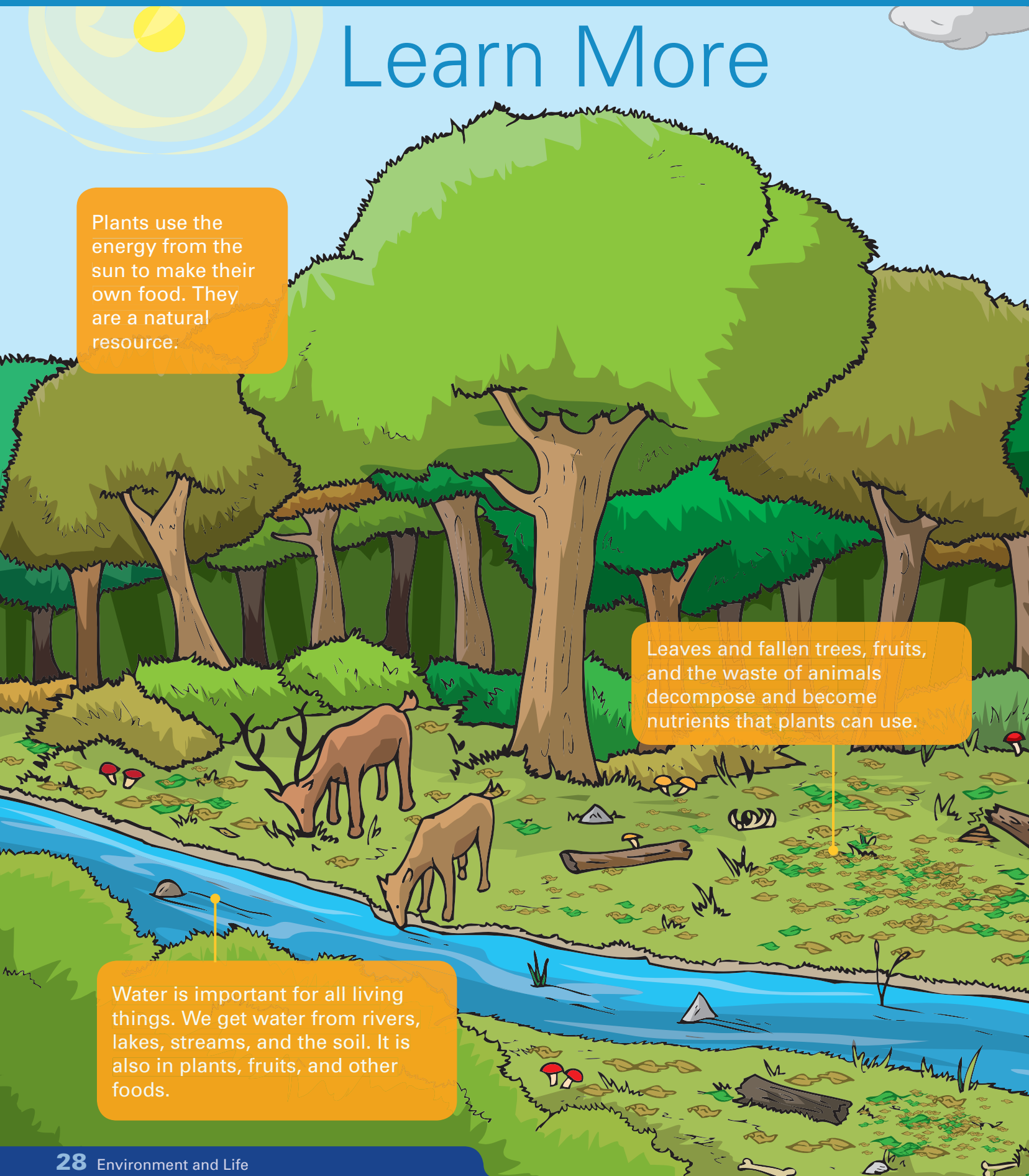
A. Fill in the next two items on the chart—the pencil and the shirt.

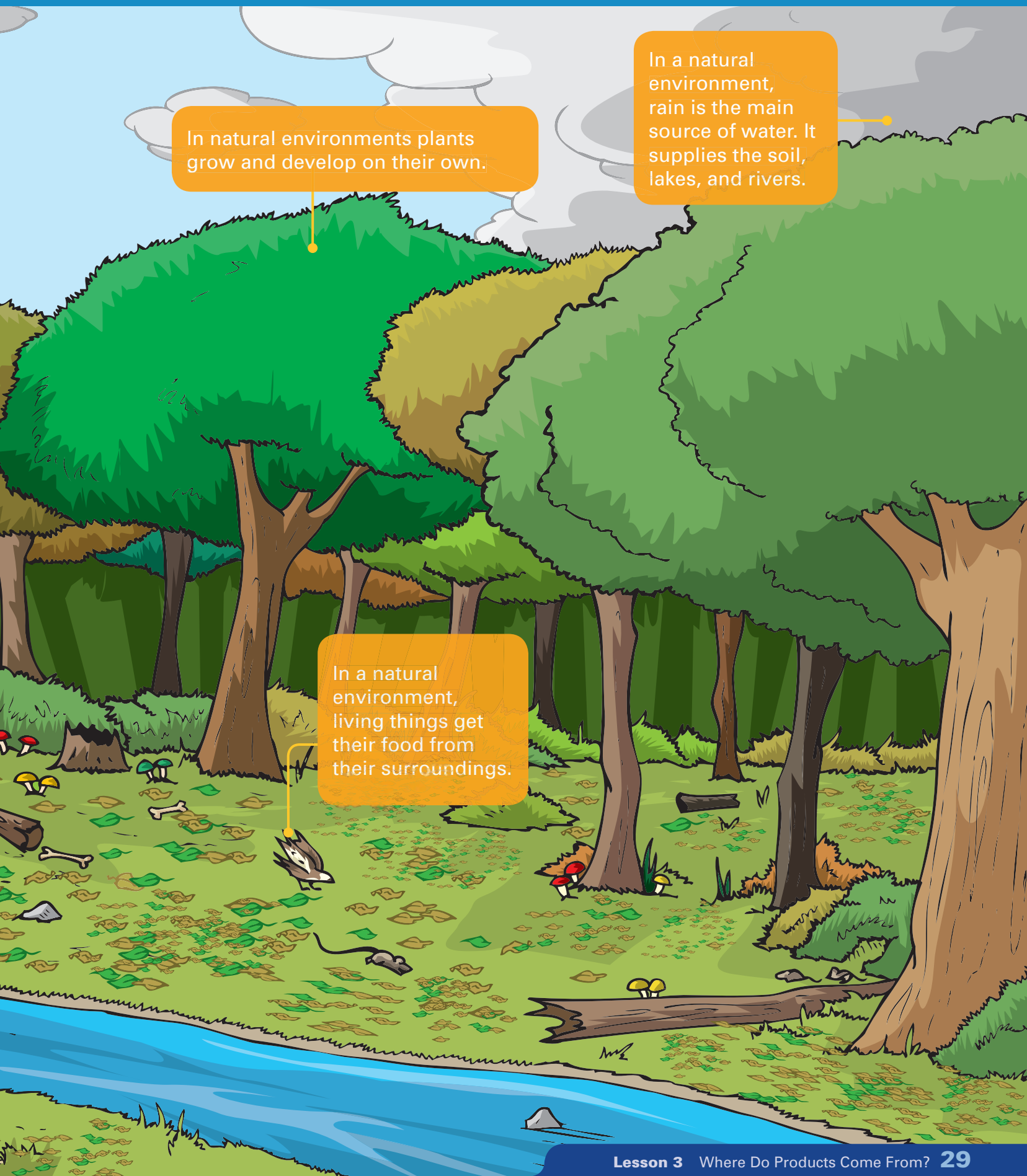
B. Discuss with your classmates where you think pencils and shirts come from.

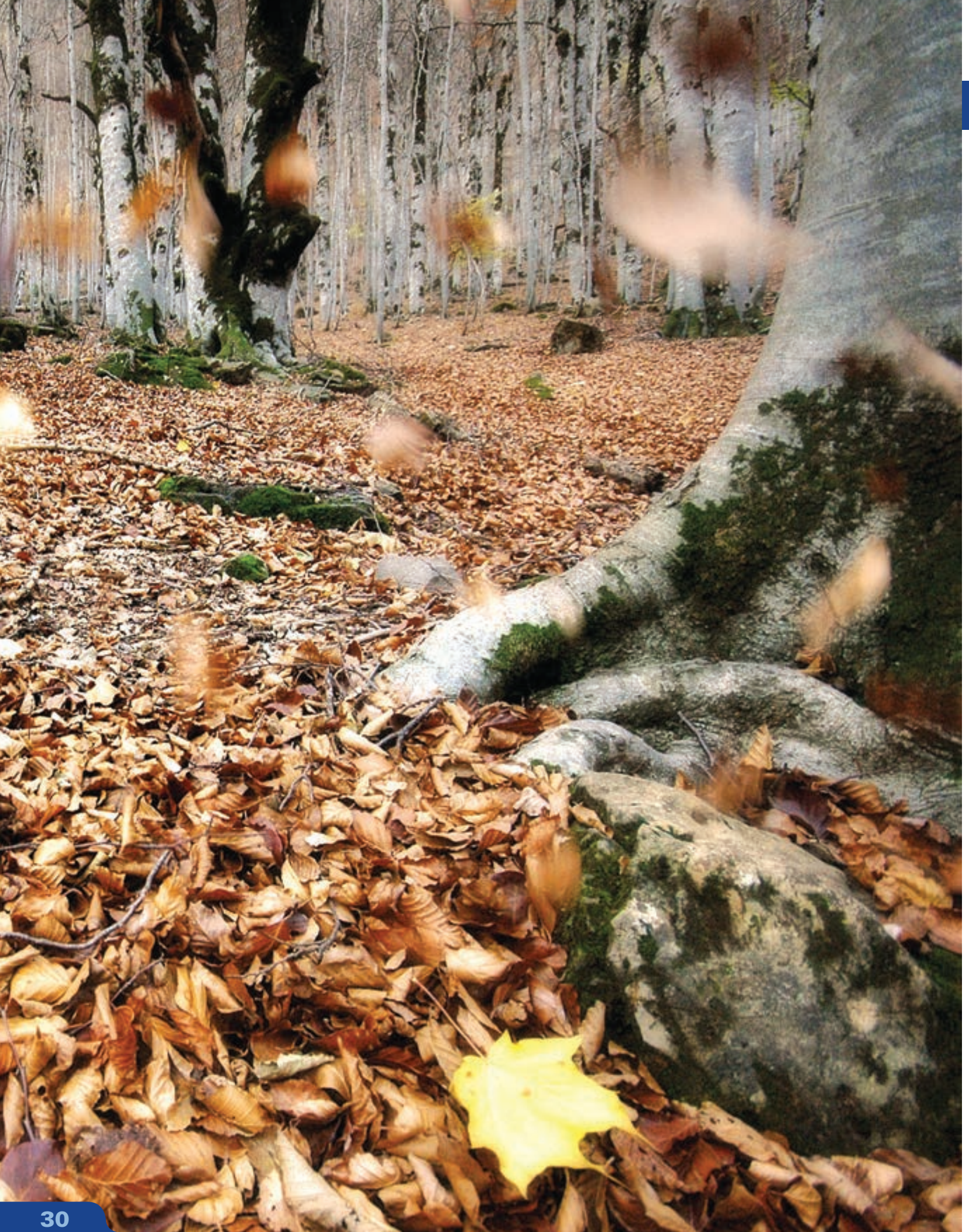
C. Choose two other products you know and include them on the chart. Fill in all the columns. Consider what you do with an object when you are done using it.


eating bread

Learn More


Plants use the energy from the sun to make their own food. They are a natural resource.
Leaves and fallen trees, fruits, and the waste of animals decompose and become nutrients that plants can use.
Water is important for all living things. We get water from rivers, lakes, streams, and the soil. It is also in plants, fruits, and other foods.


In natural environments plants grow and develop on their own.
In a natural environment, rain is the main source of water. It supplies the soil, lakes, and rivers.
In a natural environment, living things get their food from their surroundings.



What Happens To Trash?

Where does our trash go?

Why is it important to recycle?

Lab Activity

Investigate Classroom Trash

1. With your teammates, discuss what you throw in the trash. What do you recycle? What things do you recycle at school?

2. Read the *Classroom Trash Data* chart in your *Science Notebook*.

3. Put on the apron, goggles, and gloves, and use rubber bands around your wrists to secure the gloves.

4. Set up five plastic bags for sorting—plastic, glass, metal, paper, and trash.

5. Cover the floor with the tarp. Gently dump the trash onto the tarp.

6. Separate and sort the trash.

7. What type of trash did your class produce? Estimate how much trash you collected in each category. What type of trash did you get the most of? The least?

8. Work with your team to decide what items you can recycle or reuse. If you cannot reuse or recycle the item, it goes into the trash that eventually goes to a landfill.

9. Can you think of ways to make packaging less wasteful? Write your ideas in your *Science Notebook*.

Learn More

Reduce, Reuse, or Recycle!

Some trash, like food scraps from the kitchen, decomposes. But some trash does not decompose easily. Those items people throw away need to be either burned or buried in a landfill. Both of those processes require energy, and they pollute the environment. The 3Rs—reduce, reuse, and recycle—help protect the environment. By following these, people limit the amount of trash they create.

Reduce

By reducing the amount of trash you create, you help to preserve the environment. You can reduce trash in many ways. Here are a few:

- Choose what you buy carefully. People throw away a lot of extra packaging. For example, one large container of juice means less trash than many small, individually wrapped ones.
- Use products as long as you can before you throw them away. Can someone sew the hole in your socks or jeans, so you can wait longer to buy a new pair?

Reuse

Reusing materials means finding another way to use something and to keep it out of a landfill. Here are some ideas:

- Use both sides of a sheet of paper.
- Reuse glass jars. What could you store in a jar? Sand for an ant farm? How about pencils?
- Give items you do not use to charities or resale shops. Then other people can reuse them, and they stay out of landfills.
- Bring your own bags to the store, so you will not waste more plastic or paper bags.
- Recycle.

Recycle

Recycling is processing materials so they can be reused or made into a new product. Look at the list of recyclable materials. Many materials can be recycled, including glass, metal, plastic, and paper. The first step is to separate recyclables from the rest of your trash. The materials go to a recycling center, whether you take them there, or they are picked up by a special truck. Either way, items like plastic milk jugs, soda cans, and glass bottles and jars can be made into something new.

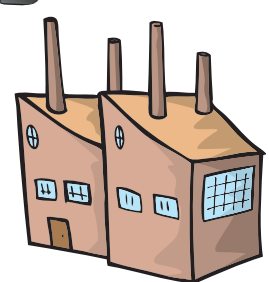
Learn Even More

Recycling of Glass

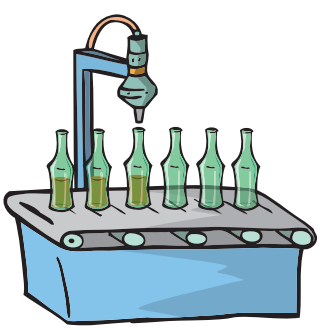
We put glass into glass-recycling bins.

Glass bottles are separated by color and cleaned.

Recycling centers crush the glass.



Then they melt the crushed glass and make new bottles.



They refill the bottles with products such as soda or juices.

They deliver the bottles back to the stores for sale.

We consume products in glass containers.

Recycling of Aluminum Cans

The aluminum cans are cleaned and sorted.

The cans are crushed.

The crushed cans are melted and cast into ingots.

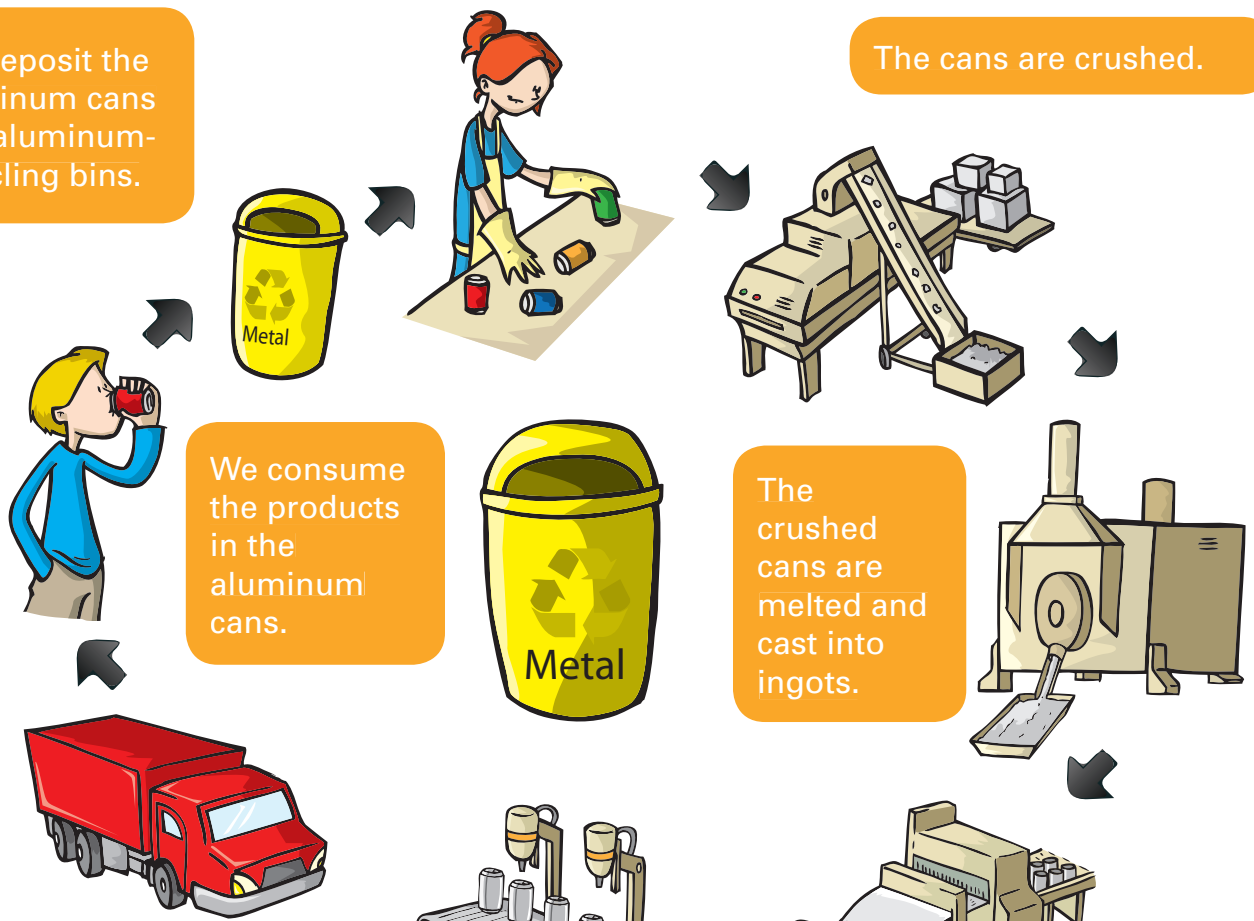
The ingots are rolled into aluminum sheets.

New aluminum cans are made and filled with new products such as soda.

Cans are delivered back to stores for sale.

We consume the products in the aluminum cans.

We deposit the aluminum cans into aluminum-recycling bins.



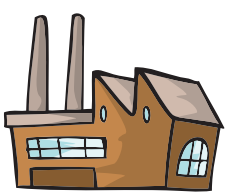
Learn Even More

Recycling of Plastic Bottles

Plastics are sorted into different types.

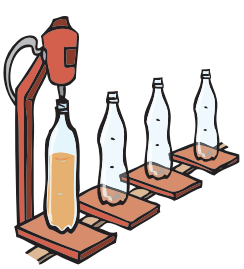
Plastic is cleaned and shredded.

Plastic is melted and made into pellets.



Pellets are turned into new bottles or other products.

Bottles are filled with new products such as water or cleaning supplies.



Bottles are delivered back to stores for sale.

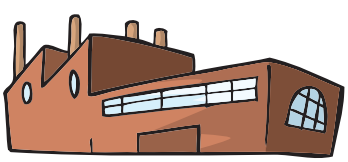
We consume the products in plastic bottles.

We put the plastic into plastic-recycling bins.

Recycling of Newspaper

We put the newspapers into paper recycling bins.

Paper is turned into pulp.



Pulp gets processed to produce new paper.

Paper is printed to make new newspapers.

Paper is delivered and sold.

We read and use newspapers.

How Do Animals Survive in the Cold?

What adaptations let animals survive extreme cold?

How do humans survive in extreme cold?

Lab Activity

Investigating Adaptations to Cold

1. Put a plastic glove on one hand and secure it with a rubber band. Dip your gloved fingers into the ice water. What does it feel like?

2. Predict what the water will feel like when you put a layer of shortening on your finger. Record your prediction in your *Science Notebook*. Put your index finger into the shortening. Completely cover it with a thick layer of shortening without getting any on your other fingers.

3. Dip your hand back into the ice water. How does the finger with the shortening feel compared to the others?

4. Remove your glove by turning it inside out. Place it in the trash bag. Discuss the experiment with your team. How was the shortening on your finger similar to the body fat of an animal? Write your observations and conclusions in your *Science Notebook*.

Learn More

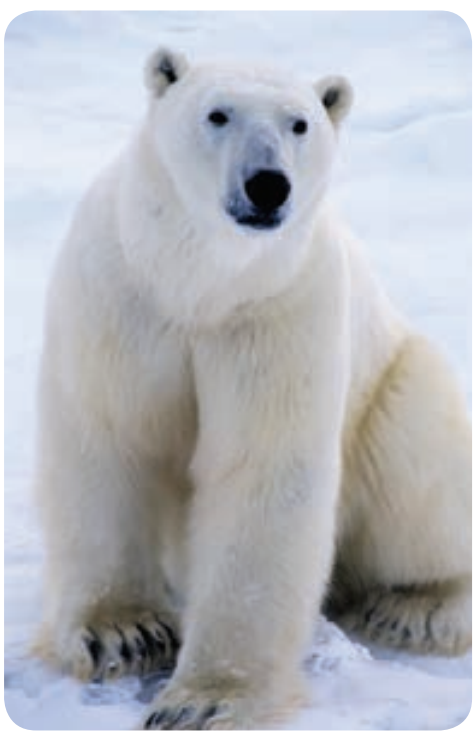
Cold Outside The Polar Regions

Mountain climbers dress in layers, so they can adapt to temperature changes. As they climb higher, they feel the air temperature get colder. It can be as cold as in the Polar Regions. At high altitudes, the air is too thin to trap the sun's heat close to the earth. Also, mountaintops are usually windy, which feels even colder.

At the top of the highest mountains, the environment is similar to those found in the Arctic and Antarctic zones.

Although it may have been hot at the bottom of the mountain, after days of climbing, these climbers will encounter temperatures that are much colder. How are these climbers protecting themselves from the cold?

Mount Kilimanjaro is located in Tanzania, Africa. It is more than 5,900 meters high. Even though it is located in one of Earth's hottest climates, the top of Mt. Kilimanjaro is always covered with snow.



Animal Adaptations to Cold

Penguins in the Antarctic secrete a waxy substance that keeps their feathers dry in the water. A layer of fat helps retain their body heat.

A polar bear's white fur is very thick. Each hair is hollow. The hollow hairs contain air, which keeps a polar bear warm. The hairs do not absorb much water, so when a polar bear comes out of the water, it can shake itself dry.

Polar bears have black skin, which absorbs heat from the sun. Under the skin is a thick layer of fat. It can be as much as 10-cm thick in the winter. The layer of fat is another adaptation that helps a polar bear retain heat even in the cold Arctic winter.

The caterpillar in this photograph is an Arctic woolly bear. Its woolly coat keeps it warm in the freezing Arctic temperatures. It also has a chemical in its body that allows it to freeze and thaw many times in its life without dying. A woolly bear can remain frozen for up to nine months a year, for 7-14 years before it becomes a moth and lays new eggs.

How Do Living Things Get Water?

Is water important for all living things?

How do earthworms get water?

Lab Activity

Investigate How Organisms Get Water

1. How do living things get water? Look at all of the images on these two pages and discuss how each organism gets water.

2. Write your ideas in your *Science Notebook*.

3. Read the *Learn More* section to understand how plants have adapted to environments with little water. Describe four of those adaptations in your *Science Notebook*.

This seaweed lives on the ocean floor.

The water hyacinth lives in ponds, rivers, and lakes.

Clown fish live in the ocean among sea anemones.

The strawberry plant lives in the soil.

This tree crab lives in the trees of the mangrove forest.

The hedgehog lives in the forest.

The earthworm lives in moist soil.

Learn More

Water and Plants

Water is essential for the survival of all living things. Both plants and animals need to maintain a certain amount of hydration. Some species of plants have adaptations that allow them to survive when there is too much water, such as in a lake, or too little water, as during a drought.

This strawberry plant produces small drops of water when it needs to get rid of excess water absorbed through its roots.

This fig tree has roots that grow above the soil. Besides helping to support the tree, these roots have pores that help the tree eliminate excess moisture.

Too Much Water

When there is too much water in the soil, plant roots can suffocate. A plant cannot get enough nutrients to survive. Plants that live in environments where the soil is very wet have adapted by developing ways to eliminate excess water.

This plant stores water in underground pods.

Too Little Water

A lack of water is also harmful to plants. Plant species in dry places have adapted ways to store water, or to prevent too much water from evaporating into the air.

Cacti store water in their stems. Their thin, spiny leaves reduce the loss of water through evaporation.

Some leaves have fine layers of hair or small, thick leaves. These adaptations help reduce the loss of water through evaporation.

How Do Living Things Survive When Water Is Scarce?

How do organisms survive in the desert?

Why is an oasis important?

Lab Activity

Investigate the Effect of Sunlight on Plant Growth

1. Put an absorbent cloth in the bottom of each Petri dish. Label one dish “dark” and the other “light.”

2. Count out 10 of the tiny seeds for each dish. Then put 10 seeds on each cloth.

3. Pour just enough water into each dish so that the cloth becomes damp (rather than soaking wet). Then cover the dishes.

4. Put the dish labeled “light” in a sunny place and the dish labeled “dark” in a dark place (such as the inside of a cabinet or desk drawer). Check the labels to make sure each dish goes to the correct place.

5. Think about how the seeds will grow. What do you expect to happen? Write your predictions in your *Science Notebooks*.

Learn More

How Do They Get Water?

Camels can survive in very high temperatures. They need to drink only small amounts of water, because they can store more than five liters of water in their stomachs. This allows them to travel for several days without drinking. Camels store fat in their humps. They can go for several weeks without eating. These are important adaptations in a desert environment where camels cannot find many plants to eat or drink. In desert environments, people use camels for transportation and for carrying supplies.

This plant lives in African deserts. It has structures on its leaves to capture drops of dew that form at night. This adaptation means that the plant does not need much rain. Its flowers have a very bad odor, which keeps animals away from it. How does this adaptation help the plant survive?

This cactus can store water in its stem. The roots can absorb rainwater from deep in the ground.

Some rodents, such as this Kangaroo Rat, never drink. Their bodies make water when they digest food. Some desert rodents have special organs in their noses that capture excess moisture when they breathe out. They do not waste any water.

These thick leaves have a waxy waterproof coating. This coating prevents evaporation and protects the plant from dehydration.

Cactus leaves are often very thin needles that prevent water loss through evaporation. Wide, flat leaves lose a lot of water because they have such large surface areas.

Reptiles that live in the desert have thick skin that helps prevent water loss. A turtle's shell also helps it to retain its water.

Learn Even More

How Do They Survive Extreme Temperatures?

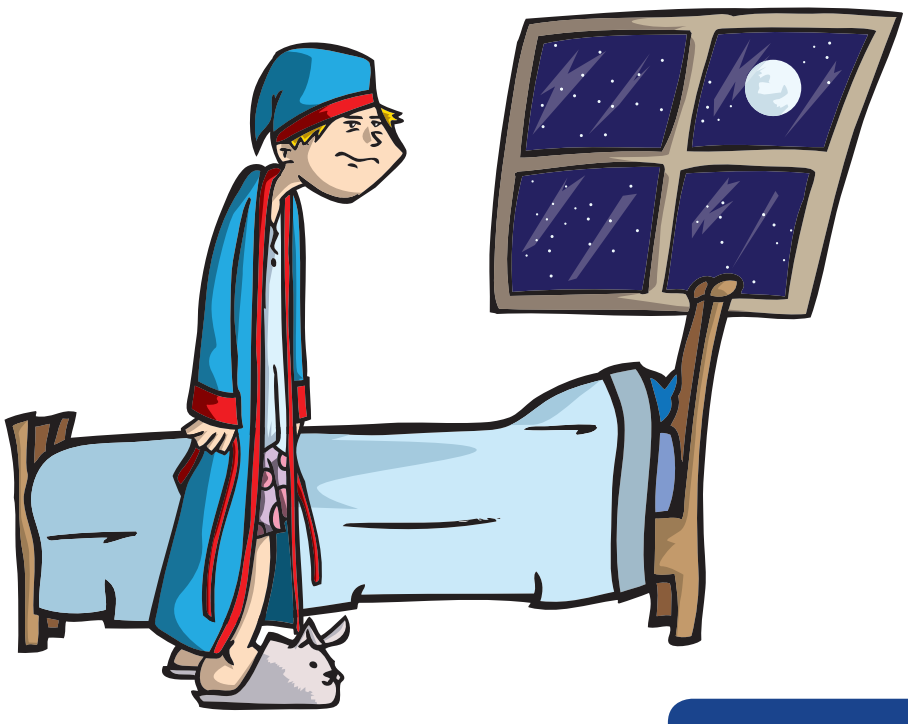
Many animals in the desert, such as this Jerboa, only come out at night when the temperature is lower. Hidden in burrows during the day, they stay away from the sun.

Some desert plants have leaves that are covered with hairs. The hairs help block and reflect the sun, keeping the plant cooler and preventing excess water evaporation.

The horned viper spends time buried in the sand. The temperature is cooler there. When it is buried, only its eyes and nostrils are exposed.

Some desert plants have light colored leaves that reflect sunlight. This helps the plants stay cooler.

How Does Light Affect Organisms in an Environment?



What are nocturnal animals?

Lab Activity

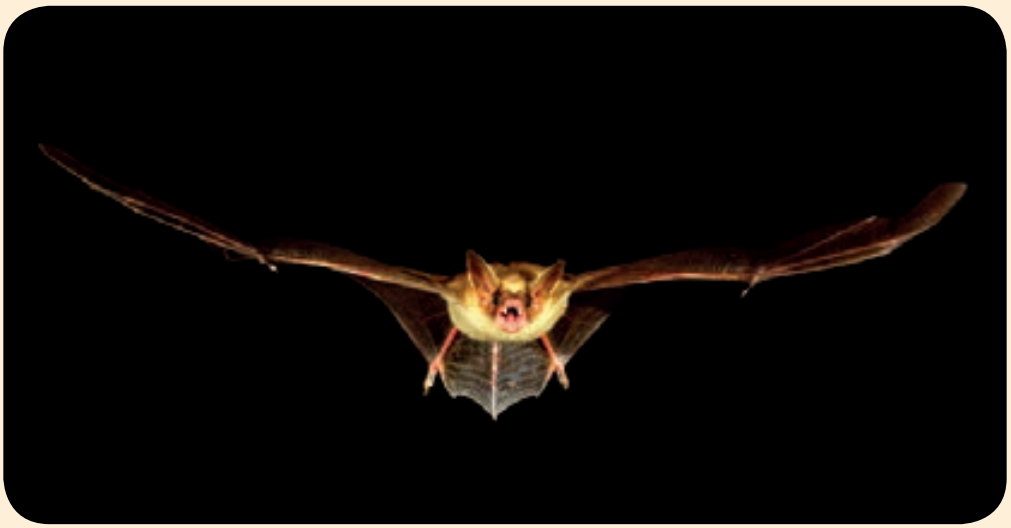
Observing the Effect of Light on Plant Growth

1. Make your final observations of the seeds from *Lesson 7.*

   A. Describe what you see in the last row of the data chart in your *Science Notebook*. Record the height of the plant and how many leaves there are.

   B. Make a detailed drawing of the seeds or seedlings in the sunlight and in the dark.

2. Compare the germination and growth of the seeds. What is similar? What is different? Use all of the observations you have recorded to help you. Discuss your ideas with your team and record them in your *Science Notebook*.



Learn More

Bats Are Nocturnal Animals

Bats are the only mammals that fly. Most bats are nocturnal; therefore, they fly at night when it is dark. Bats have adaptations to help them do this. They have poor eyesight, but good hearing. Bats make high-pitched sounds as they fly. As the sounds strike objects, they bounce off and create an echo. The bat listens to the echo to know where an object is. This adaptation is called *echolocation*. Animals like whales and dolphins also use echolocation to navigate, communicate, and sense things underwater.

Sometimes a bat will have to fly in the daylight. Although the bat has eyes and is not blind, even in the daytime it will use echolocation to navigate.

These bats are sleeping during the day.

Many bats spend the daytime hours hanging in dark caves.

Learn Even More

Diurnal or Nocturnal?

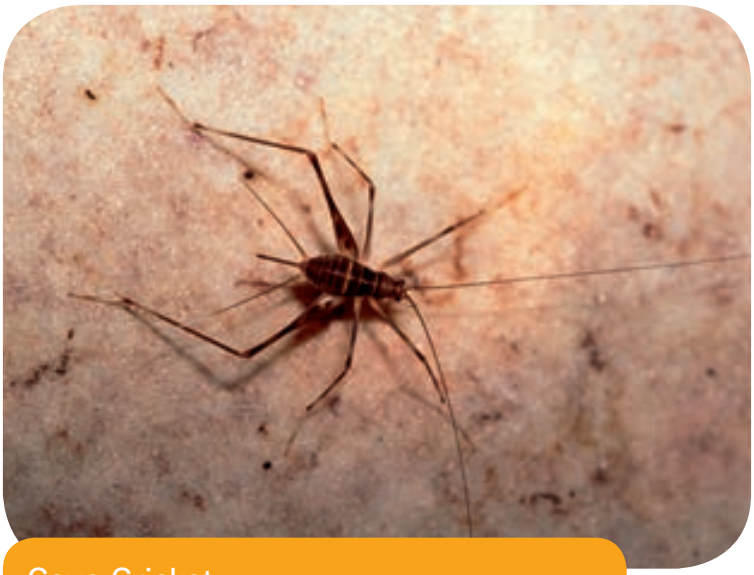
Look at these photographs. Do you see adaptations that allow these animals to live in the dark? For each animal, make notes in your *Science Notebook* about how these adaptations help nocturnal animals survive.

Blind Fish

Some species of freshwater fish are blind and usually live in caves. These fish have very small eyes that are blind. These fish have adapted and developed organs on their skin that help them navigate by touch.

Star-Nosed Mole

This mole lives in underground burrows where there is no light. In this environment, eyes are virtually useless and are very small. This mole is guided by its sense of touch and smell, and its nose has special tentacles that help it feel its way around.



Cave Cricket

Cave crickets have very long antennae that help them orient themselves in the dark through their sense of touch. Crickets that live outside of dark places generally have much smaller antennae.

Aye-Aye Lemur

This lemur is found only on the island of Madagascar and feeds mainly on insects. It is a nocturnal animal that hunts for food at night. Its large eyes help it to see even if there is very little light.

Firefly

To attract mates, fireflies use light produced by a chemical reaction.

Glossary

adaptation – a change in a population that enables it to survive in its environment

Antarctic – the land around Earth's South Pole

Arctic – the area around Earth's North Pole

carnivore – an animal that eats only meat

consumers – organisms that eat other organisms to get energy

decompose – break down into simpler materials

decomposers – organisms that break down organic material to get energy

dehydration – a lack of water in the body

desert – a dry region that receives less than 15-cm of rain a year

diurnal – an animal that is active in the daytime

drought – a period of dry weather

environment – all things, living and non-living, that make up a particular region

fauna – the animals that live in a particular environment

flora – the plants that live in a particular environment

food web – a diagram that shows the energy transfer in an ecosystem

fungus – a living organism that is not an animal or a plant and reproduces by spores

herbivore – an animal that eats only plants

hydration – adding water to a body

landfill – a specially designed site used for the disposal of waste

mold – a large group of microscopic fungi

mutualism – a type of relationship between two living organisms that is useful to the survival of both

natural resource – material that occurs in nature without human influence

nocturnal – an animal that is active at night

nutrient – substance a body needs to be healthy and grow

oasis – isolated area of vegetation at a natural water source in a desert

offspring – the descendents of organisms

omnivore – an animal that can eat both plants and meat

parasite – an organism that lives off a host

photosynthesis – the process that turns light, water, and carbon dioxide into sugar

population – all members of a species in a region

predator – an animal that hunts other animals

prey – an animal that is hunted by a predator

process – to convert something from one form to another

producers – plants that produce their own food for energy

product – something that is made from something else

rainfall – the amount of rain that falls in a certain area in a certain time

recycle – to turn used materials into new products again

reuse – to use again, without transformation into a new product

sense – the ability to perceive stimuli

species – a group of similar organisms that reproduce with each other and have fertile offspring

Recyclable Materials

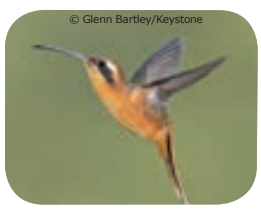
What can be recycled?			
Glass	**Metal**	**Plastic**	**Paper**
Cups, bottles, flasks, pots, medicine bottles, perfume bottles, cleaning bottles, shards.	Soda cans, juice cans, bottles, bottle tops, food cans, wire, nails, aluminum foil, aluminum, copper.	Soft drink bottles (PET), water bottles, packaging products, cleaning bottles, hygienic bottles, disinfectant bottles, covers, bags, Tupperware.	Newspaper, magazines, notebooks, sheets, envelopes, cardboard, catalogs, juice boxes, milk boxes.
What can not be recycled?			
Mirrors, bathroom windows, car windshields, lamp moulds, ceramics, crockery.	Air filters, sponge steel, rusted cans, cans from toxic products, pesticides, herbicides.	Cellophane, disposable diapers.	Toilet paper, used napkins, silicon cups, laminated paper, carbon paper.

Ecological Relationships

Many birds and animals have relationships. The water buffalo has a relationship with oxpeckers, birds that are also called tick birds. The bird eats ticks it finds on the water buffalo and noisily warns the water buffalo of dangers it sees. The oxpecker also helps the giraffe by pecking and eating ticks and lice off the giraffe and keeping the giraffe clean. This called mutalism.

The crab has a relationship with sea anemones. The crab is protected by the sea anemone and captures food in the tentacles of the sea anemones. The crab cleans the sea anemone. This is called mutalism.

The clown fish is protected against enemies by the sea anemone. The sea anmone gets leftover scraps to eat from the clown fish. The clown fish cleans sea anemones of parasites. This is called mutalism.

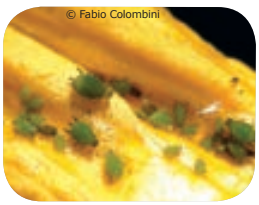


The hummingbird brushes against flowers, gathering pollen on its wings when it gets nectar for its meal. As it travels, it pollinates other flowers helping flowers reproduce. This is called mutalism.

Stinging ants live on the embauba tree and eat the honey-like sap produced by the leaves. The ants protect the tree from leaf-eating insects. This is called mutalism.

A Bromeliad is a plant that lives on another tree. They do not harm the host tree. Their large leaves can hold water and their bright flowers attract birds, bugs, and frogs. This is called mutualism.

The relationship between the crocodile and the plover bird is beneficial to both. When the crocodile gets food caught in its teeth, parasites start to grow and hurt the crocodile. The crocodile opens its mouth wide and the Egyptian plover bird flies into the mouth of the crocodile, eats the stuck food and flies away. This is called mutalism.



Aphids secrete a sugar rich liquid which is a good source of food for ants. In return for this food, the ants protect the aphids from other predators. This is called mutalism.

Birds called herons and egrets eat in the same fields as cattle. The cattle walk and kick up insects such as ticks and grasshoppers. The cattle eat the grass and the birds eat the bugs. This is called commensalism.

The moray eel opens its mouth and allows cleaner shrimp to eat the parasites it finds. The shrimp gets a free meal and the eel gets a clean mouth. This is called mutualism.

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