

2 In what other ways can these elements be classified?

Skill Activity

Classifying

Background

Classifying is the process of sorting objects or events into groups based on their common features. You may not think you use this skill, but if you stack the books in your locker in a certain order, you are classifying them. When you classify, you are grouping objects together for a specific reason.

The activities that you do every day can also be classified. Some activities are learned, and must develop through practice and experience. Other activities don't need to be learned, you are born with them. They are innate behaviors. In this activity, you will classify your daily activities as learned or innate.

Classifying Behaviors

Activity	Learned	Innate

Types of Birds

Rhea flightless bird	Bald Eagle bird of prey
Great Blue Heron wading bird	Pelican water bird
Cardinal seed-eating bird	Kiwi flightless bird
Emu flightless bird	Downy Woodpecker insect-eating bird

Procedure

- Below is a list of 20 activities that you do every day.
- Make a copy of the Classifying Behaviors table shown and classify each activity as learned or innate.
- Put an X in the box that best describes the type of activity.

Daily Activities

blink	yawn
walk	get dressed
sneeze	read
breathe	write
talk	brush your teeth
take a shower	comb your hair
your heart beats	smile
cough	sleep
digest food	swallow
tie your shoes	eat

Gold finch seed-eating bird	Blue Jay seed-eating bird
Wood duck water bird	Owl bird of prey
Nuthatch insect-eating bird	Robin insect-eating bird
Osprey bird of prey	Ostrich flightless bird

Practicing the SKILL

- Look at the Types of Birds table above.
- Describe ways you could classify the birds.

Skill Activity

Concept Mapping

Background

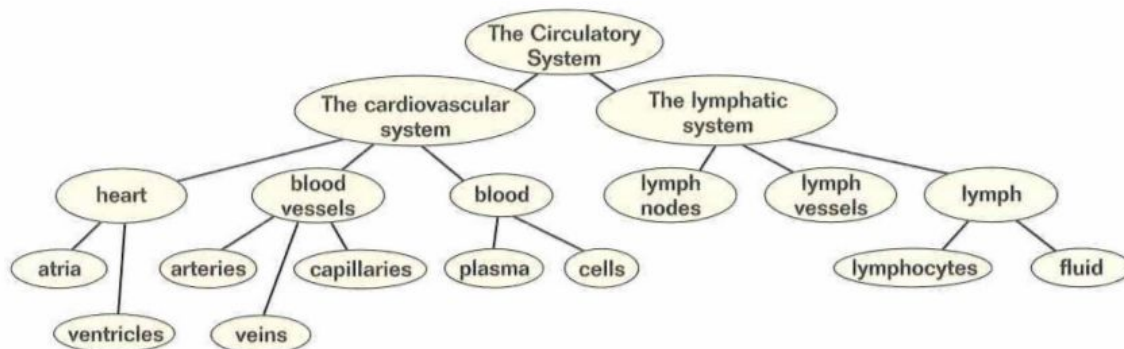
The circulatory system consists of many parts with a wide variety of functions. Blood flows through the circulatory system. Some of the fluid from the blood moves into the body tissues and is returned to the circulatory system by the lymphatic system. Try the following activity to determine how concept maps help us organize information.

Procedure

- 1 Look at the concept map shown below. How is the information organized?
- 2 Using the concept map and the text, answer the questions in the Practicing the Skill box.

Practicing the SKILL

- 1 Compare and contrast the parts of the cardiovascular and lymphatic systems.
- 2 Compare the functions of the cardiovascular and lymphatic systems.
- 3 Compare the way blood and lymph are pumped through their vessels.
- 4 Lymph has little color. Blood is red. Explain the difference.



Skill Activity

Interpreting Scientific Illustrations

Background

When a large earthquake occurs in the Pacific Ocean, the epicenter is quickly determined and a tsunami warning is issued. Scientists have created tsunami travel-time charts such as in the figure below, for the Pacific Ocean. Using these charts allows them to predict when a tsunami will reach different Pacific Ocean coastal regions.

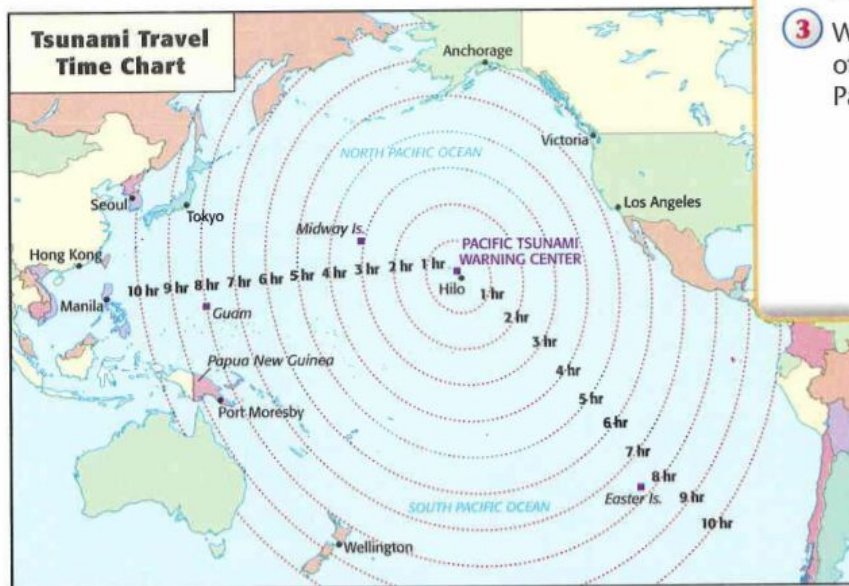
On Friday, July 17, 1998, a magnitude 7.0 earthquake occurred on the seafloor near Papua New Guinea in the South Pacific Ocean. Within moments a 7-meter-high tsunami struck the shore and more than 3000 people were killed as coastal villages were washed away.

Procedure

Study the figure below. If you know the epicenter of an earthquake you can determine when a tsunami might reach land. For example, a tsunami caused by an earthquake in Guam would take about 8 hours to reach Hilo, Hawaii.

Practicing the SKILL

- 1 A large earthquake off the coast of Peru has generated a tsunami. If you live in Hilo, Hawaii, how long do you have before the tsunami reaches your beach house?
- 2 An underwater volcanic eruption near Midway



Island has caused a tsunami. How long before this wave reaches Tokyo, Japan?

- 3 Why was a tsunami warning of no use to the villagers in Papua New Guinea?

Skill Activity

Making Models

Background

Sometimes it is useful to make a model of a system in order to understand it. It is difficult to see inside a human chest while a person is breathing, so you can make a model that works in a similar way.

How can you make a model of the human breathing mechanism?

- 5 Use a thick rubber band to tightly fasten the rubber sheet over the bottom opening of the bottle.
- 6 Push up gently on the rubber sheet. Observe the balloons inside the bottle. Record your observations in your Breathing Data table.

Procedure

- 1 Look at the illustration on this page of a model of the lungs and diaphragm. This is a model on paper. In this skill, you will construct a physical model of the illustration.
- 2 Cut the bottom from a clear, 2-liter plastic bottle using scissors. **CAUTION:** *Always be careful when using scissors. Be careful of the sharp edges of the cut plastic as well.*
- 3 With your teacher's assistance, insert a y-shaped plastic tube upside down into the hole in a rubber stopper. Use a twist tie to fasten a balloon to each branch of the y-shaped tube.
- 4 Insert the rubber stopper into the top opening of the plastic bottle. The balloons should be inside the bottle.

- 7 Pull down gently on the rubber sheet. Observe the balloons inside the bottle. Record your observations in your table.



Practicing the SKILL

- 1 What happens when you push up and pull down on the rubber sheet?
- 2 When does air enter and leave the balloons? Why?
- 3 Draw the human respiratory system and compare it to the model. Label both.

Breathing Data

Rubber Sheet	Balloons Empty/Filled	Person Breathing Exhale/Inhale
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Pushed Up		
Pulled Down		

Skill Activity

Recognizing Cause and Effect

Background

As you have learned in this chapter, many diseases are caused by microorganisms. One way to prevent disease is through immunization. Another way to prevent disease is to monitor and evaluate our daily habits.

Personal Health		
	Health Habit	✓ or —
a	take a shower or bath each day	
b	wash hands before meals	
c	wash hands after going to bathroom	
d	wash hair three times each week	
e	brush hair each day	

f	brush teeth after meals	
g	floss teeth daily	
h	change socks and underclothes each day	
i	cut toenails each week	
j	trim fingernails each week	
k	exercise for 30 minutes three or four times each week	
l	eat three well-balanced meals each day	
m	eat breakfast each day	
n	eat high-fiber foods each day	
o	do not drink alcohol	
p	have a dental checkup twice a year	
q	have regular medical checkups	
r	sleep seven to eight hours each night	
s	maintain good posture at all times	
t	keep up to date with vaccinations	
u	wear a seat belt	

The following activity will help you recognize your responsibility.

Procedure

- 1 There are many steps you can follow to maintain personal health. Good habits can keep you healthy for many years. Examine the list of health habits in the chart.
- 2 Find those habits that you have developed.
- 3 From the list of health habits on the left, find the habits that you sometimes or never carry out and need to develop.
- 4 Make a table of habits like the one shown and make a checkmark next to those habits you have developed. Make a dash next to those habits that you need to develop.

Practicing the SKILL

- 1 Which habits involve exercise and diet?
- 2 Which habits are related to preventive health practices?
- 3 Which of the personal health habits do you need to improve?
- 4 What is one way to plan for good health?
- 5 How will having good health habits now benefit your future health?

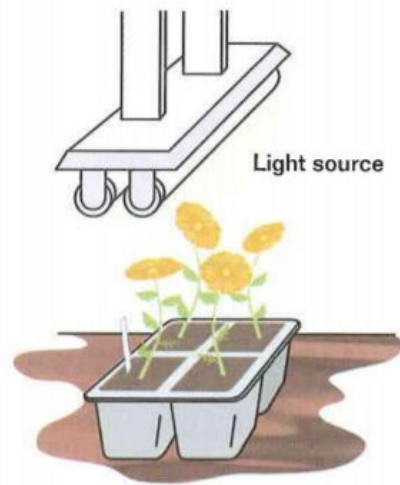
Skill Activity

Separating and Controlling Variables

Background

Scientists often will conduct experiments to answer questions, test hypotheses, or solve problems. In any experiment, it is important to keep all factors the same except for the one you are testing. The factor you change is called the independent variable. If you change more than one variable in an experiment, you will not know which factor caused the effects you observe in the experiment.

Identify the independent variable in the following experiment.



Suppose a scientist has the job of studying the factors that affect the growth rate of marigolds. She sets up four plants to test her experiment. Descriptions of the plants are listed below.

Procedure

Study the experiment descriptions and identify the independent variable. You may wish to make a table to organize the information.

Plant 1—soil mix A, 12 hours of light per day, no fertilizer, 22°C, water every other day.

Plant 2—soil mix A, 12 hours of light per day, no fertilizer, 22°C, water once a week.

Plant 3—soil mix A, 12 hours of light per day, no fertilizer, 22°C, water every day.

Plant 4—soil mix A, 12 hours of light per day, no fertilizer, 22°C, no water.

Practicing the SKILL

- 1 What variable is being tested in this experiment?
- 2 Name three other variables in this experiment.
- 3 Plant 2 grew taller than Plant 3. Infer what caused this effect.
- 4 Write a hypothesis that would be appropriate for this experimental design.
- 5 How might the experiment change if the scientist wanted to study the effect of sunlight on the growth rate of marigolds? Write a hypothesis for this experiment.