Name _____ Date _____ Class _____

CHAPTER 5 CAUSE-AND-EFFECT RELATIONSHIPS

5-1 Cause-and-Effect Markers

Cause-and-effect thinking is used to solve problems in everyday life: What caused the lights in your house to go out? What is going to happen as a result of your not studying for that exam? The first step in analyzing any problem is to find its cause.

A problem can have one cause or several causes. A cause may have one effect or several effects. Sometimes the cause of a problem is obvious or easy to find, sometimes it is very difficult. Sometimes the cause of a problem is impossible to find!

Cause-and-effect reasoning is also very important in science. It can be found in scientific descriptions. Cause-and-effect reasoning in science and in other subjects can often be identified by cause-and-effect words. Certain words are used to indicate cause or reason. Other words are used to indicate effect or result. **Table 5-1** gives common examples of both cause and effect words. These words are called **regular cause-and-effect markers.**

TABLE 5-1 REGULAR CAUSE-AND-EFFECT WORDS

Cause or reason		Effect or result	
cause	as a result of	accordingly	is an effect of
affect	because (of)	as a result	the result is
bring about	on account of	consequently	results from
produce	due to	for this reason	therefore
account for	is an influence on	hence	thus
generates		in order to	is produced by

Take a look at the following passage. Notice the boldfaced cause-and-effect markers. Think about how important cause-and-effect reasoning is in trying to answer the question of what happened to the dinosaurs.

Mass Extinctions

Some of the important divisions in the geologic time scale are marked by events that **caused** many animal and plant species to die out completely, or become extinct. There are several periods in Earth's history when a large number of species died out at the same time. These periods of large-scale extinction are called mass extinctions.

Scientists are not sure what **brings about** mass extinctions. Mass extinctions may **result from** major changes in Earth's climate. Some scientists think the mass extinction of the dinosaurs was **due to** a meteorite colliding with Earth and **causing** catastrophic climate changes.

(from Holt Science and Technology: Life Science)

Name _____ Date _____ Class _____

Exercise 1 Cause-and-Effect Words

Choose appropriate cause-and-effect words or phrases from the list, and write them in the blank spaces in the passage below. Use each word or phrase only once.

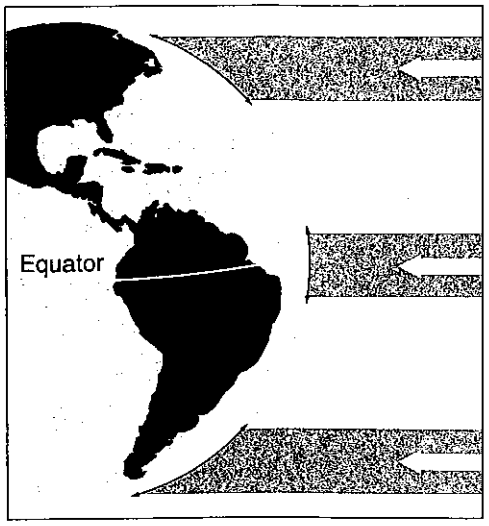
result (noun)	produces	because
is affected	bring about	because of
causes		

_____ the Earth's curvature, the direct rays of the sun striking near the equator are more effective in heating an area than the slanting rays striking the polar regions. As a _____, the polar regions receive much less heat.

_____ Earth receives more solar energy at the equator than at the poles, there is a belt of low air pressure at the equator. The heated air in the region of the equator is constantly rising. At the poles, the colder air is heavier and tends to sink. This sinking of cold air _____ regions of high atmospheric pressure.

Pressure differences in the atmosphere at the equator and at the poles _____ a general movement of air worldwide. The circulation of the atmosphere _____ by the rotation of Earth on its axis. The rotation _____ surface winds in the Northern Hemisphere to be deflected to the right and those in the Southern Hemisphere to be deflected to the left. This motion is called the Coriolis effect, after the nineteenth-century French mathematician who first described it.

(from Modern Earth Science)



Special Cause-and-Effect Markers

Cause-and-effect relationships are often indicated by regular cause-and-effect markers. These markers include the words and phrases found in Table 5-1. It is fairly easy to identify regular cause-and-effect markers. Without regular markers these relationships are not so obvious.

A written cause-and-effect relationship may use **special cause-and-effect markers,** or words or phrases that indicate a cause-and-effect relationship but are not thought of as regular cause-and-effect words. As a result, it may be harder to recognize the cause-and-effect relationship in sentences containing special markers. **Table 5-2** lists some of these special markers and gives examples of sentences that use them to show cause-and-effect relationships.

TABLE 5-2 SPECIAL CAUSE-AND-EFFECT MARKERS

Word or Phrase	Example
creates	Air flowing toward the equator *creates* the trade winds.
is responsible for	The rotation of Earth on its axis *is responsible for* currents in the oceans and in the atmosphere.
has conferred	The energy revolution *has conferred* many benefits on modern society.

The following passage contains 2 regular cause-and-effect markers, and 5 special cause-and-effect markers. Can you find them? Note that not all of the special cause-and-effect markers can be found in Table 5-2.

Rubber

Rubber trees produce natural rubber. But natural rubber has relatively few practical applications. When warmed, individual molecules of natural rubber slide easily back and forth past each other. The rubber gets soft and gooey, making it useless for many purposes.

A process converting natural rubber into a useful commercial product was accidentally discovered by Charles Goodyear in 1839. Goodyear found that the addition of sulfur to molten rubber creates a material that remains very hard and tough when cooled. He called this process vulcanization. Vulcanization enabled rubber to be used in a wide variety of products, such as hoses, rainwear, and tires.

In the first year of World War II, Japan controlled large portions of Southeast Asia. Southeast Asia is responsible for most of the world's natural rubber production. This caused the United States and other Allied nations to develop synthetic substitutes for natural rubber. Some synthetic rubbers have superior properties to natural rubber.
(from Modern Chemistry)

Exercise 2 Special Cause-and-Effect Markers

Read the following passage and list all cause-and-effect markers, both regular and special, in the spaces provided. Also, determine if the marker is regular or special. There may be more spaces than you need.

What Holds You Up?

Water is about 1,000 times denser than air. Because of water's density, you can float on your back in a pool. For some aquatic animals, water provides much of the support necessary to keep their bodies from collapsing under the pull of gravity. For this reason, a jellyfish stranded on the beach cannot maintain its shape.

A variety of adaptations allows animals that left the sea to overcome the loss of physical support. In vertebrates, the skeleton is largely responsible for support of the body. A land animal's skeleton holds up its body against gravity much like beams and girders hold up a skyscraper.

Limbs play an important role in supporting vertebrates on land. When a terrestrial animal is standing, its legs bear the entire weight of its body. In this way, legs function like the pillars that hold up the roof of a building. Unlike pillars, however, animal legs have flexible joints that enable them to move.
(from Holt Biology Visualizing Life)

_____ _____

_____ _____

_____ _____

_____ _____

5-2 Cause-and-Effect Patterns

Multiple Causes and Effects

There are many factors influencing why a plant does or does not flower as it should. The plant may not be getting enough light, the temperature might be too high or too low, or the amount of moisture could be wrong. This is an example of a process that has multiple causes.

It is also possible for one cause to have multiple effects. The single explosion that is referred to as the big bang may have caused the creation of every planet, star, or other celestial body in the universe. That one event set in motion all other events that have followed it. The following two sentences give very clear examples of multiple causes and multiple effects. The numbers in each sentence point out each of the multiple causes or effects.

> **Multiple Causes.** (1) Patterns of vegetation and (2) action of wind account for the movement of earth and sand in desert regions.
> **Multiple Effects.** Convection (warm, rising air) is responsible for (1) high winds and (2) much of the rain in desert regions.

Table 5-3 lists some words and phrases that are used to indicate multiple causes or multiple effects.

TABLE 5-3 WORDS AND PHRASES USED IN MULTIPLE CAUSES AND EFFECTS

Word or Phrase	Example
also	Movements of air govern the pattern of rainfall. The arrangement of land masses is *also* an influence.
in addition (to)	Wind patterns are caused by heat from the sun. *In addition,* they are influenced by the rotation of Earth.
both/and	The Gulf Stream is responsible for the warmth of *both* the British Isles *and* western Norway.
an additional	The location of land masses is *an additional* influence on rainfall.
not only but also	The distribution of heat from the sun is responsible *not only* for wind *but also* for the major ocean currents.
moreover	*Moreover,* several other kinds of chemicals destroy ozone.

Read the passage below. It contains examples of multiple causes and effects.

Destruction of the Ozone Layer

The major culprit of (effect 1) ozone destruction is a class of chemicals called (cause 1) chlorofluorocarbons (CFCs). High over the South and North Poles, where it is very cold, CFCs stick to frozen water vapor and catalyze the conversion of ozone, O_3, into molecular oxygen, O_2. Moreover, (cause 2) several other kinds of chemicals destroy ozone. Because the amount of ozone in the upper atmosphere has fallen, (effect 2) more ultraviolet radiation is reaching Earth's surface. Also, scientists expect (effect 3) more cases of diseases caused by exposure to ultraviolet radiation: skin cancer, cataracts (a disorder in which the lens of the eye becomes cloudy), and cancer of the retina, (the light-sensitive part of the eye).

(from Biology Principles and Explorations)

Exercise 3 Multiple Causes and Effects

Write down the cause-and-effect formulas found in the following passage. Use the + symbol to indicate multiple causes. Use an arrow to show the cause-and-effect relationship. The first formula is written for you as an example.

Weathering and Erosion

The change in physical form or chemical composition of rock materials exposed at Earth's surface is called weathering. Mechanical weathering and chemical weathering are responsible for these changes.

When carbon dioxide from the air dissolves in water, a weak acid solution called carbonic acid is produced. When some minerals come in contact with carbonic acid, they combine chemically with the acid and form a new product. For example, carbonic acid reacts with calcite, which is a major component of limestone, and converts it to calcium bicarbonate. Calcium bicarbonate dissolves easily in water. The dissolving action of carbonic acid on limestone sometimes produces underground caverns.

One result of weathering is the formation of regolith, the layer of weathered rock fragments covering much of Earth's surface. Beneath the regolith lies the solid, unweathered rock that we call bedrock. Eventually the uppermost rock fragments weather and form a layer of

very fine particles. This layer of small rock particles becomes soil. Soil is a complex mixture of minerals, water, gases, and the remains of dead organisms. As plants and animals die, their remains decay and produce humus, a dark organic material that enriches the soil.
(from Modern Earth Science)

a. *mechanical weathering + chemical weathering → changes in rock materials*

b. _____

c. _____

d. _____

e. _____

f. _____

g. _____

h. _____

i. _____

j. _____

Partial Causes and Degrees of Influence

Partial cause is related to the idea of multiple causes and-effects. Something may have an influence on an outcome, but it may not be the only cause, or even the most important cause, of that outcome. For example, if farmers in one region of the country have an overly wet fall and a particularly harsh winter, they may have very low crop yields for the year. Just a wet fall or just a harsh winter might not have caused such low yields. But together, these two factors caused serious problems for the farmers. Partial cause may be indicated by phrases such as those found in **Table 5-4.**

TABLE 5-4 PARTIAL CAUSE

Phrase	Example
a partial cause	Burning of fossil fuels is *a partial cause* of global warming.
is partially responsible for	The advent of better medicines to treat diseases *is partially responsible for* the increase in the average human life span.
a (one) factor is	Genetics is *a factor* in what people look like.
one cause/effect/result is	*One result* of photosynthesis is that plants make their own food.

If there are multiple causes or partial causes, the **degree of influence** becomes important. The degree of influence indicates how important or influential a cause is. The author of your science book may want to impress on you how important or influential a particular cause may be. To do so, he or she may use a word of degree. These words are almost always descriptive words and are usually adjectives or adverbs. **Table 5-5** lists some words or phrases that indicate degrees of influence. The table also gives examples of how they are used.

TABLE 5-5 DEGREES OF INFLUENCE

Word or phrase	Example
chiefly	Circulation of atmosphere results *chiefly* from the distribution of solar energy.
greatly	Earth's rotation *greatly* influences all movements of air.
govern	Movements of air *govern* the precipitation of moisture.
an important factor	Genetic mutation is *an important factor* in evolution.
a major influence	Use of automobiles has *a major influence* on air quality.
a minor cause	Liver disease is *a minor cause* of death in the United States today.
a crucial element	Cost reduction is *a crucial element* in making solar power a widely available energy source.

Exercise 4 gives you practice identifying partial cause-and-effect patterns. It also helps you recognize degree-of-influence markers.

Exercise 4 Partial Cause-and-Effect Relationships and their Degrees of Influence

Read the following passage. As you do, look for the partial cause-and-effect relationships. Then write down the formulas describing them. Also write down, in the space provided, any markers that identify the degree of influence of a partial cause.

The Winds and the Waves

The wind belts, Earth's rotation, and the location of continents are the three factors that control the surface currents of the oceans. The trade winds and the westerlies are the global wind belts that most directly affect the flow of surface currents.

The Coriolis effect is also a major factor controlling surface currents. The Coriolis effect is the deflection of winds and ocean currents caused by Earth's rotation. As a result of the wind belts and the Coriolis effect, huge circles of moving water, called gyres, are formed.

The continents are the third major factor in ocean currents. Continents are obvious barriers to the surface currents. When an ocean surface current flows against a landmass, the current is deflected and divided.

The most important current in the North Atlantic area is called the Gulf Stream. As it moves northeast, it picks up the cold water of the Labrador Current. The Gulf Stream and the Labrador Current together often result in a dense fog in that part of the world. South of Greenland, the Gulf Stream widens and decreases in speed until it becomes the North Atlantic Drift. A drift is a weak current.

(from Modern Earth Science)

a. _____

_____

degree of influence markers: _____

b. _____

_____

degree of influence markers: _____

c. _____

_____

degree of influence markers: _____

d. _____

_____

degree of influence markers: _____

e. _____

_____

degree of influence markers: _____

f. _____

_____

degree of influence markers: _____

g. _____

_____

degree of influence markers: _____

Probability

When an author is not completely certain of a cause, he or she may indicate this uncertainty in his or her statement. For example, an author might state that *it is possible* that the mass extinction of the dinosaurs was caused by major climatic changes accompanying a collision between a giant meteorite and Earth. The author is not directly stating the cause of the mass extinction because that cause is not known for certain. Instead, the author is proposing a probable cause. We will study **probability** in detail in Chapter 7, but for now you should recognize words and phrases that indicate probability in cause-and-effect relationships.

Table 5-6 on the following page lists some of these markers and gives examples of how they might appear in cause-and-effect descriptions.

TABLE 5-6 WORDS OR PHRASES USED TO INDICATE PROBABILITY

Phrase	Example
in all likelihood	*In all likelihood,* the dinosaurs would not have become extinct without some major global change.
probably	Most meteorites *probably* come from the broken bits of former planets.
there is a strong possibility	*There is a strong possibility* that their disappearance was due to a giant meteor that struck Earth about 65 million years ago.
is/are thought to have	Almost all meteorites *are thought to have* originated within the solar system.
may/may have	Dinosaurs *may have* died out as a result of changes in climate.
possibly	A global catastrophe, such as the extinction of the dinosaurs, *could possibly* be caused by the impact of a large meteor.

Exercise 5 How Likely Is It?

For each pair of statements, indicate the number of the statement that demonstrates a probable cause rather than a definite cause.

a. _____

1. Biologists think that small, insect-eating mammals were the ancestors of the first primates, the mammalian group that includes monkeys, apes, and humans.
2. Several methods of radiometric dating have determined that Earth is approximately 4.5 billion years old.

b. _____

1. A supernova is the death of a large star by explosion.
2. The universe may have begun with a massive explosion called the big bang.

c. _____

1. The most recent ice age began more than 2 million years ago. Its massive ice sheets started to retreat only 18,000 years ago.
2. In all likelihood, Earth will continue to experience ice ages periodically.

d. _____

1. Electrons are thought to move around the nucleus in an electron cloud.
2. Electrons are negatively charged particles in atoms.

A Series of Cause-and-Effect Relationships

Often in science and other subjects, a series of causes will lead to a certain outcome. For example, in one theory of what happened to the dinosaurs, a meteorite hits Earth and causes a cloud of dust to be kicked up. This cloud of dust then blocks the sun's energy from getting to Earth. The lack of solar energy causes the temperature on the surface of Earth to decrease. The decrease in temperature causes the dinosaurs to die out. This series has four steps to get to the final result. The formula for this series would look like the following:

meteorite hits Earth → cloud of dust → sun's energy blocked → temperature decreases → dinosaurs die out

A cause-and-effect series can be fairly easy to identify, depending on the kinds of markers the author uses. Regular cause-and-effect markers make this pattern easy to spot. Special markers can make the relationship harder to identify and understand.

Exercise 6 Cause-and-Effect Series

Read the following passage, and write the formulas representing the cause-and-effect series sentences.

What Causes Earthquakes?

As tectonic plates push, pull, or scrape against each other, stress builds up along faults near the plates' edges. In response to this stress, rock in the plates deforms. One type of deformation is called elastic deformation.

Elastic deformation leads to earthquakes. While rock can stretch farther than steel without breaking, it will break at some point. Think of elastically deformed rock as a stretched rubber band. You can stretch a rubber band only so far before it breaks. When the rubber band breaks, it releases energy and the broken pieces return to their unstretched shape.

Like the return of the broken rubber-band pieces to their unstretched shape, elastic rebound is the sudden return of elastically deformed rock to its undeformed shape. When more stress is applied to rock than the rock can withstand, elastic rebound occurs. During elastic rebound, rock releases energy that causes an earthquake.

(from Holt Science and Technology: Earth Science)

a. _____

_____

b. _____

_____

c. _____

_____

Inverted Patterns

The word *inverted* means "reversed in position". You can infer from this information that inverted cause-and-effect relationships have the cause and effect reversed in position. In an **inverted pattern,** the effect (or result) appears *before* the cause in the sentence. In other words, the cause appears *after* the effect. The following paragraph was taken from Exercise 6. Some of the sentences have been altered so that the cause-and-effect patterns have been inverted. Sentences with inverted patterns are boldfaced so that you can easily identify them.

Earthquakes are caused by elastic deformation. While rock can stretch farther than steel without breaking, it will break at some point. Think of elastically deformed rock as a stretched rubber band. You can stretch a rubber band only so far before it breaks. **Energy is released when the rubber band breaks,** and the broken pieces return to their unstretched shape.

Inverted patterns may be indicated by regular cause-and-effect markers or by special markers. **Table 5-7** gives examples of words and patterns that indicate inverted cause-and-effect relationships.

TABLE 5-7 INVERTED PATTERNS

Indicated by regular markers	Indicated by special markers
A is caused by B.	A is a direct reflection of B.
A is a result of B.	A is created by B.
A is due to B.	A is controlled by B.
A results from B.	A is governed by B.
A is influenced by B.	A is changed by B.
A is affected by B.	A originated from B.
A happens as a result of B.	

Read the passage on the following page and note the inverted cause-and-effect patterns. Also notice some of the other patterns we have been studying, such as cause-and-effect series, multiple causes and effects, and any special cause-and-effect markers.

A Star Is Born

A star begins as a nebula, a cloud of gas and dust. The particles in a nebula are held together loosely. When an explosion from a nearby star puts force on the nebula, some of the particles are compressed and the nebula begins to contract.

Gravity causes the nebula to continue to shrink. As the nebula becomes smaller, it begins to spin more rapidly. You may have seen the effect of decreasing diameter on the speed of a spinning object, such as an ice skater. The rate of spin increases as a spinning skater pulls his or her arms in closer to the body.

The shrinking, spinning nebula begins to flatten into a disk of matter with a central core called a protostar. That protostar begins to heat up as a result of two factors. One factor is collision. As the particles move together, they collide and produce heat energy. The other factor is pressure. As the nebula shrinks and the force of gravity pulls matter toward its center, the pressure in the core increases. All materials become warmer when compressed.

(from Modern Earth Science)

Exercise 7 The Direction of Cause-and-Effect Relationships

Read each of the following cause-and-effect sentences, and decide whether they are written in the regular direction or in the inverted direction. Write "regular" or "inverted" in the space provided.

a. The major ocean currents result from the distribution of solar heat.

_____

b. The friction of the wind creates surface currents on the ocean.

_____

c. The equatorial currents are due to the trade winds.

_____

d. The Gulf Stream is responsible for the mild weather of England.

_____

e. Rain and snow are governed by the movement of air.

_____

f. The arrangement of land masses affects precipitation.

_____

g. In general, precipitation is heavy where air flows upward.

_____

Exercise 8 From Regular to Inverted Patterns

The following sentences are written as regular cause-and-effect patterns. Rewrite the sentences to form inverted cause-and-effect patterns. The first item is done for you as an example.

a. Air flowing towards the equator causes the trade winds.

The trade winds are caused by air flowing towards the equator.

_____

b. The resistance of prevailing winds creates most surface currents in the ocean.

_____

_____

c. The trade winds generate broad currents at the equator.

_____

_____

d. Earth's rotation greatly influences all movements of air.

_____

_____

e. Movements of air govern the precipitation of moisture.

_____

_____

f. The Gulf Stream is responsible for the mild weather of England.

_____

_____

g. The heat of the equator causes air to rise.

_____

_____

h. The Coriolis effect produces a change in direction of the trade winds.

_____

_____

i. Contracting clouds of gas probably created the sun and the planets.

_____

_____

Exercise 9 Identifying Inverted Patterns

Take a look at the following passage. Use the spaces below and on the next page to write formulas for all of the cause-and-effect patterns in the passage. Be sure to include the directional arrows to indicate which sentences contain inverted patterns.

Flashlights

A typical flashlight has two batteries in it. The batteries each have a positive terminal (marked with a +) and a negative terminal (marked with a –). Both terminals have electrons in them, but there is a greater electron density at the negative terminal. Think of the greater density as being caused by "electrical pressure" inside the battery pushing electrons away from the positive terminal and into the negative terminal.

When you turn on the flashlight, you create a continuous path for the electrons to flow through. The electrons at the negative terminal flow through the metal circuit to the positive terminal because of their higher "pressure." While they are flowing from negative to positive, the electrons pass through the filament in the light bulb, heating the filament and causing it to glow. You break the metallic path and electron flow is prevented when you turn off the flashlight.

(from Holt Chemistry Visualizing Matter)

a. _____

_____

b. _____

_____

c. _____

_____

d. _____

_____

e. _____

_____

f. _____

_____

Summary of All Cause-and-Effect Patterns

This chapter has covered many different types of cause-and-effect patterns. It may be difficult to sort out all of them in your mind. **Table 5-8** summarizes all of the cause-and-effect patterns that you have studied in this chapter. Exercises 10 through 12 will give you practice identifying and writing each of these patterns.

TABLE 5-8 CAUSE-AND-EFFECT PATTERNS

Pattern	Example
Regular marker	The seasonal distribution of rain *causes* streams to rise.
Special marker	The Gulf Stream *is responsible for* the warmth of the British Isles.
Multiple causes	Patterns of vegetation *and* action of wind account for the movement of earth and sand in desert regions.
Multiple effects	Convection (warm, rising air) is responsible for high winds *and* much of the rain in desert regions.
Partial cause	Burning of fossil fuels *is a partial cause* of global warming.
Degree of influence	The distribution of solar energy *chiefly* results in the circulation of the atmosphere.
Probability	A global catastrophe, such as the extinction of the dinosaurs, could *possibly* be caused by the impact of a large meteor.
Series	In the region of the equator, the air rises and *thus* becomes cool. *As a result,* the equatorial regions generally get heavy rainfall.
Inverted	The major ocean currents *result from* the distribution of solar heat.

Exercise 10 Cause-and-Effect Patterns

Read the following passage on the formation of minerals. Then write down the formulas for the different kinds of cause-and-effect sentences. Label each formula with the type of cause-and-effect pattern or patterns.

Formation of Minerals

Changing conditions beneath Earth's surface can alter the mineral composition of a preexisting rock. When changes in pressure, temperature, or chemical makeup alter a rock, metamorphism takes place. Minerals that form in metamorphic rock include calcite, garnet, graphite, hematite, magnetite, mica, and talc.

A hot, liquid solution is formed when ground water, heated by magma, works its way through cracks in overlying rock and reacts with minerals in the walls of the cracks. Dissolved metals and other elements crystallize out of the hot fluid to form new minerals. Gold, copper, sulfur, pyrite, and galena form in such hot-water environments.

As magma moves upward, it fills in pockets in preexisting rock, forming small, teardrop-shaped formations called pegmatites. Minerals crystallize from this magma as it cools. The presence of hot fluids causes the mineral crystals to become extremely large, sometimes growing to several meters across! Many gems and rare minerals such as topaz and tourmaline form in pegmatites.

(from Holt Science and Technology: Earth Science)

a. _____

_____

pattern or patterns _____

b. _____

_____

pattern or patterns _____

c. _____

_____

pattern or patterns _____

d. _____

_____

pattern or patterns _____

e. _____

_____

pattern or patterns _____

f. _____

_____

pattern or patterns _____

g. _____

_____

pattern or patterns _____

Exercise 11 Cause-and-Effect Directions

Reread the passage in Exercise 10. Then, without looking back, see if you can draw the appropriate arrow (→ or ←) to indicate the correct cause-and-effect relationships between the items listed below. The relationships below are not necessarily in the same direction as the relationships in the passage.

a. new minerals _____ dissolved metals from hot liquid + other elements from hot liquid

b. a hot, liquid solution _____ ground water heated by magma + minerals

c. magma cools _____ minerals crystallize

d. the presence of hot fluids _____ mineral crystals become extremely large

e. changes in temperature + pressure + chemical makeup _____ metamorphism

f. teardrop-shaped formations _____ magma fills in pockets in preexisiting rock

Name _____ Date _____ Class _____

Exercise 12 Writing Cause-and-Effect Patterns

Using the cause-and-effect patterns in Table 5-8, write sentences with the pairs of cause and effect below. Use as many different patterns as you can. The first item is done for you as an example.

	Cause	Effect
a.	Air is hot near the equator.	It rises.

Because air near the equator is hot, it rises.

b. The atmosphere is thinnest around 0° latitude. — The air around the equator is very hot.

c. The mild Gulf Stream flows northeast past Norway. — Norway remains ice-free all year round.

d. The Gulf Stream picks up the cold Labrador Current. — Dense fog occurs in that part of the world.

e. There is very little rainfall between 20° and 30° latitude. — Most deserts are found in this region.

f. In deserts, the warm air rises (convection). — Deserts have high winds.

g. Deserts have warm air. Deserts have greater evaporation.

_____

_____

h. Water evaporates quickly. There is little left for grass and bushes.

_____

_____

i. There is dry climate. There is little vegetation in deserts.

_____

_____

j. Air around the equator rises. It becomes cool.

_____

_____

GLOSSARY

degree of influence a word or phrase that indicates how important or influential a cause is (79)

inverted pattern a pattern in which the effect appears before the cause in the sentence (84)

partial cause one of several causes of an event (79)

probability something that is a possible cause or outcome but is not a definite cause or outcome (81)

regular cause-and-effect marker a word or phrase that normally marks a cause-and-effect relationship (72)

special cause-and-effect marker a word or phrase that can be used to mark a cause-and-effect relationship but can have other functions as well (74)