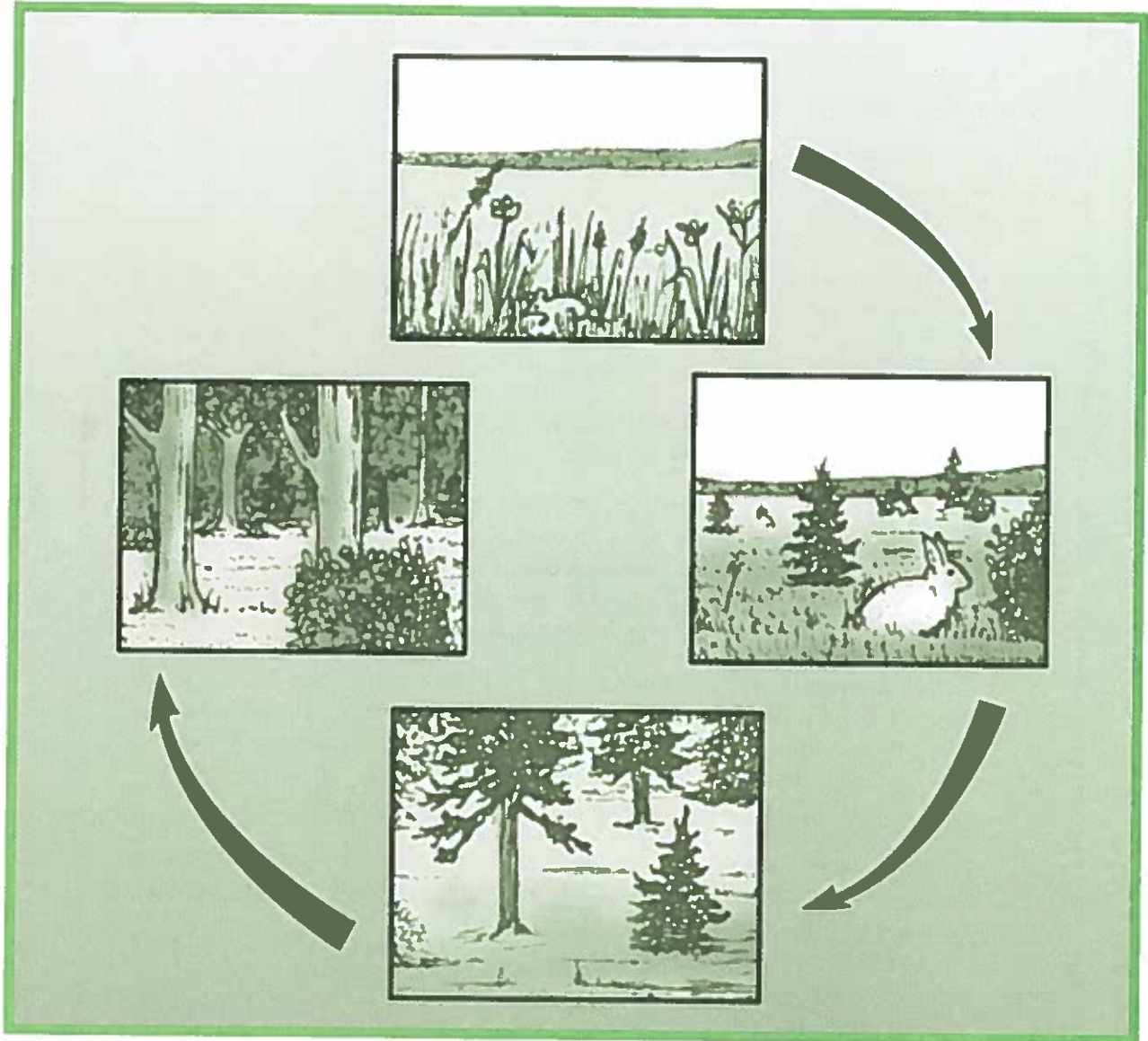


What things can change the environment?



KEY TERM

succession: process by which populations in an ecosystem are replaced by new populations

LESSON

23

What things can change the environment?

One of the world's greatest disasters took place on August 27, 1883. A volcano on the island of Krakatoa exploded. Much of the island was blown to bits. One part that had stood almost a kilometer high was left covered by nearly 275 meters of water.

The explosion caused a huge tidal wave. It swept over nearby islands. More than 36,000 people drowned.

The Krakatoa disaster caused great changes in the environment. Volcanic dust soared high into the atmosphere. Much of the sun's energy was blocked. Winds carried this dust around the world for more than a year. Temperatures dropped. Crops did not grow well. Animals were confused. They could not tell day from night.

Earth's history is a history of change. Some changes, like the Krakatoa volcano, earthquakes, lightning-caused fires, severe storms, floods, and droughts are natural events. Events change the environment. When the environment changes, its populations are slowly replaced by new populations. This process is called **succession** [suk-SESH-un].

A change in one group of organisms causes a change in another group. Changes first occur in plant populations. Then different animals move in.

A STORY OF DESTRUCTION AND REBIRTH

Each year, more than four million acres of American forests are destroyed by fire.

Most of the plant life is destroyed. Many animals die; others flee.



Figure A

Nothing is left but ashes and black skeletons of what were once living trees.

The forest community is gone . . . But it will not stay that way. Many changes will take place to restore the forest. But it will take many years . . .



Figure B

1. First, grasses and weeds grow. They grow from roots and seeds left in the soil. They grow well. There are no trees to block the sunlight.

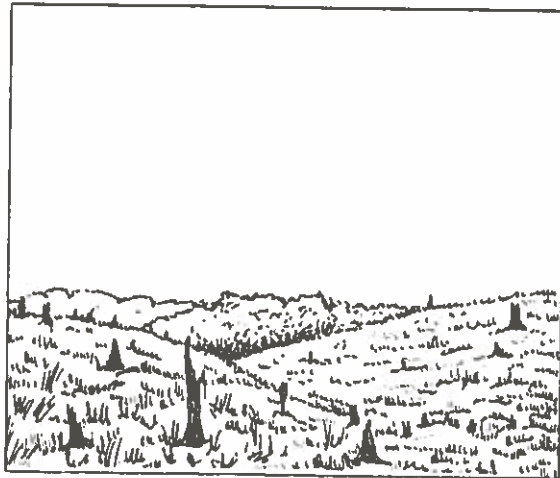


Figure C

2. These plants mature and form seeds. The wind spreads the seeds. Soon, a meadow forms. Small animals, like insects and birds, return to the area.

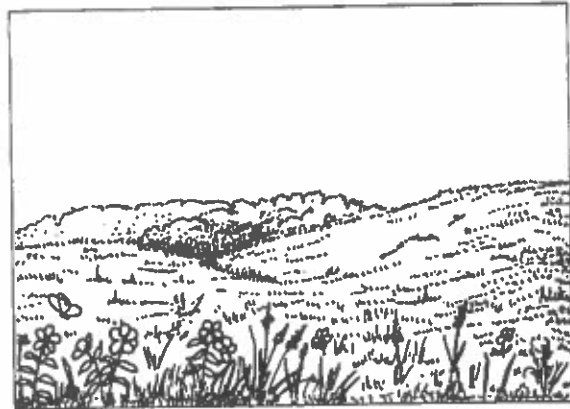


Figure D

3. Many growing seasons pass. The weeds, grasses, and insects add minerals to the soil. The soil becomes richer.



Figure E

4. The soil can support shrubs and small, fast-growing woody trees. These plants block the sun from the grasses and weeds. Other plants, like ferns, do not need full sunlight. They grow where the grasses and weeds once were. Different kinds of animals move in.



Figure F

5. The soil becomes richer. Taller, slower-growing hardwood trees grow. Other animals move in, such as rabbits, chipmunks, squirrels, and deer.

The area is now fully developed. It is a forest again. The community will remain in the area until the environment changes again.



Figure G

FILL IN THE BLANK

Complete each statement using a term or terms from the list below. Write your answers in the spaces provided. Some terms may be used more than once.

trees
shrubs
plant
natural

changing
animals
environment
weeds

succession
hardwood trees
grasses

1. The earth is always _____.
2. A slow change in populations of organisms in an area is called _____.
3. In succession, the first changes occur in _____ populations.
4. If a forest burns down, _____ and _____ are the first to grow.
5. When plant populations change, different _____ move in.
6. Volcanoes and earthquakes are _____ events that cause changes.
7. In the final stage of succession, _____ grow.
8. As seasons pass, grasses and weeds make the soil richer, allowing _____ and fast-growing trees to grow.
9. A community will remain in an area until the _____ changes.
10. Grasses and weeds grow well when there are no _____ or _____ to block the sunlight.

REACHING OUT

The steps below describe the destruction and rebuilding of a forest ecosystem. Place the steps in the proper order.

- shrubs and fast-growing short trees
- chipmunks and rabbits
- meadow
- dead forest
- grasses and weeds
- small birds and insects
- forest
- fire
- slow-growing, tall hardwood trees

1. _____
2. _____
3. _____
4. _____
5. _____
6. _____
7. _____
8. _____
9. _____