

Weather Factors ▪ *Guided Reading and Study*

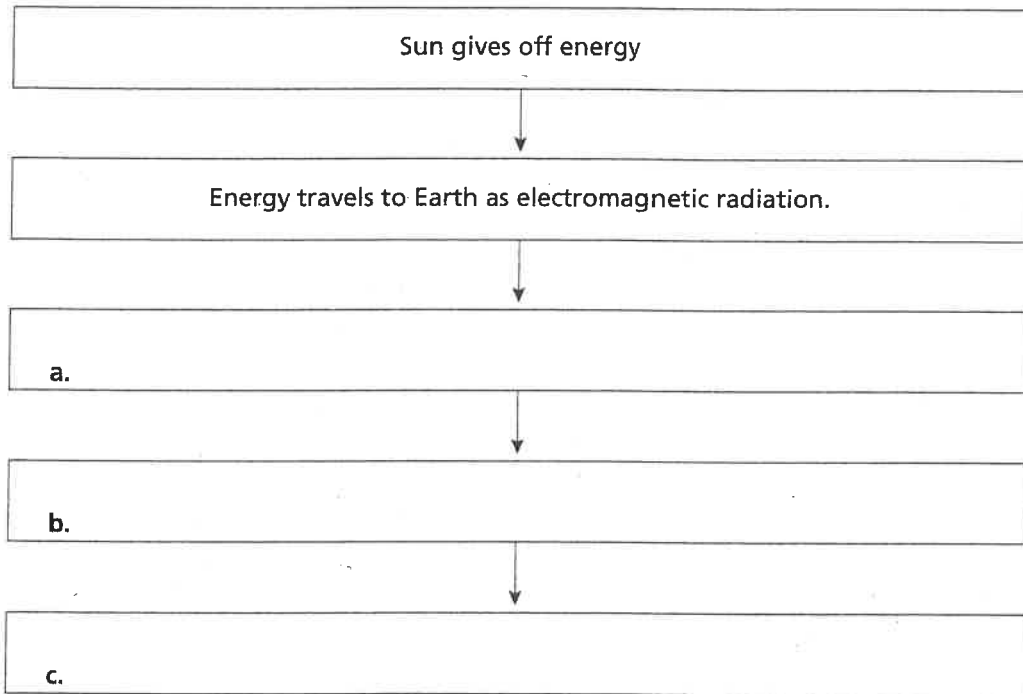
Energy in Earth's Atmosphere (pp. 36–39)

This section explains how the atmosphere, or the air around Earth, is heated.

Use Target Reading Skills

As you read about how the sun's energy reaches Earth's surface, fill in the flowchart to show the sequence of events.

How Earth's Atmosphere Gets Energy



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Energy From the Sun (pp. 36–37)

1. Is the following sentence true or false? Nearly half of the energy in Earth's atmosphere comes from the sun. _____
2. Energy from the sun travels to Earth as _____.
3. Is the following sentence true or false? Electromagnetic waves are classified according to wavelength, or the distance between waves.

4. The direct transfer of energy by electromagnetic waves is called _____.

Match the type of radiation with its description.

| Type of Radiation | Description |
|------------------------------|--|
| ___ 5. visible light | a. It is a mixture of all of the colors of the rainbow. |
| ___ 6. infrared radiation | b. It has wavelengths that are shorter than those of violet light. |
| ___ 7. ultraviolet radiation | c. It has wavelengths that are longer than those of red light. |

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Energy in Earth's Atmosphere (continued)

8. What causes the different colors of visible light?

9. Is the following sentence true or false? Red light has a shorter wavelength than blue light. _____

10. Circle the letter of each sentence that is true about infrared radiation.

- a. It is invisible.
- b. It can be felt as heat.
- c. It has longer wavelengths than red light has.
- d. It causes sunburn.

11. Circle the letter of each sentence that is true about ultraviolet radiation.

- a. It makes up most of the energy from the sun that reaches Earth.
- b. It can cause skin cancer and eye damage.
- c. It has longer wavelengths than violet light has.
- d. It is the main cause of sunburn.

Energy in the Atmosphere (p. 38)

12. What happens to energy from the sun that is neither reflected nor absorbed by the atmosphere?

13. What absorbs energy from the sun in the atmosphere?

14. What reflects energy from the sun in the atmosphere?

15. Reflection of light in all directions is called _____.

16. Circle the letter of each sentence that is true about scattering.

- a. Short wavelengths of visible light scatter less than long wavelengths.
- b. Blue light scatters less than red light.
- c. Scattered light is bluer than ordinary sunlight.
- d. Scattering explains why the daytime sky looks blue.

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Energy at Earth's Surface (p. 39)

17. Energy that is absorbed by the land and water is changed into _____.
18. Is the following sentence true or false? When Earth's surface is heated, it radiates most of the energy back into the atmosphere as ultraviolet radiation. _____
19. What absorbs most of the energy that is radiated from Earth's surface?

20. The process by which gases hold heat in the air is called the _____.
21. Is the following sentence true or false? The greenhouse effect is a natural process. _____

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