

Heating of the Atmosphere

Name: _____ Date: _____ Core: _____

LT: I can summarize how the sun's energy is transferred through the processes of radiation, conduction and convection.

Directions: Read Chapter 1, Section 2 of the Weather and Climate textbook (pages 10-13), and then answer the following questions.

1. The Earth's atmosphere is heated by solar energy. (Circle one)
True False
2. The Earth receives about _____ of the radiation released by the sun.
3. Study Figure 8 (page 10). What percentage of the sun's radiation that reaches the Earth is absorbed or reflected in each of the following ways?
_____ scattered and reflected by clouds and air
_____ reflected by the Earth's surface
_____ absorbed by the Earth's surface
_____ absorbed by ozone, clouds, and atmospheric gases
4. Energy transferred by heat from the sidewalk to your foot is an example of _____. (Circle one)
conduction convection
5. In convection currents, cold air _____. (Circle one)
sinks rises
6. How do greenhouse gases act like the layer of glass in a greenhouse? (Hint: Study Figure 10)

Mark each of the following statements as True or False.

7. _____ Gases in the atmosphere can gain energy from the land and water.
8. _____ An increase in carbon dioxide might cause global warming because more carbon dioxide would be able to trap more heat.
9. _____ The balance between incoming radiation and outgoing heat is called radiation balance.
10. _____ Rising temperatures on Earth would not cause major changes in plant and animal communities.

11. Why would planting millions of trees help reduce the greenhouse effect?

Define the following terms:

12. radiation

13. conduction

14. convection

15. Describe three things that can happen to energy when it reaches the Earth's atmosphere.

16. How is energy transferred through the atmosphere?

17. What is the greenhouse effect?

18. How does the process of convection rely on conduction?
