Homework - Chapter02 - Warming the Earth and the Atmosphere

1) Distinguish between temperature and heat.

2) How does the average speed of air molecules relate to the air temperature?

3) Explain how heat is transferred in our atmosphere by
   a) conduction
   b) convection
   c) radiation

4) What is latent heat? How is latent heat an important source of atmospheric energy?

5) How does the temperature of an object influence the radiation it emits?

6) How do the wavelengths of most of the radiation emitted by the sun differ from those emitted by the surface of the earth?

7) When a body reaches a radiative equilibrium temperature, what is taking place?

8) Why are carbon dioxide and water vapor called selective absorbers?

9) Explain how the earth's atmospheric greenhouse effect works.

10) Which two gases appear to be most responsible for the enhancement in the earth's greenhouse effect that occurred during the past 110 years?

11) In the Northern Hemisphere, why are summers warmer than winters even though the earth is actually closer to the sun in January?

12) During the Northern Hemisphere's summer, the daylight hours in northern latitudes are longer than in middle latitudes. Explain why northern latitudes are not warmer.