

## Answers to Review Questions 5.2:

1. The water molecules move faster and faster. Steam pressure builds up. Eventually the lid can't hold it any more. Heat is transferred by conduction from the heat source to the water. The water molecules at the bottom will transfer heat by conduction. Within the water heat is also transferred by convection as the denser cold water is displaced downward and the less dense hot water at the bottom move upward.
2. Conduction involves molecules transferring kinetic energy to one another through collisions. Convection occurs when hot fluid rises, allowing cooler fluid to come in and be heated.
3. Rate of heat flow is high for large cross-sectional area of the medium.
4. In solids, heat passes from one point to another through conduction. In Liquids and gases, heat transfer takes place by convection. Heat transfer takes place by the process of radiation when there are no particles of any kind which can move and transfer heat.
5. By radiation
6. If air were a better conductor than it is at nighttime the earth would be considerably colder than it is. This is because the air would quickly conduct away any heat radiated from the ground and there would be no additional heating from the sun resulting in lower temperatures.

7. Yes! Heat transmits through the handle by conduction as the handle is in solid form; by convection in the liquid and primarily by radiation in air.