Physical Science Chapter 16 Notes Outline

Name:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Date:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**Thermal Energy and Heat – Pages 472-495**

16.1 Thermal Energy and Matter

Work and Heat

**Heat-**

Temperature

**Temperature-**

**Absolute Zero-**

Thermal Energy

Thermal Contraction and Expansion

**Thermal Expansion-**

Specific Heat

**Specific Heat-**

Measuring Heat Changes

**Calorimeter-**

**SECTION QUESTIONS**

**1. Name two variables that affect the thermal energy of an object**

**2. The specific heat of copper is 0.39 J/g \* oC. How much heat is needed to raise the temperature of 1000.0 g of copper from 25.0 oC to 45.0 oC?**

16.2 Heat and Thermodynamics

Conduction

**Conduction-**

**Thermal Conductor-**

**Thermal Insulator-**

Convection-

**Convection-**

**Convection Current-**

Radiation-

**Radiation-**

Thermodynamics-

**Thermodynamics-**

First Law of Thermodynamics-

Second Law of Thermodynamics-

**Heat engine-**

**Waste heat-**

Third Law of Thermodynamics-

**SECTION QUESTIONS**

**1. Give three examples of convection currents that occur in natural cycles**

**2. Why does a metal spoon feel colder than a wooden spoon at room temperature?**

16.3 Using Heat

Heat Engines

2 Main Types of Heat Engines:

1. **External Combustion Engine-**

**2. Internal Combustion Engine-**

Heating System-

1. **Central Heating System-**

2.Hot-water heating-

3. Steam Heating-

4. Electric Baseboard Heating-

5. Forced-Air Heating-

Cooling Systems-

**Heat Pump-**

**Refrigerant-**

Refrigerators-

Air Conditioners-

**SECTION QUESTIONS**

**1. List two main types of heat engines**

**2. How is thermal energy distributed in most heating systems?**