Physical Science Chapter 14 Notes Outline

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

**Work, Power, and Machines – Pages 410-440**

14.1 Work and Power

What is Work?

 **Work-**

Work Requires Motion-

 Work Depends on Direction-

Calculating Work-

 Units of Work-

 **joule-**

Using the Work Formula-

What is Power?

 **Power-**

 Calculating Power-

 **watt-**

James Watt and Horsepower-

 **Horsepower-**

**SECTION QUESTIONS**

**1. What formula relates work and power?**

**2. You carry two heavy bags of groceries upstairs to your kitchen. Will you do more work on the bags if you carry them up one at a time? Explain**

**3. How much work does a 25-newton force do to lift a potted plant from the floor to a shelf 1.5 meters high?**

14.2 Work and Machines-

Machines Do Work-

 **Machine-**

1.Increasing Force-

 2. Increasing Distance-

 3. Change Direction-

Work Input and Work Output-

 Work Input to a Machine-

 **Input force-**

 **Input distance-**

 **Work input-**

Work Output of a Machine-

 **Output force-**

 **Output distance-**

 **Work output-**

**SECTION QUESTIONS**

**1. How can using a machine make a task easier to perform?**

**2. How can you increase the work output of a machine?**

14.3 Mechanical Advantage and Efficiency-

**Mechanical Advantage-**

 **Actual mechanical advantage-**

 **Ideal Mechanical Advantage-**

Calculating Mechanical Advantage-

**Efficiency-**

**SECTION QUESTIONS**

**1. You have just designed a machine that uses 1000 J of work from a motor for every 800 J of useful work the machine supplies. What is the efficiency of your machine?**

14.4 Simple Machines-

 **1. Lever-**

 **Fulcrum-**

 **Input arm-**

 **Output arm-**

First class levers-

 Second class levers-

 Third class levers-

 **2. Wheel and Axle-**

 **3. Inclined Plane-**

Wedges and Screws-

 **4. Wedge-**

 **5. Screw-**

 **6. Pulley-**

Fixed Pulley-

 Movable Pulley-

 Pulley System-

 **Compound Machine-**

**SECTION QUESTIONS**

**1. How are the lever and the wheel and axle related to each other?**

**2. Give an example of each of the six kinds of simple machines.**