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.**