# Efficiency Problems

**Name: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Date: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Class: \_\_\_\_\_\_\_\_\_\_\_\_\_**

***General Outcome #3: Examine the power and efficiency of various devices.***

* ***Can I calculate the amount of energy that a device uses?***
* ***Can I apply the concepts of conservation of energy and efficiency to different devices?***

1. **Find the efficiency of a 23 W fluorescent tube that is used 4.0 hours per day and in that time produces 6.624 x 104 J (66 240 J) of useful light energy.**
2. **A 100W incandescent bulb also produces about 6.624 x 104J (66 240 J) over a 4.0 hour period. What is the efficiency of this bulb?**
3. **Based on your answers to question 1 and 2, how much money would you save in a 30-day month if you replaced 25 of the 100 W incandescent bulbs with 23 W fluorescent bulbs? Assume that the bulbs operate 4 hours daily, and that electricity costs 10 cents per kilowatt hour.**
   1. **Fluorescent tube**
   2. **Incandescent bulb**

****

* 1. **Savings:**