**Cost Efficiency Worksheet**

The power output of your pump (PO) can be given by $P\_{o}=γQH\_{P}$, where $γ$ is the specific weight of water ($γ=$62.4 lbs/ft3), Q is the flow of the pump, and HP is the head the pump must overcome.

To begin, get everything in matching units. To find flow, measure how many gallons of water your pump can move in a given time. Covert the time to seconds, and gallons to ft3 (Hint: 7.48 gallons = 1 ft3). Also convert to feet the height difference between the two buckets.

Volume: \_\_\_\_\_\_\_ [ft3]

Time: \_\_\_\_\_\_\_ [s]

HP= [ft]

Flow is a volume per time. In order to get the flow, divide the volume by the time:

Flow, Q=\_\_\_\_\_\_\_ [ft3/s]

Calculate the power output of your pump using the equation:

$P\_{o}=γQH\_{P}$ \* (1.356 [watts]/ [ft lb/s])

Po=\_\_\_\_\_\_\_ [watts]

Finally, we want to know how cost effective your pump is. Divide total cost by your power output. ($/$P\_{o})$

e=\_\_\_\_\_\_\_ [$/watts]

**Discussion Questions**

What factors made your pump a good design?

What was the most expensive aspect of your design? How could you reduce cost in this area?

What would you change in future designs?