Simple Machines

Name _____

The sites for this assignment are listed on the Simple Machines page of the **Kid Zone** at http://sciencespot.net/.

Site: Rube Goldberg

(1) Click the link to view the Self-Operating Napkin to answer these questions.

How many steps are involved? _____

What type of machine is found at step I? _____

Which steps would include a lever? _____

(2) A "Rube Goldberg machine is a machine that uses a _____reaction to accomplish a very _____task in a very _____manner.

(3) In 1931, the Merriam-Webster Dictionary added "Rube Goldberg" as an _____.

(4) Read the rest of the article and then try these activities:

Wonder Word Challenge: How did you do? ☺ 😐 ☹

Test Your Knowledge:. How many did you have correct? **?** out of 3

Site: NetLinks – Power Play

Click "Start" to begin the activity. Drag the parts from the bottom to complete the machine. Answer the questions below as you work your way through the activity.

(1) What provides the power for the dog walking machine? _____

(2) What type of simple machine do you add after the popcorn pot? _____

(3) What type of simple machine cuts the log? _____

(4) What two simple machines are found in the first part you add for inflating a balloon? _____ & _____

Site: Interactive Simple Machines

(1) Explore the "Wedge & Lever" activity to answer these questions.

What is the task? _____Which length of wedge performs the task with the least amount of force (weight)? _____

Complete this statement: The _____the wedge, the _____it is to do work.

Click "Next" to proceed to the level experiment. Experiment with the lever by moving the fulcrum to different locations.

Which fulcrum location required the least amount of effort force to lift the load? _____

Which fulcrum location required the most amount of effort force to life the load? _____

Which fulcrum location required us to push down the lever the least to lift the load? _____

Complete these statements: The closer the fulcrum is to the load, the amount of effort force is required to lift the load is _____. The closer the fulcrum is to the load, the effort force must be applied over a _____distance.

(2) Explore the "Ramp" activity to answer these questions.

What is the task? _____

Which length of ramp allows us to perform the task with the least amount of effort force? _____

Complete this statement: The longer the ramp, the _____ it is to do work, but we must apply the force over a _____distance.

(3) Explore the "Pulley" activity to answer these questions.

What is the task? _____

How does the # of support ropes used relate to the effort force needed to complete the task? _____

_____

(4) Return to "HOME" and explore the "Wheel & Axle" activity to answer these questions.

What is the task? _____

A screw can be described as an _____ _____ wrapped around an _____.

Experiment with the diameter of the wheel and the number of threads per meter on the screw to help you answer these questions.

If the wheel diameter stays the same, how does the effort force change as the number of threads per meter increases? _____

If the number of threads per meter stays the same, how does increasing the wheel diameter affect the distance the gate is lifted? _____

If the wheel diameter is 50 cm, how many threads per meter do you need to get an effort force closest to 400 N?_____