

Simple Machines

Name _____

The sites for this assignment are listed on the PHYSICS page of the Kid Zone at <http://sciencespot.net/>.

Site: Rube Goldberg (Wonderopolis)

(1) Click the link to view the Self-Operating Napkin (yellow picture) 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. They are usually listed on the right-side of the page.

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 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 lift the load? _____
 - Which fulcrum location required us to push down the lever the least to lift the load? _____
- Complete the statement: The closer the fulcrum is to the load, the amount of effort force required to lift the load is _____. and 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 _____ as the number of threads per meter increases.
 - If the number of threads per meter stays the same, increasing the wheel diameter _____ the distance the gate is lifted.
 - If the wheel diameter is 50 cm, you would need _____ threads per meter do you need to get an effort force closest to 400 N.

Site: Brain POP Simple Machines Game - Follow the directions to complete each task.

1. Which object did you use to get the ROBO HEART? _____
What type of simple machine is it? _____
2. What type of simple machine was used to get the BRAIN CARD? _____
What is the battery called? _____
Where did the battery need to be placed to make it work? _____
3. What type of simple machine was used to get the ROBOT'S ENERGY? _____
Which objects did you use? _____
4. What type of simple machine was used to get the VOICE BOX? _____
Which one required the least amount of force? _____
5. How many points did you have remaining at the end of the game? _____
6. Complete these statements: Simple machines trade _____ for _____ when doing work.
The _____ the distance, the _____ force is needed.

Done? Retry the game to see if you can earn more points now that you know your simple machines!