Simple Machines

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.

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

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o 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.
     o If the wheel diameter stays the same, how does the effort force ____________ as the number of
       threads per meter increases.
     o If the number of threads per meter stays the same, increasing the wheel diameter ______________
       the distance the gate is lifted.
     o 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!