Name: _____

BILL NYE: MOTION

1. Everything in the universe is in _____.
2. What puts things in motion?
3. Forces are when something is _____ or _____.
4. When something is sitting still it will _____ unless acted on by an outside force.
5. Inertia is a property of _____.
6. A bowling ball weighs more than a _____.
7. The anvil has a lot of _____.
8. The 2 forces acting on the anvil are _____ and the pull of the _____.
9. Whether an object is _____ or _____ _____ everything has inertia.
10. Write Newton's First Law of Motion:

11. Write Newton's Second Law of Motion:

12. What is the equation that goes along with this law?
13. Write Newton's Third Law of Motion:

14. The apple has _____ and it also has _____.
15. The apple could be weightless but would still have a _____.
16. Do the laws of physics still apply in space?
17. The earth is spinning on its axis at about _____.
18. The galaxy in which the Earth is found is the _____ _____ Galaxy.
19. When things are pushed or pulled they are put in _____.
20. The more the _____ the more force you need.

KINETIC ENERGY WEB QUEST

TASK 1 Go to https://phet.colorado.edu/sims/html/energy-skate-park-basics/latest/energy-skate-park-basics_en.html.

1. Click on "intro." On the top right, click the pie graph so that it is checked and move the mass to small. Put the skater on the topo of the ramp. At what point does the skater have the HIGHEST kinetic energy?

2. Change the mass of the skater to large. At what point does the larger skater have the HIGHEST kinetic energy?
3. Change the settings, graphs, size of skater, and the type of ramp and observe different simulations. What pattern do you notice with the highest and lowest amounts of kinetic energy?

4. In the space below, draw a picture of the skater on one of the tracks and label where kinetic energy is the highest and where it is the lowest.

TASK 2 Go to http://d3tt741pwxqwm0.cloudfront.net/WGBH/conv16/conv16-int-rollercoaster/index.html.

1. On the top left, click on the green step button, then in the space below, draw the roller coaster and label the location of the numbers 1 – 6, just like the simulation. Then push the step button again until the coaster finishes all of the steps. **On the picture**, label where kinetic energy is the highest and lowest.

2. What pattern do you notice about the location of the highest and lowest points for kinetic energy?