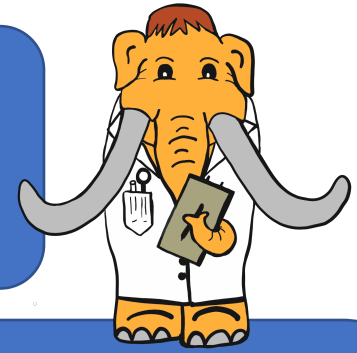


Science Saturday @ Home

Bottle Roll Experiment

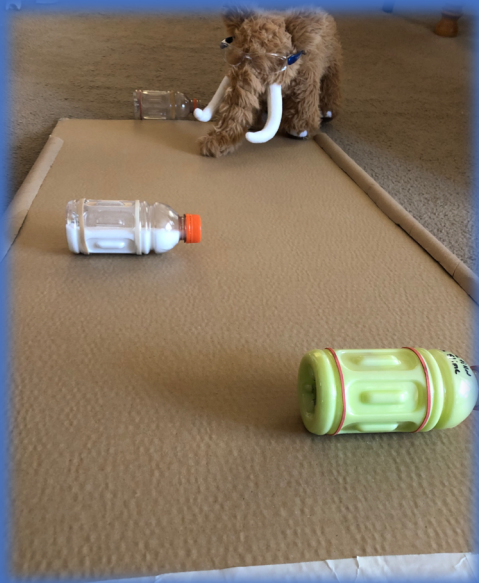


Gathering Supplies:

- 3 Empty Bottles
- Flat moveable surface like a large piece of card board or cooking sheet
- Rubber Bands
- Glue or Homemade Slime
- Sand or Salt

How To Steps:

- 1: Set up your ramp making sure it is on an incline. You can use a stack of books or boxes to adjust the incline.
2. Fill one plastic bottle a little over half way with sand or salt. Tighten the cap to make sure the salt doesn't spill. Place two rubber bands around the bottle. One towards the bottom and one towards the lid.
3. Fill the second bottle about half way with glue or your favorite slime recipe. Put the lid on tight. Put two rubber bands onto the bottle, same as before.
4. Leave the last bottle empty and put two rubber bands onto the empty bottle in the same positions as the other bottles. You do not need the cap on it.
5. Try rolling the empty bottle down the ramp. Did it roll quickly? Is this what you expected to happen?
6. Now try placing the other bottles onto the top of the ramp. How fast do they roll down the ramp? Which rolls the slowest? Why do you think they roll at different speeds?
7. Try changing the height of the ramp. How does this affect the rolling bottles.



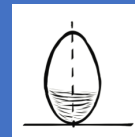
Max's Bottle Roll Experiment

Did You Know?

If we put a ping pong ball on a flat table it will stay still and not move, but if we put the same ping pong ball on a slope, also called an inclined plane, the ball will roll down the slope. Why?

Every object has mass that is being pulled towards the Earth by a force called gravity. The pull of gravity, along with an object's mass, gives the object its weight. All objects also have a center of gravity. This is the point of balance where the object will weigh equal amounts on both sides. For a solid ball the point of balance would be where you could draw a line dividing the ball in half. Each side weighs the same on a flat surface, but on a slope the point of balance just keeps changing and the ball rolls away.

Try a plastic egg that is filled on one side with clay. When the egg is on a flat surface it will sit straight up but place it on a slope the egg will rest at an angle. The egg finds its balance point where it weights the same on each side.



With the bottle of salt the speed of the bottle's roll is slowed because its center of gravity slowly shifts as the salt moves inside the bottle. The same thing will happen to the slime bottle but even slower, until the slime has coated the inside of the bottle. When this happens the bottle rolls faster. It's center of gravity is back to the middle position.