

Student Tool 50: Slip, Slide and Race

Student Name _____

Materials

1. 2 wooden rulers with indentation in the middle
2. 2 marbles of equal size and weight
3. 1 – 2 TBS of Pledge lemon or orange oil
4. Napkins/paper towel
5. Stopwatch
6. Hard piece of wood/plastic to use as a gate.

Instructions

1. Take one of the rulers and add the oil using a napkin. Make sure it is thoroughly coated
2. Place rulers side by side with about a $\frac{1}{2}$ inch elevation at the top of the ruler.
3. Place the wooden/plastic gate on rulers towards top at the 1-inch mark, not on any holes. (Gate should line up on the 1 inch mark on both rulers.)
4. Place both marbles in front of the gate.
5. Remove gate and notice the difference between the two marbles. The marble used on the oiled ruler should finish first. If you do not get the desired result, add more oil to the ruler, and add some on the marble.

Optional

1. Using stopwatch, time the marbles, starting when the gate is removed, until the marble leaves the ruler. Do this at least three times, and find the average speed for each marble to leave the track.
2. Convert speeds using the distance of 11 inches, to inches per second, and miles per hour.
3. Report your results to your teacher and/or your classmates.

Videos Associated with this Activity:

Physics 10: Oil and Friction

Physics 13: Velocity and Acceleration