

Fun Follow-Up Activities

Newton's Third Law

Materials:

Balloons

Tape

Car

Procedure:

1. Roll a piece of tape to make a sticky-side out loop
2. Attach the loop to the top of the car.
3. Display a medium sized balloon and blow it up.
4. Hold the opening of the balloon closed with your fingers and attach the balloon to the top of the car.
5. Release your fingers and let the air rush out of the balloon.
6. The car should be propelled along the table and travel a short distance before it stops.

Forces and Friction (This activity was developed by the Arizona Science Center)

Materials:

Masking tape

Scissors

Salt

Popsicle stick

Marbles

Baking soda

Round toothpicks

Weights

Large rubber bands

3x5 cards

Ruler

Wax Paper

Plastic Wrap

Foil

Straws

Cardstock to make boxes or boxes already assembled

Felt squares as big as the bottom of the box

Procedure:

1. Build a box, if necessary.
2. Poke a small hole through one end of the box and thread a rubber band through it. Wrap the rubber band around a pencil or dowel rod so that you can pull on the rubber from outside the box and it won't come out of the hole.
3. Fill the box with weights (scissors, glue, pencil boxes, books, stuff in their desks); make the box hard to move.
4. Determine a starting position.
5. Pull on the rubber band and measure how far it stretches before the box moves. Write down how far it stretches.

6. Use any of the available materials to alter the desktop (or the bottom of the box) to change the amount of friction.
7. Put the box back to the starting position.
8. Pull on the rubber band and measure how far it stretches before the box moves. Write down how far it stretches.
9. Repeat 6, 7, and 8. Try for the shortest rubber band stretch.
10. Compute the percentage difference. To figure out how much the friction changed, use the following equation:

$$\frac{(\text{distance rubber band is stretched in step 8})}{(\text{distance rubber band is stretched in step 5})} \times 100 = \%$$

Inclined To Race – the moment of inertia

(This activity was developed by the Arizona Science Center)

Materials:

Inclined flat surface: board, playground slide, tilted tabletop or desk

Assortment of spheres: ping pong ball, tennis ball, marble, croquet ball, ball from roll-on deodorant, super ball

Assortment of cylinders: pipe, PVC, solid dowels, coins, empty cans, thread spools, cans with plastic lids, cardboard tube

Materials to fill spheres and cylinders: sand, rice, beans

Simple balance

Procedure:

1. Hold up two objects to race. Challenge the class to determine the winner.
2. Conduct the race. Determine the winner. Tell the class that you know how any rolling race will turn out: win, lose, or tie. Challenge them to find the rules that determine the outcome of any downhill rolling race.
3. Distribute materials to each team and allow races to be conducted. Have students keep track of the wins, losses, and ties.
4. Observe the results and determine what properties the winners and losers had, how hard or easy it was to roll or stop rolling certain objects and how these objects moved on different surfaces.