

Newton's laws of motion in physics

LAW #1

A body at rest will remain at rest, and a body in motion will remain in motion unless it is acted upon by an external force.

LAW #2

The force acting on an object is equal to the mass of that object times its acceleration, $F = ma$.

LAW #3

For every action, there is an equal and opposite reaction.

Newton's Laws of Motion

Motion Activities

Materials Needed:

- Three pieces of paper
- Three pennies (or other coins)
- A notecard (or piece of paper folded a couple times)

1. Place a penny near one end of your lab table.

2. Use your finger to propel the penny toward the other end of the lab table trying to get it to stop exactly at the edge of the lab table.

Number 1

Number 2

1. At the same time, drop a flat piece of paper & a wadded up piece of paper onto the floor.

2. Which hits first?

Number 3

1. Stand with each of your feet on a separate sheet of paper.
2. Start to run. Be safe.
3. Observe the paper

1. Hold your right hand next to your right ear with palm up.
2. Place a penny on your elbow.
3. Quickly straighten your arm and catch the penny. Try 2 or 3 pennies.

Number 4

Number 5

1. Place the note card on the table so about $\frac{1}{3}$ of the card extends over the edge of the table.
2. Place the penny on the card that is on the table.
3. Predict what will happen to the penny when the card is removed.
4. As quickly as you can, pull the card from under the penny.
5. Observe the motion of the penny.

Activity Discussion

Activities

- 1 - Propelling a penny
- 2 - Crumpled up paper vs flat
- 3 - Run on paper
- 4 - Elbow penny
- 5 - Penny on the notecard

Grab your whiteboard and answer the following questions:

1. Which activity do you think showed motion best? Why?
2. Which activity showed which Law of Motion? Why?
3. What other activities could we do with the same materials?