

Balloon Powered Boats

Group Size: 30 6 3 2 1

The Big Question:

How do force, mass and acceleration work to keep an object in motion.

Purpose:

To start to understand Newtons Second Law of Motion

GROUP BRAINSTORMS:

1. What is...Newtons Second Law of Motion?

Newtons second law states that the greater the mass of an object, the more force it will take to accelerate the object.

2. What is...Acceleration?

In mechanics, acceleration is the rate of change of the velocity of an object with respect to time

3. A) What is...Mass?

Mass is both a property of a physical body and a measure of its resistance to acceleration (a change in its state of motion) when a net force is applied.

B) What is...Mass of an object?

An object's mass determines the strength of its gravitational attraction to other bodies.

4. What is... $F=ma$?

$F=ma$ Force = Mass x Acceleration

Simply this means the harder you throw a ball or kick a ball the further it will go.

Need:

Balloon

Foam or Sponge

Rubber Band

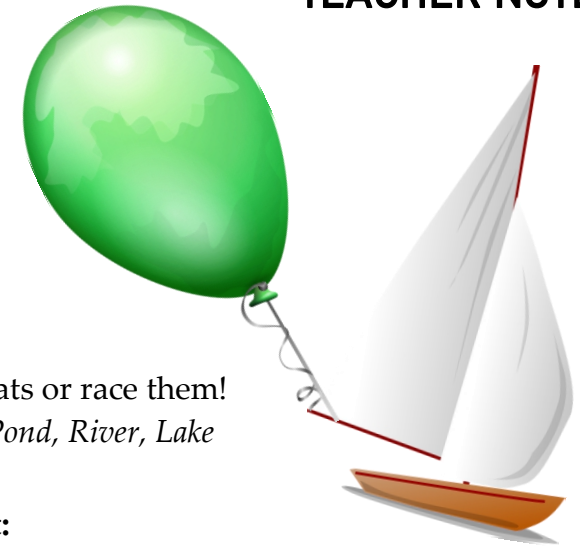
Straw

Scissors

Tape

Somewhere to try your boats or race them!

Blow Up Pool, School Pool, Pond, River, Lake



How to create your boat:

Cut your foam into a rectangle shape with one side either Shaped as a triangle or semi-circle.

Push Straw 1/2 way through the foam near the shaped end of the foam

Take the straw out and attach balloon.

Tape the balloon tightly to the straw, add the rubber band tightly to secure the balloon on straw and then tape again.

Push the straw with the balloon attached back through the foam, about half-way up the straw.

Using the straw inflate the balloon then bend the straw and put your finger over the hole to trap the air in.

Place boat into the water with the straw still bent and your finger still blocking any air from escaping.

Once in the water release finger and unbend straw to make the boat go.

