

## MATERIALS

- Resealable plastic bag (thick freezer bags work best)
- Water
- Food coloring
- Sharp wooden or bamboo skewers

## SAFETY TIPS & HINTS

Be careful with the sharp points of the skewers. Small children should be supervised.

This is a good experiment to do outside, over a sink, or over a bowl.

DO YOU THINK A BAG OF WATER WILL LEAK IF YOU STAB IT WITH A SHARP STICK? THINK AGAIN.

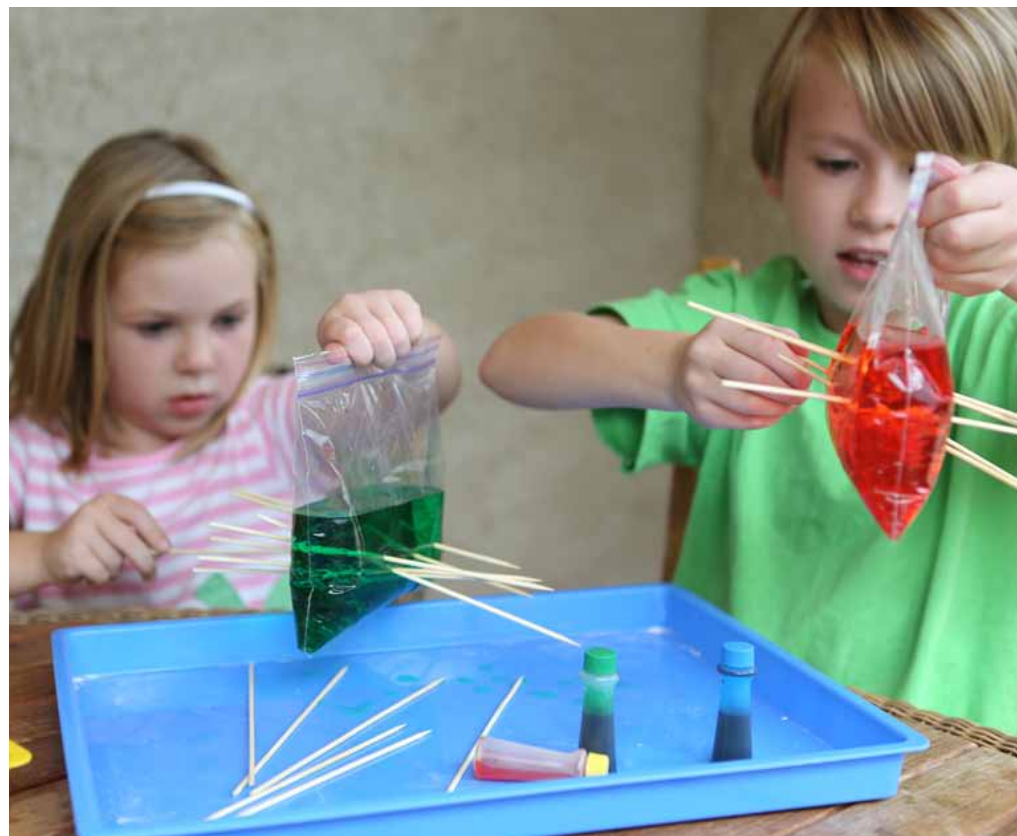


Fig. 2: Push a wooden skewer in one side of the bag and out the other, through the liquid.

## PROTOCOL

**STEP 1:** Fill the resealable plastic bag with water.

**STEP 2:** Add a drop or two of food coloring to the bag and seal it shut. (Fig. 1)



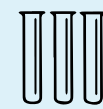
Fig. 1: Add food coloring to water in a resealable plastic bag and seal it closed.

**STEP 3:** Slowly poke a wooden or bamboo skewer completely through the bag, in one side, through the liquid, and out the other side. Avoid pushing it through the part of the bag containing air. (Fig. 2)



Fig. 3: How many skewers can you poke through your bag before it leaks?

**STEP 4:** See how many skewers you can push through before the bag leaks. (Fig. 3)



## THE SCIENCE BEHIND THE FUN:

Plastic is a polymer, made up of long, elastic molecules that form a seal around the spot where the skewer is poking through. This polymer seal prevents the bag from leaking excessively.

## CREATIVE ENRICHMENT



Does this experiment work with other liquids? What if the water is hot, or cold? What happens if you poke one end of your stick through the portion of the bag that contains air?