



FLOATING WATER

SCIENCE SAFETY

PLEASE follow these safety precautions when doing any science experiment.

- **ALWAYS** have an adult present.
- **ALWAYS** wear the correct safety gear while doing any experiment.
- **NEVER** eat or drink anything while doing any experiment.
- **REMEMBER** experiments may require marbles, small balls, balloons, and other small parts. Those objects could become a **CHOKING HAZARD**. Adults are to perform those experiments using these objects. Any child can choke or suffocate on uninflated or broken balloons. Keep uninflated or broken balloons away from children.

INGREDIENTS

- Transparent Plastic Cup
- Water
- Large Index Card

INSTRUCTIONS

STEP 1: Fill the transparent plastic cup $\frac{3}{4}$ of the way with water.

STEP 2: Place the large index card over the top of the cup.

STEP 3: Carefully turn the cup upside down, holding the card in place, remove your hand from the card, while still holding the cup, don't squeeze the cup, and observe. Compare the effects of different strengths and different directions of pushes and pulls on the motion of the card. Provide evidence of the effects of balanced and unbalanced forces on the card.

EXPLANATION

A higher air pressure, on the outside of the cup, is pushing harder on the large index card, overcoming the force of the water pushing down and the lower air pressure, inside the cup, keeping the card in place. The card doesn't slide thanks to surface tension and adhesion.



SCIENCE BACKGROUND

A force is a push or pull, which can cause an object to be in motion. Pushes and pulls can have different strengths and directions. Motion is a change in position. An object at rest typically has multiple forces acting on it, but they add to give zero net force on the object. Forces that do not sum to zero can cause changes in the object's speed or direction of motion. Speed is how far an object moves over a specific period of time. Pushing or pulling on an object can change the speed or direction of its motion and can start or stop it. Friction is the resistance between two objects. The force of friction opposes the motion of an object, causing moving objects to lose energy and slow down.

I CAN STATEMENT

- ✓ I can plan and conduct an investigation to compare the effects of different strengths or different directions of pushes and pulls on the motion of an object.
- ✓ I can plan and conduct an investigation to provide evidence of the effects of balanced and unbalanced forces on an object.

NEXT GENERATION SCIENCE STANDARDS CONNECTION

K – Forces and Interactions: Pushes and Pulls | Cause and Effect
3 – Forces and Interactions | Cause and Effect