

## SCIENCE EXPERIMENTS

Give each Guide a strip of paper (about 2cm x 25 cm). Ask them to draw a different coloured line on each side.

Give them another strip of paper and ask them to do a half twist, secure the two ends and again draw a different coloured line on each side... This if course is impossible, they have created a **Mobius Strip**.

Split into three groups and rotate through the following Activity Stations.

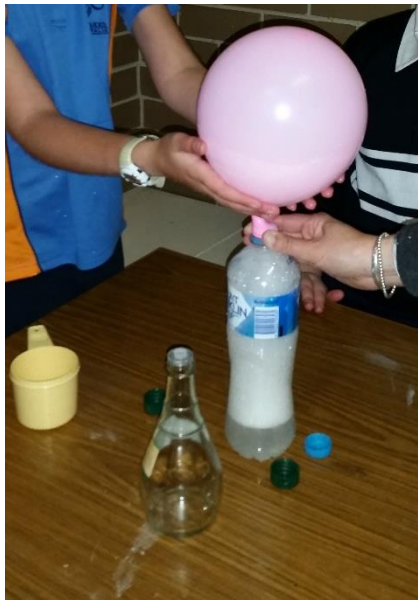
### ACTIVITY 1 - *Blowing up a balloon with baking soda, water and vinegar*

Use a funnel to fill a balloon with baking soda (about 3 teaspoons).

Pour some white wine vinegar into an empty plastic bottle, about 300 ml

Add water to raise the level of the liquid so you don't overuse the vinegar!

Place balloon over bottle opening and then shake soda from balloon into the bottle and watch the balloon inflate.



The Science: The vinegar and the baking soda mix together to make a carbon dioxide gas that bubbles up from the mixture. The gas expands up and out of the bottle and inflates the balloon. Another thing about these balloons is that carbon dioxide is heavier than air, so when the balloon is secured at the open end and dropped it will fall to the ground faster than a balloon filled with air.

## **ACTIVITY 2 - Super starch (cornflower and water to make isotropy)**

This weird slime is easy to make and acts like a liquid but behaves like a solid when you hit it. It's called a non-Newtonian fluid and they has some unusual properties!

- 250ml corn starch
- Plastic bowl
- 125ml water (approx.)
- Food colouring (optional)

Empty the corn starch into a large bowl.

Add the water slowly until the mixture is the consistency of batter. Add a little food colouring if you wish.

The corn starch and water mixture acts like a solid sometimes and a liquid at other times. (Just like walking on wet sand)



**The Science:** When the mixture is squeezed the solid starch molecules are forced together, trapping the water to form a semi-solid mixture. When the pressure is released, the mixture flows again.

## **ACTIVITY 3 - Balloon Rockets**

- Balloons
- String
- Straw
- Tape

Thread a drinking straw through the string and secure each end of the string to a chair.

Inflate the balloon and hold onto the open whilst securing the balloon to the straw with tape.

Once the tape is secure let go!

**The Science:** The balloon is full of air. When it is released the air rushes out of the opening and creates a force in the opposite direction and balloon flies down the string.