SCIENCE UTSAV®

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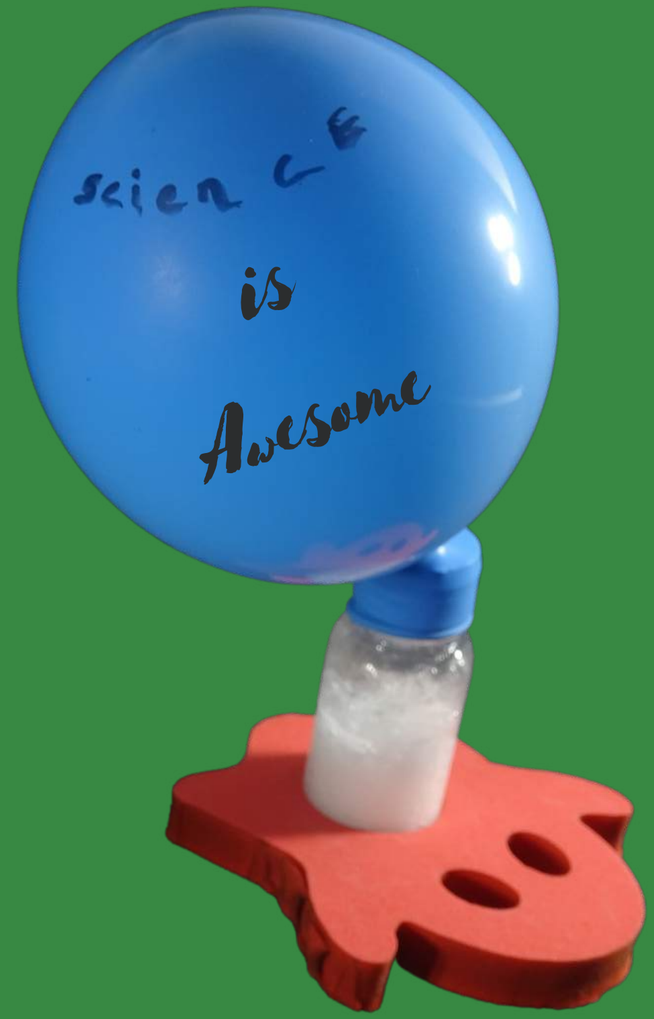
# PUPPET BALLON



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# Overview

The self-inflating mechanism of self-inflating puppets is based on the principle of gas expansion. When the puppet is opened, the air rushes in and causes the material to expand. This expansion creates a pressure difference between the inside and outside of the puppet, which forces the puppet to inflate.

# Engineering challenge

In this engineering challenge for students, they will design and create self-inflating puppets. Students will explore principles of air pressure, elasticity, and simple mechanisms. Using everyday materials, they will construct puppets that inflate and move without external assistance, showcasing their understanding of basic engineering concepts while fostering creativity and problem-solving skills.

# Materials Required

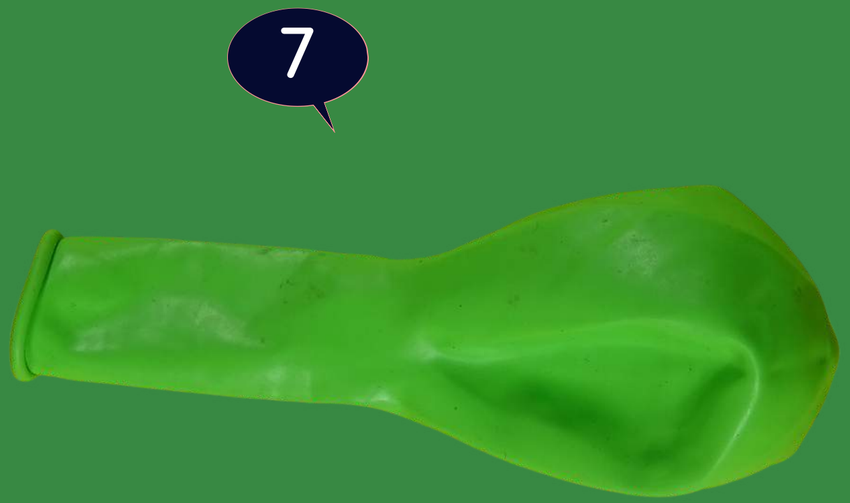






| Sr.No | Name | Qty |
|---|---|---|
| 1 | Balloon | 2 |
| 2 | Ghost foam base | 1 |
| 3 | Container | 1 |
| 4 | Marker | 1 |
| 5 | Citric acid | 2 |
| 6 | Baking soda | 2 |

# Materials Required

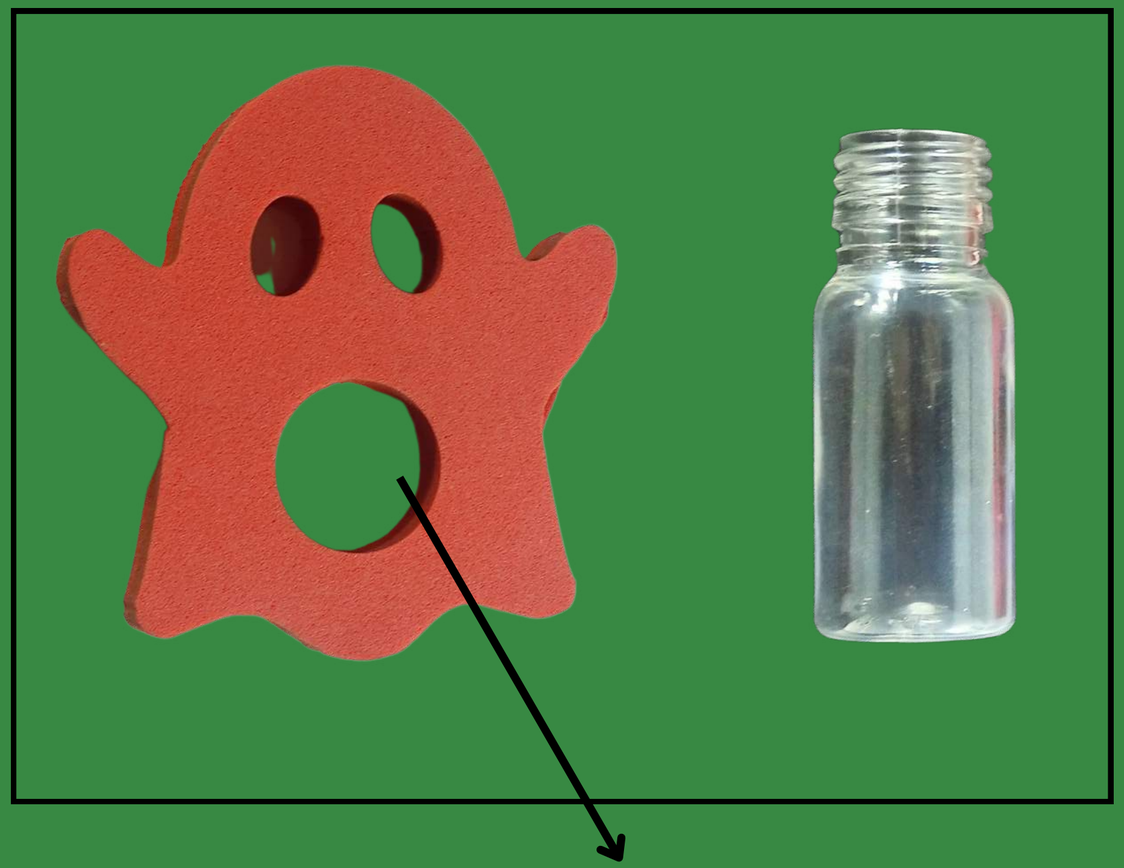




| Sr.No | Name | Qty |
|---|---|---|
| 7 | Balloon | 2 |
| 8 | Tooth pick | 4 |

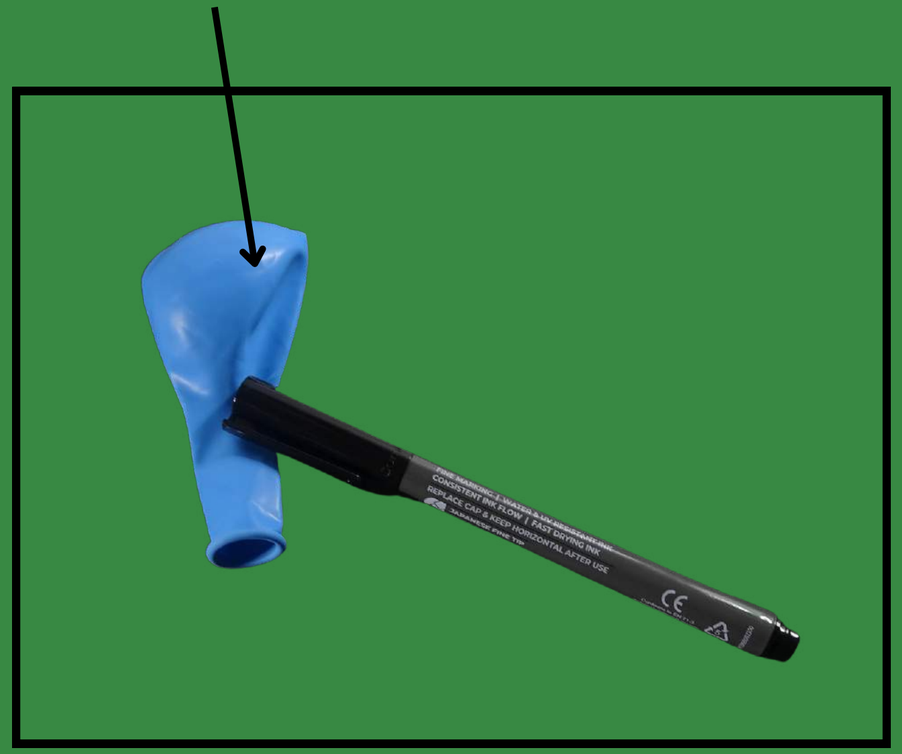
# Procedure

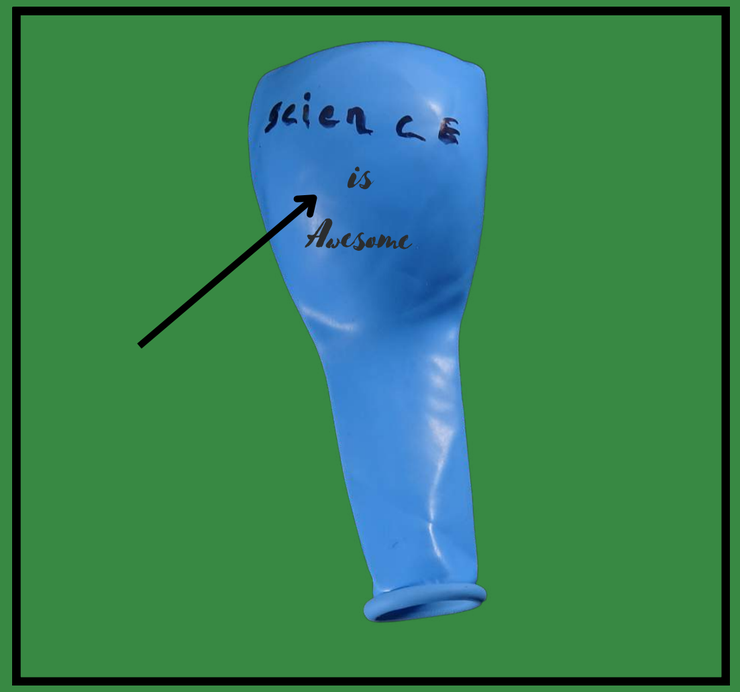
**Place container inside foam hole as shown**



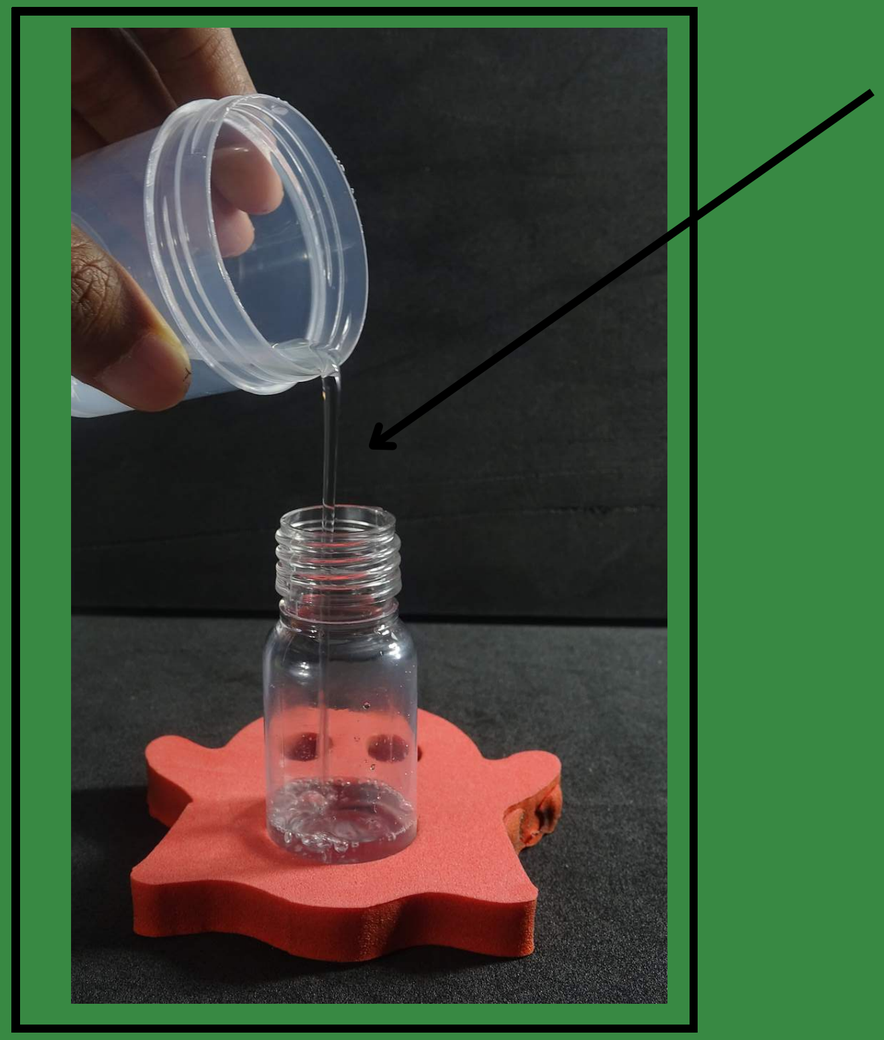

Write any name on balloon top side using marker

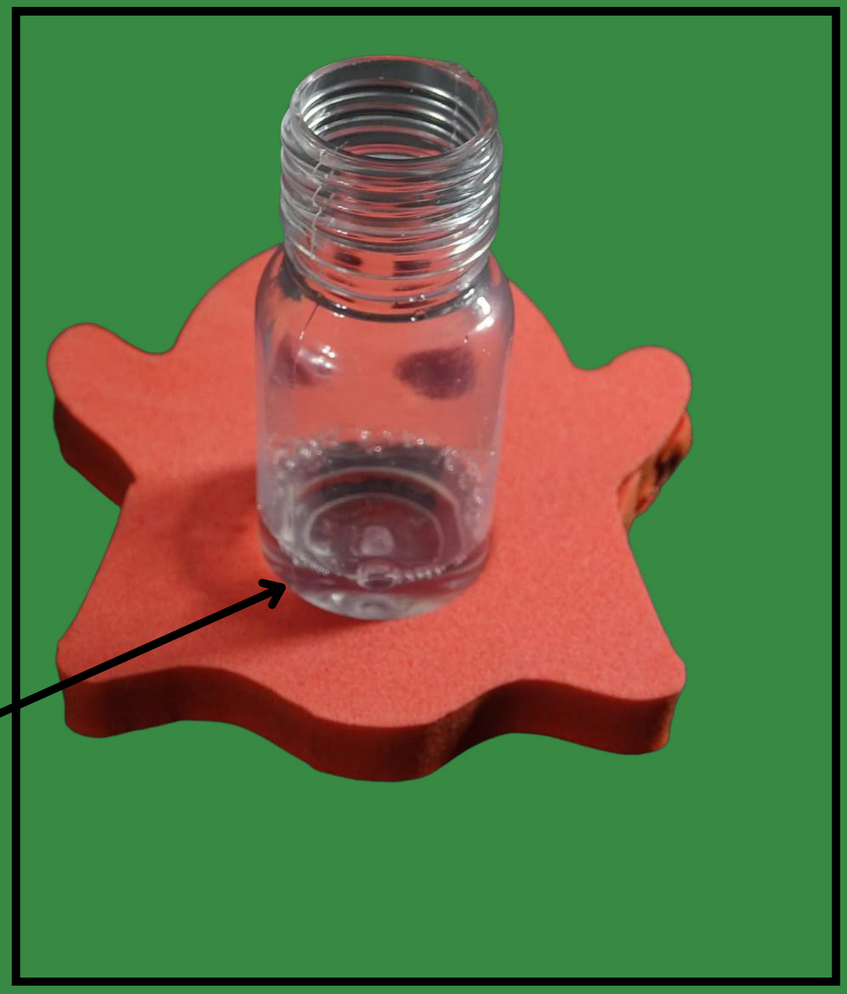
You can also draw face on the balloon






# Pour small quantity of water to container as shown





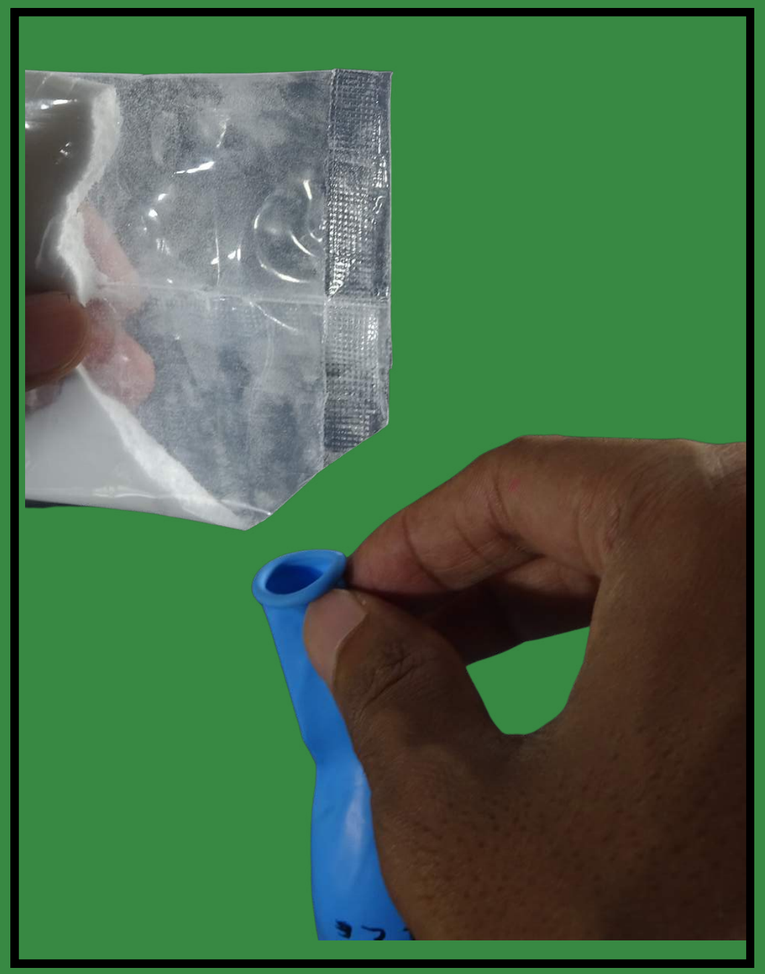
# Cut citric acid packet using scissor

Pour half quantity of citric acid to container as shown

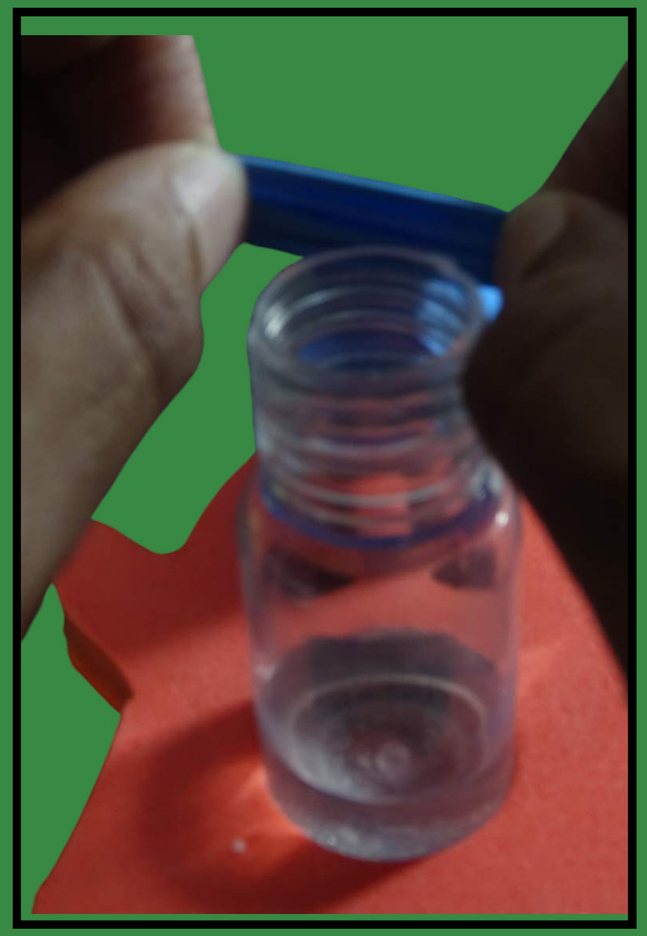
Alternatively Lemon Juice | Vinegar can also we used

# Cut baking soda powder packet using scissor

# Pour half quantity of baking soda to balloon as shown



Insert balloon to container as shown



lift the balloon in such a way that the baking soda falls into the containner

# YOUR PUPPET IS READY

# HOW DOES IT WORKS ?

The science, behind this puppet  experiment, is the chemical reaction between the baking soda and the citric acid solution. When the two ingredients mix together the balloon baking soda experiment gets its lift! The gas produced from the two ingredients is carbon dioxide. As the gas goes up into the balloon, it inflates it! Similarly, we exhale carbon dioxide when we blow up balloons. A chemical reaction is a process where a set of substances undergo a chemical change to form a different substance. You may think that chemical reactions only happen in science labs, but they are actually happening all the time in the everyday world. Every time you eat, your body uses chemical reactions to break down our food into energy. Other examples include metal rusting, wood burning, batteries producing electricity, and photosynthesis in plants.