SUITE SCIENCE

Balloon in a bottle!

CLASS: 1st– 6th | 20 mins | PHYSICS

Learning Objectives - WALT (We are learning to…)

1. Air pressure and vaccums
2. Atmospheric pressure and sleight of hand

Curriculum links
Pressure and Forces

- **Physics** – Air pressure, forces and vacuums
- **Materials** - Elasticity

Breakdown:

Welcoming Class	*5 mins*	Finding space and settling
Theory	*5 mins*	Theory of experiment
Experiments	*10 mins*	Magic Bottle

Equipment and Important Notes for Tutors:

- Pencil
- Plastic bottle with strong walls
- Pin
- Balloon

Safety

- Be careful of the children around balloons.
- Be careful with anything to do around breathing
- Be careful of the pin

Make sure to incorporate the scientific learning process throughout this experiment. Establishing a sense of familiarity with the students on these will improve their scientific thinking as well as instilling the framework of future lessons. Remember to ask trigger questions and be inclusive. If children ask questions you do not know the answer to, **it is ok to say you don't know,** as it will show the children that science is about chasing the unknown and make them feel more at ease with you.

Theory and experiments will also overlap throughout the demonstration and it is important to remember to narrate through activities.

Introduction:
By forcing the air out of the bottle a balloon will stay inflated. This can be used to teach aspects of air pressure and vacuums.

There is low pressure in the bottle, lower than the air pressure in the balloon which is equal to the pressure of the atmosphere.

Experiment:

Set up: 5 mins
Have the children gather around and settle.

Setup: 5 mins
Place the balloon inside the bottle; spread its neck over the top of the bottle. Place a small hole near the bottom of the bottle. Conceal this hole with your thumb for the moment. Blow up the balloon, air will exit via the hole. Quickly seal the hole with your thumb and the balloon will stay inflated. At this stage you can put a pencil or even water into the balloon. By slowing allowing air to enter the bottle, the balloon will deflate under your command. Oooooh Magic!

Performance and Discussion: 20 mins
Get the children to try it out for themselves and discuss why it is not possible to blow up the balloon without the hole in the bottle. Ask would putting tape over the hole can leave the balloon inflated and then have several people in the class test it out. Finally trying reversing the process by sucking air out through the hole. Test to find out if you will be able to inflate the balloon.

Send the children home with this magic trick!
Kids should try to put on a performance of sorts when they show off this science trick. This kind of action will help with public speaking, confidence and also fine motors skills whilst learning a little physics along the way. This experiment could be paired with a couple of other “tricks”.

REFER BACK TO YOUR WALT GOALS AND HAVE THE CHILDREN SHARE WHAT THEY LEARNED TODAY AS WELL AS RECAPPING ON ANYTHING THEY MISSED!

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