SUITE SCIENCE

AIR FORCE!

CLASS: 1st– 4th | 35 mins | PHYSICS

Learning Objectives - WALT (We are learning to…)

1. Air pressure and force
2. How vortexes work

Curriculum links
Pressure and Forces

- **Physics** – Air pressure, mass, force and gravity
- **Geography** – Weather systems
- **Art** – Creative making

Breakdown:

Welcoming Class	*5 mins*	Finding space and settling
Theory	*5 mins*	Theory of experiment
Experiments	*20 mins*	Tornado Tubes and Airzooka!
Demonstration	*5 mins*	Evaluation and clean up

Equipment and Important Notes for Tutors:

- Tornado Tubes
- Airzooka
- Plastic Cups
- Bin with hole
- Fog Machine

Safety

- Make sure the children are not too rough with the tornado tubes
- Younger children may have difficulty using the Airzooka so facilitators may need to help them hold it.

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:

In this activity the children will learn about air pressure and force, some may be new to the idea that air has mass that occupies space. When the tornado tubes are upturned, they may expect the water to fall into the bottom bottle as there is "nothing there". When introducing the concept of mass inform them that while it does not mean weight, its linked, and its more so a measure of how much *stuff* is in an object. The tornado tubes demonstrate how air has mass, and will not allow the water to flow unless we create space for them both to pass. The swirling vortex motion is the same seen in tornadoes, whirlpools and drains.

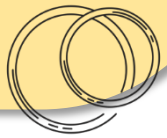
Experiment:

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

Theory: 5 mins
Ask the children if they have any idea what mass is (and who likes going to it 😊). Explain that the kind of mass we're talking about here is not the kind in a church, this mass is basically just a measure of how much stuff is in an object. It's not the same as weight but they are linked. You'd have the same mass on earth as you would on the moon but because *gravity* if different, you'd have a different *weight.*

Activity: 20 mins
Bring over the Tornado Tube. *Ask The children to **predict** what will happen if you turn the tube upside-down.* The liquid stays on top! *Ask them why.* Air has mass and as such it takes up space and two things can't be in the same place at the same time. There's a hole in the plastic container in the middle but because there's no space for the liquid and air to go they just stay where they are. What we can do though is create some space by spinning the bottle around in a circle. This pushes all the liquid out to the sides and creates a tunnel in the middle for the air to go up. *Ask the children what else behaves like this.* Tornados behave the same way!
Let the children experiment with the tornado tubes.
Now that the children have been shown how air has mass lets knock things over with it! Show them the Airzooka and demonstrate how it works by blasting them with air before letting them have a competition to knock the paper cups off each other's heads. When you pull back the string it creates a pocket of air that is pushed forward in a ring of air towards the cups.

Demonstration: 5 mins
Now tell the class we are going to use and EVEN BIGGER Airzooka, joke about how expensive the homemade one was to make. Fill the bin with smoke from the fog machine and tap the bottom to send big smoke rings out of the hole.



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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