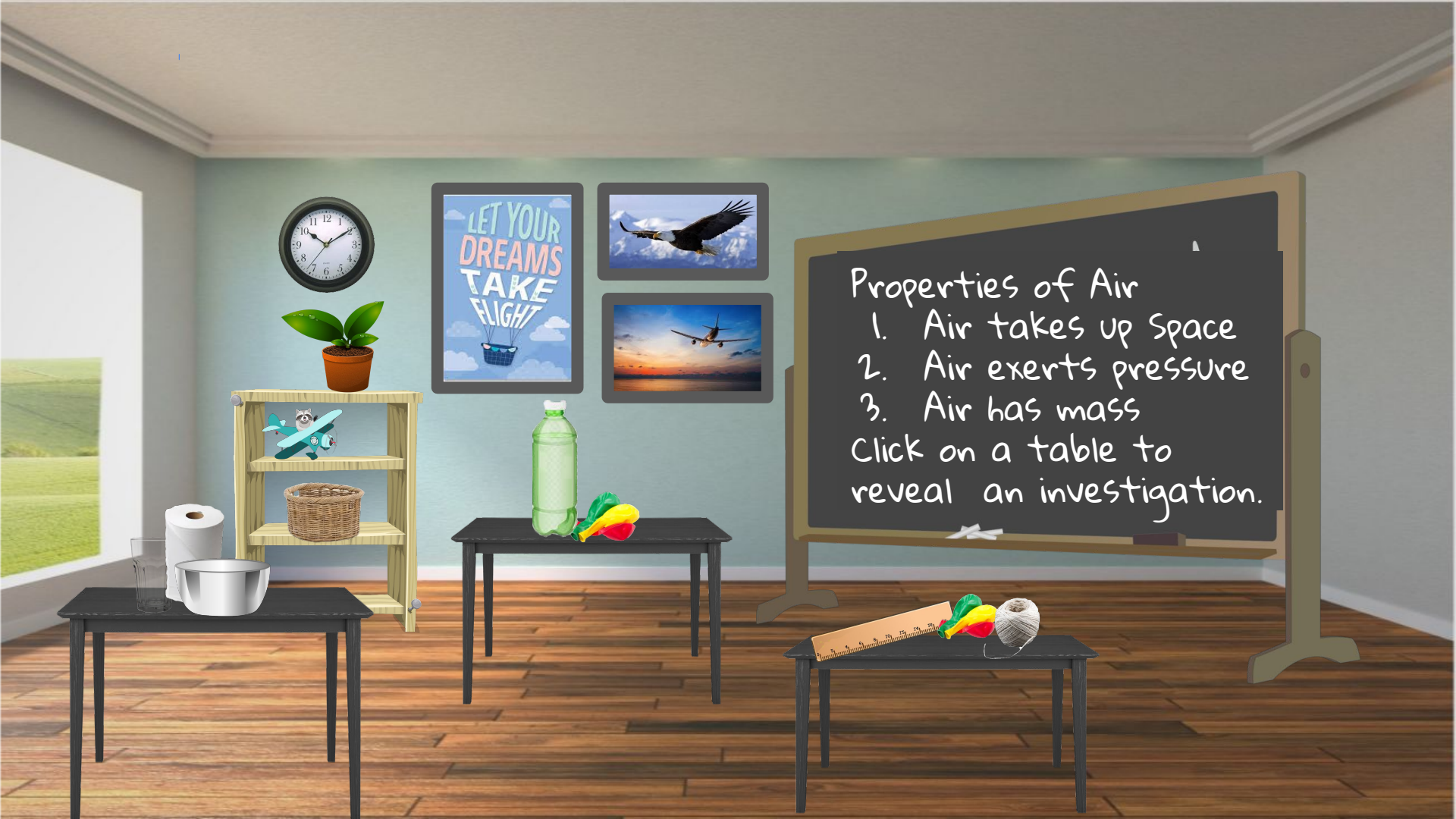
Properties of Air

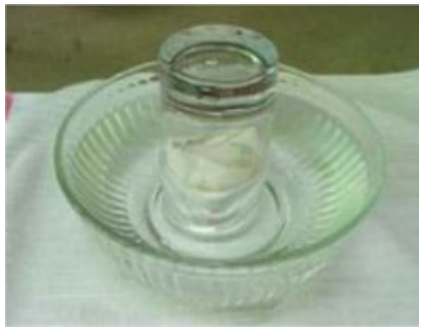

LET YOUR DREAMS TAKE FLIGHT
Properties of Air
1. Air takes up space
2. Air exerts pressure
3. Air has mass
Click on a table to reveal an investigation.

1. Air Takes Up Space

How do we know that air is there? We can feel it when the wind blows or we stand in front of a fan but did you know air is ALWAYS there?
Try this simple experiment to show that air takes up space.

MATERIALS

- a sheet of paper towel
- a glass
- a small container filled with water



HYPOTHESIS: What do you think will happen to the paper towel?

PROCEDURE

1. Crumple up the paper towel and place it inside the glass near the bottom.
2. Turn the glass upside down and push it straight down into the water.
3. Slowly remove the glass. What happened to the paper towel?

Click here to answer "What's the Science"

1. Air Takes Up Space

What's the Science?

Does the paper towel get wet?

How can you explain what happened?

Click Here for More Investigations

2. Air Exerts Pressure

We may not feel it but air is always pushing on us. Engineers have to factor in when they are designing machines for flight.
Try this simple experiment to show that air exerts pressure.

MATERIALS

- a plastic bottle
- a balloon
- a pair of scissors

HYPOTHESIS: Do you think you can blow up the balloon while it is inside the bottle?

PROCEDURE

1. Place the balloon inside the bottle and stretch it over the bottle opening.
2. Try blowing up the balloon. What do you notice?
3. Carefully cut a small hole in the bottom of the bottle.
4. Try to blow up the balloon again, What did you notice this time?
5. Plug the hole with the balloon inflated and hold the bottle away from you. What happens now?

Click here to answer "What's the Science"

2. Air Exerts Pressure

What's the Science?

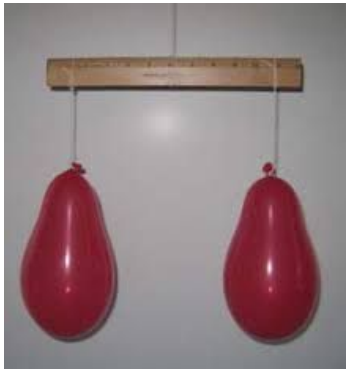
Why do you think the balloon was not able to inflate in the first part of the experiment?

How did putting a hole in the bottom of the bottle allow for the balloon to inflate?

Explain what you think happens when you plugged the hole.

1. Air Has...

This simple experiment will demonstrate a property of air. As a scientist, your job is to discover through observation what that property is.



MATERIALS

- 2 balloons of equal size
- 3 pieces of string at least 15 cm long
- A wooden ruler
- A small needle or other sharp object

HYPOTHESIS: What will happen to the ruler when one of the balloons is deflated?

PROCEDURE:

1. Inflate both of the balloons to equal size and attach them to opposite ends of the ruler using 2 of the pieces of string.
2. Tie the third string to the middle of the ruler and hang it from a table or support. Find the balance point so that the ruler is level and the balloons are balanced.
3. Carefully puncture one of the balloons with the needle or sharp object. What do you notice?

Click here to answer "What's the Science"

3. Air Has...

What's the Science?

From your observations of the experiment, what property of air does this inquiry show us?

Explain your thinking using examples from your observations of the experiment.

Conclusions and Wonderings?

How Do We Apply the Properties of Air to Flight?

Using what you have learned through these investigations, what conclusions can you draw about how the properties of air work together to make flight possible?

Record any other questions you have about air and flight.