

Brontosaurus Learning

Making science fun!



An Experiment about

Air

A Trick Straw

What you will need:

- 2 drinking straws
- A pin
- A glass of drinking water

What you will do:

1. Put a straw in your glass and have a drink of water. What exactly do you do to make the water come up the straw?
2. Now place the other straw on the table and use the pin to punch some holes in the top third of the straw. If there is a pattern on the straw you could use it to hide the holes.
3. Now use the straw with the holes to take a drink of water. **How did you go?**

What is going on?

When we drink using a straw we suck on the end of the straw while the other end of the straw is in the drink. When we first suck on the straw we suck the air out which means we reduce the air pressure inside the straw. The air pressure outside the straw is then higher so it pushes down on the drink in the cup and forces some of the liquid up the straw. This process keeps going until the drink has reached our mouth, but it is so fast we don't even think about it!

Could you fool your friends with this trick?



Challenges:

- Can you explain what the holes in the straw do?
- Try using the straw with the holes in it upside down - with the holes in the drink. What happens? Keep drinking and see if anything changes.
- What happens when you blow in the straw? Explaining using what you now know about air pressure.
- Could you trick someone with a holey straw?

TEACHING NOTES:

Brontosaurus Learning Experiment: Air A05

Topic: Air

Key Concepts:

- ♦ Air pressure

Resources:

- Investigation Record IR01– one copy per student
- Experiment Description Air A05 – one copy per student
- 2 drinking straws per student, a pin each and a glass of water

Lesson Notes:

This experiment is best done in a wet area or outside just in case of spills! Remind students to be careful with the water and to be responsible and clean up any spills so that no one slips over. Discuss the rules for the pins and how to use them safely.

Remind students to listen carefully to instructions, and to OBSERVE their experiment.

As a class discuss the experiment prior to undertaking it, and students should complete the sections of their Investigation Report IR01 from "Title to "Hypothesis".

What should happen in this experiment, and why?

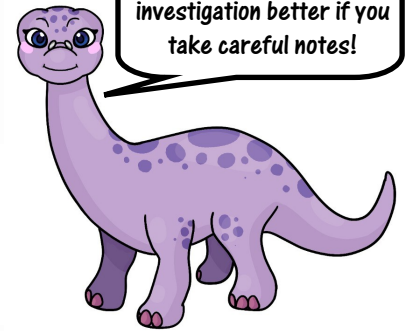
When students try the straws without holes in them they should be able to drink as normal, however once they have put holes in the straw they should no longer be able to suck the water from the cup. This is because the normal straw allows us to suck the air and lower the air pressure, while the straw with the holes simply allows an endless supply of air to come in, so the air pressure is never reduced and the liquid never travels up the straw.

Remember that the best way for students to learn is to try things for themselves, so pose the challenges and let them experiment. They may surprise you with their answers and observations!

Follow up discussion questions and activities:

- Imagine we had a jar with 2 tubes through the lid, a long one and a short one. Can you figure out what to do to get water out of the jar without ever sucking on a tube?

Investigation Record



Experiment Title:

Scientist (that's you!):

Materials: What will I need?

Investigation—what am I going to do in this experiment?

Diagrams are a great idea!

Hypothesis: What I think will happen:

Observation: What I SAW happen:

Diagrams are a great idea!

From my investigation I learnt:

Great work scientist!