

Brontosaurus Learning

Making science fun!

An Experiment about

Liquids

Dissolving—
A Vanishing Act!



What you will need:

- A plastic cup
- Water
- Sugar
- Masking tape
- A measuring cup
- Spoon
- Paper towel

What you will do:

- 1 Carefully measure half a cup of water and pour it into the plastic cup.
- 2 Now add another half a cup of water. You now have a cup of water – mark the level of the surface of the water with a piece of masking tape, so that the edge of the tape is level with the top of the water.
- 3 Now empty out the water and dry the plastic cup with the paper towel. **Be careful not to move the tape!**
- 4 Now measure half a cup of warm water and pour it into the plastic cup.
- 5 Next measure half a cup of sugar and add it to the plastic cup.
- 6 Stir the mixture until no grains of sugar are visible. **How does the level of the mixture compare to the level on the tape?**

What is going on?

The sugar and water are forming a SOLUTION. This means that the sugar has dissolved into the water – the molecules of sugar have slotted together with the water molecules like pieces of a puzzle. They are so effective at slotting together, they become one solution.

Where did all the
sugar go?



Challenges:

- What other solids do you know are soluble (this means can be dissolved in water)? Can you do the experiment again to try different substances?
- How would the experiment have been different if we used a solid block of sugar rather than castor sugar? What about if we had used really fine sugar, like icing sugar?
- Can you explain why the marbles displaced the water, but the sugar dissolved into the water?

TEACHING NOTES:

Brontosaurus Learning Experiment:
Liquids LQ09

Topic: Liquids

Suitable for Ages: 8 -12+

Key Concepts:

- ◆ Some substances can dissolve in water
- ◆ When a substance is dissolved in water, there is much less displacement of the water

Resources:

- Investigation Record IR01– one copy per student
- Experiment Description Liquids LQ09– one copy per student
- A plastic cup, water, sugar, masking tape, a measuring cup, spoon and paper towel

Lesson Notes:

Begin the lesson by reviewing the concepts learnt in previous experiments in this series, in particular displacement and molecule movement.

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?

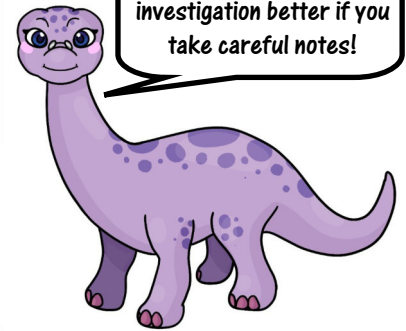
With warm water and enough stirring, the sugar should dissolve almost completely. The level of the water should not equal the level marked by the tape, as when it is dissolved into the water the sugar causes little or no displacement, so the volume of the sugar and water solution should equal that of the water alone.

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:

- Why did the water not rise up to or above the masking tape, like it did in the experiment with the marbles?

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!