Double Bubble

Why do this?

Children love bubbles and these stay in one place! This activity allows children to make their own bubble solution by following a simple procedure, and supports the development of hand-eye co-ordination and observation skills.

Curriculum links: *properties and changes of materials*, *solids, liquids and gases*

Suitability

Years 2-6

Practical details

This activity has been prepared using CLEAPSS guidance. If in doubt, or for further information, contact CLEAPSS.

Safety

- Ensure children do not taste or drink the bubble mixture.
- Should any washing-up liquid get in a child's eye, rinse with water by getting the pupil to lie on their back on a table or near a sink and gently pouring cool water from a jug, or similar, over the open eye continuously for 10 minutes. Refer to CLEAPSS Emergency card guidance.
- Children who are seriously allergic or sensitive to soap or detergent products should not do these activities.
- Ensure children wash their hands after the practical.

Equipment per child

- 1 cup
- 1 straw
- ½ teaspoon of sugar
- 1 teaspoon of washing-up liquid

Equipment per class

- 3 or 4 jugs containing warm water
- 8 tablespoon and 8 teaspoons

Notes

- If you live in a hard water area you may need to use distilled water or collected rainwater.
- Your desks must have a smooth surface. Alternatively, use laminated card or a plastic tablecloth.

Procedure

1. Place 2 tablespoons and 2 teaspoons of warm water into a cup
2. Add ½ teaspoon of sugar and stir it until dissolved
3. Add 1 teaspoon of washing-up liquid and stir well
4. Wet a small section of desk by dipping your fingers into the bubble mixture and spreading it over approximately 10cm^2

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5. Submerge one end of the straw in the bubble solution so that it's completely coated.
6. Place the coated end of the straw vertically onto the wet section of your desk. Then through the other end of the straw blow a fairly large bubble.
7. Dip the straw back into the bubble solution, then, aiming for the centre of the first bubble, gently push it inside.
8. Gently blow a second bubble on the surface of the desk inside the first bubble.
9. Try blowing a third bubble inside the inner bubble and possibly even a fourth inside the third bubble.

Be aware when doing this practical:

Some children may accidentally suck rather than blow into the straw. This will result in an unpleasant taste in their mouth but they are unlikely to suffer any ill effects from such as small amount of bubble mixture.

If when children attempt to blow the inner bubble they do not aim for the centre of the bubble, the new bubble is likely to touch and merge with the original bubble.

Expected observations and results

When you blow into the straw a bubble will be produced on the desk. Inserting the coated straw into this bubble does not burst it. When you blow again, a second bubble will form inside the first bubble. As the second bubble is blown the first bubble will expand slightly in size.

Possible further activities

- Who can blow the biggest bubble? Coat a small plastic ruler with bubble solution and slide it vertically into the middle of your bubble to measure its height.
- Do larger bubbles take longer to pop?
- Investigate which, if any, of the ingredient makes the bubbles last longer.

Background notes

Soap bubbles are a thin layer of water and washing-up liquid. Mixing washing up liquid with water forms a stretchy and sticky solution. When you blow on this it is sticky enough to hold together but will also stretch, which is how a bubble is formed. The sugar gives the bubble wall even more strength, flexibility and stability. It also slows down the evaporation of water so that the bubbles last longer.

Blowing a bubble inside a bubble causes the outer bubble to expand. As the inner bubble grows, the fixed volume of air in the outer bubble becomes compressed; it pushes against the outer bubble wall, making the bubble bigger.

As time passes the water in the bubble solution evaporates making the bubble wall thinner. Because the walls of bigger bubbles are thinner to start off they should pop faster than smaller bubbles.

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