Snappy science – make a lava lamp

COOL AUSTRALIA IS AN AWARD WINNING NOT-FOR-PROFIT THAT HELPS TEACHERS INSPIRE THEIR STUDENTS THROUGH REAL-WORLD LEARNING. THEY PROVIDE FREE-TO-ACCESS UNITS OF WORK AND LESSON PLANS THAT INTEGRATE TOPICS SUCH AS SUSTAINABILITY, ETHICS, ABORIGINAL HISTORIES AND CULTURES, ECONOMICS AND WELLBEING ACROSS SUBJECT AREAS. COOL AUSTRALIA’S ‘SNAPPY SCIENCE’ RESOURCES HAVE BEEN CREATED TO BOOST SCIENCE EDUCATION IN PRIMARY SCHOOLS ACROSS AUSTRALIA. EACH LESSON IS DESIGNED TO SUPPORT TEACHERS WITH THE SCIENTIFIC KNOWLEDGE, IDEAS AND RESOURCES TO STIMULATE A SENSE OF WONDER AND CURIOSITY IN THEIR STUDENTS. THE SNAPPY SCIENCE RESOURCES CAN ALSO BE USED TO ENGAGE FAMILIES IN FUN SCIENCE AND LEARNING FOR LIFE.

In this activity students make their own lava lamp.

Students can use the Predict, Observe, Examine or Investigate (POE) on the student movement to describe and reflect upon this experiment.

**WHAT YOU WILL NEED**

- A clear 1 litre clear soft drink bottle
- 3/4 cup of water
- Vegetable oil
- Artificial colouring such as Quick-Chek or Mylarina
- Food colouring

**WHAT TO DO**

Step 1: Pour the water into the bottle.
Step 2: Use a measuring cup to slowly pour the vegetable oil into the bottle until it is almost full. You may have to wait a few minutes for the oil and water to separate.

Step 3: Add 10 drops of food colouring to the bottle, the drops will pass through the oil and then mix with the water below.

Step 4: Break an aspirin tablet in half and drop it into the bottle. Watch it sink to the bottom and watch the liquid start to flow.

Step 5: To keep the effect going, just add another piece of aspirin tablet. For a real lava lamp effect, add a flashbulb through the bottom of the bottle.

**HOW DOES IT WORK?**

To begin with, the oil stays above the water because the oil is lighter than the water. The oil and water do not mix because of something called "intermolecular polarity." Intermolecular polarity basically means that water molecules are attracted to other water molecules, while oil molecules are attracted to other oil molecules. The structures of the two molecules do not allow them to bond together.

The piece of aspirin tablet sinks to the bottom of the bottle and starts dissolving and creating a gas. As the gas bubbles rise, it takes some of the coloured water with it. When the gas bubbles reach the top, the gas escapes and the water drops down again.

**TAKE IT FURTHER**

Repeat the experiment using water at different temperatures (very hot or very cold) or using aspirin tablets of different sizes. How do these changes affect the lava lamp?

**AUSTRALIAN CURRICULUM CONTENT DESCRIPTION**

This activity is relevant to Science Inquiry Skills across all primary year levels of the Australian Curriculum. For example:

- Year 2 Science - Different materials can be combined, including by mixing, for a particular purpose (ACSSU1031)
- Year 3 Science - Solids, liquids and gases have different observable properties and behave in different ways (ACSSU1077)

**YOUR CURRICULUM LINKS**

- Critical and creative thinking: General capabilities
- Time required: 15 – 20 minutes to set up and demonstrate with lava lamp
- Resources required: Clear 1 litre clear soft drink bottle, 3/4 cup of water, vegetable oil, aspirin tablets (such as Quick-Chek or Mylarina), food colouring.

For more information about this activity:
Download the Student Worksheet at www.coolaustralia.org.au/primary/snap-science-make-lava-lamp/
Explore the Snappy Science Library at www.coolaustralia.org.au PRIMARY/snap-science