

Lesson 2 of 7

Key Unit Question: Can materials change state?

Key Lesson Question: Do all liquids behave the same?

Learning Objective

I can make careful observations.
I can communicate my results.

NC Links

Working scientifically

- setting up simple practical enquiries, comparative and fair tests
- making systematic and careful observations and, where appropriate, taking accurate measurements using standard units, using a range of equipment, including thermometers and data loggers
- gathering, recording, classifying and presenting data in a variety of ways to help in answering questions
- reporting on findings from enquiries, including oral and written explanations, displays or presentations of results and conclusion

Resources

- Presentation
- Pre-assessment sheet
- Planning sheet (easy/medium)
- Communicate results sheet (easy/medium/hard)
- Different varieties of ketchup (or use the same ketchup but add varying amounts of water to the ketchup prior to the activity so you have three different ketchups for the children to test)
- Next step sheet

Teaching Input

- Thinking time: recap on last lesson's learning - what are solids, liquids and gases? Children write their answers on the pre-assessment sheet. Review answers ensuring that the children can name at least two characteristics for each state of matter.
- Explain that today, the children will be focusing on liquids. Hold up a sample of honey and a glass of water. Are these both liquids? Ask the children to discuss in pairs and think of two similarities and two differences. Ask the children to think of other liquids that behave differently. Introduce the word viscosity (how thick a liquid is).
- Investigation – read the email from Kevin. Establish that the children will be testing three things; how the ketchup sits on the hot dog, how runny is the ketchup and how the ketchup tastes. In pairs or small groups, ask the children to discuss how they will test these three things. What equipment will they use? How will they record their results? What variables will need to be controlled/ kept the same? After the children have had time to discuss their plans, take feedback from the class.
- Ask the children to complete the science investigation planning sheet (easy/medium).
- Children conduct the experiment.
- Communicate your results. What did the children discover? Did the same ketchup perform best in each category (taste, how it sat on the hot dog and runniness?) Show the children the 'communicate the results' letter template and model how to write a response using data of one of the children.
- Plenary – ask the children to discuss what they found out in their table groups.

BACKGROUND INFORMATION FOR TEACHERS
Children could record their results in a table, making notes on their observations of how each ketchup behaves. Alternatively, to test how runny the ketchup is, children could time how long the liquid takes to run off the hot dog when it is raised to a certain height (the height needs to kept the same in order for it to be a fair test). As an alternative to using hot dogs, children could make a sausage shape using plasticine.

Differentiated Activities

★ (working below)	★★ (working at)
Children work in pairs or small groups (with adult support) to plan the investigation using the planning sheet provided. Prompts are given to support the children.	Children plan the investigation using the planning sheet provided.

Challenge activity

Children communicate the results of the investigation using the text message sheet (easy), the letter template (medium) or the email template (hard).

Next Step activity

Children are presented with results from an investigation and asked to draw conclusions and construct a bar graph.

Assessment questions

Do all liquids behave in the same way?
What are you investigating?
How will you record your results?
What conclusions did you draw?

Self assessment

I can plan an investigation in a small group or pair.
I can make careful observations and record data.
I can clearly communicate my results.

Key vocabulary

- liquid
- viscosity
- plan
- fair test
- conclusion
- variable