

Water science - Kitchen chemistry

You will need:

- Tap water
- Small jug or measuring jug
- Measuring spoons or teaspoons
- A collection of plastic cups or bowls
- A variety of substances and materials that you can find around your home.

Don't worry if you don't have them all, just use what you have, or maybe you can think of something else to use: **mild washing up detergent or hand soap, cocoa, flour, bicarb soda, pepper, salt, sugar, vinegar, food colouring, oil, milk.**

Steps:

1. Ask an adult to help you gather your materials.
2. Find a clear space to work on and lay out your materials neatly. Scientists work **methodically** when they complete experiments. This means they go **step by step**, complete **fair tests**, make **careful measurements** and record their observations each time they complete a step of their experiment.
3. You can record your experiment by printing some copies of the worksheet and filling them in, or you might like to take photos or videos with a phone or iPad and add comments/labels, or you can draw labelled diagrams in a notebook to show what you observe. Have everything you need ready and close to your workspace so you can make your observations as you experiment. Scientists make observations using their senses. For this experiment you can use your **eyes to look**, your **nose to smell**, and your **ears to listen**.



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Steps (continued):

4. Start by pouring a small amount of water into one of your cups or bowls – choose an amount of water and stick to it for each of your tests – 50 or 100ml would be a good amount. Your first observation should be of plain water. What does it look like, what does it smell like? Stir the water – listen carefully – what does it sound like? Record your observations. Now you have observed plain water, let's start adding substances to the water!
5. Find a 1 tsp measuring spoon, or a teaspoon. Add one teaspoon of each of your chosen substances to your cups or bowls. Make sure your spoon is full but is flat on the top each time. This will keep your experiment fair. Each time you add a new substance it is a new **fair test**.
6. **One substance at a time** – Use your measuring jug to pour the same amount of water that you used in Step 1 over each substance, one by one – this will keep your experiment fair. Each time you pour your water on a substance, stop and record your observations afterwards. Then stir the substance into the water, and observe it again. What does it look like? What does it smell like? What has changed? **Keywords – colour change, dissolving, smell, bubbling, combining, mixing, separating, fizzing.**
7. **Now to extend the experiment** – You can start making combinations of substances, two at a time, and see what changes. Add one teaspoon each of two substances, e.g. 1sp bicarb + 1 tsp vinegar + 100 ml water OR 1tsp sugar + 1tsp cocoa + 100 ml water. Record your observations each time you make a new mixture.



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Substance and amount (e.g. 1tsp of oil)	Amount of water (this should be the same each time)	Observations (words) Use the keywords in Step 6 to help you e.g. colour, dissolving, smell, bubbling, combining, mixing, separating, fizzing.	Observations (diagram) Draw a simple diagram of what you observe.