

Salt (for cooking)

Download the teacher notes, PowerPoint presentation and student workbook that accompany this resource from rsc.li/3RGEmQt.

Read our health & safety guidance, available from rsc.li/3IAmFA0, and carry out a risk assessment before running any live practical.

The safety equipment suggested is in line with CLEAPSS requirements. For non-hazardous substances, wearing lab coats can help to protect clothes. The safety rules might be different where you live so it is worth checking local and school guidance.

This list assumes a class of 30 learners working in pairs.

Acknowledgements

This resource was originally amended and adapted by the University of Reading to support outreach work delivered as part of the Chemistry for All project.

To find out more about the project, and get more resources to help widen participation, visit our Outreach resources hub: rsc.li/3CJX7M3.

Demonstration taken from Explorable.com Lifting Ice Cube Experiment. Available from: <https://explorable.com/lifting-ice-cube-experiment> (accessed 10 October 2022).

Activity 1 has been adapted from Heston Blumenthal's RSC Kitchen Chemistry book.

Disposal

All solutions are non-hazardous. Dispose of by pouring down the sink. Dispose of all solids in the general waste.

Demonstration: the effect of salt on ice/water equilibrium

Equipment/preparation

- Glass of water
- 3 × ice cubes
- 1 ball of string
- 1 g salt

Activity 1: how is the boiling point of water affected by salt?

Equipment

- 15 × boiling tubes
- 15 × 10 ml measuring cylinders
- 15 × thermometers (up to 110°C)
- 15 × clamp stands
- 15 × bosses
- 15 × clamps
- 15 × Bunsen burners
- 15 × spatulas
- 15 × glass rods
- 15 × weigh boats
- Balances
- Anti-bumping granules

Preparation

- 250 g salt

Activity 2: colour changes

Equipment

- 45 × 250 ml beakers
- 15 × 100 ml measuring cylinders
- 15 × thermometers (up to 110°C)
- 15 × clamp stands
- 15 × bosses
- 15 × clamps
- 15 × Bunsen burners
- 15 × heatproof mats
- 15 × tripods
- 15 × gauzes
- 15 × white tiles
- 15 × glass rods
- 15 × spoons/spatulas
- Balances
- 15 × weigh boats
- 15 × stopwatches

Preparation

- Salt (NaCl) – 18 g per group
- Bicarbonate of soda (NaHCO₃) – 2 g per group
- Distilled white vinegar – 10 ml per group
- Pack of peas
- Pack of green beans
- Pack of green cabbage

Note

- Solubility of NaCl in water is 36.0 g/100 g at 25°C
- Solubility of NaHCO₃ in water is 10.3 g/100 g at 25°C