

Teacher and Technician Sheet

In this practical students will:

- Make predictions and explain their reasoning.
- Make careful observations of the experiment's results.
- Evaluate their original predictions, using the results of the experiments.

Introduction for teachers:

Children are often fascinated by the way substances mix. This investigation is about observation. It starts with some predictions or guesses about what might happen when water, alcohol and oil are placed into each other. The questions are discussion points and they are best used with a whole class discussion.

- What do you think will happen if I mix these two liquids together?
- Will they form layers or will they mix?
- Will one float on the other? If so which one will be on top?

Going further:

For older primary pupils they could move on to 'Making water drop art' or 'Making an oil/water emulsion'.

Curriculum range:

Lower primary age but can be used with younger secondary age students to investigate materials: it links with:

- reporting on findings from enquiries, including oral and written explanations, displays or presentations of results and conclusions;
- using straightforward scientific evidence to answer questions or to support their findings;
- compare and group together everyday materials on the basis of their properties;
- know that some materials will mix, while others will not;
- build a more systematic understanding of materials by exploring and comparing the properties of a broad range of materials.

Hazard warnings:

Care needs to be taken with the alcohol since it is inflammable. It may be better if it is dispensed by the teacher where behaviour might be an issue.



Ethanol (IDA) is flammable and harmful. It is suitable for year 7 and upwards to use but may not be suitable for lower primary students.

Equipment:

Per group

- 2 eye droppers (or disposable plastic pipettes)
- 2 beakers (100 cm³)
- 100 cm³ water
- 10 cm³ ethanol
- 10 cm³ olive oil (or any cooking oil)
- 1 measuring cylinder (100 cm³)

Technical notes:

Other oils can be used with similar results.

Results:

Students should be able to observe the results easily. They should be able to notice that the alcohol is visible as it mixes into the water. After a short while there is no difference and the water looks the same as when it started.

Students should notice that the oil does not mix into the water. It sits in a layer on the top of the water.

Students should notice that the water disturbs the water in the beaker and the water level rises, but there is nothing other than the surface disturbance visible unlike the alcohol and the oil.

