



Champion
the Researchers

STANDARD OPERATING PROCEDURES

Amir researches how air flows in buildings. When we're inside, it is important that the air we breathe in is clean and free from hazardous particles. Good ventilation is especially important in hospitals, where there are a lot of bugs and where people are vulnerable to infection. Hospitals, laboratories and factories use Standard Operating Procedures (SOPs) to implement consistent, strict procedures, such as in hygiene and in safety. SOPs are rigorous instructions which should be followed exactly.

PUPILS MAKE CORNFLAKE CAKES FOLLOWING PARTIALLY-OBSCURED RECIPES

Equipment

Bunsen burner; gauze; tripod; heat-proof mat; tongs; 250 cm³ (or larger) glass beaker; stirrer; wooden spoon; 4 x small bowls; scales; cupcake cases; chocolate; cornflakes; butter or margarine; syrup

Method

Split the class into small groups (4-5 pupils). Give each group a workstation and the equipment listed (or similar – it depends what you have available and the recipe you choose to follow).

Give each group a copy of a recipe such as this [Chocolate cornflake cake recipe](#) from the BBC website – but obscure a different element on each. For example, one group may not be told the exact quantities, another may not be told all of the ingredients. You may also need to change some elements (saucepan to beaker, for example) to match the equipment you have available. Ask pupils to follow the instructions on their sheet. When each group is finished, compare the batches and ask pupils to identify the differences.

Ask pupils to write a Standard Operating Procedure for making chocolate cornflake cakes, to ensure anybody can make cornflake cakes that look and taste exactly the same. They will need to think about things such as **quantities** (for example: exactly how much is a tablespoon?), **ingredients** (for example: what type of butter? milk or dark chocolate?) and **equipment** (for example: how do they heat the ingredients?).

Extensions

Think of other simple tasks, such as making a cup of tea or brushing your teeth, and write SOPs for them.

The research link

Researchers use SOPs to ensure experiments are done the same way every time, even if different people are carrying them out. Following an SOP is one way to minimise variation in experimental results.

Additional guidance notes

[This excerpt](#) from The Great British Bake Off provides a quick introduction to experimental variation. Feeling theatrical? Why not judge the cakes like Paul Hollywood and Mary Berry.

Remind pupils not to eat the cakes if they've been prepared in a laboratory (if possible, use a food tech area for this activity – it's much better when pupils can taste their work!)



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