

## TESTING FOOD GROUPS

Breakfast is often referred to as one of the most important meals of the day. It 'breaks the fast' of not eating while you've been asleep, and gives you energy to start the day. In the following experiments, you will be testing samples of some typical breakfast foods – bread, cereal and milk – to see whether they contain fat, starch and protein.

**This work should be done in the science lab under adult supervision. You must wear correct protective clothing and eyewear. Do not eat the food samples or other chemicals.**

### TESTING FOR FAT

#### Method

1. Take three clean test tubes.
2. Add the sample of wholemeal bread to the first test tube, breakfast cereal to the second and milk to the third.
3. Using a pipette, add 2cm<sup>3</sup> of ethanol to each test tube.
4. Stir with a glass rod.
5. Using the other pipette add 2cm<sup>3</sup> of water to each test tube and stir again.
6. Fat is present if the solution turns white.
7. What are the results of your test?
8. Which of the food solutions contain fat?

#### Equipment

- 3 clean test tubes
- test tube rack
- glass rod
- a cube of wholemeal bread
- 1 teaspoon of breakfast cereal
- 5ml (1 teaspoon) milk
- 2cm<sup>3</sup> ethanol
- 2cm<sup>3</sup> water
- 2 pipettes

### TESTING FOR STARCH

#### Method

1. Take three clean test tubes.
2. Add the sample of wholemeal bread to the first test tube, breakfast cereal to the second and milk to the third.
3. Using the pipette add two drops of yellow/brown iodine solution to each test tube.
4. Stir with a glass rod.
5. The iodine solution will turn blue/black if starch is present.
6. What are the results of your test?
7. Which of the food solutions contain starch?

#### Equipment

- 3 clean test tubes
- test tube rack
- glass rod
- a cube of wholemeal bread
- 1 teaspoon of breakfast cereal
- 5ml (1 teaspoon) milk
- 2 or 3 drops of yellow/brown iodine solution
- pipette

## TESTING FOR PROTEIN

### Method

1. Take three clean test tubes.
2. Add the sample of wholemeal bread to the first test tube, breakfast cereal to the second and milk to the third.
3. Add some weak copper sulphate to each test tube.
4. Carefully add drops of sodium hydroxide to the solution.
5. If protein is present, the solution gradually turns purple.
6. What are the results of your test?
7. Which of the food solutions contain protein? Does this surprise you?

### Overall conclusion

What conclusions can you draw about whether these breakfast foods provide a good nutritional start to the day?

### Equipment

- 3 clean test tubes
- test tube rack
- glass rod
- a cube of wholemeal bread
- 1 teaspoon of breakfast cereal
- 5ml (1 teaspoon) milk
- 2 or 3 drops of weak copper sulphate
- 2 or 3 drops of sodium hydroxide
- 2 pipettes