

Chapter 6: Plants

Burning food

Ratings

MESS  DANGER **DEMO ONLY** DIFFICULTY 

Theme

Perseverance; energy changes; releasing potential

Equipment needed

Basin of water; basin of sand; stone floors (do not do this near carpet, lino or wooden floors); safety matches; long lighting tapers; tongs; dry biscuits like plain Ryvita, Ritz crackers, Jacobs crackers; copies of the packaging of the biscuits; timer

Before you begin

Different biscuits burn differently according to their ingredients. The sand is there in case the biscuit falls off the tongs, so you can relight the biscuit. The water is there to drop spent biscuits and ensure that any smoulderings do not reignite. Remember that church leaders take a dim view if your grade-1 listed building is consumed by a cracker-induced conflagration.

Experimental method

Get your participants to read the ingredients on the packages. Predict which biscuit will burn the best. There needs to be a reason!

Break the biscuits into bits: Ryvitas can be broken into four, Ritz crackers into two. Hold the biscuit part in the tongs. Light a match and use this to light the taper. Holding the biscuit over the sand tray, use the taper to light the biscuit (see photos online). Once the biscuit has finished burning, drop it into the water basin. Repeat with the remaining biscuits, timing which is the quickest and slowest to burn.

Big thinking

It might take perseverance to set the biscuit on fire, but once it gets burning it can stay alight. Ask people if they were surprised that the biscuits caught fire. What keeps it alight? This is because they contain fat that comes from oil made from plants such as sunflower seeds, olives, soya beans, nuts and other vegetables. It is spread through the biscuit and cannot be seen, which is why it might be surprising it caught fire! Fat is one way our body gets energy and helps us to live. You can see how much energy is in the biscuit by looking at the side of the packet—it is measured in Joules. But more often we talk about calories, which is an older way of measuring energy. Biscuits are nice to eat and, while the fat they contain helps us to have energy, too much of it is not a good thing as we can put on weight. In our bodies, the energy is released not by burning but by chemicals reacting with the fat to release the energy.

Vegetable oil isn't just used in cooking and making food. You can also make fuel to drive cars, lorries and tractors – even aeroplanes! In fact, in some parts of the world, the diesel that we put in our cars contains some fuel made from vegetable oil. The car engine burns the vegetable oil to release the energy in the fat just like the burning biscuit!

Big questions

Talk about how God has given each one of us something to help share his life – 2 Timothy 1:6: 'For this reason I remind you to fan into flame the gift of God.' How do you think you can keep the flame burning? Prayer? Using your gifts to serve God and others? The encouragement of other people? What might put the flame out? Perhaps when we don't use it for God, but just for ourselves? Or we do not trust God and so lack confidence to use it?