

Date

## Understand the nature of electricity and its sources

- 1) What is electricity?
- 2) Is a substance with more electrons than protons positively charged or negatively charged?
- 3) Do most substances want to have more protons, more electrons or an equal balance of protons and electrons?
- 4) What is it the movement of that generates electricity?
- 5) What causes static electricity?
- 6) Why does lightning occur?
- 7) What happens if two positively charged things come close to each other?
- 8) What are the two main sources of the electricity that we make use of?
- 9) Why do we sometimes need to use batteries instead of plug sockets?
- 10) Name two types of energy that are converted in the process that generates and transports mains electricity to our homes.
- 11) What type of energy is stored in a battery and converted to electrical energy?

### Extension

- 1) What two types of energy is electrical energy converted into during a thunderstorm?
- 2) If the ground were negatively charged, to the same point as the bottom of a cloud, would lightning occur? Why / why not?
- 3) In addition to the two types of energy you mentioned for question 10, can you name two more types of energy that are converted in the process?
- 4) Why do you think very strong winds can cause power cuts?

## Extension 2

Choose one of these things to research:

- Find out why energy-saving lightbulbs are more efficient than old filament-based ones.
- Find out what a defibrillator is and how it works
- Find out how an electric eel generates and uses electricity.
- Find out how a photocopier works.
- Find out how nuclear energy is generated.
- Find out what an electrocardiogram (ECG) is and how it works.

If you find the answer to one of them, chose another one to research.