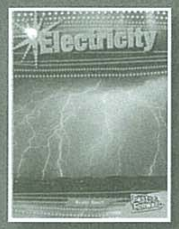
Electricity



Vocabulary

atoms, attraction, battery, charge, current, discovered, electromagnet, experiments, flow, friction, generator, magnetism, negative, neutrons, nucleus, particles, positive, powered, protons, static, transmit

Before Reading

Motivation / Purpose

The purpose of this text is to provide information about electricity: what it is, how it was discovered and how it is used. This text links with the *Science* theme *Physical Science*.

Text Type

Draw students' attention to the:

- title
- diagrams
- photographs.

Ask, "What type of book is this?" (Report). How would you expect this text to be set out? What headings might be used in the text?

Visual Literacy

Look at the front cover. What does the photograph show? How does this photograph relate to the subject matter of the text? Talk about lightning as a type of electricity. Look at the first few pages of the text. Discuss the borders and page design. How has the designer linked them to the subject matter?

Background Knowledge

What things in and around your school rely on electricity? Talk about what life would have been like before the introduction of electricity. Discuss jobs that would have been more difficult without electricity. How has electricity changed what we do in our leisure time?

Phonological Awareness

Ensure students know the following phonological patterns:

- **long *u*:** use (p.4), knew (p.5), nucleus (p.7), neutrons (p.7), continue (p.23)
- **long *e*:** electricity (p.4), people (p.4), between (p.6), because (p.8), really (p.8), easier (p.9), Greece (p.10), piece (p.10), centuries (p.11)

Using letter tiles, make a word containing one of the above sounds, but omit the letters that make up that sound. Ask students to insert the missing letters to complete the word.

Make lists of words containing each of the sound groups. Add to these as new words are encountered.

High Frequency Words

around, between, change, everything, first, inside, more, past, people, schools, something, world

Write a high frequency word on the board with every second letter missing. Ask students to write in the missing letters. Challenge students by using other high frequency words from previous texts.

Select the letter tiles to make up a word and jumble them up. Then ask a student to reorganise the tiles to make the word, and time how long it takes. The activity can be made more challenging by adding one or two extra letters not required to make the word.

During Reading

Vocabulary in Context

Discuss the meaning of each vocabulary word.

Locate the word *flow* in a dictionary. Discuss possible meanings. Assist students to determine the correct meaning in the context of this writing.

Note the large number of technical words in this text. Discuss the way the author has assisted the reader to interpret the text by defining many of these words within the sentences where they are used.

e.g. *Everything on Earth is made of atoms, which are very small particles.* (p.7)

Checking for Meaning

Literal:

Name four places where we use electricity. (We use electricity at home, at school, at work and in the car.)

What is electricity? (Electricity is the movement of electrons between atoms.)

Which word describes how static electricity is formed? (Friction)

Inferential:

Why would it be important for electricity to 'flow' in a current?

What are some 'new and amazing inventions' that have made our lives easier?

Why is it important for scientists to come up with new ways to make electricity?

Response:

Which personal characteristics do you think have motivated scientists to learn more about electricity?

Why does it sometimes take a very long time for major discoveries to become everyday knowledge?

Grammatical Patterns

Ensure students understand the following components of a report:

- Opening general statement defining the topic: *Electricity is a form of energy.* (p.4)
- Passages of information relating to the discovery of electricity, the people who worked to find out about it, and how we use it. (pp.5–23)
- Use of general nouns: *electricity* (p.4), *battery* (p.5), *electrons* (p.6), *attraction* (p.8), *generator* (p.21)
- Use of relating verbs to describe features: *An electric current **is** a flow of electricity.* (p.16)
- Use of action verbs: *powered* (p.5), *create* (p.8), *occurred* (p.10), *caused* (p.12), *connected* (p.15), *transmit* (p.16), *attracted* (p.18), *conducted* (p.21)
- Use of technical terms: *static electricity* (p.5), *electrons, atoms, particles, nucleus, protons, neutrons, positive, negative* (pp.6–7), *friction* (p.12), *transmit* (p.17), *electromagnet* (p.19)
- Use of paragraphs with topic sentences to organise information: *Everything on Earth is made of atoms, which are very small particles.* (p.7)
- Repeated naming of the topic as the beginning focus of the clause. *Static electricity is a form of electricity…* (p.12), *Over the next few centuries, other scientists kept experimenting with electricity.* (p.14)

Fluency / Punctuation Patterns

These punctuation patterns occur in the text:

- Use of commas to separate phrases from the main clause: *More than 200 years ago,* (p.5), *In their work on atoms,* (p.8)
- Use of capital letters for proper nouns: *Greece* (p.10), *Dr William Gilbert* (p.11), *Alessandro Volta* (p.14), *Michael Faraday* (p.20)
- Use of numerals for dates and larger numbers: *1900s* (p.7), *2 500 years ago* (p.10)
- Use of a dash to add extra information to the sentence: *There are so many things … electricity – watch television, play computer games … and workplaces.* (p.23)

Assist students to improve fluency by modelling the reading of some complex sentences from the text. Then allow students to read the text with you before attempting to read independently. Observe punctuation and general phrasing.

Critical Literacy

Why do you think the author wrote this text? What techniques has the author used to help the reader better understand the text? Does it matter if we don't know how electricity works? Why?

Linking Visual and Written

Look at the illustrations and early photographs of Thales, Gilbert, Volta and Faraday and their experiments on pages 10–11, 14–15 and 20–21, and then look at the modern-day photographs on pages 16–17 and 22–23. Talk about the ways in which Faraday's experiments and his creation of the first electric generator have contributed to the world in which we live, and discuss how looking at the photographs helps students to gain a better understanding of developments in electricity over the last few centuries.

After Reading

Make a list of appliances that rely on electricity to work. Next to each one, write what would have been used in its place before electricity was discovered, e.g. electric light – candle.

Use the Internet to find out about the discovery and uses of other sources of power, e.g. hydro-electric, solar, nuclear.

Activities

Students will:

- correct false statements and rewrite events from the text
- circle words spelt incorrectly and rewrite sentences using correct phonic elements
- make word families using given root words
- write sentences to provide extra information about topic sentences.

Comprehension (meaning) Vocabulary (structure) Phonics (visual) Writing (structure)