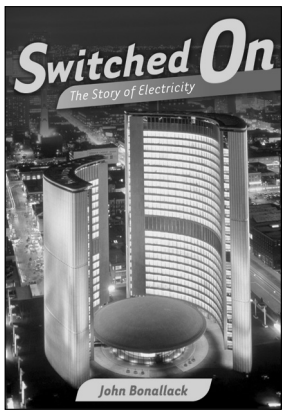
Switched On: The Story of Electricity

by John Bonallack



Book Summary

Electricity has always existed in nature. This book explores how people discovered electricity and how we use it in thousands of different ways. It also explores how electricity may be generated in the future if we are to continue to enjoy using it.

Features of the Book

- Report with explanations
- Photographs and illustrations
- Graph, diagrams, chart
- Historical information
- Causes and effects
- Table of contents, glossary, and index

Purpose

Switched On: The Story of Electricity can be used to introduce and reinforce the following skills and understandings:

- **S** making connections;
- **S** asking questions;
- **S** using graphic sources of information;
- **S** identifying cause-and-effect relationships;
- **S** drawing conclusions;
- **S** exploring electrical energy: how we generate and use this valuable resource and the implications for the environment.

Investigation Tools

- Looking Closer – Electrons on the Move, pages 8–9
- Digging Deeper – What Is Lightning?, page 11
- Step by Step – Lightning, page 13
- Making Connections – Our Electrical Brains, page 17
- What's the Background? – Non-renewable Resources, page 23
- Weighing Both Sides – Making Electricity, page 26

The Guided Reading Lesson

- **S** Making connections
- **S** Asking questions
- **S** Using graphic sources of information
- **S** Exploring electrical energy: how we generate and use this valuable resource and the implications for the environment

Introducing the text

Read the blurb aloud. Start a semantic map on the board by writing "electricity" in the centre. Ask the students to brainstorm everything they know about electricity: what it is, its history, how it is made, what it is used for, and any issues associated with it. Quickly write key words for each idea and add it to the semantic map.

– *How could we connect or categorise these ideas? For example, we could group all the ideas that relate to sources of electricity.*

Spend a few minutes encouraging the students to suggest ways that they could connect ideas. You may end up with a much-joined, multicoloured map!

Reading and discussing the text

– *Based on this information, what questions do you have about electricity that this book might answer? Remember it is subtitled "the story of electricity".*

Help the students to refine their questions to ones that are likely to be covered, leaving some that will not be answered. Write up a list of questions and allocate at least one per student, then ask them to flick through the book to identify where their questions might be answered. Encourage them to use the contents page (page 2) and the index (page 32) to help them.

The students can take turns to select a question, read the pages that might supply an answer, then share with the group what they have (or have not) found. Discuss their responses using relevant questions from the list below.

– *How well does that answer your question?*
– *Can you explain this to the group in your own words?*
– *Why do you think this question was not answered? Where else could you look for an answer?*
– *What further questions has this raised for you?*
– *Do you need to refine your question to find a more precise answer?*

Review the strategy of asking questions to find and understand information, then tell the students that they will now focus on a different aspect of informational texts: graphic sources of information.

The students can read the book silently, noting where information is explained through a graphic image (photograph, illustration, diagram, graph, or chart) as well as by words. Select some examples to explore in more detail. (The example explored here is the satellite image on page 21.)

– *Read the paragraph above the image. Describe in your own words what you are seeing in the image.*
– *What does the image show? How was it made?*
– *What information can you gain from it?*

Prompt the students to think about the spread of city lights and what they might imply, for example, terrain, population density, wealth, attitudes to the use of electricity, effects on global environments and economies. Encourage them to interpret the image in as many ways as they can.

– *What conclusions can you draw from this image?*
– *How effective is the image in a book about electricity?*

Revisiting the Text

The activities below can be used immediately after the guided reading lesson, during later reading sessions as mini-lessons, or as independent activities.

S Using graphic sources of information

The students can make a diagram, chart, graph, or other graphic image to help explain one aspect of electricity. They can use examples from the text as models.

S Identifying cause-and-effect relationships

There are many examples in the book of cause-and-effect relationships. These can also be expressed as actions and reactions. The students can use the blackline master to record several examples, explaining each action and its reaction in their own words.

S Exploring electrical energy: how we generate and use this valuable resource and the implications for the environment

The students can discuss the processes of power generation described on pages 24 and 25 and relate them to the advantages and disadvantages listed on page 26. They can investigate ways to reduce its impact on the environment. As a result of their investigations, they can suggest steps that power producers or governments could take to switch to methods that have less impact on the environment.

The students can record their findings.