



# Sparks Might Fly

Lead Subjects: Science; Design and Technology

## Science

### Key Questions

1. What is an appliance?
2. What is the difference between mains and Battery powered electricity?
3. What is an electrical conductor?
4. What is an electrical insulator?
5. What are renewable and non-renewable electricity sources?

### Key Vocabulary

**Electricity:** The flow of an electric current through a material, e.g. from a power source through wires to an appliance.

**Appliance:** A piece of equipment or a device designed to perform a particular job, such as a washing machine or mobile phone.

**Battery:** A device that stores electrical energy as a chemical. Two or more cells joined together form a battery.

**Circuit:** A pathway that electricity can flow around based around wires and a power supply.

**Mains electricity:** Electricity supplied through wires to a building.

**Electrical conductor:** A conductor of electricity is a material that will allow electricity to flow through it.

**Electrical insulator:** Materials that are electrical insulators do not allow electricity to flow through them.

### Series Circuit

A **circuit** where the components are connected in a loop.

**Electricity** flows through each component in a single pathway.



### Complete Circuit



**Electricity** can flow. The components will work.

### Incomplete Circuit

There is a break in the **circuit** that prevents the **electricity** from flowing. The components will not work.



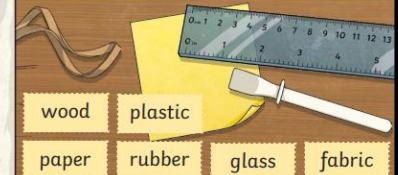
## Science continued:

### Examples of Electrical Conductors



copper steel

### Examples of Electrical Insulators



wood plastic paper rubber glass fabric

To work **safely** with **circuit** components in the classroom:

- None of the equipment needs to use mains power, so do not put any of it in or near plugs.
- Report any damaged or broken equipment to your teacher. Do not use it.
- Only use equipment as instructed.
- Connect equipment correctly.
- Disconnect equipment after use and put it away neatly.

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**cell:** Normally, we would call this a **battery** but scientifically, this is a cell. Two or more cells joined together form a **battery**.



**bulb:** Lights up in a complete **circuit**.



**buzzer:** Makes a noise in a complete **circuit**.



**wires:** Used to connect the different components in the **circuit** together.



**motor:** Produces movement in a complete **circuit**.



**switch:** Used to turn other components in the **circuit** on or off.







English:

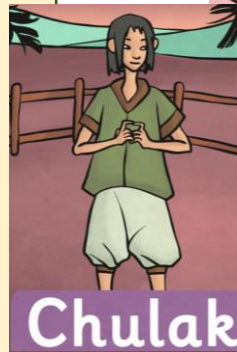
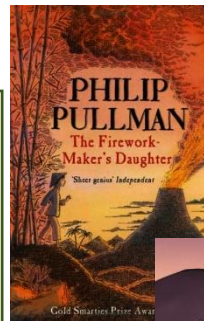
The Firework Maker's Daughter

Key Vocabulary:

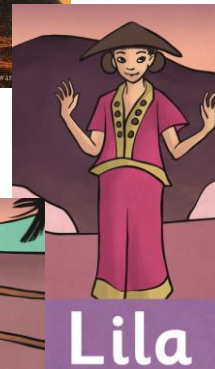
- **Firework maker** - a person who makes fireworks.
- **Apprentice** - a person who learns a trade from a skilled employer.
- **Tribulations** - experiences that test someone's endurance or patience.
- **Quest** - a journey towards a specific goal.
- **Perilous** - full of danger or risk.
- **Celestial** - relating to the sky or outer space.
- **Enchanted** - magical or charmed.
- **Majestic** - grand or impressive in appearance.
- **Spectacular** - very impressive or magnificent.
- **Embers** - small pieces of glowing coal or wood in a dying fire.

Timeline of Important Events/Concepts:

1. Introduction to the story and main characters
2. Lila's determination to become a firework maker
3. Lila's journey to the Far East
4. Meeting with Razvani the Fire Fiend
5. Challenges faced by Lila during her quest
6. Lila's discovery of the secret Fire-Fiend flame
7. Resolution of the story and Lila's success



Chulak



Lila



Hamlet



Razvani



Goddess of the Lake

Useful Websites:

1. Literacy Shed+ - [www.literacyshedplus.com](http://www.literacyshedplus.com)
2. BBC Bitesize - English Key Stage 2 - [www.bbc.co.uk/bitesize/ks2/english](http://www.bbc.co.uk/bitesize/ks2/english)
3. Oxford Owl - [www.oxfordowl.co.uk/for-home/](http://www.oxfordowl.co.uk/for-home/)
4. The Literacy Trust - [www.literacytrust.org.uk](http://www.literacytrust.org.uk)

Interesting Facts:

- The 'Firework Maker's Daughter' is a novel written by Philip Pullman.
- The story is inspired by folk tales and legends from various cultures.
- Firework making has a long history dating back to ancient China.

By the end of this topic, and using year group specific grammar elements, Year 4 students should:

- Be able to summarise the key events of 'The Firework Maker's Daughter'.
  - Understand the vocabulary related to the story.
  - Analyse characters and their motivations in the book.
  - Write creatively inspired by the themes and settings of the story.
  - Identify elements of culture and tradition in the narrative.
- Compare and contrast the different challenges faced by characters in the story.



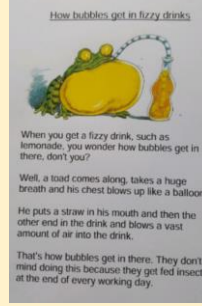
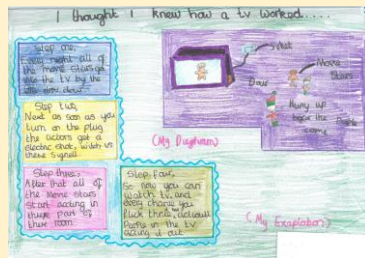
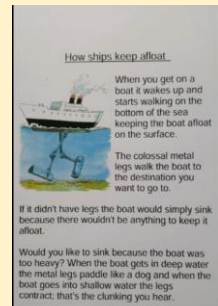
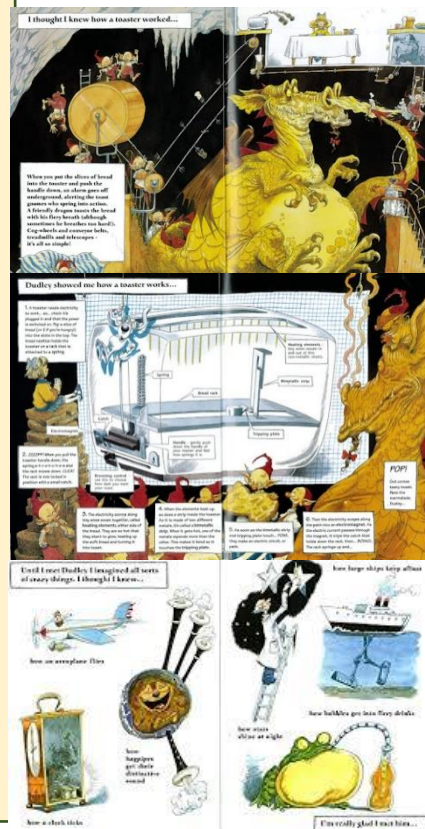
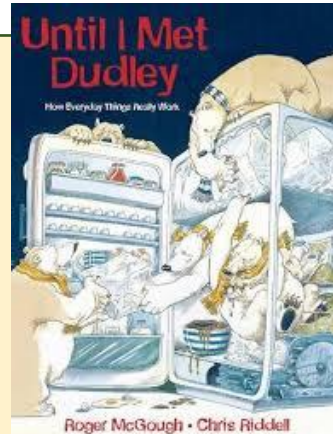
**Until I met Dudley**

**Key Vocabulary:**

- **Explanation:** A statement that makes things clear or gives reasons for something.
- **Inventions:** A new product, system, or process that has been created and brought into existence.
- **Technology:** The application of scientific knowledge for practical purposes, especially in industry.
- **Imaginary:** Existing only in the imagination or not based on reality.
- **Curious:** Eager to know or learn something.
- **Appliance:** A device or piece of equipment designed to perform a specific task, typically a household one.

**Timeline of Concepts:**

1. Introduction to "Until I Met Dudley" book.
2. Exploring the concept of how things work, both real and imaginary.
3. Writing explanation texts for everyday objects.
4. Researching and describing household appliances accurately.
5. Designing inventions inspired by the book's themes.
6. Crafting letters to a fictional character seeking help for understanding complex items.



**Useful Websites:**

- Literacy Tree: <https://www.literacytree.co.uk/>
- National Literacy Trust: <https://literacytrust.org.uk/>
- Young Writers: <https://www.youngwriters.co.uk/>

**Interesting Facts:**

- Roger McGough and Chris Riddell collaborated to create the fun-filled book "Until I Met Dudley".
- Roger McGough is known for his creative and humorous poetry.
- Chris Riddell is a renowned illustrator, having won multiple awards for his work.
- The book explores the workings of household appliances in an imaginative and educational manner.
- This Writing Root unit encourages students to enhance their creativity and writing skills through exploration of invention and explanation.

By the end of this topic, and using year group specific grammar elements, Year 4 students should: Understand the concept of inventions and how things work, both real and imaginary.

- Write explanation texts for everyday objects, using appropriate vocabulary and structure.
- Research and describe household appliances accurately in their writing.
- Design their own inventions inspired by the themes explored in the book.
- Write letters to a fictional character seeking assistance in understanding complex items, demonstrating their understanding of explanation and enquiry in writing.