



**Nutrition – eating the right foods**

Thousands of homeless children lived on the streets of Victorian London. They wouldn't be able to keep clean and most of the time they would be starving. Dr Barnardo decided to set up children's homes for these 'urchins' to make sure they were fed and well cared for.

- ② What foods would you include in a healthy meal for a street urchin?
- ② What can we do to keep clean and healthy?

**Identifying things that are living, dead or never lived**

Queen Victoria loved animals. She had many pets over the years, including birds, horses, donkeys, cats and dogs. One of her favourites was Dash, her King Charles spaniel.

- ② What can we do to care for our pets?
- ② Can we make a table to show the differences between a living animal and a toy animal?

**Sounds and their sources**

Victorian Britain had lots of factories such as textile mills. The machines in the mills were very noisy and people had to shout above the rattle and hiss of machinery. Sometimes the loud noises would even damage their ears.

- ② Which sound sources can you identify by listening carefully in our classroom?
- ② Can we make safety equipment to protect our ears from loud sounds?

**Grouping living things**

There was an explosion of interest in gardening during Victorian times. Plant collectors loved to find new and unusual plants. For example, the ornamental monkey puzzle tree, which comes from Chile, first went on sale to the British public in 1843.

- ② How many different kinds of plants (including trees) can we collect or photograph in the school grounds?
- ② Can we sort plants into groups using similarities and differences, eg size, shape, colour?

**BIOLOGY**

**Forces: buoyancy**

Grace Darling was a brave lighthouse keeper's daughter. When she saw a shipwreck through her window, Grace climbed into a small rowing boat with her father and rowed through stormy seas to rescue the ship's survivors.

- ② How well do different objects float in water?
- ② Can we use modelling clay to make a boat that floats?

**PHYSICS**

**Comparing and grouping rocks**

Victorian schoolchildren used slate writing tablets instead of paper. The slate (a type of rock) was usually set in a wooden frame. Children wrote with a slate pencil to make a mark that could be removed by rubbing it with a cloth.

- ② Which different surfaces can we write on with a pencil?
- ② Can we test different pens and pencils to find out which ones write best on different surfaces?
- ② Can we use a table to record what we found out?

**CHEMISTRY**

**Electrical circuits**

In Victorian times, electric lights started to replace candles, gas lights and oil lamps. Joseph Swan and Thomas Edison each developed successful electric light bulbs. In 1883, they formed the Edison & Swan United Electric Light Company.

- ② Can we build a circuit to light a bulb?
- ② Where does the light come from?
- ② How can we use our circuit in a model, eg in a lighthouse?

**Identifying and grouping everyday materials**

Most Victorian toys were made of materials such as wood, fabric, china or metal. Poor Victorian children usually had homemade toys like clothes peg dolls and skipping ropes. Rich children owned toys like rocking horses, dolls and clockwork train sets.

- ② Can we sort our toys into groups?
- ② What can we find out about the materials that our toys are made of?

**Changes of state**

In Victorian times, houses didn't usually have freezers. Ice was collected in winter and stored in underground ice-houses or imported from cold countries such as Norway.

- ② How can we make our own ice from water?
- ② Where in the classroom does ice melt quickest?



Written by: **Janet Barnett**, CSciTeach, PSTT Primary Science Teacher Award winner, PSQM hub leader





### Conditions for growing plants

Victorian country homes usually had a large kitchen garden, which provided fresh food such as vegetables, herbs and fruit for the household. The garden often had a high wall around it.

- 🕒 Where could we grow our own vegetables, herbs and/or fruit in the school grounds?
- 🕒 How can we help the plants to grow well?
- 🕒 Do you think that plants would grow better in a walled garden area? 🕒 Can we test this?

### Basic structure of a plant and functions of parts of a plant

The streets of Victorian London would have smelt horrible. Flower girls were a familiar sight on the streets. They made posies of sweet smelling flowers, such as violets and roses, to sell to rich ladies and gentlemen.

- 🕒 Why do you think some plants have flowers? 🕒 What can we see if we observe a flower carefully? 🕒 How can we find out if sweet smelling flowers attract more insects?

### Day and night, day length

During the Victorian era, Britain ruled many countries around the world. The British Empire went right around the globe. People said 'the sun never sets on the British Empire', because it was always daytime somewhere in the British Empire.

- 🕒 Why do you think we have day and night?
- 🕒 Can we use a model of the Earth to explain why it is daytime in Australia and New Zealand when it is night time in Britain?

### Keeping teeth healthy

In 1874, William Gladstone, the prime minister, removed the tax on sugar. This made sugar more affordable and led to more people having tooth decay. In early Victorian times, anyone could be a dentist and the most common treatment was tooth extraction.

- 🕒 What can we find out about how sugar affects teeth? 🕒 Can we make a poster to show how we can care for our teeth? 🕒 What kinds of treatments do dentists carry out today?

### Fossil formation

Mary Anning (1799–1847) was a famous fossil hunter. She often went searching on the coast after a storm because this caused cliffs to fall and rocks to break open. Her work helped to change scientific thinking about prehistoric life and the history of the Earth.

- 🕒 Can we find out why fossils are found inside cliffs and other rocks? 🕒 Can we make a model to show how fossils are formed?

### Identifying and grouping everyday materials

The Great Exhibition in 1851 was a celebration of Victorian industrial technology and design. It was housed in a spectacular glass and metal building known as the Crystal Palace.

- 🕒 Can we find out which materials have been used to build our school? 🕒 How can we test materials to compare their properties? 🕒 Could we design a silly product using materials with unsuitable properties?

### Day and night, day length

During the Victorian era, Britain ruled many countries around the world. The British Empire went right around the globe. People said 'the sun never sets on the British Empire', because it was always daytime somewhere in the British Empire.

- 🕒 Why do you think we have day and night?
- 🕒 Can we use a model of the Earth to explain why it is daytime in Australia and New Zealand when it is night time in Britain?

### Magnets

Wealthy Victorians enjoyed playing indoor parlour games together, such as charades and blind man's buff. Magnetic fishing was a popular game, where miniature fishing rods with magnets were used to catch paper fish that have a magnetic part.

- 🕒 How can we find out if all of our magnets are the same strength? 🕒 Can we make a magnetic fishing game that is fair to play?

### Sound: pitch and volume

During Victorian times, a scientist invented a way of recording human voices for the first time. Some famous people (eg Napoleon) had their voices recorded, but as far as we know Queen Victoria's voice was never recorded.

- 🕒 What differences can we notice between different people's voices? 🕒 Can we find a way to make a louder or quieter sound? 🕒 Can we find a way to make a higher or lower pitched sound?

### Uses and properties of materials

Victorian cooks often made jellies in fancy designs to form a centrepiece for the dining table. Elaborate jelly moulds were used and the jellies could be sweet or savoury.

- 🕒 How can we use jelly cubes or powder to make different jelly shapes? 🕒 How much does jelly wobble? 🕒 Can we change how much it wobbles by making jelly in different ways?

**BIOLOGY**

**CHEMISTRY**

**PHYSICS**



Written by: **Janet Barnett**, CSciTeach, PSTT Primary Science Teacher Award winner, PSQM hub leader





## Adaptation and evolution

Charles Darwin (1809–1882) noticed that living things are adapted to suit their environment and suggested species could change slowly over long periods of time to become better adapted.

- 🕒 Which animals and plants can we find in our school grounds?
- 🕒 Can we identify any ways that they are adapted to suit their habitats?

## Life cycles of animals and plants

Butterfly collecting was a popular pastime for many Victorian gentlemen. Margaret Fountaine was a woman who became an expert in tropical butterfly life cycles.

- 🕒 What can we find out about the life cycle of a butterfly?
- 🕒 Can we create a storyboard to compare the life cycle of a butterfly with another animal?

## The solar system

In 1843, John Couch Adams predicted an undiscovered planet before it was seen through a telescope. The new planet, Neptune, was finally observed by German astronomers in 1846.

- 🕒 What do we know about the planets in the solar system and how can we find out more?
- 🕒 Can you suggest why people used to believe that the sun orbits the Earth?
- 🕒 Why don't we believe this anymore?

Edited by:



Millgate House Education

## Health and microorganisms

In the first half of Queen Victoria's reign, death from diseases such as cholera, tuberculosis and influenza was common. Many babies died before their first birthday. Victorians such as Dr John Snow, Joseph Bazalgette, Sir Charles Cameron and Henry Littlejohn helped to improve public health.

- 🕒 What can we find out about them?
- 🕒 Can we design a poster to persuade people that hand washing helps to prevent diseases spreading?

## Irreversible changes

Victorian houses had fireplaces for burning coal or wood, with chimneys to let the smoke out of the room. Soot would collect in the chimneys and needed to be cleared regularly. Chimney sweeps used small boys, around 6 years old, to climb up inside the chimneys and clear away the soot.

- 🕒 What can we find out about soot and why it builds up inside chimneys?
- 🕒 Can we create a storyboard to show where the soot comes from?

## Irreversible changes

Afternoon tea with cakes became popular in Victorian times. A sponge cake made with butter, sugar, flour and eggs was named Victoria sandwich cake after Queen Victoria.

- 🕒 Can we make a table to show the properties of the materials that we use to make a cake before they are mixed together, after they are mixed together and after they are baked?
- 🕒 What changes do you see when the cake mixture is baked?

## Uses and properties of materials

William Perkin made the first synthetic dye, called mauveine, in 1856. This artificial dye could turn silk a beautiful purple colour and it didn't fade as easily as natural dyes.

- 🕒 What can we find out about how to dye fabrics using plant and man-made dyes?
- 🕒 Let's compare plant dyes and artificial dyes. Which fade fastest if they are left in the sunshine?
- 🕒 Which fade fastest when they are washed lots of times?



## Forces

Isambard Kingdom Brunel (1806–1859) was a British engineer who designed and built many railway lines, bridges and iron ships such as the S.S. Great Britain.

- 🕒 Let's find out about different bridge designs and identify which features help make bridges strong. Who can design a bridge to hold the heaviest weight?

## Light and shadows

Cutting paper silhouettes was a popular way to represent someone's likeness. The solid shape looks like the person's shadow. Silhouettes became less popular as photography developed. Queen Victoria was the first British monarch to be photographed.

- 🕒 Can we use a data logger to find out which objects cast the darkest shadows?
- 🕒 Why do you think shadows have a similar shape to the object that causes them?
- 🕒 Can we use diagrams to explain how we see objects?



Written by: **Janet Barnett**, CSciTeach, PSTT Primary Science Teacher Award winner, PSQM hub leader

