

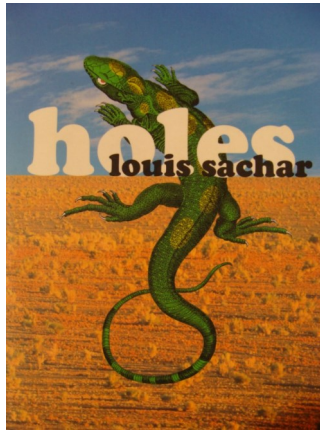


Saint Nathaniel's Academy  
Knowledge Organisers  
Spring Term One  
Year 6

### Our English focus :

#### **Holes by Louis Sachar**

- To independently use the features of Y6 writing.
- To be able to begin sentences in an interesting and varied way and write using a variety of sentence lengths for effect.
- Be able to write a descriptive narrative which includes figurative language.
- Write using a neat, legible handwriting style where letter size is consistent. To be able to write quickly.



### Spellings: Rules and Y5/6 list

**Prefixes** - 'trans' 'bi' 'tri' and 'semi' as in **transform**, **bilingual**, **tricycles** and **semicircles**.

**Hyphenating prefixes** - for example: **re-sent** to show you sent it again instead of **resent** to show you didn't like a comment.

The following is a list of our Y5/6 vocabulary which children should have the ability to spell with a high degree of accuracy by the end of the year.

accommodate, accompany, according, achieve, aggressive, amateur, ancient, apparent, appreciate, attached, available, average, awkward, bargain, bruise, category, cemetery, committee, communicate, community, competition, conscience\*, conscious\*, controversy, convenience, correspond, criticise (critic + ise), curiosity, definite, desperate, determined, develop, dictionary, disastrous, embarrass, environment, equip (-ped, -ment), especially, exaggerate, excellent, existence, explanation, familiar, foreign, forty, frequently, government, guarantee, harass, hindrance, identity, immediate(ly), individual, interfere, interrupt, language, leisure, lightning, marvelous, mischievous, muscle, necessary, neighbour, nuisance, occupy, occur, opportunity, parliament, persuade, physical, prejudice, privilege, profession, programme, pronunciation, queue, recognise, recommend, relevant, restaurant, rhyme, rhythm, sacrifice, secretary, shoulder, signature, sincere(ly), soldier, stomach, sufficient, suggest, symbol, system, temperature, thorough, twelfth, variety, vegetable, vehicle, yacht

### Key Punctuation and Grammar

In Year 6 children need to show their understanding of a wide range of punctuation and grammar. The following are key areas which we focus on in our lesson starters

**Types of words:** nouns, verbs, pronouns, determiners, adverbs, adjectives.

**Clauses, phrases and sentences:** paragraphs, relative clauses, main clauses, subordinate clauses, adverbial phrases, statements, commands, questions and exclamations.

**Conjunctions and prepositions:** co-ordinating conjunctions (for, and, nor, but, or, yet, so) subordinating conjunctions(although, when, if, because), prepositions telling us when, where, why.

**Sentence structure and tense:** identifying subject and object, active and passive voice, past, present and future tenses.

**Writing Styles:** standard and non standard English, formal and informal writing.

**Making and Choosing Words:** using prefixes to alter the meaning of a word, adding suffixes to the end of words, using synonyms (similar meaning words) antonyms (opposite meaning words)

### Types of Clauses

**Main Clause:** A clause that makes sense on its own. 'I went out even though it was raining.'

**Subordinate Clause:** A clause that doesn't make sense on its own. 'I went out even though it was raining.'

**Relative clause:** A subordinate clause that tells you more about a noun, often using a relative pronoun such as who, which, that.

## Year 6 Maths – Spring 1

### Algebra

Word problems can be shown algebraically.

I think of a number  $\longrightarrow x$

I multiply it by 6  $\longrightarrow 6x$

I then add 4  $\longrightarrow 6x+4$

My new number is 34  $\longrightarrow 6x+4=34$

$$6x+4=34 \rightarrow 6x=30 \rightarrow x=5$$

#### Using an algebraic rule

$b+12$  if  $b=7$ ,  $b+12=19$

if  $b=3$ ,  $b+12=15$

$n+m$  if  $n=7$  and  $m=3$ ,  $n+m=10$

if  $n=9$  and  $m=-7$ ,  $n+m=2$

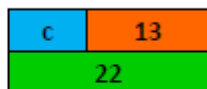
$3t+8$  if  $t=3$ ,  $3t+8=3 \times 3+8=17$

if  $t=7$ ,  $3t+8=3 \times 7+8=28$

#### Solving equations

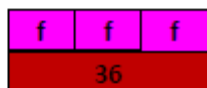
$$c + 13 = 22$$

$$c = 22 - 13 = 9$$



$$3f = 36$$

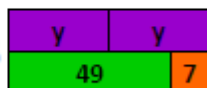
$$f = 36 \div 3 = 12$$



$$2y - 7 = 49$$

$$2y = 49 + 7 = 56$$

$$y = 28$$



### Ratio

A ratio shows the relationship between values.



For every 2 blue flowers there are 4 pink flowers. The ratio of blue flowers to pink flowers is 2:4.

OR

For every blue flower there are 2 pink flowers. The ratio of blue flowers to pink flowers is 1:2.

#### Calculating ratios

A farmer plants some crops in a field. For every 12 carrots, she plants 5 potatoes. She plants 60 carrots in total. How many potatoes did she plant? How many vegetables did she plant in total?

Carrots:Potatoes  $\longrightarrow 12 : 5$

60 Carrots

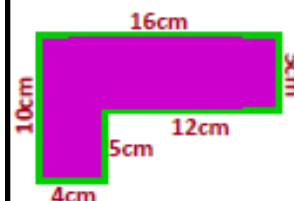
$\downarrow \times 5$

60 : 25

85 Vegetables  $\longleftarrow$  25 Potatoes

### Perimeter and Area

The perimeter of a shape or space is the distance around the outside.



$$\begin{aligned} \text{Perimeter} &= 5\text{cm} + 16\text{cm} + 10\text{cm} + \\ &4\text{cm} + 5\text{cm} + 12\text{cm} \\ &= 52\text{cm} \end{aligned}$$

The area of a shape is the amount of 2D space it takes up



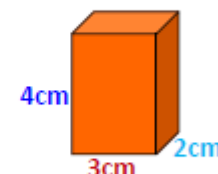
Perimeter

Area

The volume of a cuboid is its "3D space"

It can be counted as cubes or by using

Volume of cuboid = base x height x depth



$$\begin{aligned} \text{Volume} &= 3\text{cm} \times 4\text{cm} \times 2\text{cm} = \\ &12\text{cm}^2 \times 2\text{cm} = 24\text{cm}^3 \end{aligned}$$

### Vocabulary

**Algebra**— part of Maths where letters or symbols are used to represent numbers.

**Ratio**— The relation between two amounts showing the number of times one value contains or is contained within another.

**Perimeter**—Measurement of the outside of a shape, usually measured in cm, mm, m, km

**Area**— The measurement on the inside of a shape. Length X Width on a quadrilateral. Measured in  $\text{cm}^2$ ,  $\text{mm}^2$ ,  $\text{m}^2$ ,  $\text{km}^2$

**Volume**— The 3D space that a 3D shape takes up. Length x Width x Depth. Measured in  $\text{cm}^3$ ,  $\text{mm}^3$ ,  $\text{m}^3$ ,  $\text{km}^3$

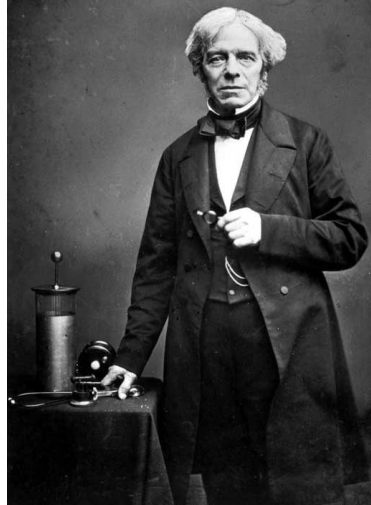


## Electricity

## Year 6 Science: Spring 1

### Michael Faraday

Michael Faraday was one of the most famous scientists in history and known as the 'Father of Electricity'. He discovered electromagnetic rotation which would eventually become the electric motor. He also discovered that moving a magnet causes a current to flow, the stronger the magnet, the bigger the current is. The power we have in our homes today is based on this discovery.

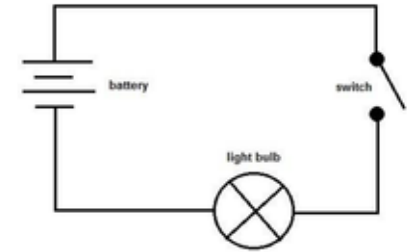


### Interesting facts

**Lightening:** One flash of lightening could power 1000 houses for a whole year. Lightening lasts one second, but can create up to 3 million volts of electricity.

**Electricity:** Electricity travels at the speed of light, which is more than 186,000 miles per hour.

**Static Electricity:** When an electric charge builds up on the surface of an object it creates static electricity. You can create static electricity by rubbing an inflated balloon on your hair.



### Vocabulary

**Switch**—a device which controls the flow of electricity.

**Insulator**—a material that does not allow electricity to pass through it.

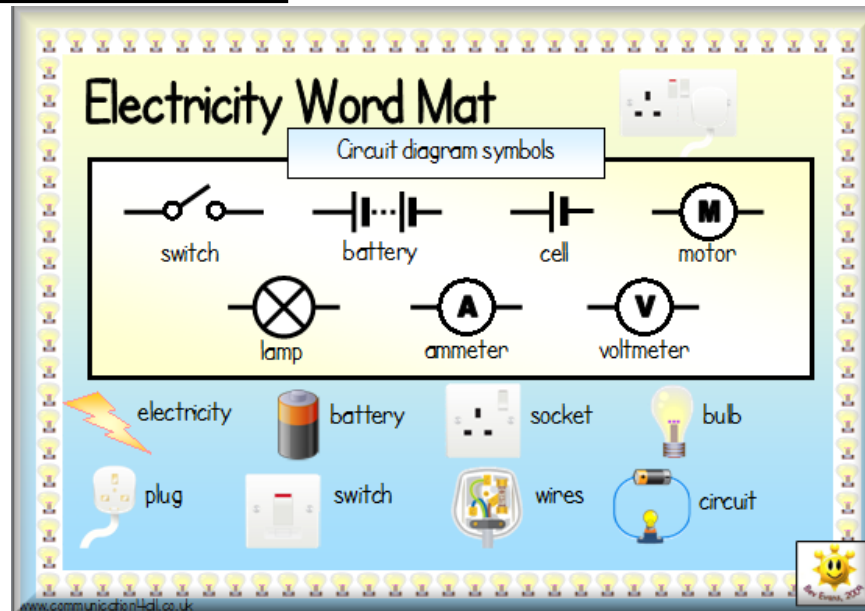
**Conductor**—a material that does allow electricity to pass through easily.

**Battery**—a power source. A battery is a container filled with chemicals that produce electricity.

**Circuit**—a path that allows electricity to flow through.

**Mains**—an electrical power source found in homes and other buildings.

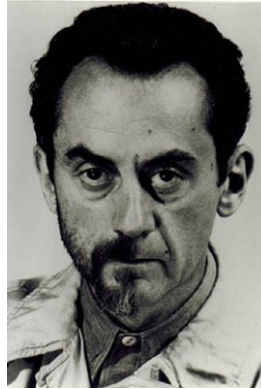
**Power source**—the source of electrical power, can be a battery or mains.





# Ancient Egypt

Year 6 Art—Spring term



## Artist Research—Emmanuel Radnitzky 'Man Ray'

August 27 1890—November 18 1976. Emmanuel Radnitzky 'Man Ray' was an American visual artist who spent most of his career in Paris. He produced major works in a variety of media but considered himself a painter above all. He was best known for his photography, and he was a renowned fashion and portrait photographer.



## Vocabulary

**Pattern**— a repeated decorative design

**Texture**— the feel, appearance, or consistency of a surface or a substance.

**Tone**— the light and dark values used to render a realistic object, or to create an abstract composition.

**Line** — straight or curved lines placed against a plain background.

**Portrait**— a painting, drawing, photograph, or engraving of a person, especially one depicting only the face or head and shoulders.

# Industrial Revolution

## Key dates

1712—First steam engine invented  
 1764—Invention of the spinning jenny  
 1771—Richard Arkwright opens his first factory at Cromford.  
 1804—First locomotive rail journey takes place.  
 1825—First passenger railway opens.  
 1855—Steel extraction process discovered  
 1860—First 'Iron warship' , HMS Warrior is launched.  
 1901—First 'modern assembly line' created  
 1914—World War 1 changes the industrial heartlands.  
 The Golden age of British industry comes to an end.

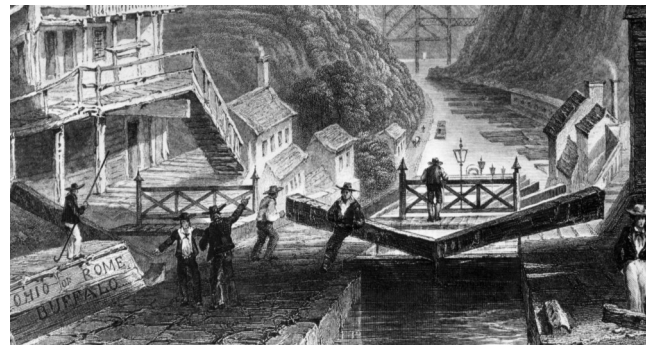
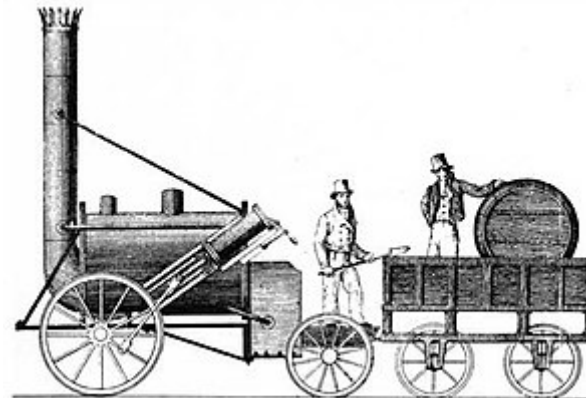


## Important people

**George Stephenson (1781-1848)** - Engineer who developed the steam engine for use in trains.

**Sir Humphrey Davy (1778-1829)** - English chemist and inventor. Invented the Davy lamp used by miners to help detect gas and improve safety.

**Isambard Kingdom Brunel (1806-1859)** - English engineer. At the heart of many of the key building projects of the British industrial revolution. He built railways and the first tunnel under a navigable river.



## Vocabulary

**industrial revolution**—period of major industrialisation (1700's-1800's)

**factory**—a building where goods are manufactured or assembled using machines.

**Engine**—a machine that converts power into motion.

**Mechanise**—to introduce machines into processes

**mass produce**—to produce large quantities of something

**water frame**—a spinning frame powered by water

**mill**—a factory fitted with machinery for a manufacturing process

**cottonopolis**—19th Century nickname for Manchester

**canal**—an artificial waterway to allow boats to travel.

**barge**—long flat bottomed boat for travelling on canals.

**aqueduct**—an artificial channel for conveying water, typically across a bridge or valley.