



## YEAR 2 SCIENCE – USES OF EVERYDAY MATERIALS

## KNOWLEDGE ORGANISER



**What have we learnt in this topic before, what we will learn this year and what will we learn next?**

**In Year 1 we learnt in our topic -Everyday Materials**

- to distinguish between an object and the material from which it is made
- to identify and name a variety of everyday materials, including wood, plastic, glass, metal, water, and rock
- to describe the simple physical properties of a variety of everyday materials
- to compare and group together a variety of everyday materials on the basis of their simple physical properties

**In Year 2 we will learn in our topic – Uses of everyday materials (materials for different uses)**

- to identify and compare the suitability of a variety of everyday materials, including wood, metal, plastic, glass, brick, rock, paper and cardboard for particular uses
- to find out how the shapes of solid objects made from some materials can be changed by squashing, bending, twisting and stretching

**In Year 4, we will develop this further in our topic - States of matter**

- to compare and group materials together, according to whether they are solids, liquids or gases
- to observe that some materials change state when they are heated or cooled, and measure or research the temperature at which this happens in degrees celsius (°C).

This subject is developed further in Year 6.

### PROPERTIES OF MATERIALS

All materials have **different properties** which make them good for **different jobs**.

Here are some properties of everyday materials:

<b>hard</b> not easily broken or pierced A hard material	<b>squashy</b> easily crushed or squashed The string tight in squaring	<b>smooth</b> an even and regular surface Some smooth pebbles
<b>absorbent</b> able to soak up liquid The sponge is absorbent	<b>bumpy</b> uneven, raised patches The road is bumpy	<b>opaque</b> cannot be seen through The stone is opaque
<b>dull</b> lacking shine or brightness The metal rings are dull	<b>brittle</b> hard, but may break easily The glass is brittle	<b>translucent</b> allowing some light to pass through The stone is translucent
<b>rigid</b> unable to be bent or forced out of shape There is a rigid	<b>transparent</b> can be seen through This glass is transparent	<b>soft</b> not firm to the touch The stone has soft feel
<b>flexible</b> able to bend A flexible spring	<b>rough</b> uneven, irregular surface The log has rough bark	<b>waterproof</b> repels water and liquids A waterproof coat
<b>elastic</b> springs back once stretched An elastic band	<b>shiny</b> reflects light, smooth surface A shiny silver spoon	<b>conductor</b> lets heat, electricity or sound to pass through it Some metals are conductors of electricity

### USES OF EVERY DAY MATERIALS

Windows are made out of **glass**.

This is a good material to use as **glass** is:

- transparent** so it lets light through.
- hard** so it stops people or objects getting in
- waterproof** so it keeps the rain out



Raincoats are made out of **plastic** covered **fabric**.



This is a good material to use as **plastic** is:

- waterproof** so it keeps you dry in the rain

and **fabric** is:

- flexible** so it can wrap around your body
- soft** so it is comfortable to wear
- warm**

Tea towels are made out of **fabric**.

This is a good material to use to dry dishes as it is:

- absorbent** so it soaks up liquid



### HOW THE SHAPES OF SOLID MATERIALS CAN BE CHANGED

Some solid materials can be changed by:

- Stretching**
- Squashing**
- Twisting**
- Bending**



It all depends on their properties.

### FOCUS SCIENTIST – JOHN MCADAM – BUILDING ROADS



John McAdam was a Scottish inventor who was unhappy with the conditions of roads so decided to make them better. He decided to grind up big stones and then cover them with a layer of smaller stones (gravel), creating a hard road which was easier to ride on. It took him 30 years but he managed to improve all the roads in the UK and soon other countries followed his design for their roads. Later, people added tar on top. Tar is a sticky material when it is very hot but sets hard to make a **smooth, hard road**. This is called 'Tarmac'. It is still used today.

#### Key Vocabulary

- hard    squashy    smooth    absorbent    bumpy    opaque    dull    brittle    translucent    rigid    transparent    soft    flexible    rock  
 rough    waterproof    elastic    shiny    stretch    squash    twist    bend    wood    metal    plastic    glass    brick    paper

## YEAR 2 HISTORY — GREAT FIRE OF LONDON

## KNOWLEDGE ORGANISER

**What knowledge have we learnt before, what we will learn this year and what will come after?**

In Year 1, the children learnt about the lives of some very significant individuals from Christopher Columbus to Neil Armstrong, Understanding why they are important and what they achieved.

**The Lives of significant individuals**  
 Christopher Columbus and Neil Armstrong  
 1451 – 1506 AD  
 1930 – 2012 AD

In Year 2, the children will learn about the Great Fire of London from the importance of Samuel Pepys diary to why the fire burned for so long and quickly.

- The Great Fire of London**  
1666 AD

Within the same century, EVFS also learned about **Bonfire Night** and the significance of this and why we still 'celebrate' Bonfire Night today.

Moving forward to 1836, Year 1 already learnt about how homes were different in 1836 compared to today. Why did the houses change? What was significant about this?

- Changes within living memory**  
Houses and Homes in the past.  
1836 AD – Present.

**ENRICHING THE CURRICULUM**

To bring this topic to life, the children will have a visit from the Hertfordshire Fire and Rescue team about fire safety. The children will explore the equipment they use to fight fires and compare this to the resources available in 1666.



**TIMELINE**

Children will learn that the Great Fire of London happened one year after the Great Plague. Also, the Great Fire of London started on 2nd September 1666 and lasted for 5 days.



Children will learn about the events leading up to the Great Fire of London happening.



The fire starts at Thomas Farriner's bakery on Pudding lane, early Sunday morning.



Houses are pulled down in an attempt to stop the fire spreading, on Sunday evening.



The fire spreads very close to the Tower of London.



St Paul's cathedral is destroyed by the fire.





Not until the Thursday 6<sup>th</sup> September 1666 the fire is under control.

**Samuel Pepy's diary**




He lived in London at the time of the Great Fire and wrote all about it in his diary. His eyewitness account is the source of our knowledge about the Great Fire and other key events in English history such as the Plague and King Charles II coronation.



**FIRE BRIGADE – PAST AND PRESENT**

<p>Fire Brigade established in 1666</p>  <ul style="list-style-type: none"> <li>King Charles established the fire brigade</li> <li>Water engine were designed to help with major fires.</li> <li>Ordinary people helped with the fire, gathering water from the Thames.</li> </ul>	<p>Fire brigade today</p>  <ul style="list-style-type: none"> <li>Powerful engine that contains lots of water.</li> <li>Ladder attached to reach heights</li> <li>Fire fighters have oxygen to use to help put the fires out.</li> </ul>
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**Key people** **Key questions and answers**

<p><b>King Charles II</b></p>  <p>Charles II was the King of England in 1666. After the fire, he made a decree that houses must be built further apart and built from stone not timber.</p>	<p><b>Sir Christopher Wren</b></p>  <p>Sir Christopher Wren redesigned London after the Great Fire.</p>	<p><b>Thomas Farriner</b></p>  <p>Owner of the bakery where the fire started. An ember from one of Thomas' bakery ovens ignited some nearby firewood. The fire quickly spread around the room and to nearby buildings.</p>
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<b>When and where did the fire start?</b>	The fire started on Sunday 2nd September 1666 in Thomas Farriner's bakery on Pudding Lane. It lasted for 5 days.
<b>Why did the fire spread so quickly?</b>	The weather was hot and it hadn't rained for months. Houses in London were mainly built from wood and straw. The houses were very close together, so fire could easily spread. Strong winds were blowing, which helped the flames to spread.
<b>How did people try to put the fire out?</b>	There was no fire brigade so ordinary people used leather buckets and water squirts to try to put the fire out but these did not work. Later in the week, King Charles II ordered buildings to be pulled down to stop the flames from spreading.
<b>How and when was the fire put out?</b>	By Thursday 6th September, the wind had died down so people were able to put out the flames by using water from the Thames.
<b>What happened after the fire?</b>	Many left London to live elsewhere and some slept in tents. An organised fire brigade was established and water engines were designed that gave a continuous stream of water when pumped.

**Key Vocabulary**

Past – Present – Then – Now – Significant – Even – Famous – Compare – Similar – Source – Historian – Samuel Pepys – King Charles II – Pudding Lane



## YEAR 2 HISTORY – FLORENCE NIGHTINGALE AND MARY SEACOLE KNOWLEDGE ORGANISER

**What knowledge have we learnt before, what we will learn this year and what will come after?**

- In Year 1, the children will begin by developing their understanding of their own recent history. They will learn facts about what life was like in the Victorian Era.
- Events beyond living memory: The Victorians 1837 to 1901 AD
- In Year 2, the children will learn how significant people from history have affected our lives for the better. They will remain in the Victorian Era to discover Florence Nightingale and then take a look at another significant person from that era by learning about Mary Seacole.
- Significant individuals: Florence Nightingale (1820-1910) and Mary Seacole (1805-1881) AD
- In Year 3, the children will move on to learning about a significant person from another country, Nelson Mandela.
- The Lives of significant individuals: Nelson Mandela (1918 – 2013) AD

### ENRICHING THE CURRICULUM



For children to appreciate the impact that Florence Nightingale and Mary Seacole had on modern day health care a nurse will visit the classes and share with the children what it is like to be a nurse today.

### Hospitals



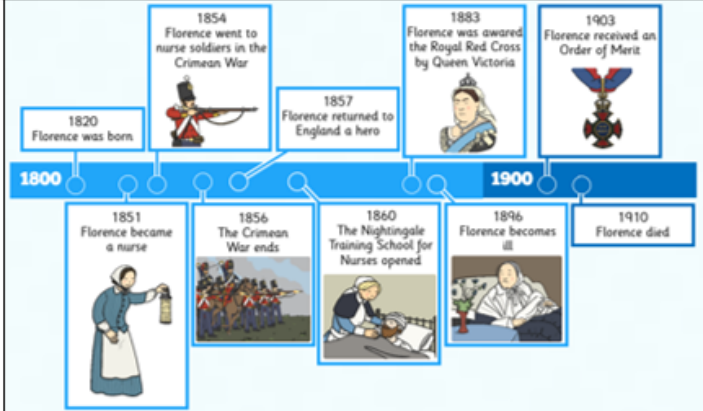
Hospitals, especially those where battles were taking place, were dirty, overcrowded and only men were allowed in. There were often rats and no-one cleaned. Many people died because of infections due to the poor conditions.

Florence Nightingale and Mary Seacole showed the world the importance of hygiene in hospitals and the benefits of nutritious food for patients.



Now hospitals are clean and patients are well fed and looked after.

### Florence Nightingale - Timeline



Florence had to defy doctors orders to care for the sick in the hospital.

She cleaned the rooms, fed the soldiers and tended to their wounds.

She became known as the Lady with the Lamp because she visited the soldiers at night as well as during the day.

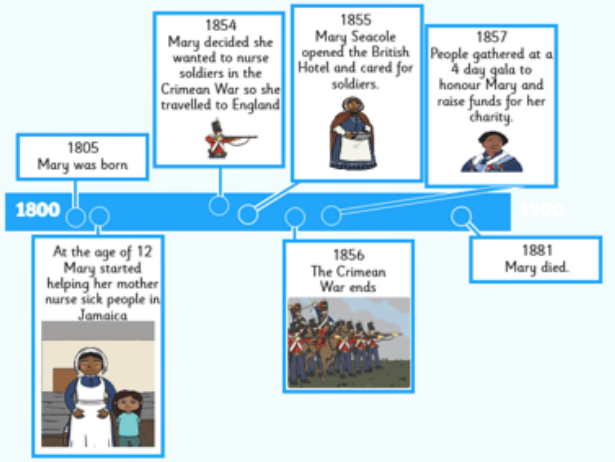
### Mary Seacole - Timeline



Mary Seacole defied social expectations and fought against prejudice to save the lives of many soldiers during the Crimean War.

She was a brave lady who entered the battlefield to ensure soldiers from both sides received the treatment they needed.

She was known as Mother Seacole.



### Crimean War



The Crimean War was fought between 1853 and 1856. It was fought in the Crimea, an area in the south of Russia at the time (now part of Ukraine). On one side were Britain, France, and Turkey, and on the other side was Russia. Florence Nightingale and Mary Seacole went to the Crimea to take care of the soldiers. They introduced modern nursing practices and saved many lives.

### Key Vocabulary

- Nurse   hospital   Crimea   Scutari   Turkey   conditions   injury   prejudice   Victorian soldier   lamp   charity   hygiene

## YEAR 2 DT – EMERGENCY VEHICLES

### KNOWLEDGE ORGANISER



What have we learnt before in DT and what will learn next?







In Year 1, we have learnt about freestanding structures using rigid materials to make and design a chair for a toy.

In Year 2, through our topic 'Construction/Use of Materials' we design and make our own emergency vehicles.

In Year 3, we will design and construct our own Anglo-Saxon home.

### HISTORY OF EMERGENCY VEHICLES

Throughout history, emergency vehicles have been used to help and rescue individuals from dangerous situations. Emergency vehicles have changed significantly through history in order to make them more visible and more efficient for the speeds they are required to travel in an emergency.

Past	Present
	
	
	

### TYPES OF EMERGENCY VEHICLES



Police car



Ambulance



Fire engine



Helicopter



Motorbike

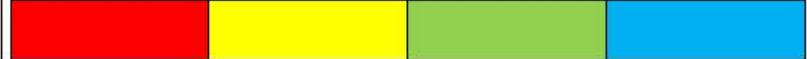
#### Key Vocabulary

Logo/ design	movable	rotate	purpose	axle	chassis	appealing	design criteria	improve
strong	wheel	product	evaluate	assemble	mechanism	cut	fix	function

### COLOURS

It is important for Emergency vehicles, that move at high speed to be easily identifiable and seen. Therefore, they are often bold or reflective colours.

Bold, bright colours:



Dull, dark colours



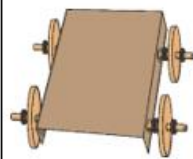
### TYPES OF AXLES AND ATTACHING THE AXLE

On a vehicle the axles need to be fixed on securely to ensure the wheels do not move from side to side.

When making our own toy car, wheels can be secured with a washer on either side. To prevent the wheels from moving too much from side to side a washer can be put in place to limit the movement and help the car run smoothly.



An axle needs to be attached to the chassis. A chassis is the frame upon which the rest of the vehicle is built.



To make our own vehicle we look at the axle and how this is attached to the car. When attaching the wheels and axles to a cereal box. One set of wheels (e.g. front wheels) will have a fixed axle and wheels will be free and the other set (back wheels) will have a free axle with the wheels fixed.

## YEAR 2 ART – CLAY POTTERY FLOWERS



#### What have we learnt before in Art and what we will learn next?

In EYFS, we will study different artists and create art inspired by their work. We will be introduced to colour mixing and through exploration will discover what colours we can make. In expressive arts and design, we will be creating by using and exploring a variety of materials, tools and techniques, experimenting with colour, design, texture, form and function.

In Year 1, we were introduced to observational drawing using sketching pencils.

In Year 2, we will use our observational drawings to design a clay flower. We will work with clay, using different techniques to shape and mould shapes to create a flower.

In Year 3, we will continue to develop our techniques with working with clay to make stone age ~~jewellery~~, including hole making and carving.

#### OBSERVATIONAL DRAWING

Observational drawing is drawing what you see in front of you as realistically and as true to life as possible. It can be a flower, a person, a still life or whatever. When artists look at something with the intent of drawing it, they tend to look more carefully than usual seeing the shapes, patterns, perspective, colours, and shadows



#### OWEN MANN

Nature-loving, New York-based artist Owen Mann makes plants out of clay. Mann first developed his love for ceramic craft at age 10, when he made a clay rose for his mother. It occurred to him then that one day he could construct ceramic florals for a living and he taught himself the craft. However, it wasn't until he was in his mid-twenties that he threw himself into crafting full-time.



#### CLAY TECHNIQUES



Rolling a ball of clay



Squeezing the clay



Rolling snakes with clay



Pulling and pinching the clay with your fingers



Joining pieces of clay together

There are lots of different techniques you can use to model clay.

You can pinch, coil, score, carve and smooth.

#### CLAY POTTERY FLOWERS



Cleverly known as Floramics, Owen series of floral ceramics captures the intricate patterns in each flower. He individually fashions dozens, and sometimes even hundreds, of petals, spines, and leaves that comprise each sculpture. He then arranges them in the unique, spiraling designs characteristic of the radial flowers and prickly plants he opts to emulate.



Clay is a material rich in history and possibilities for art making, and handbuilding pottery is the oldest use of the medium. The main techniques used in recreating a clay flower are pinching and slab rolling.

#### Key Vocabulary

water sketching  
pottery tone

real life  
petal

patterns  
join squeeze

abstract  
rolling

clay  
pinching

modelling

pinching

slab rolling

### Prior Learning

Built simple movement patterns from given actions. Composed and linked actions to make simple movement phrases.

### Unit Focus

Describe and explain how performers can transition from shapes and balances. Challenge themselves to move imaginatively responding to music. Work as part of a group to create and perform.

### We are learning...

1. to use penguin images to inspire our dance.
2. to show feelings of abandonment through dance.
3. to create movements that show friendship between two characters.
4. to create a solo dance with changes of direction and speed.
5. to match our movements to music.
6. to choose a formation for our dance and explain our choice.

### Key Questions

1. What is the main mood/feeling you get from this dance?
2. What does it mean to perform as a soloist?
3. Explain what actions show the story.

### Equipment

Music player, music, cones, hoops, throw down spots, balloons, laptop with internet access.

### Vocabulary

Direction, huddle, group, mood, feeling, penguin, musicality, respond, galloping, flying, friendship, abandonment.

### Concepts

- Solo is an individual dancing alone, apart from others, with independent movements.
- A duet is two people dancing together with compulsory and contrasting actions.

### Assessment Overview

**Head** - Show confidence to perform in front of others.

**Hand** - Show good timing with the music.

**Heart** - Attempt to work as part of a group to perform a dance.

