

Year 6 Victorian suspension bridge Knowledge Organiser

Key Skills

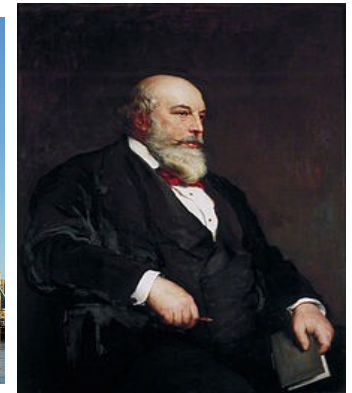
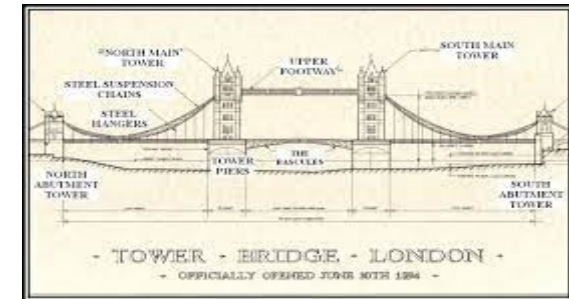
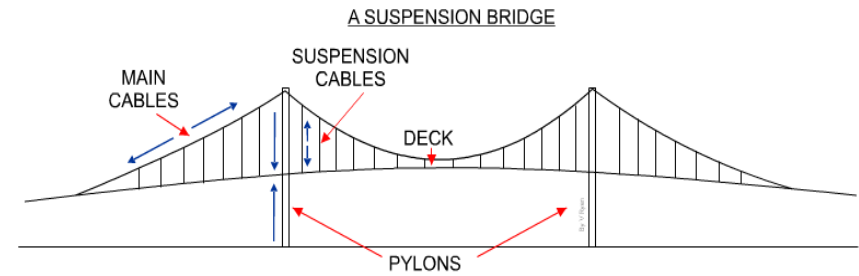
- ◇ Use techniques that involve resourcefulness, resilience and innovation when trying to solve a problem during the process of making.
- ◇ To be strong and stable structure.
- ◇ Use a wide range of materials and components .

Sticky Knowledge

- ◇ Investigate who designed the products, where were they made , when products were designed and made; whether products can be re-used or recycled.
- ◇ Explain next steps in their learning drawing on their prior experience.
- ◇ Produce a list of tools, materials and components suitable for completing

Key vocabulary

| | |
|------------|---|
| Suspension | The action of suspending someone or something. |
| Bridge | A structure carrying a road, path, railway, etc. across a |
| Pylon | A tall tower-like structure used for carrying electricity |
| Cable | A thick rope of wire or hemp used for construction. |
| Deck | The surface of a bridge |
| Structure | A building or other object constructed from several |



Key Designer

Sir Horace Jones PPRIBA (20 May 1819 - 21 May 1887) was an English architect particularly noted for his work as architect and surveyor to the City of London from 1864 until his death. His most recognised work, Tower Bridge, was completed after his death.

Year 5 Cam Toys Knowledge Organiser

Key Skills

- ◇ Research products to inform the design of their own innovative product.
- ◇ Make careful and precise measurements.
- ◇ Produce step by step plans to guide the making of the product.
- ◇ Understand how a cam mechanism creates movement and how the shape can alter this movement.

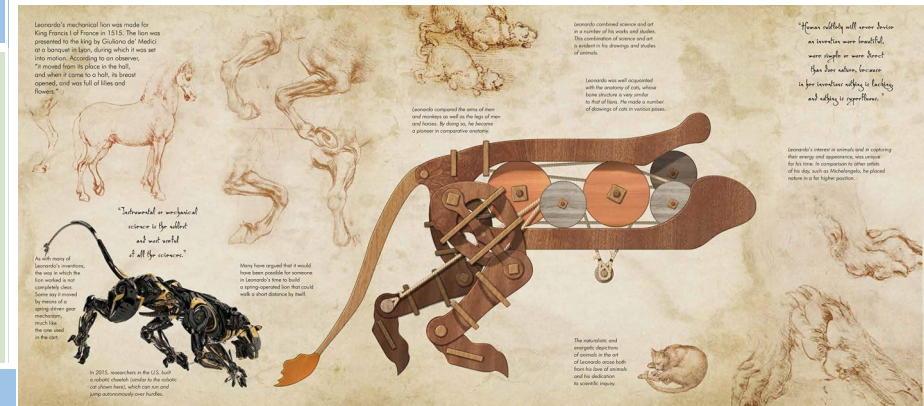
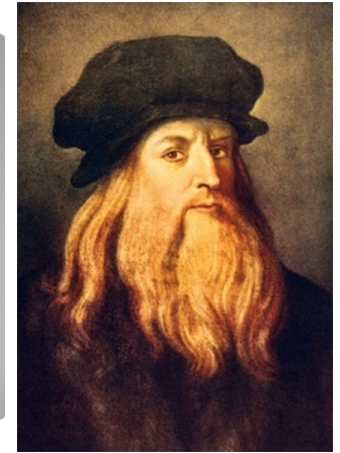
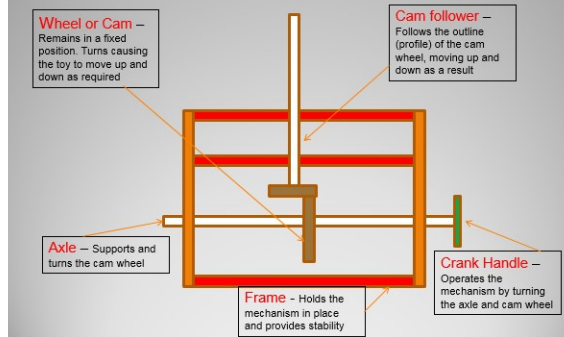
Sticky Knowledge

- ◇ The mechanism causes components to move.
- ◇ A cam mechanism is made up of a cam, follower, axle, slider and handle.
- ◇ Cam mechanisms create linear and rotary movements.
- ◇ Produce a list of tools, materials and components suitable to completing the product.

Key vocabulary

| | |
|-----------------|--|
| Mechanism | An assembly of moving parts which perform a complete functional motion. |
| Cam | A slide or roller attached to a rotating shaft to give a particular type of motion |
| Slider | Part of the cam mechanism which is attached to the follower |
| Follower | Mechanism in contact with the cam |
| Linear movement | Moving in a straight line, up or down. |
| Rotary movement | Turning around in a circle, like a wheel turning |
| Axle | A rod or spindle through the cam. |

A simple cam mechanism consists of...



Key Inventor

Leonardo di ser Piero da Vinci (15 April 1452 - 2 May 1519) was an Italian polymath of the High Renaissance who was active as a painter, draughtsman, engineer, scientist, theorist, sculptor and architect. While his fame initially rested on his achievements as a painter.

In 16th Century Leonardo da Vinci created his mechanical lion as a present for king Louis XII. The lion could walk and reveal a cluster of lilies from his chest.

Year 4 Paper cut Light box Knowledge Organiser

Key Skills

- ◇ Measures, marks out, cuts and shapes materials and components with some accuracy.
- ◇ Able to apply several finishing techniques
- ◇ Refer to design criteria whilst designing and making and use to evaluate and improve what they have made.
- ◇ Use a wide range of materials and components.

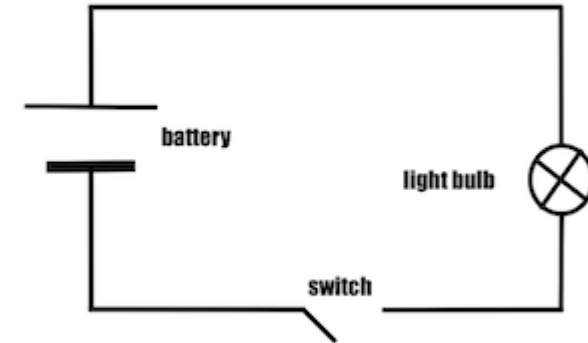
Sticky Knowledge

- ◇ To know that simple electrical circuits and components can be used to create functional products.
- ◇ Explain their choices, giving evidence
- ◇ Understand that materials have functional and aesthetic qualities and apply this to their design and making process.

Key vocabulary

| | |
|----------------|--|
| Switch | A device for making and breaking the connection in an electric circuit. |
| Bulb | A device that converts electricity into light. |
| Simple circuit | A simple circuit consists of a current source, conductors and a load. |
| Battery | a container consisting of one or more cells, in which chemical energy is converted into electricity and used as a source of power. |
| Paper cut | Papercutting art is a purely decorative art form that involves cutting out shapes, lines, and patterns from paper. |
| Layer | a sheet, quantity, or thickness of material, typically one of several, covering a surface or body. |

Simple Electric Circuit



Key Designers

Deepti Nair and Harikrishnan Panicker (known collectively as Hari & Deepti) are an artist couple who create paper cut light boxes. Each diorama is made from layers of cut watercolor paper placed inside a shadow box and is lit from behind with flexible LED light strips. The small visual narratives depicted in each work often play off aspects of light including stars,

Year 3 Moving Sphinx Knowledge Organiser

Key Skills

- ◇ Generate ideas for products
- ◇ Use annotated sketches to show ideas
- ◇ Select appropriate tools and techniques.
- ◇ Assemble/ join materials
- ◇ Use a range of techniques to shape and mould

Sticky Knowledge

- ◇ To logically order the main stages of making.
- ◇ To recognise that materials have functional and aesthetic qualities.
- ◇ To be able to design a Sphinx including a moving pneumatic system.

Key vocabulary

| | |
|------------------|--|
| Pneumatic system | A system that uses air pressure to produce and control movement. |
| Inflate | To fill a structure with air. |
| Deflate | To remove air from a structure |
| Pressure | To force something onto something else. |
| Tubing | A length of a plastic tube. |
| Sphinx | An Ancient Egyptian structure. |
| Function | work or operate in a proper or particular way. |
| Aesthetic | concerned with beauty or the appreciation of beauty. |



Pneumatic System



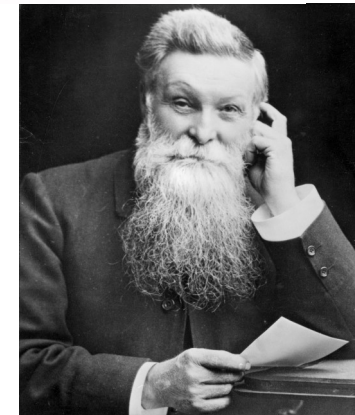
Deflated



Inflated



Sphinx



Key Inventor

John Boyd Dunlop (5 February 1840 - 23 October 1921) was a Scottish-born inventor who spent most of his career in Ireland. Familiar with making rubber devices, he invented the first practical pneumatic tyres for his child's tricycle and developed them for use in cycle racing.

Year 2 Moving Vehicles knowledge organiser

Key Skills

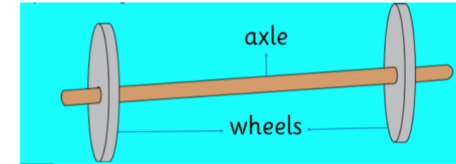
- ◇ Assembles, joins and combines materials and components.
- ◇ Able to identify skills that they have used and they that was the appropriate skill.
- ◇ Explain the purpose of products and the requirements of the user.

Sticky Knowledge

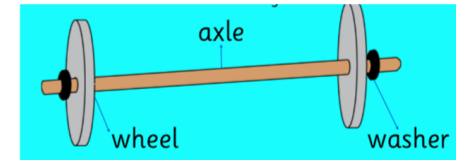
- ◇ Explains their choices.
- ◇ Use a success criteria to make choices and judgements about their products.
- ◇ Write a plan for making.

Key vocabulary

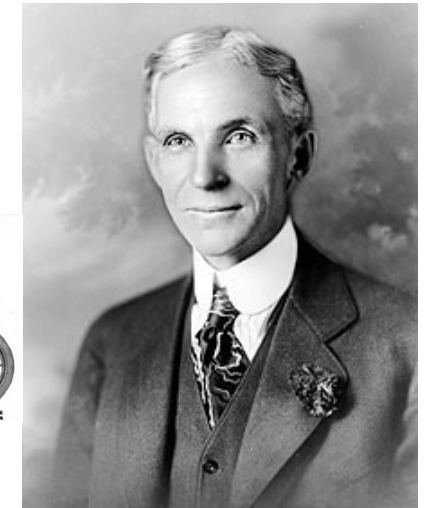
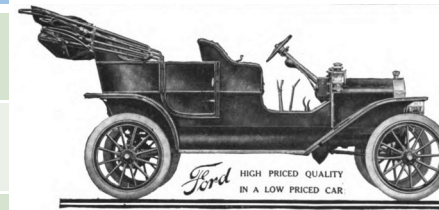
| | |
|-----------|--|
| Axle | A rod or spindle (either fixed or rotating) passing through the centre of a wheel or group of wheels. |
| Wheel | A rod or spindle (either fixed or rotating) passing through the centre of a wheel or group of wheels. |
| Chassis | The frame of a vehicle |
| Washer | A small flat metal, rubber, or plastic ring fixed between two joining surfaces or between a nut and a bolt to act as a spacer or seal. |
| Dowel | A round rod usually made of wood or metal. |
| Transport | To take or carry (people or goods) from one place to another by means of a vehicle, aircraft, or ship |
| Design | A plan or drawing to show the look and function of something |
| Evaluate | To judge how something can be improved |



Axles are attached firmly to the wheel so the axle rotates and the wheels turn with it.



The wheels are placed loosely on the axle so that the wheels turn around the axle. If the wheels are not attached to the axle, you need to use something to stop the wheels from falling off.



Key Designer

Hello my name is Henry Ford I lived from July 30, 1863 until April 1947. I am the founder of the Ford Motor Company. I revolutionised transportation in America when I designed the first car to be made on a mass scale.

Year 1 Moving Picture Book Knowledge Organiser

Key Skills

- ◇ Measures, marks out, shapes and cuts out most materials.
- ◇ Talk about likes and dislikes of existing products.
- ◇ Talk and write about how to make their products better.
- ◇ Identify skills they have used to make each product.

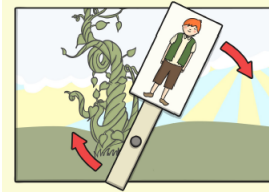
Sticky Knowledge

- ◇ Plans by suggesting what to do next.
- ◇ Explore products, what they are made from, who they are for and how they are used .
- ◇ They know how to operate simple equipment and show interest in toys with flaps, buttons, and mechanism and can operate them successfully.

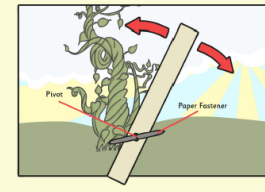
Key vocabulary

| | |
|-----------|---|
| Mechanism | parts working together in a machine |
| Lever | a bar resting on a pivot, used to move an object with |
| slider | a knob or lever that is moved horizontally or vertically |
| Component | a part of a machine |
| Pivot | the central point, pin, or shaft on which a mechanism |
| Wheel | a circular object that revolves on an axle and is fixed below a vehicle or other object to enable it to move easily |

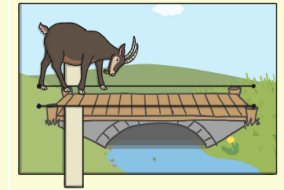
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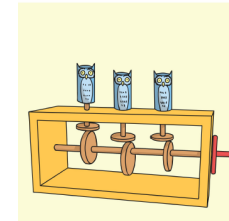
pivot



slider



mechanism



Key Designer

- ◇ My name is Mathew Reinhart
- ◇ I was born September 22, 1971
- ◇ I make popular pop up children's books including a Pop up guide to Hogwarts.