

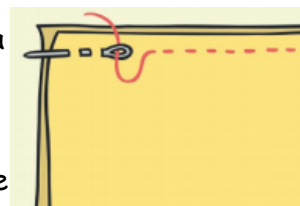
# DT - Textiles - Must Knows – Key Stage 1

## New Vocabulary

fabric (sometimes also called material or cloth)	textiles
sew	sewing
needle	thread (sometimes called 'cotton')
stitch	running stitch

## Technical Skills

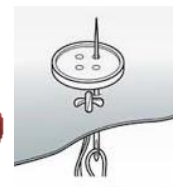
- Learn how to sew using a running stitch
- Begin to use it in a variety of ways - to join fabric together, to make a pattern or design, to applique



running stitch



- Use a paper template (or pattern piece) to cut out.
- Position it so we don't waste fabric.
- Cut out carefully with an adult.



## Decorating textiles

There are different techniques we might use to decorate:

- Sew fabric onto other fabric (applique)
- Attach or glue on sequins, buttons or other decorations



## Fabric printing using block print technique

- Make print design on polystyrene block by carving it in
- Roll fabric paint evenly across
- Blot excess off and then print on textile. Repeat in different patterns

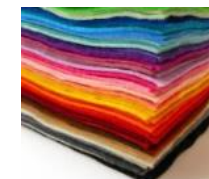
## Equipment



fabric scissors



needle and thread



felt

## Famous Designers

### Cath Kidston - British, contemporary, textiles designer

Known for using repeating floral patterns



## Keeping Safe



### Scissors

Equipment that you are using can be sharp. Be careful when using and never run when holding them



Cut away from yourself. Turn the material when at a corner. Hold with the blade down when passing or walking with them



Long hair should be tied back.



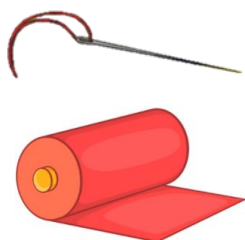
## Tidy up Time

Thread out of needle.

Needles away- Given to an adult.

Scrap fabric put away.

Rubbish in the bin.



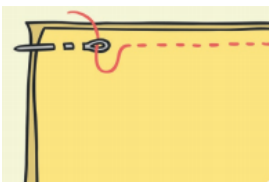


## DT - **Textiles** - Must Knows – Lower KS2

### You should already know....

#### Previously Learned Vocabulary

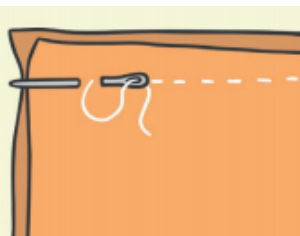
fabric (sometimes also called material or cloth)	Textiles is when we sew. We are sewing	needle
thread (sometimes called 'cotton')	Stitch (running stitch)	fabric (sometimes also called material or cloth)



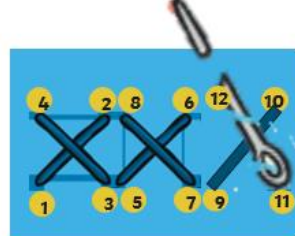
running stitch



### Technical Skills - Stitches



backstitch

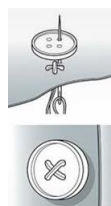


cross stitch

- Learn how to sew using a back stitch and cross stitch.
- Join fabrics together using these stitches or running stitch.

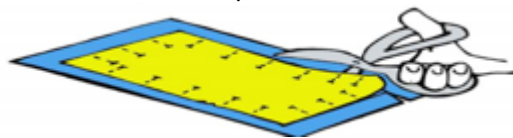
### Technical Skills - Decoration

- Sew fabric onto other fabric (applique)
- Attach buttons for purpose or decoration



### Technical Skills – Pattern cutting

- Use a paper template (or pattern piece) to cut out.
- Position it so we don't waste fabric
- Pin template to fabric so it doesn't move.
- Cut out carefully with fabric scissors.



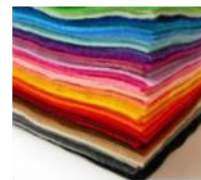
fabric scissors



needle and thread

### Equipment

needle threader



felt



buttons

### Famous Designers

From history -Coco Chanel / Contemporary- John Rocha

Coco Chanel Famous French designer famous in post-WW1 era . Influential in handbags and other fashion.



John Rocha Famous designer Hong Kong born based in Ireland Known for his hand-crafting, beading and applique to garments.

### Keeping Safe

Equipment that you are using can be sharp. Be careful when using and never run when holding them.



Scissors  
Cut away from yourself. Turn the material when at a corner. Hold with the blade down when passing or walking with them.

Long hair should be tied back.



# DT - Textiles - Must Knows – Upper KS2

## Keeping Safe

**Scissors**  
Cut away from yourself. Turn the material when at a corner. Hold with the blade down when passing or walking with them.

Equipment that you are using can be sharp. Be careful when using and never run when holding them.

Long hair should be tied back.

## Previously learned vocabulary

Back stitch	Cross stitch
Applique (sew onto other fabrics)	Pattern
Fastening	finishing technique
seam	Annotated sketch

## You should already know....

running stitch

backstitch

cross stitch

## Technical Skills - Stitches

satin stitch

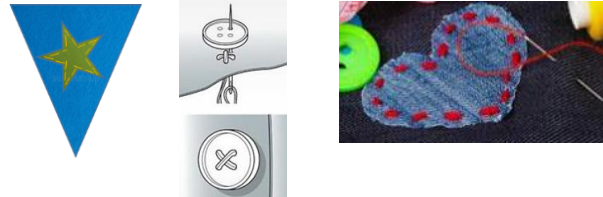
stem stitch

chain stitch

- Learn how to sew using a satin stitch, stem stitch and chain stitch.
- Join fabrics together using any of the previously learnt stitches.

## Technical Skills - Decoration

- Sew fabric onto other fabric (applique)
- Attach buttons for purpose or decoration



## Technical Skills – Fasteners

- Chose an appropriate fastener for the design brief.
- Attach fastener using an appropriate stitch.



## Technical Skills – Pattern cutting

- Create a pattern using paper or card.
  - Position it so we don't waste fabric
  - Pin template to fabric so it doesn't move.
  - Cut out carefully with fabric scissors.
- 

## Equipment

fabric scissors

needle and thread

needle threader

felt

Items for decoration

fasteners

## Famous Designers

from history William Morris / contemporary- Research own designer that uses nature in their work

### William Morris

British Designer in 1800s. Created many floral patterns with repeating patterns.



## New Vocabulary

Aesthetic	Satin stitch
Chain stitch	Stem stitch
Functional	Prototype
Purpose	Design specification



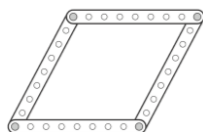
# DT - Structures - Must Knows – Key Stage 1

## Top Vocabulary

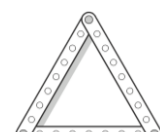
Drilling	Screwing
Gluing	Nailing
Materials	Structure
Strengthen	product

## Technical Knowledge

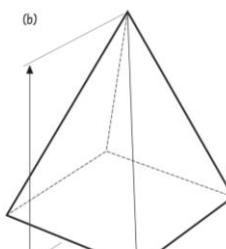
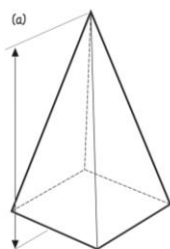
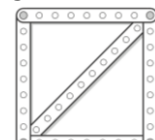
Some shapes and structures are stronger than others



This is easy to push over



Strong or reinforced shapes can't be pushed over



3D shapes are stronger and more stable with a wider base. Pyramid b here will be more stable.

## Equipment



Junior hacksaw



Sand paper



Hammer and nails



Bench hook

Glue



## Keeping Safe

Keep your work area clear.



Only small groups of children sanding at one time.

junior hacksaw correct grip



Keep your other hand out of the way.

Walk around the classroom.



Listen carefully to all instructions.



Long hair tied back.

## Famous Designers

### Zaha Hadid- contemporary

Dame Zaha Mohammad Hadid DBE RA was a British Iraqi architect, artist and designer, recognised as a major figure in architecture of the late 20th and early 21st centuries.



## Tidy up time!



Name on work.  
Equipment away.  
Desks tidy and clear.  
Floor tidy and clear.

## Technical Skills –

- Cut materials safely using provided tools.
- Demonstrate a range of joining techniques such as gluing.
- Measure and mark out to the nearest centimetre.
- Demonstrate a range of cutting techniques.
- Use materials to practise drilling, screwing, gluing and nailing materials to make and strengthen products.



# DT - Structures - Must Knows – Lower KS2

## Top Vocabulary

Construct	Repair
Strengthen	materials
structure	support
product	purpose

## Technical Knowledge



Framed structure



Shell structure



Natural structure



Free-standing structure

load (person)

Structures need to hold a load.

Structure (swing)



Structures have a purpose (why are we making it?) and a user (who is it for?).

## Equipment



Junior hacksaw



Bench hook



Screwdrivers



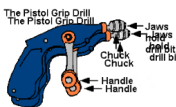
Sand paper



Hammer and nails



Glue



Hand drill

## Famous Designers

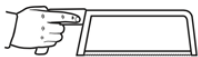
Isambard Kingdom Brunel – from history (1806-1859)

An influential English mechanical and civil engineer, who was also a famous for his bridge building.



## Keeping Safe

junior hacksaw  
correct grip



Keep your other hand out of the way.

Keep your work area clear.



Listen carefully to all instructions.



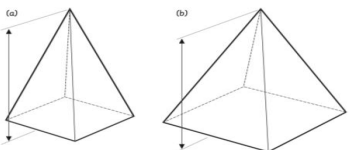
children should not hold nails with their fingers.

Walk around the classroom.



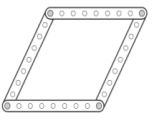
Long hair tied back

## You should already know....

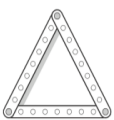


3D shapes are stronger and more stable with a wider base. Pyramid b here will be more stable.

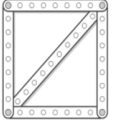
Some shapes and structures are stronger than others



This is easy to push over



Strong or reinforced shapes can't be pushed over



## Technical Skills -

- Being to cut materials by selecting appropriate tools with support.
- Being to measure and mark out to the nearest millimetre.
- Select appropriate joining techniques.
- Choose suitable techniques to construct products or to repair items.
- Strengthen materials using suitable techniques.

# DT - Structures - Must Knows – Upper KS2

## Top Vocabulary

Cutting (sawing)	Nailing
Gluing	Sanding
Appropriate material	Strengthen
Structure	Construction shape

## Technical Knowledge

Independently work through these steps to create a structure with purpose.

Prototype- a simple model that lets you test out your idea.

Mark out- to measure or mark of piece of material that needs to be cut or shaped.

Reinforce- make a structure stronger by adding another material or element.

Modify- to change something to improve it.

Evaluate- look at how well the final product works and think of some improvement points for next time.

## Equipment



Junior hacksaw



Bench hook



Screwdrivers



Sand paper



Hammer and nails



Glue



Hand drill

## Keeping Safe

Keep your work area clear.



Listen carefully to all instructions.



children should not hold nails with their fingers.

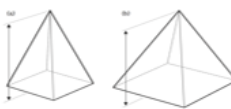
Walk around the classroom.



Long hair tied back



## You should already know....



3D shapes are stronger and more stable with a wider base. Pyramid b here will be more stable.

Some shapes and structures are stronger than others



This is easy to push over



Strong or reinforced shapes can't be pushed over



Framed structure



Shell structure



Natural structure



Free-standing structure

## Technical Skills -

- Cut materials with precision and refine the finish with appropriate tools (such as sanding wood after cutting or a more precise scissor cut after roughly cutting out a shape).
- Show an understanding of the qualities of materials to choose appropriate tools to cut and shape (such as the nature of fabric may require sharper scissors than would be used to cut paper).
- Develop a range of practical skills to create products (such as cutting, nailing, gluing, and sanding).
- Choose appropriate materials to strengthen and structure.
- Understanding that different construction shapes are stronger and better suited to different tasks.

The Anderson shelter was an air raid shelter designed to accommodate up to six people. It was designed in 1938 by William Paterson and Oscar Carl (Karl) Kerrison in response to request from the Home Office.



## Famous Designers

William Paterson and Oscar Carl (Karl) Kerrison- from history



# DT – Mechanisms and Mechanical Systems- Must Knows – KS1

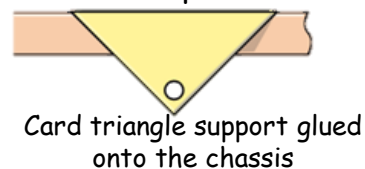
## Top Vocabulary

Product	Wheel
Axel	mechanism
slider	level
Split pin	chassis

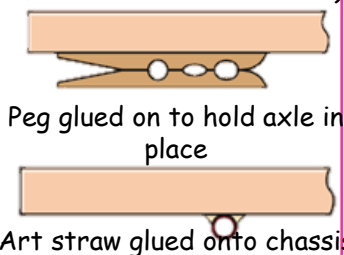
## Technical Knowledge



Join axle to the chassis. You could try these options

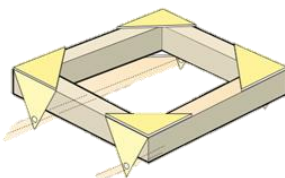


Hole drilled into chassis (before chassis constructed)

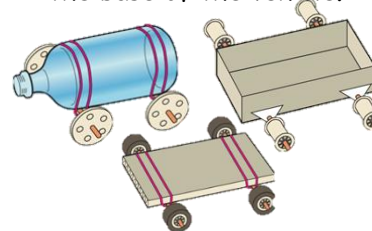


Art straw glued onto chassis

Make a simple chassis (body of the vehicle)



Or you could use a cardboard box, strip of corrugated card or plastic sheet/bottle as the base of the vehicle.



## Equipment



Scissors



Glue



Hand drill

## Keeping Safe

Keep your work area clear.



Listen carefully to all instructions.

Long hair tied back

Walk around the classroom.



## Tidy up time!



Name on work.  
Equipment away.  
Desks tidy and clear.  
Floor tidy and clear.

## Famous Designers

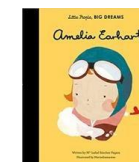
Sir Alexander Issigonis- contemporary

Sir Alexander Arnold Constantine Issigonis CBE FRS RDI was a British-Greek automotive designer. He designed the Mini, launched by the British Motor Corporation in 1959, and voted the second most influential car of the 20th century in 1999.



Amelia Earhart- from history

Amelia Mary Earhart was an American aviation pioneer and author. Earhart was the first female aviator to fly solo across the Atlantic Ocean.



# DT – Mechanisms and Mechanical Systems- Must Knows – Lower KS2

## Top Vocabulary

Mechanical system	Lever
Linkage	Moving product
Fixed Pivot	Loose pivot
Guide or bridge	Mechanism

## Keeping Safe

Keep your work area clear.



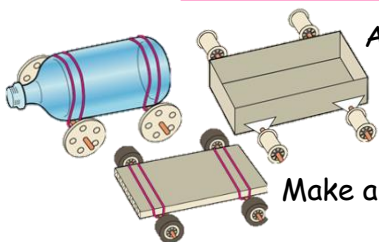
Listen carefully to all instructions.

Walk around the classroom.



Long hair tied back

## You should already know....



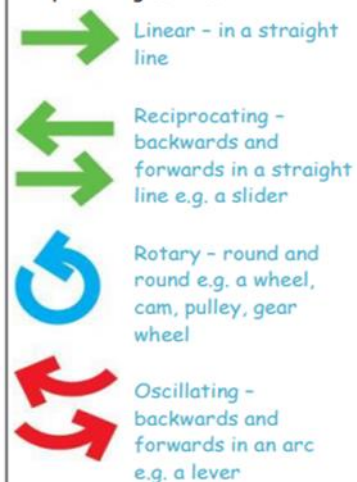
A number of different methods too...  
Join wheels to axles.

Join axle to the chassis.

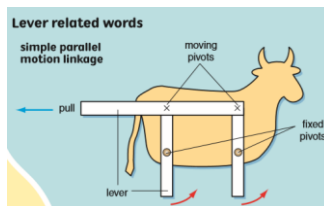
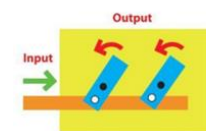
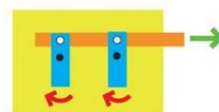
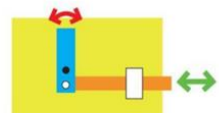
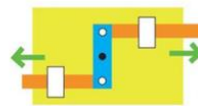
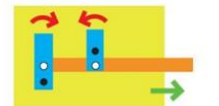
Make a simple chassis (body of the vehicle)

## Technical Skills

Lever and linkage mechanisms usually produce oscillating or reciprocating movement:



● Fixed pivot  
○ Loose pivot



## Equipment



Scissors



Meccano



Glue



Card

## Famous Designers

### Mary Jackson

Mary Jackson was an American mathematician and aerospace engineer at the National Advisory Committee for Aeronautics, which in 1958 was succeeded by the National Aeronautics and Space Administration. She worked at Langley Research Center in Hampton, Virginia, for most of her career.



## Technical Skills -

Explore & use mechanical systems (different levers and linkages) to create a moving product.

Consider the different placement of the linkages & levers for success of the product.



# DT – Mechanisms and Mechanical Systems- Must Knows – Upper KS2

## Top Vocabulary

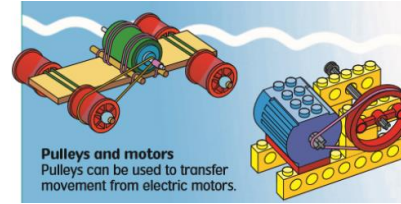
Electronics	Mechanics
Mechanical system	Gear
Pulley	Cam - round, snail, eccentric, egg-shaped, ellipse, hexagon

## Technical Skills

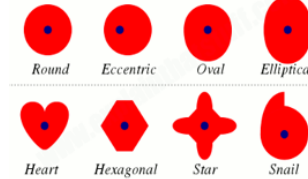
Linear motion - straight line



Rotary motion - turning in a circle

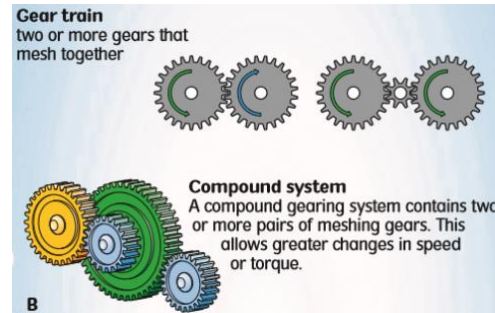


Some common types of cams



**The eccentric cam** – this rotates as it is fixed to the axle which is turned by the handle.

**The follower cam** – the eccentric cam causes the follower to move up and down (linear) and rotate.



## Equipment



K'nex



Cams kits



Hand drill

## Keeping Safe

Keep your work area clear.



Listen carefully to all instructions.

Walk around the classroom.



Long hair tied back

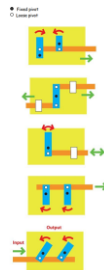
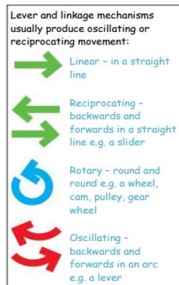
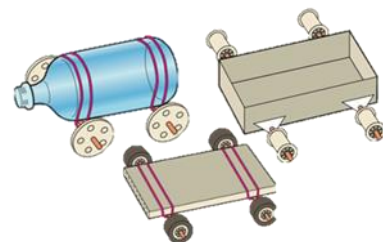
## Famous Designers

### Rosie the Riveter

Rosie the Riveter was an allegorical cultural icon of World War II, representing the women who worked in factories and shipyards during World War II, many of whom produced munitions and war supplies. These women sometimes took entirely new jobs replacing the male workers who joined the military.



## You should already know....



## Technical Skills -

Use innovative combinations of electronics (or computing) and mechanics in product designs.

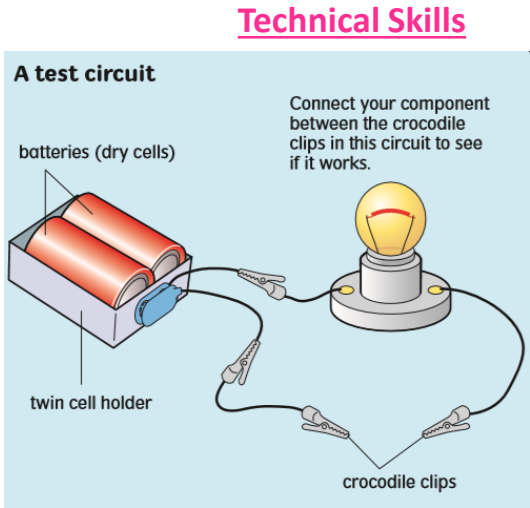
Begin to use combinations of electronics (or computing) and mechanics in product designs.

Explore & use mechanical systems (gears, pulleys and cams)



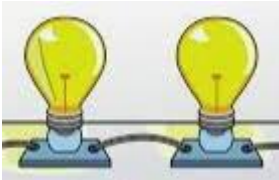
**DT – Electrical Systems- Must Knows – Lower KS2**

Top Vocabulary	
Electrical system	Crumble kit
Series circuit	Electronics
Sparkles (bulb)	Code
Control	monitor



Crocodile clips and wires

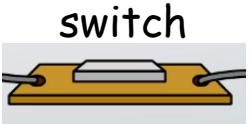
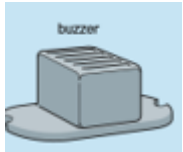
**Equipment**



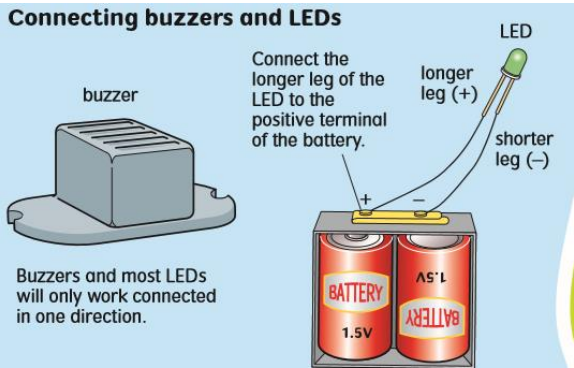
bulb



Power source



switch



**Famous Designers**

**Ada Lovelace**

Augusta Ada King, Countess of Lovelace was an English mathematician and writer, chiefly known for her work on Charles Babbage's proposed mechanical general-purpose computer, the Analytical Engine.



**Keeping Safe**

Keep your work area clear.



Listen carefully to all instructions.

Walk around the classroom.



Long hair tied back

**Technical Skills -**

Create series circuits using electronics kits (with 2 sparkles - bulbs)

Begin to write code to control and monitor models or product



# DT – Electrical Systems- Must Knows – Upper KS2

Top Vocabulary	
Complex circuit	Electronics kit (Crumble kit)
Sparkles (bulb)	Switches
Motor	Write code

**Keeping Safe**

Keep your work area clear.



Listen carefully to all instructions.

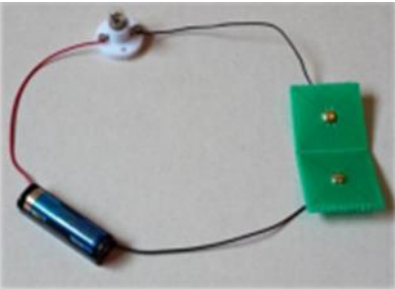
Walk around the classroom.



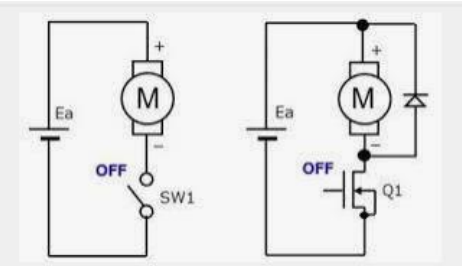
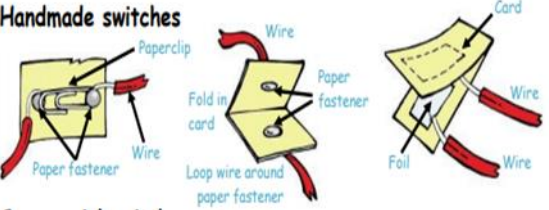


Long hair tied back


**Technical Skills**



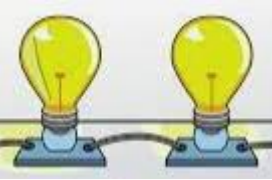
Handmade switches




**Equipment**




Crocodile clips and wires



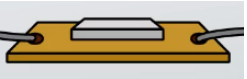
bulb



Power source



motor




switch

**Famous Designers**

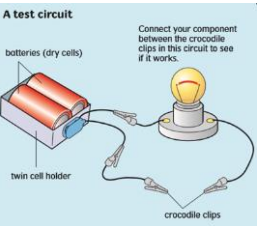
Steven Paul Jobs was an American business magnate, industrial designer, investor, and media proprietor.



Alan Mathison Turing OBE FRS was an English mathematician, computer scientist, logician, cryptanalyst, philosopher, and theoretical biologist.

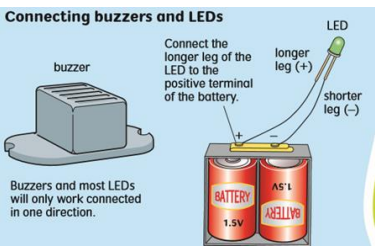


**You should already know....**



A test circuit

Connect your component between the crocodile clips in this circuit to see if it works.



Connecting buzzers and LEDs

Buzzers and most LEDs will only work connected in one direction.

**Technical Skills -**

Create more complex circuits using electronics kits (with bulbs, switches and motors)

Write code to control and monitor models or products

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