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Kaleidoscope DT Curriculum

Learning Organiser for Year R
Design Technology

National Curriculum Summary
Key Subject Concepts

Make

- select from and use a range of tools and equipment to perform practical tasks [for example, cutting, shaping, joining and finishing]
- select from and use a wide range of materials and components, including construction materials, textiles and ingredients, according to their characteristics

Evaluate

- explore and evaluate a range of existing products
- evaluate their ideas and products against design criteria

Prior Knowledge/Experience

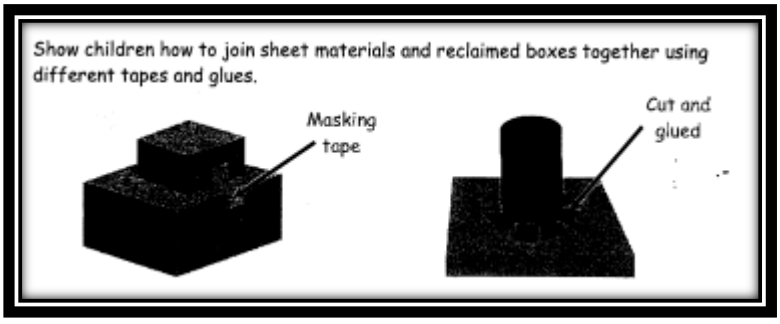
Check that children understand:

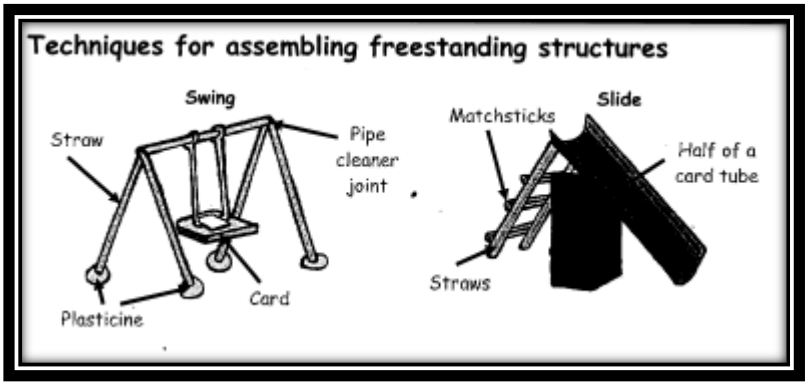
- No prior knowledge is expected

Definition	
Boxes	Containers
Glue	Sticky substance that keeps things together
Sticky tape (Sellotape)	Sticky tape that keeps things together
Stapler	A tool that grips things together

Key Skills

Learn basic joins using a variety of equipment.





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Kaleidoscope DT Curriculum

Learning Organiser for Year R/1/2
Design Technology
Mechanisms – Links and Linkages - Sliders

National Curriculum Summary
Key Subject Concepts

Design

- design purposeful, functional, appealing products for themselves and other users based on design criteria
- generate, develop, model and communicate their ideas through talking, drawing, templates, mock-ups and, where appropriate, information and communication technology

Make

- select from and use a range of tools and equipment to perform practical tasks [for example, cutting, shaping, joining and finishing]
- select from and use a wide range of materials and components, including construction materials, according to their characteristics

Evaluate

- explore and evaluate a range of existing products
- evaluate their ideas and products against design criteria Technical knowledge

Technical knowledge

- build structures, exploring how they can be made stronger, stiffer and more stable
- explore and use mechanisms [for example sliders], in their products

Prior Knowledge/Experience

N/A first unit on this theme.

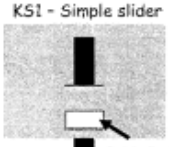
Definition	
Sliders	A lever or knob that is moved sideways or up and down to control something
Levers	Bar that moves around a pivot

Key Skills

- Understand that you can use a slider to make something move.
- Design a picture/object that requires a slider, and make it.
- Evaluate how well it works.

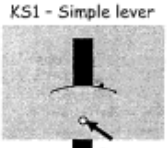
Teaching aids to demonstrate sliders and levers

KS1 – Simple slider



Guide/bridge on back of picture

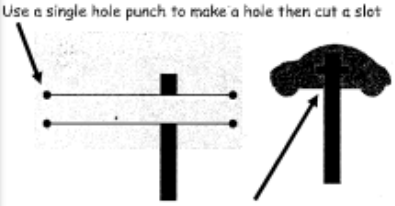
KS1 – Simple lever



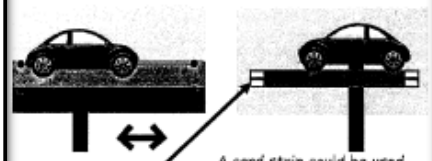
Paper fastener pivot

Sliders move from side to side and up and down

Use a single hole punch to make a hole then cut a slot



Tape or staple car onto card strip



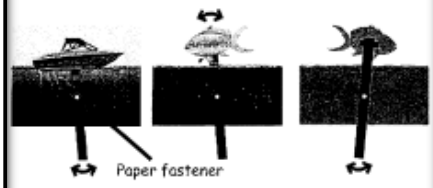
Sticky fixers on back of card strip

A card strip could be used instead of cutting slots to allow movement

Masking tape

Rabbit moves up and down

Levers can be used with or without a slot

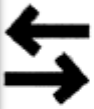


Paper fastener

A card strip is used as a lever. The fish and boat are glued to the lever which is used as a handle.

Simple mechanisms move:

in a straight line

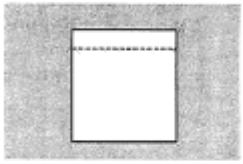


in a straight line, backwards and forwards

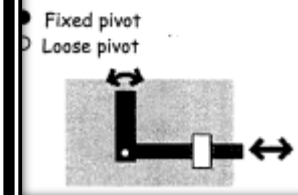
round and round

in a curve

As an enhancement to this project children could add flaps to their moving pictures. Some children may find flaps, which can be used to make a picture appear and disappear, easier to make than levers or sliders.

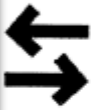


Where children have a particularly good understanding of levers and sliders in Key Stage 1, they could be introduced to the simplest lever and linkage mechanism used in Key Stage 2. This will introduce them to the idea of loose and fixed pivots.



Lever and linkage mechanisms usually produce oscillating or reciprocating movement:

Linear – in a straight line



Reciprocating – backwards and forwards in a straight line e.g. a slider

Rotary – round and round e.g. a wheel, cam, pulley, gear wheel

Oscillating – backwards and forwards in an arc e.g. a lever

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Kaleidoscope DT Curriculum

Learning Organiser for Year 1/2
Design Technology
Mechanisms – Wheels and Axles

National Curriculum Summary
Key Subject Concepts

Design

- design purposeful, functional, appealing products for themselves and other users based on design criteria
- generate, develop, model and communicate their ideas through talking, drawing, templates, mock-ups and, where appropriate, information and communication technology

Make

- select from and use a range of tools and equipment to perform practical tasks [for example, cutting, shaping, joining and finishing]
- select from and use a wide range of materials and components, including construction materials, textiles and ingredients, according to their characteristics

Evaluate

- explore and evaluate a range of existing products
- evaluate their ideas and products against design criteria

Technical knowledge

- explore and use mechanisms [for example wheels and axles], in their products.

Prior Knowledge/Experience

Check that children understand:

- Boxes can be fixed together using a variety of materials e.g., Sellotape, glue, staples, string.
- And follow procedures for safety
- how to take things apart and rebuild them

Definition	
Wheels	A circle that can be used to make something move
Axles	A long stick that joins wheels under a vehicle.
Axle holders	Triangle of card used to allow the wheels to turn.
Dowelling	Thin cylinder of wood useful for axles
Sawing	A way of cutting wood

Key Skills

- Select from a range of tools and equipment, explaining their choices
- Select from a range of materials and components according to their characteristics

Design

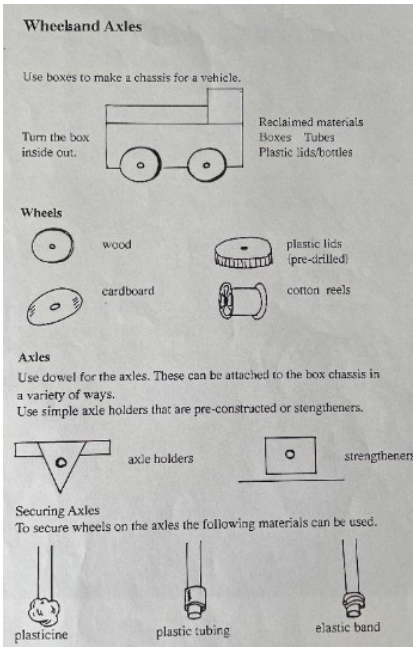
- Design a vehicle that includes wheels, axles, and axle holders
- Create a clearly labelled drawing which illustrates movement

Make

- Use a variety of materials for the same task- different materials for use as a wheel (e.g., using cotton reels, card wheels, lids)
- Use different ways to secure wheels on the axles e.g., plastic tubing, elastic bands and blu tac/plasticine.
- Follow their design adapting the mechanisms to ensure they work efficiently.

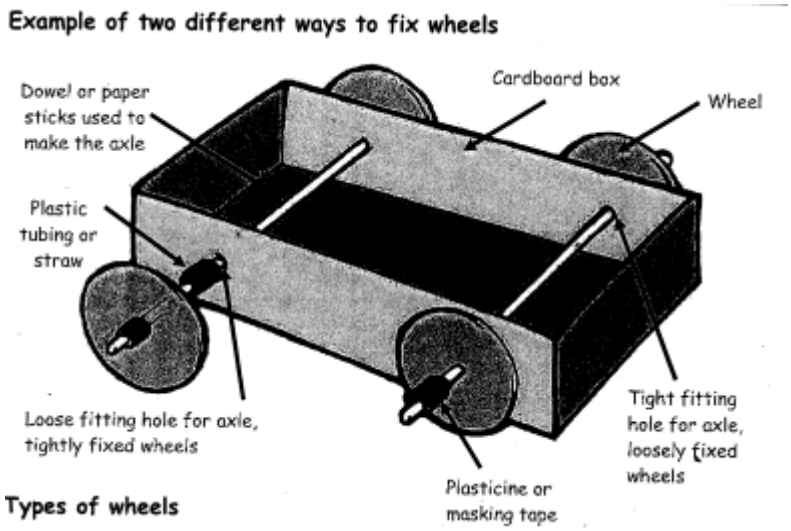
Evaluate

- Test their finished product seeing whether it moves as planned, and explaining if not why, and how it can be fixed.
- Test the mechanism and identify what stops the wheels turning - that it needs an axle



Technical Knowledge

- Identify what mechanism makes a vehicle roll forwards
- Learn that for a wheel to move it must be attached to an axle



Types of wheels

Plasticine or masking tape

wheels

Wood/card/ MDF

Plastic

Cotton reels

Foam covered reels

Ways to hold free moving axles

Use pairs of clothes pegs glued with PVA to the underside of a box.
Check the peg holes are large enough to allow axles to move freely.
Make sure they are aligned carefully so the vehicle moves in a straight line when the wheel and axle mechanism is added.

Use card triangles with holes for the axle.
Check the holes are large enough to allow the axle to move freely.
Make sure opposite triangles are aligned carefully so the vehicle moves in a straight line when the wheel and axle mechanism is added.

Use large paper/plastic straws fixed with masking tape to the underside of a box.
Check straws are positioned carefully so the vehicle will move in a straight line when the wheel and axle mechanisms are added.
Make sure the straw hole is large enough to allow the axle to move freely. The wheels must be fixed tightly to the axle.

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Learning Organiser for Year 1/2
Design Technology
Mechanisms - Pneumatics

National Curriculum Summary
Key Subject Concepts

Design

- design purposeful, functional, appealing products for themselves and other users based on design criteria
- generate, develop, model and communicate their ideas through talking, drawing, templates, mock-ups and, where appropriate, information and communication technology

Make

- select from and use a range of tools and equipment to perform practical tasks [for example, cutting, shaping, joining and finishing]
- select from and use a wide range of materials and components, including construction materials, textiles and ingredients, according to their characteristics

Evaluate

- explore and evaluate a range of existing products
- evaluate their ideas and products against design criteria

Technical knowledge

- explore and use mechanisms [for example pneumatics], in their products.

Prior Knowledge/Experience

N/A first unit on pneumatics.

Definition	
pneumatic	Works by air put under pressure
Functional	Designed to be practical rather than attractive
aesthetic	Concerned with the beauty of something or how something looks
Balloon	A flexible bad that can be filled with air or gas 
tubing	A plastic material made in the shape of a long cylinder or tube 
syringe	A simple pump – made of a plunger inside a tube 

Key Skills

Design

- Design a product which uses a pneumatic system
- Create a clearly labelled drawing showing their design
- Learn that drawings from different angles may help with the construction

Make

- Create a pneumatic system to create a desired motion
- Use syringe and balloons to create different pneumatic systems
- Select materials due to their functional and aesthetic characteristics

Evaluate

- Test their finished product seeing whether it moves as planned, and explaining if not why, and how it can be fixed.

Technical Knowledge

- Learn how pneumatic systems work – that they force air over a distance to create movement
- Learn that mechanisms are a system of parts that work together to create motion
- Learn that pneumatic systems can be used as part of a mechanism

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Learning Organiser for Year 1/2
Design Technology - Structures

National Curriculum Summary
Key Subject Concepts

Design

- design purposeful, functional, appealing products for themselves and other users based on design criteria
- generate, develop, model and communicate their ideas through talking, drawing, templates, mock-ups and, where appropriate, information and communication technology

Make

- select from and use a range of tools and equipment to perform practical tasks [for example, cutting, shaping, joining and finishing]
- select from and use a wide range of materials and components, including construction materials, textiles and ingredients, according to their characteristics

Evaluate

- explore and evaluate a range of existing products
- evaluate their ideas and products against design criteria

Technical knowledge

- build structures, exploring how they can be made stronger, stiffer and more stable

Prior Knowledge/Experience

Check that children understand:

- Sawing is a way of cutting wood or rigid materials
- Things can be held together in variety of ways – some are better than others depending on the material of which they are made.

Definition	
Mark	Drawing a line to record a certain length
Measure	Using a ruler determine how long
Saw	A tool for cutting wood
Cardboard corners	A triangle of card used to strengthen joins
Glue Gun	A tool that gets hot and melts glue.
Join	A place where two or more things are fixed together
Laminate	To cover a flat surface e.g. paper with a layer of plastic
rigid	Unable to bend, not flexible

Key Skills

- Generate and communicate ideas using sketches/models
- Learn how to strengthen joins by using cardboard corners
- Make a structure according to design criteria
- Create joints and structures from paper/card/tape
- Create joins and structures from wood/glue
- Explore the features and stability of structures
- Test the strength of their own structures and identify the weakest part of their structure
- Know that shapes with wide flat bases are the most stable
- Know that triangular card can strengthen corners.

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Kaleidoscope DT Curriculum

Learning Organiser for Year 3/4
Design Technology - Structures

National Curriculum Summary
Key Subject Concepts

Design

- use research and develop design criteria to inform the design of innovative, functional, appealing products that are fit for purpose, aimed at particular individuals or groups generate, develop, model and communicate their ideas through discussion, annotated sketches, cross-sectional and exploded diagrams, prototypes, pattern pieces and computer-aided design

Make

- select from and use a wider range of tools and equipment to perform practical tasks [for example, cutting, shaping, joining and finishing], accurately
- select from and use a wider range of materials and components, including construction materials, textiles and ingredients, according to their functional properties and aesthetic qualities

Evaluate

- investigate and analyse a range of existing products
- evaluate their ideas and products against their own design criteria and consider the views of others to improve their work
- understand how key events and individuals in design and technology have helped shape the world

Technical knowledge

- apply their understanding of how to strengthen, stiffen and reinforce more complex structures understand

Prior Knowledge/Experience

Check that children understand:

- Sawing is a way of cutting wood
- Things can be held together in variety of ways – some are better than others depending on the material of which they are made.
- Cardboard corners can reinforce and strengthen joins.
- Doweling is thin cylinders of wood
- Measure and mark accurately

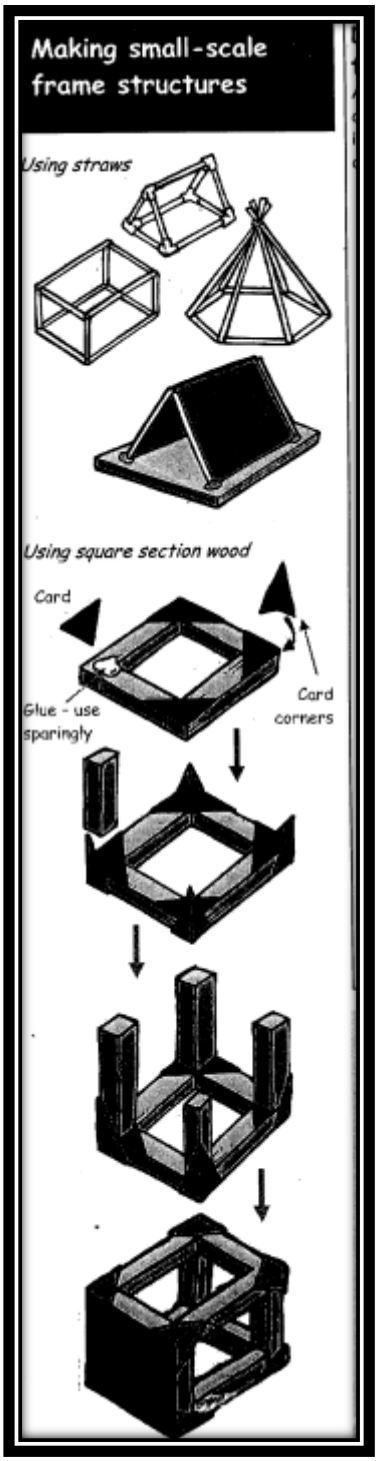
Definition	
Sand paper	Rough paper used for smoothing sharp edges
45 degree angle	The angle half way between a right angle (90 degrees)
measuring	Finding the length of something e.g. a piece of wood
Centimetres	The unit that we use to measure small distances
Cross sectional drawing	Drawing of a side view as if 'cut through' a 3D object

Key Skills

Sawing pieces of wood into the following lengths: 2x30cm (base) 1x20cm (firing arm),4x8cm (base and support arch),2x9cm (support arch), 2x 9.9am (supporting arm), 1x10cm (round dowel)
Sandpaper all rough ends

Glue base pieces together and glue card triangles to strengthen joins on both sides.

See separate instruction sheet.



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Kaleidoscope DT Curriculum

Learning Organiser for Year 5/6
Design Technology - Structures

National Curriculum Summary
Key Subject Concepts

Design

- use research and develop design criteria to inform the design of innovative, functional, appealing products that are fit for purpose, aimed at particular individuals or groups generate, develop, model and communicate their ideas through discussion, annotated sketches, cross-sectional and exploded diagrams, prototypes, pattern pieces and computer-aided design

Make

- select from and use a wider range of tools and equipment to perform practical tasks [for example, cutting, shaping, joining and finishing], accurately
- select from and use a wider range of materials and components, including construction materials, textiles and ingredients, according to their functional properties and aesthetic qualities

Evaluate

- investigate and analyse a range of existing products
- evaluate their ideas and products against their own design criteria and consider the views of others to improve their work
- understand how key events and individuals in design and technology have helped shape the world

Technical knowledge

- apply their understanding of how to strengthen, stiffen and reinforce more complex structures understand and use mechanical systems in their products [for example, gears, pulleys, cams, levers and linkages]
- understand and use electrical systems in their products [for example, series circuits incorporating switches, bulbs, buzzers and motors]
- apply their understanding of computing to program, monitor and control their products.

Prior Knowledge/Experience

Check that children understand:

- how to strengthen corners
- that triangles are a strong shape

Definition	
Tensile	Relating to tension
Resistant	Offering resistance to something e.g. opposite forces are resistant to one another
prototypes	A first version of something from which other forms are developed

Key Skills

Design

- use research and develop design criteria to inform the design of innovative, functional, appealing products that are fit for purpose, aimed at particular individuals or groups

generate, develop, model and communicate their ideas through discussion, annotated sketches, cross-sectional and exploded diagrams, prototypes, pattern pieces and computer-aided design

Make

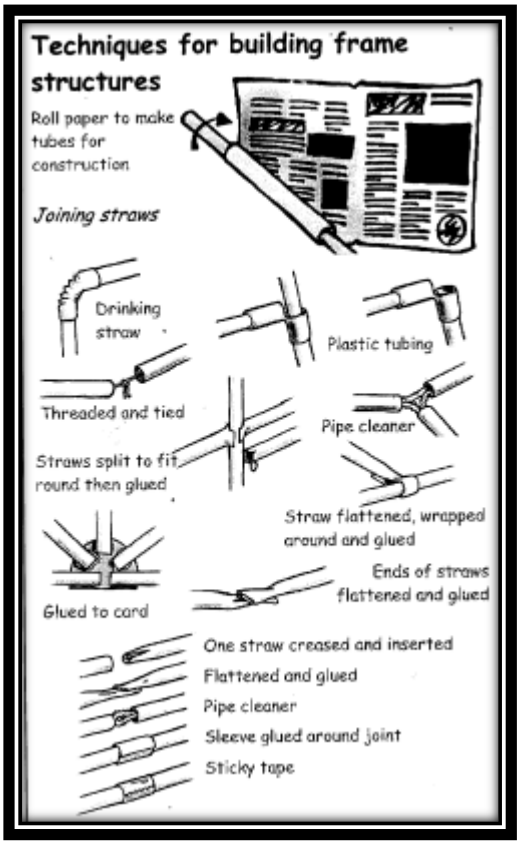
- select from and use a wider range of tools and equipment to perform practical tasks [for example, cutting, shaping, joining and finishing], accurately
- select from and use a wider range of materials and components, including construction materials, according to their functional properties and aesthetic qualities

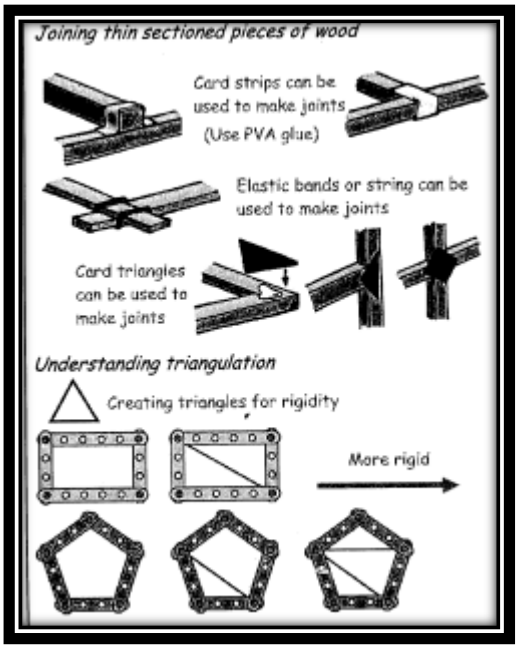
Evaluate

- investigate and analyse a range of existing products
- evaluate their ideas and products against their own design criteria and consider the views of others to improve their work
- understand how key events and individuals in design and technology have helped shape the world

Technical knowledge

- apply their understanding of how to strengthen, stiffen and reinforce more complex structures





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Kaleidoscope DT Curriculum

Learning Organiser for Year 3/4
Design Technology
Electrical Systems

National Curriculum Summary
Key Subject Concepts

Design

- use research and develop design criteria to inform the design of innovative, functional, appealing products that are fit for purpose, aimed at particular individuals or groups generate, develop, model and communicate their ideas through discussion, annotated sketches, cross-sectional and exploded diagrams, prototypes, pattern pieces and computer-aided design

Make

- select from and use a wider range of tools and equipment to perform practical tasks [for example, shaping, joining and finishing], accurately
- select from and use a wider range of electrical materials and components, according to their functional properties and aesthetic qualities

Evaluate

- investigate and analyse a range of existing products
- evaluate their ideas and products against their own design criteria and consider the views of others to improve their work
- understand how key events and individuals in design and technology have helped shape the world

Technical knowledge

- understand and use electrical systems in their products [for example, series circuits incorporating switches, bulbs, buzzers and motors]
- apply their understanding of computing to program, monitor and control their products.

Prior Knowledge/Experience

Check that children understand:

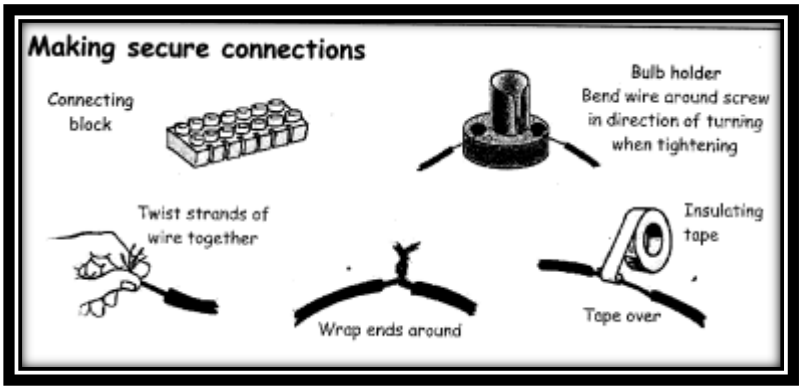
- how to write/modify a programme e.g. coding
- how to create a series circuit

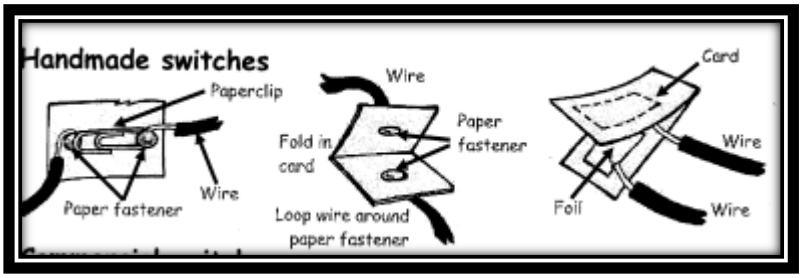
Definition	
Bulbs	A small simple light source that uses wire filaments to glow when electricity is present.
Bulb holder	A device to hold the bulb in place
Circuit	A set of electrical components that are connected to allow the flow of current.
Components	A part, or element of a larger whole
Series circuit	All circuit elements are arranged in a single path or circle.
Cells/battery	A device that produces electrical energy from chemical energy
wires	Thin strips of metal that carry electrical charge
Current	A flow of electricity e.g. this completes the circuit so that a current flows to the lamp

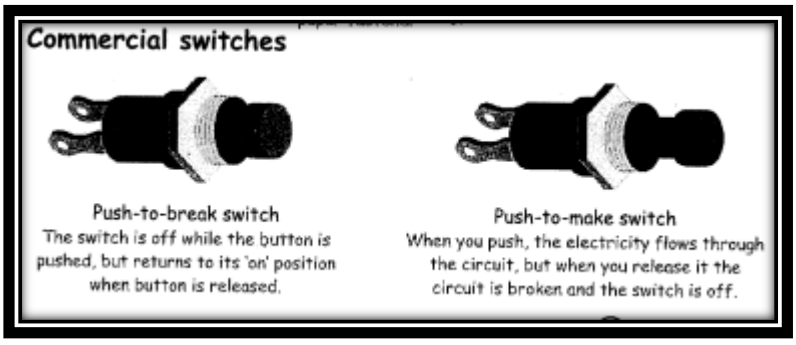
electricity	A form of energy from charged particles

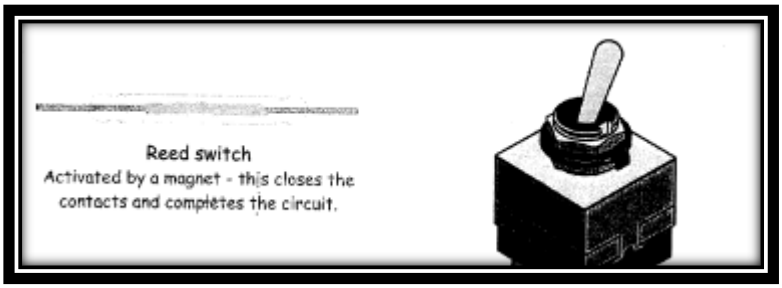
Key Skills

- Build a series circuit using switches, bulbs and buzzers
- Control the flow by varying the number of cells
- Learn about scientists linked to electricity e.g. Faraday,Eddison





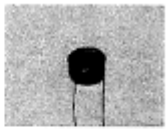




Switches and sensors

Latching switch

Micro-switch



Light dependent resistor (LDR)

Push-to-make switch

When you push, the electricity flows through the circuit, but when you release it the switch goes off.

Push-to-break switch

The switch is off while the button is pushed, but returns to its 'on' position when button is released.

Reed switch

Activated by a magnet which closes the contacts.

- **Micro-switch** - a switch that can operate as push-to-break switch or a push-to-make switch.
- **Push-to-break switch** - a switch turned off by pressing it.
- **Push-to-make switch** - a switch turned on by pressing it.
- **Reed switch** - a switch operated by a magnet.
- **Tilt switch** - a switch that works when tilted at an angle.
- **Toggle switch** - a switch operated when a lever is pressed.
- **Light dependent resistor (LDR)** - a sensor that operates when light is shined on it.

Example control program

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Kaleidoscope DT Curriculum

Learning Organiser for Year 3/4
Design Technology – Mechanisms – Levers and linkages

National Curriculum Summary
Key Subject Concepts

Design

- use research and develop design criteria to inform the design of innovative, functional, appealing products that are fit for purpose, aimed at particular individuals or groups generate, develop, model and communicate their ideas through discussion, annotated sketches, cross-sectional and exploded diagrams, prototypes, pattern pieces and computer-aided design

Make

- select from and use a wider range of tools and equipment to perform practical tasks [for example, cutting, shaping, joining and finishing], accurately
- select from and use a wider range of materials and components, including construction materials, textiles and ingredients, according to their functional properties and aesthetic qualities

Evaluate

- investigate and analyse a range of existing products
- evaluate their ideas and products against their own design criteria and consider the views of others to improve their work
- understand how key events and individuals in design and technology have helped shape the world

Technical knowledge

- apply their understanding of how to strengthen, stiffen and reinforce more complex structures understand and use mechanical systems in their products [for example, gears, pulleys, cams, levers and linkages]
- understand and use electrical systems in their products [for example, series circuits incorporating switches, bulbs, buzzers and motors]
- apply their understanding of computing to program, monitor and control their products.

Prior Knowledge/Experience

Check that children understand:

- How to join materials eg card
- How sliders work

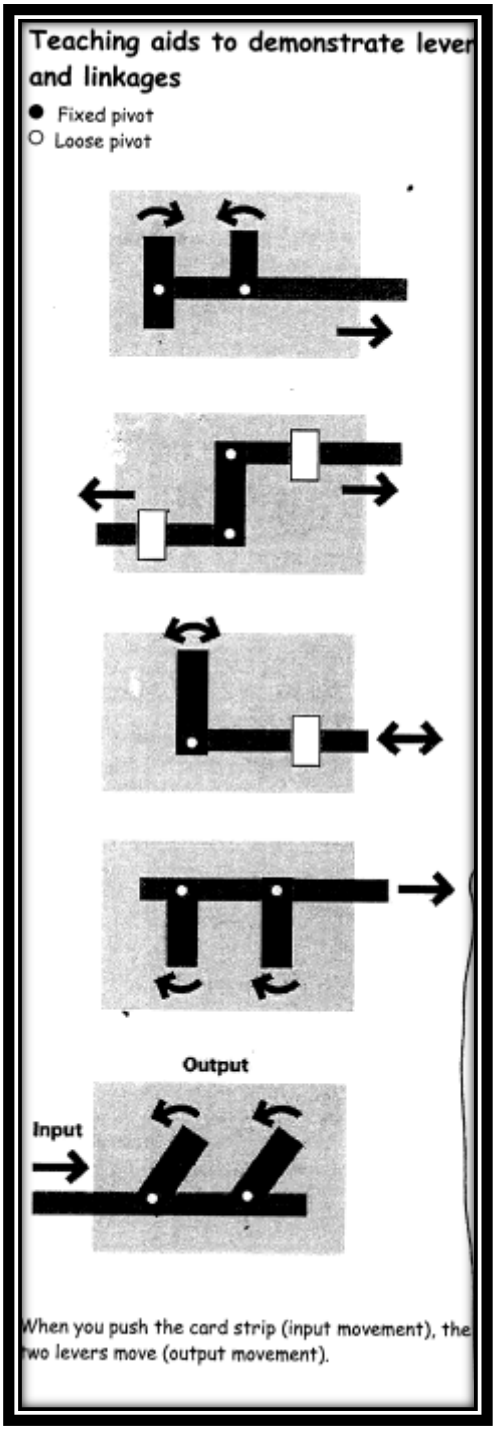
Definition	
Levers	Bar that moves around a pivot
linkages	A bar used to link multiple levers
pivot	A fixed point around which something will rotate
Fixed pivot	A pivot attached to a fixed point
Loose pivot	A pivot that connects levers and/or linkages

Key Skills

Learn basic

• I know different ways that materials can be joined.

- I understand and use mechanical systems in their products [for example levers and pulleys)
- I can explore my own ideas and designs using 3D modelling
- I can say what I like and do not like about items that I have made and attempt to say why
- I can talk about my designs as they develop and identify good and bad points
- I can talk about any changes made during the making process
- I can discuss how closely my finished products meet my design criteria



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Learning Organiser for Year 3/4
Design Technology
Mechanisms-Cams

National Curriculum Summary
Key Subject Concepts

Design

- use research and develop design criteria to inform the design of innovative, functional, appealing products that are fit for purpose, aimed at particular individuals or groups generate, develop, model and communicate their ideas through discussion, annotated sketches, cross-sectional and exploded diagrams, prototypes, pattern pieces and computer-aided design

Make

- select from and use a wider range of tools and equipment to perform practical tasks [for example, cutting, shaping, joining and finishing], accurately
- select from and use a wider range of materials and components, including construction materials, textiles and ingredients, according to their functional properties and aesthetic qualities

Evaluate

- investigate and analyse a range of existing products
- evaluate their ideas and products against their own design criteria and consider the views of others to improve their work
- understand how key events and individuals in design and technology have helped shape the world

Technical knowledge

- apply their understanding of how to strengthen, stiffen and reinforce more complex structures understand and use mechanical systems in their products [for example, gears, pulleys, cams, levers and linkages]
- understand and use electrical systems in their products [for example, series circuits incorporating switches, bulbs, buzzers and motors]
- apply their understanding of computing to program, monitor and control their products.

Prior Knowledge/Experience

Check that children understand:

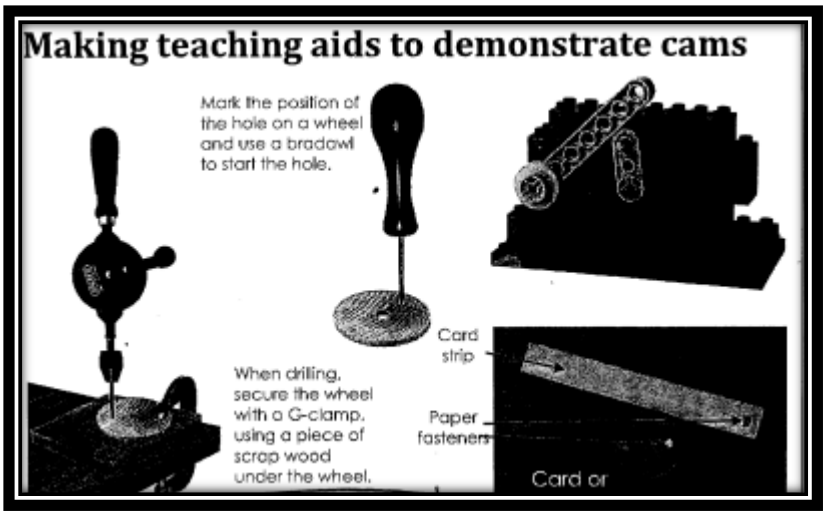
- How to use wheel and axles to facilitate movement

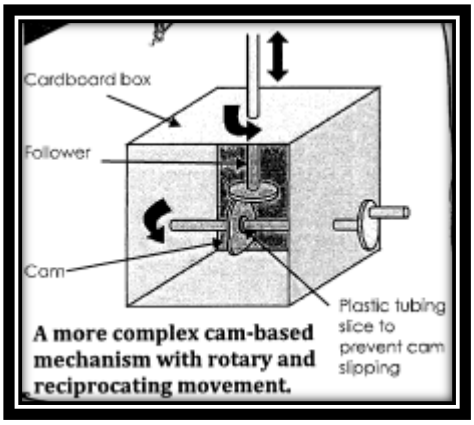
Definition	
Cams	A mechanism to convert rotation into linear motion
Symmetrical	Something that is exactly the same on both sides
Asymetrical	Something that is not the same on both sides

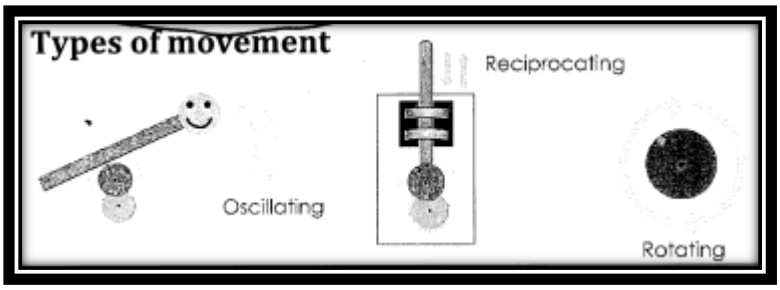
Key Skills

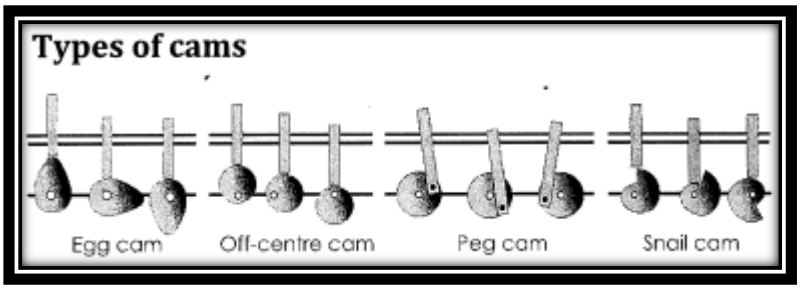
Learn how basic cams work by examining models of them.

- Design a product to use cams to show the conversions


Making teaching aids to demonstrate cams
Mark the position of the hole on a wheel and use a bradawl to start the hole.
When drilling, secure the wheel with a G-clamp, using a piece of scrap wood under the wheel.
Card strip
Paper fasteners
Card or


Cardboard box
Follower
Cam
Plastic tubing slice to prevent cam slipping
A more complex cam-based mechanism with rotary and reciprocating movement.


Types of movement
Reciprocating
Oscillating
Rotating


Types of cams
Egg cam
Off-centre cam
Peg cam
Snail cam

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Learning Organiser for Year 5/6
Design Technology – Mechanisms – pulleys and gears

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- apply their understanding of how to strengthen, stiffen and reinforce more complex structures understand and use mechanical systems in their products [for example, gears, pulleys, cams, levers and linkages]
- understand and use electrical systems in their products [for example, series circuits incorporating switches, bulbs, buzzers and motors]
- apply their understanding of computing to program, monitor and control their products.

Prior Knowledge/Experience

Check that children understand:

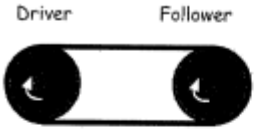
- How to use wheel and axles to facilitate movement

Definition	
pulleys	Grooved wheels connected by a belt, but not touching
driver	The gear or pulley that provides movement to the system
follower	The gear or pulley that makes use of the movement in the system
Drive belt	A continuous belt which is used to drive multiple devices.
gear	A wheel with teeth around its edge.

Key Skills

- That a pulley makes it easier to lift/move an object
- Using pulleys to also move a belt (conveyor) with fixed position of the pulleys
- Use gears to change from a high input speed to a low output speed and vice versa e.g. bike

Developing understanding of gears and pulleys

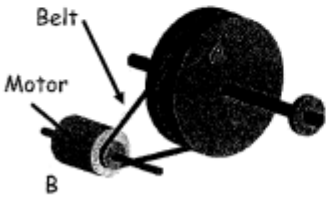


The pulleys rotate in the same direction

The pulleys rotate in different directions

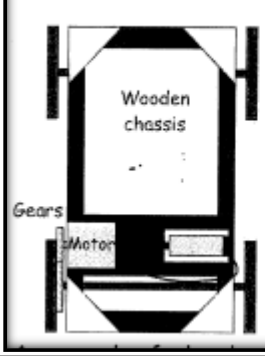
Using construction kits, ask children to explore gear ratio using combinations of two gears e.g.

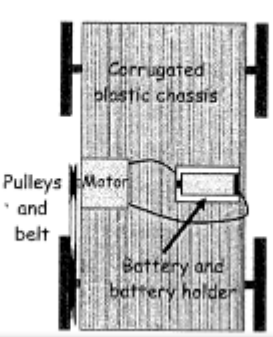
No. teeth	*Ratio*
8, 16	*2:1*
8, 40	*5:1*
8, 24	*3:1*
40, 40	*1:1*

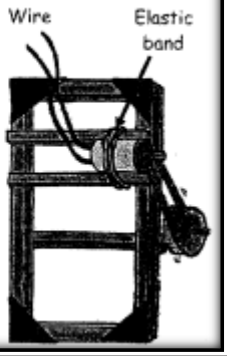


The small pulley (B) rotates much more quickly than the large pulley (A)

Building gears or pulleys into children's products







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Learning Organiser for Year 1/2
Design Technology-Textiles

National Curriculum Summary
Key Subject Concepts

Design

- design purposeful, functional, appealing products for themselves and other users based on design criteria
- generate, develop, model and communicate their ideas through talking, drawing, templates, mock-ups and, where appropriate, information and communication technology

Make

- select from and use a range of tools and equipment to perform practical tasks [for example, cutting, shaping, joining and finishing]
- select from and use a wide range of materials and components, including construction materials, textiles and ingredients, according to their characteristics

Evaluate

- explore and evaluate a range of existing products
- evaluate their ideas and products against design criteria

Technical knowledge

- build structures, exploring how they can be made stronger, stiffer and more stable
- explore and use mechanisms [for example, levers, sliders, wheels and axles], in their products.

Prior Knowledge/Experience

Check that children have experienced:

- threading activities e.g threading using cards
- using scissors

Definition	
Template	A shaped piece of rigid materials e.g. card used as a pattern for cutting out
Fabric	Cloth produced by weaving or knitting fibres
Fabric pens/crayons	Special pens/crayons for drawing on fabric
Scissors	A cutting instrument
joining	To connect or fasten things together
Sewing -	The act of using a needle and thread to make or repair something
Tape measure	A flexible measurer that you use for cloth
needle	A straight piece of plastic or metal, sharp at one end and with a hole (the eye) in the other end. Thread is passed through the eye.
stapling	Attach or secure with a piece of metal – a staple.
Cotton thread	The thin fibres that go through the eye (hole) in a needle
velcro	Materials - one with a rough and one with a smooth side which inter-link/lock together
glue	A sticky substance that sticks to other materials keeping them together
pin	A straight piece of metal, sharp at one end used to temporarily join fabrics together

decorate	To make pretty with pattern or colour

Key Skills

Design

- Use a template to draw around to create a design

Make

- Cut fabric neatly with scissors
- Use joining methods to decorate the object e.g., puppet/bag/purse
- Sequence the steps for construction

Evaluate

- Reflect on finished product - did it work? Can it hold things without them falling out?

Technical Knowledge

- Learn different ways in which to join fabrics together e.g., pinning, sewing around design (running stitch/overstitch/blanket stitch), stapling, gluing decoration on object.

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Learning Organiser for Year 3/4
Design Technology
Textiles

National Curriculum Summary
Key Subject Concepts

Design

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- investigate and analyse a range of existing products
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- understand how key events and individuals in design and technology have helped shape the world

Technical knowledge

- apply their understanding of how to strengthen, stiffen and reinforce more complex structures understand and use mechanical systems in their products [for example, gears, pulleys, cams, levers and linkages]
- understand and use electrical systems in their products [for example, series circuits incorporating switches, bulbs, buzzers and motors]
- apply their understanding of computing to program, monitor and control their products.

Prior Knowledge/Experience

Check that children understand:

- Previous vocabulary form Y1/2 e.g. template, fabric, sewing, running stitch
- How to join two pieces of fabric together

Definition	
Function	How something works
Stitching/sewing	_ _ _ _ running stitch Xxxx cross stitch ----back stitch
Fabrics (types of fabric)	e.g. binka – fabric with #holes already in it which makes sewing easier) felt cotton

Tacking	A quick way to sew around a shape to temporarily keep it together before sewing it
Assemble	Put something together
Design	Plan a product or decoration to make it unique through colour or pattern
Stencil	A pre cut shape which enables decoration to be applied to fabric
textiles	Objects made of fabrics (material which contains fibres)

Key Skills

Design

- Examine a number of prototypes (e.g. styles of bags/purses) for functionality and appeal.
- Design your own model with annotated sketches and exploded diagrams (to show details)
- Sequence the steps for construction

Make

- Make a template
- Cut fabric neatly with scissors
- Add details to decorate the object e.g. bag/purse e.g. cross stitches
- Use temporary joining methods to assemble product e.g tacking prior to permanently joining object

Evaluate

- Reflect on finished product – does it meet intended purpose?
- Compare to WAGOLLs

Technical Knowledge

- Learn different ways in which to join fabrics together e.g., pinning, sewing around design, stapling, gluing decoration on object

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Learning Organiser for Year 5/6
Design Technology - Textiles

National Curriculum Summary
Key Subject Concepts

Design

- use research and develop design criteria to inform the design of innovative, functional, appealing products that are fit for purpose, aimed at particular individuals or groups generate, develop, model and communicate their ideas through discussion, annotated sketches, cross-sectional and exploded diagrams, prototypes, pattern pieces and computer-aided design

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- investigate and analyse a range of existing products
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- understand how key events and individuals in design and technology have helped shape the world

Technical knowledge

- apply their understanding of how to strengthen, stiffen and reinforce more complex structures understand and use mechanical systems in their products [for example, gears, pulleys, cams, levers and linkages]
- understand and use electrical systems in their products [for example, series circuits incorporating switches, bulbs, buzzers and motors]
- apply their understanding of computing to program, monitor and control their products.
-

Prior Knowledge/Experience

Check that children:

- Can thread a needle and do running stitch
- Know that there are a variety of different stitches

Definition	
Purpose/intent	The reason why/definition of what you wish to make
Pinking shears	Serrated edged scissors used to cut fabric to stop it fraying
Fraying	When the edges of fabric starts to 'unweave'
textiles	Any fabric or cloth
Fabric properties	The differences between fabrics e.g. binka has holes, felt is closely matted and pressed together
Detail/embellish	Adding decoration to fabric
accurate	To do something with precision

fastenings	Understand there are a range of fixing things together eg poppers/press studs, buttons, zips
Template/pattern	A pre-cut shape from which textile items can be made accurately and to a set size.
Thimble	A protective cover for your finger used when sewing -helps push the needle through coarse fabrics
Seam allowance	Allow extra fabric to enable a 'join' to be hidden.

Key Skills

Design

- Examine a number of prototypes/WAGOLLS for functionality and appeal.
- Design your own model with cross sectional annotated sketches, and exploded diagrams (to show details)
- Sequence the steps for construction

Make

- Make a pattern
- Cut fabric neatly with pinking shears
- Add details to decorate the object e.g. add bow,detailing
- Use temporary joining methods to assemble product e.g. tacking prior to permanently joining object
- Demonstrate a range of sewing skills eg variety of stitches

Evaluate

- Reflect on finished product explaining how it meets/doesn't meet design criteria
- Compare to WAGOLLs and others work

Technical Knowledge

- Continue to expand different ways in which to join fabrics together e.g buttons, fastenings.
- Understand and take account of seam allowance

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Kaleidoscope DT Curriculum

Learning Organiser for Year 1/2
Design Technology - Cooking

National Curriculum Summary
Key Subject Concepts

Design

- design purposeful, functional, appealing products for themselves and other users based on design criteria
- generate, develop, model and communicate their ideas through talking, drawing, templates, mock-ups

Make

- select from and use a range of tools and equipment to perform practical tasks [for example, cutting, speading, mixing, pouring]
- select from and use a wide range of materials and components, including ingredients, according to their characteristics

Evaluate

- explore and evaluate a range of existing products
- evaluate their ideas and products against design criteria

Prior Knowledge/Experience

Check that children understand:

- Cutlery is the name of all types of tools to eat with
- A knife is a sharp tool to cut things into smaller pieces

Definition	
ingredients	The food you use to make a food dish
Recipe	A list of the ingredients needed and the method or way of making types of foods
Chop	To cut into smaller pieces
Chopping board	A flat board on which to chop food
Spread	To flatten into an even layer
Raw	Ingredients that have not been cooked
cooked	Ingredients when they have been heated in some way (e.g. boiled/roasted/microwaved etc.)
Grater	A tool covered in holes to cut food into small pieces eg cheese grater
plate	A flat dish to serve food on
Stirring	Moving a spoon around in a liquid to mix it thoroughly
Mixing	Combining different substances together e.g. flour and baking powder
pouring	To make a liquid move from one container to another
saucepans	Metal containers in which to cook food on the hob

Key Skills

- To know to wash hands and clean surfaces before starting food preparation
- To understand that food comes from animals or plants
- Understand that food has to be grown, farmed or caught
- Be aware of the 5 a day recommendations to eat well
- Identify and sort food into food groups
- Describe where some foods come from

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Learning Organiser for Year 3/4
Design Technology - Cooking

National Curriculum Summary
Key Subject Concepts

Design

- design purposeful, functional, appealing products for themselves and other users based on design criteria
- generate, develop, model and communicate their ideas through talking, drawing, templates, mock-ups

Make

- select from and use a range of tools and equipment to perform practical tasks [for example, cutting, creaming, rubbing in etc]
- select from and use a wide range of materials and components, including ingredients, according to their characteristics

Evaluate

- explore and evaluate a range of existing products
- evaluate their ideas and products against design criteria

Prior Knowledge/Experience

Check that children understand:

- vocabulary from Y1/2

Definition	
Scales	A piece of equipment to weigh out materials
weigh	Measure the amount of something by how heavy it is
Amount	The quantity of something
Basin/mixing bowl	A wide open container used for preparing food
Sieve	A utensil made of wire or plastic used for separating coarser from finer materials
Wooden spoon	A spoon made of wood used for stirring
Pastry brush	A small brush used for applying milk or egg to pastry
Rolling pin	A wooden cylinder used for flattening pastry

Key Skills

- Hygienic food preparation –Clean hands, surfaces, and resources before beginning to cook
- Hygienic storage
- Select ingredients for flavour
- Make products look appealing
- Understand that food comes from the UK and the wider world
- Understand that food and drink are required to provide energy
- Understand that food can be fresh, pre-cooked- or processed
- Weighing and measuring ingredients

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Learning Organiser for Year 5/6
Design Technology - Cooking

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Prior Knowledge/Experience

Check that children understand:

- Vocabulary from Y3/4

Definition	
Weigh - grams/kilograms	Measure quantities accurately in metric units of grams or kilograms
Measure millilitres/litres	Find the amount of a liquid using standard units of litres or millilitres
Hygiene	Conditions to maintain health
Temperature	The degree or intensity of heat present in a substance eg a cooker

Key Skills

- Understand that different foods and drinks contain different substances, nutrients, water
- Explain and follow safe and hygienic procedures independently
- Increased confidence and control in tool use/techniques
- Weigh and measure accurately to the nearest gram or millilitre.
- Begin to understand the seasonality of foods
- Adapt basic recipes to change texture/taste/appearance.
- Scale quantities up or down
- Cook a dish using a heat source.