

Design and Technology Curriculum

Intent

For children to think like designers. To solve problems, individually and as part of a team, within a set of criteria. To know how to research and evaluate existing products. To be able to create designs for a purpose. To use a range of manufacturing techniques and materials to create products based on these designs and evaluate these products for their effectiveness. To be innovators and risk takers.

To develop their ability to use a range of hand tools safely and effectively. To apply mathematical knowledge in a practical context.

Design and Technology Curriculum Map

Year 1

- 1A. Moving pictures Moving puppet character
- 1B. Playgrounds
- 1C. Eat more fruit and vegetables
- 1D. Homes

Year 2

- 2A. Vehicles
- 2B. Puppets
- 2C. Winding up
- 2D. Joseph's coat

Year 3

- 3A. Packaging
- 3B. Sandwich snacks
- 3C. Moving monsters
- 3D. Photograph frames

Year 4

- 4A. Hats
- 4B. Storybooks
- 4C. Alarms
- 4D. Lighting it up

Year 5

- 5A. Musical instruments
- 5B. Bread
- 5C. Moving toys

Year 6

- Unit 6A. Shelters
- Unit 6B. Slippers

6C. Fairground

Design Technology – Programme of Study

Year 1

Unit 1A. Moving pictures

Moving puppet character

Associated language:

- designing eg idea, discuss, choose, drawing, labelling
- making eg hole punch, paper fastener, join, cut carefully, planning
- knowledge and understanding eg moving, handle, lever, pivot, pull, push, slider, direction, blade, metal, balance, movement, forward, backwards, order, sequence, length

Outcomes -

- identify simple levers and sliders in moving books/products and explain how they work
- **make drawings of simple products to show how they work**
- use appropriate vocabulary to describe mechanisms
- **try out their ideas using construction kits to make simple levers**
- (with some adult support) assemble strips of card to make simple sliders and lever mechanisms
- **use tools safely**
- **apply what I have learnt through IDEAs/FPTs in my designing and making**
- **develop my design ideas through talking and modelling**
- choose and use a given technique to make a simple slider or lever mechanism and incorporate it into a moving picture
- **evaluate strengths and weaknesses of my product (How could I improve?)**

Unit 1B. Playgrounds

Model of playground equipment using construction kits

Associated language:

- designing eg drawing, user, model, plan
- making eg equipment, parts, construction kits, join, fix
- knowledge and understanding eg framework, movement, structure, weak, strong, on top of, underneath, side, edge, surface, thinner, thicker, corner, point, symmetrical edge, straight, curved
- names and shapes of materials which are used in full-size playground equipment eg metal, wood, plastic
- types of playground equipment eg swing, see-saw, roundabout, climbing frame, slide, rocking horse
- names of mathematical 2D shapes eg circle, triangle, square, rectangle and 3D shapes eg cuboid, cube

Outcomes -

- recognise the simple features of the playground equipment
- **investigate how materials and components have been used in the play equipment and have a basic idea of how the items have been assembled**

- use a limited range of materials and techniques to assemble and join components to make realistic models of playground equipment
- make a playground structures more stable eg by using a wide base and able to withstand greater loads eg by adding a support to their swing or climbing frame
- **apply what I have learnt through IDEAs/FPTs in my designing and making**
- use the correct names of the construction kit components and other materials
- **use materials and components to model ideas**
- **make judgements about the outcome of my work eg the climbing frame is strong and will not tip over**

Unit 1C. Eat more fruit and vegetables

Poster on Healthy Eating

Associated language:

- designing eg choosing, investigating, tasting, arranging, experimenting, popular, sort, blockgraph, pictogram
- making eg washing, cleaning, peeling, cutting, slicing, grating
- knowledge and understanding eg salad, fruit, vegetables, peel, flesh, skin, grater, chopping board, peeler, seeds, pips, stalk, juice, root, leaf, stone, bunch
- sensory eg crisp, sharp, juicy, sweet, sour, sticky, squashy, smooth, crunchy, scented, waxy

Outcomes -

- recognise and name different fruit and vegetables
- can say which may be peeled before being eaten
- **use sensory vocabulary to describe texture, taste and appearance**
- **classify some fruit/vegetables according to colour, texture and taste, how and where they are grown, what they are used for, how they are eaten**
- **know and practise the hygiene rules for fruit and vegetable preparation**
- name and use simple tools in preparing fruit and vegetables
- **carry out simple tasting of fruit and vegetables eg preference tests and record results**
- know that fruit and vegetables are an important part of a healthy diet
- **apply what I have learnt through IDEAs/FPTs in my design and make assignment**
- suggest appropriate fruit and vegetables for a product based on my tasting experiences
- **select and use appropriate equipment and ingredients to achieve the shapes and sensory properties required for my product**
- **how to work safely**
- **talk about my finished product, and record through pictures and words how it looks and tastes and how well it matches my original ideas and chosen target group**

Unit 1D. Homes

Construct of a home

Associated language:

- designing eg choose, try out ideas, discuss, drawing, label, list
- making eg join, fix, plan, scissors, hole punch, masking tape
- knowledge and understanding eg structure, strong, weak, wall, roof, window, glass, brick, transparent, hinge

- mathematical understanding eg square, rectangle, triangle, cube, cuboid, side, edge, surface, on top of, underneath, smaller than, symmetrical, beside, next to

Outcomes -

- recognise and name some different types of homes and their main features
- show through simple drawings the main features of a building, with a sense of proportion
- recognise and name mathematical shapes in the context of buildings
- **join 2D and 3D materials effectively in different ways**
- make effective hinges
- **understand how I can make their structures more stable**
- **use construction kits to help develop my ideas**
- **apply what I have learnt through IDEAs/FPTs in my designing and making**
- say how I am going to make my model
- **construct a model by joining and combining 2D and 3D materials in appropriate ways**
- **use basic tools eg scissors and snips safely and effectively**
- **talk about my finished home saying what I have done well, what I am particularly pleased with, and which parts might have been done better**

Year 2

Unit 2A. Vehicles

A vehicle for a specific purpose

Associated language:

- designing eg purpose, ideas, discuss, explore, predict, guess, survey, table, venn diagram, most/least common
- making eg joining, combining, connecting, testing, punching
- knowledge and understanding eg vehicle, wheels, chassis, axles, doweling, hole punch, logo, distance

Outcomes -

- give examples of how different vehicles are used for different purposes and what features they may contain
- name the main parts of a vehicle
- **draw on my investigation of vehicles to inform my own design ideas**
- make simple drawings, with some labels of parts
- **apply what I have learnt through IDEAs and FPTs in my designing and making**
- **develop ideas for making a model vehicle which has a purpose, and which reflects my original idea**
- suggest how I might make the vehicle I have designed
- **apply rules which reduce risk whilst constructing my design**
- construct a vehicle which functions
- finish the vehicle with a label or logo
- **evaluate my finished vehicle, recording how it works and matches the original ideas**

Unit 2B. Puppets

Use a made puppet

Associated language:

- designing eg user, list, label, drawing, ideas, mock-up, choose, decide, evaluate, try out ideas, standard unit
- making eg plan, template, fabric, cutting out, sewing, needle, running stitch, gluing, adding
- knowledge and understanding, eg character, puppet, seam, stitch, thread, strong, quality, features, strengthen, reflective symmetry, position, to, towards

Outcomes -

- talk about the different examples of puppets, describing how they have been made
- **make clear, labelled drawings of the puppets**
- **are able to use basic sewing techniques**
- **know how to use a template for marking out identical pieces**
- **discuss the advantages and disadvantages of different joining techniques**
- use appropriate vocabulary to describe materials, components and processes
- **apply what I have learnt through IDEAs/FPTs in my designing and making**
- talk about what my puppet needs to do to work well
- **adapt a given template and model my ideas using paper**
- use a template or paper pattern to cut out two pieces of fabric for my puppet
- join fabric pieces effectively
- **add features to my puppets using appropriate materials and techniques**
- **talk about my finished puppet in relation to how well it works and how well it fulfils the design criteria (How could I improve it?)**

Unit 2C. Winding up

A toy with a winding mechanism

Associated language:

- designing eg explore, investigate, choose, decide, brainstorm, fast, faster, fastest, slow, slower, slowest, quick, quicker, quickest
- making eg collecting, punching, connecting, fixing, straight, doweling, masking tape, hole punch, cotton reel
- knowledge and understanding eg axle, winding mechanism, stable, structure, handle, turning, free, fixed, second, minute, timer

Outcomes -

- **understand techniques for making winding mechanisms from construction materials**
- use tools accurately and safely
- **talk about strengths and weaknesses of different ways of making characters**
- **apply what I have learnt through IDEAs and FPTs in my designing and making**
- **talk about what my design has to do to work well**
- **select appropriate tools and materials and name them**
- construct a winding mechanism that works and has a straight axle
- **talk about my finished products in relation to my design criteria and changes that might be needed**

Unit 2D. Joseph's coat

Computer generated design for a coat

Associated language:

- designing eg discuss, choose, try out ideas, adapt, design, experiment, evaluate, decide, mock-up, predict, expensive
- making eg pin, pattern, join, cut, shape, measure, fabric, template, needle, thread, ruler, tape measure
- knowledge and understanding eg outline, background, coat, strengthen, stitch, quality, pattern repeat, seam, centre, side, line, flat, symmetry, turn

Outcomes -

- describe patterns in fabric and show how they are repeated
- talk about how a pattern is used to mark out the shape and size of component pieces
- make a repeat pattern with paper
- use the graphics program with minimal help
- **use different joining techniques and talk about the advantages and disadvantages of different methods**
- **use a paper pattern to mark out their fabric pieces**
- **apply what I have learnt through IDEAs/FPTs in my designing and making**
- use and adapt ideas from traditional fabric patterns through a drawing/graphics program
- **follow a sequence of activities to make my model coat**
- make and/or use a simple paper pattern/template to cut out accurate pieces
- make a model coat joining fabric pieces together
- **use my computer-generated design as a guide to creating the pattern for the model coat**
- **make simple judgements about the coat, pattern, style and suggest improvements**

Year 3

Unit 3A. Packaging

A sandwich box with appropriate instructions for another person to make one

Associated language:

- designing eg font, graphic, decision, evaluating, criteria, fit for purpose, holds
- making eg scoring, tabs, adhesives, join, assemble, accuracy
- knowledge and understanding eg three-dimensional (3D) shape, cube, cuboid, prism, net, vertex, edge, face, packaging, shell structure, breadth, capacity

Outcomes -

- understand that boxes are a type of packaging, and that packaging serves a variety of purposes
- identify parts of a net and can explain how it was assembled
- understand the need to extend the net to incorporate tabs for joining
- **understand that 3D structures can be constructed from nets**
- **have developed skills in marking out, cutting, scoring and assembling**
- select an appropriate font style and size for a particular product
- **apply what I have learnt through IDEAs/FPTs in my designing and making**

- **consider design needs and show my design ideas using graphical representation**
- **recognise the use and importance of modelling as part of the design and make process**
- **recognise the need for accuracy in construction for effective products to be developed**

Unit 3B. Sandwich snacks

A snack menu

Associated language:

- designing eg texture, taste, appearance, healthy, preference, criteria, cost, questionnaire, data, frequency diagram
- making eg cut, mix, spread, slice, blend, grate, chop, chopping board, knife, grater
- knowledge and understanding eg sandwich, filling, ingredients, fridge, food groups, hygiene, high risk, healthy eating, 'balanced plate', thick, thin
- sensory eg sweet, sour, bitter, salty

Outcomes -

- have an understanding of what a sandwich is and how to make one
- **record my opinions on a table commenting on taste, appearance, smell and texture**
- identify the different food groups in the 'balanced plate'
- put commonly eaten foods in their correct food groups
- have a sound understanding of appropriate terms used in food preparation and food products
- **identify important aspects of personal hygiene before handling food eg washing hands, keeping long hair tied back, wearing an apron**
- identify which foods should be kept in a fridge and why some foods are high risk
- **use sharp tools correctly to ensure safety and accuracy**
- **apply what I have learnt through IDEAs/FPTs in my designing and making**
- **identify that different sandwiches are created for different needs, occasions and purposes**
- **use knowledge from my research to choose ingredients for the sandwich eg most people preferred brown bread so I chose this for my design**
- **work through a sequence of tasks to produce a sandwich, making appropriate modifications**
- work safely and hygienically in my preparation and finishing to ensure a quality product
- **evaluate my sandwich and others' against their original design criteria**

Unit 3C. Moving monsters

A moving toy

Associated language:

- designing eg brainstorm, suggestion, evaluate, ideas, constraints, appropriate, graph, data, sort, order, set, label, title, list, probable, possible, impossible
- making eg planning, storyboard, components, fixing, tubing, syringe, attaching, finishing
- knowledge and understanding eg control, pneumatic system, pressure, inflate, deflate, input, output, pump, hinge, fastest, slowest, often, always, sometimes, never

Outcomes -

- **explain how simple pneumatic systems work using appropriate vocabulary**
- discuss how products have been made, and how models replicate real-life features

- **construct effective pneumatic systems**
- **know of techniques for fixing components**
- investigate ways of using my pneumatic systems with other materials to control movement
- **apply what I have learnt through IDEAs/FPTs in my designing and making**
- work together on an appropriate idea generated through brainstorming and discussion of the constraints
- **plan the stages of my work and record these at the end of the project in a storyboard**
- **work safely and accurately with a range of simple hand tools**
- **know how to evaluate my product as a team and suggest improvements**

Unit 3D. Photograph frames

Free standing photograph frame

Associated language:

- designing eg user, choice, decoration, quality, component parts, purpose
- making eg planning, order, rolling, layering, cutting, finish, board
- knowledge and understanding eg stable, free-standing, stiffen, frame, sturdy, reinforce, quality, distance, near, close, wide, narrow, deep, shallow, thick, thin

Outcomes -

- **know why it is necessary for structures to be stable**
- know how the examples of free-standing structures have been made to stand up by examining familiar or similar products
- identify component parts of the photograph frames and describe what each is for
- **understand the principles of triangulation in simple structures**
- compare photograph frames by talking about their features
- **apply what I have learnt through IDEAs/FPTs in my designing and making**
- suggest how they can make their frame into a personalised gift
- show evidence of my learning in making a strong and stable photograph frame
- **show design ideas through drawings with labels**
- **talk about my work and evaluate my frame according to its' design criteria**

Year 4

Unit 4A. Hats

Hat and fit for purpose critique

Associated language:

- designing eg user, purpose, design criteria, model, evaluating, labelled drawings, stiffening, reinforcing, coins, notes
- making eg pattern/templates, strength, weaknesses, accurate, finishing
- knowledge and understanding eg fabric, fastening, compartment, zip, press stud, clasp, hook and eye, button, buckle, seam, seam allowance, reinforce, gusset, dye, embroidery
- properties eg strength, hard-wearing, stretch, fray

Outcomes -

- understand that hats are designed for different purposes and users
- **identify criteria for a successful hat**
- draw products from different views, and label indicating the materials, fastenings, measurements and construction techniques used
- understand that joining needs to be secure and strong
- **demonstrate a variety of ways of joining fabric**
- **understand that by modelling I can try out ideas quickly and check if an idea will work**
- make a pattern/template with a seam allowance
- **carry out simple fabric tests and choose fabric to meet functional requirements**
- use simple decorative techniques
- **apply what I have learnt through IDEAs/FPTs in my designing and making**
- **write a simple specification bearing in mind the intended user**
- produce drawings with labels to show what they intend to make and the sequence of their work
- **order the sequence of my work**
- **construct my hat with some accuracy**
- **evaluate my product against my specification and discuss any changes required**

Unit 4B. Storybooks

A story book with moving parts (for a particular audience)

Associated language:

- designing eg model, mock-up, plan, fit for the purpose
- making eg fold, adhesive, scoring, cutting, joining, temporary fixing, permanent fixing
- knowledge and understanding eg linkage, lever, pivot, flexible, shape, joint, hinge, area, surface, covers
- types of movement eg rotary, linear

Outcomes -

- recognise products that contain linkage-type mechanisms and can describe how they work and the movement produced
- **explain why a particular mechanism has been used and the way it works for the intended purpose**
- use technical vocabulary to describe the properties of materials and mechanisms eg lever, linkage, pivot
- **cut and shape materials and components with some precision**
- produce a range of different mechanisms and develop an understanding of how they work
- have knowledge of a range of fonts and graphic techniques, which are suitable for different purposes
- **apply what I have learnt through IDEAs/FPTs in my designing and making**
- identify the audience and purpose for my book
- **illustrate alternative ideas for my book using drawings and models, and make choices between them**
- **produce an outline plan that identifies the main stages in making my book, and list the tools, materials and processes needed**
- **evaluate - identify what is and what is not working well in my book and what makes a quality finish**

Unit 4C. Alarms

Circuit diagram and instructions for use of their alarm system

Associated language:

- designing eg prototype, labelled drawings, communicate, model
- making eg join, circuit, alarm, rectify fault, connection
- knowledge and understanding eg circuit, toggle switch, push-to-break, push-to-make, reed switch, tilt switch, rocker switch, slide switch, micro switch, feedback, am, pm, timer, control, sensor, input, output, switch on/off, wait

Outcomes -

- recognise the uses to which alarm systems can be put
- **understand the dangers of mains electricity**
- understand that different switches work in different ways
- use and understand the word 'feedback'
- **understand the dangers of mains electricity**
- use a computer control program to control outputs eg LEDs, bulbs, buzzers
- **apply what I have learnt through IDEAs/FPTs in my designing and making**
- **develop working prototypes of my design solution**
- **produce a design sheet for the final product**
- discuss and finalise my design
- create an alarm system
- use a control box/program
- **evaluate the effectiveness of my system**

Unit 4D. Lighting it up

Contribution to a class lighting catalogue (to include diagram/drawing, description and fit for purpose review)

Associated language:

- designing eg user, specific, plan, labelled drawings, decide, list, classify, specification, design criteria
- making eg clip, rectify, fault, screw, join, connect
- knowledge and understanding eg electricity, circuit, battery, battery holder, bulb, bulb holder, wire, insulation, crocodile connector, aluminium foil, switch, reflector, energy, control, automatic

Outcomes -

- identify the features of commercially available lights which make them suitable for a specific purpose and user
- identify examples of lights which are switched on and off by remote control or control devices
- describe how a light and switches work
- **identify materials used to make the lights and why they might have been chosen**
- **understand and use safe practices**
- make a bulb light up in a simple electric circuit
- make my own switch and know how to place it in a circuit to control the bulb
- name the electrical components being used
- use ICT to acquire information about a range of lights
- **use a control box/program**
- **apply what I have learnt through IDEAs/FPTs in my designing and making**
- **identify a number of specific needs of a user in this context and prioritise these needs in a specification**
- design and make a product which takes into account the needs of a user
- **make a labelled drawing which shows the key features of a product that has not yet been made**
- control the light through the use of a control box/program

- evaluate the light against original design criteria and identify some modifications I have made to the light, including the safety of the product

Year 5

Unit 5A. Musical instruments

A musical instrument

Associated language:

- designing eg investigate, survey, plan, research, texture, intention, structure, outcome
- making eg mouldable material, mould, moulding, adhesives, polyvinyl acetate (PVA) wood glue, shaping, cutting
- knowledge and understanding eg sound, note, pitch, duration, dynamics, tempo, timbre, range of sounds (eg high, low, quiet)
- the names of instruments available eg drum, tambourine and their component parts eg skin, bridge
- strengthen, reinforce

Outcomes -

- recognise and identify a wide range of musical instruments, understand the basic concept of how each instrument works, the sound it produces and investigate what the instruments are used for
- use a variety of information sources eg books, CD-ROM and the Internet
- **identify the different parts, materials used and methods of assembly used in the instruments**
- understand that different types of sounds can be made using different techniques eg shaking, scraping, hitting and plucking
- **understand that the working characteristics of materials affect the sound made**
- assemble materials in temporary ways
- **understand how different materials can be reinforced for specific purposes**
- **apply what I have learnt through IDEAs/FPTs in my designing and making**
- **consider design needs and show my design ideas using annotated diagrams, and use appropriate ICT for designing and/or presenting ideas**
- produce a quality musical instrument that will produce a series of controllable sounds when played
- **evaluate my own work and that of others, suggesting future improvements**

Unit 5B. Bread

A recipe and cooking instructions for bread

Associated language:

- designing eg evaluating, investigation, preferences, profile, specification, criteria, fair test, costing
- making eg ingredients, quantities, shaping, mixing, topping, kneading, proving, baking, cooking method, grilling, boiling, frying, glazing
- knowledge and understanding eg yeast, wheat, grain, flour, dough, crust, rise
- names of tools and equipment
- sensory characteristics eg texture, doughy, crisp, chewy, yeasty, stretchy, elastic
- food safety eg hygiene, bacteria, mould, decay, food poisoning

Outcomes -

- name and identify the origin of a number of bread products
- talk about the contribution that bread can make to a healthy diet
- demonstrate through my recording sheets understanding of how different bread products can be classified
- use a wide sensory vocabulary to describe bread products
- use ICT for researching
- know about the processes involved in making bread products
- **follow instructions in order to conduct fair tests**
- **demonstrate accurate, effective and appropriate use of equipment, using safe and hygienic working practices**
- **understand that the properties and quantities of ingredients will affect the final product**
- **follow safe procedures for food safety and hygiene**
- **apply what I have learnt through IDEAs/FPTs in my designing and making**
- **use investigations to select appropriate ingredients for the final product**
- **write the appropriate specification**
- **plan order of work with list of ingredients and equipment**
- **work safely, hygienically and accurately**
- **evaluate the bread product, taking into account their design specification**

Unit 5C. Moving toys

A moving toy with associated annotated diagram

Associated language:

- designing eg sequence, annotated diagram, sketch, decision, choice, prototype, model, communicate
- making eg shape, assemble, accurate, saw, mark out
- knowledge and understanding eg cam, mechanism, movement, linear motion, rotary motion, pivot, off-centre, axle, force, framework, follower, guide, offset, shaft

Outcomes -

- **identify the cam within a mechanism and explain how it changes movement**
- **use a construction kit to model a cam mechanism**
- recognise the role of a cam and its follower in a mechanism and how cams produce movement
- **measure accurately when marking out and drilling a hole in a wooden wheel**
- **use sharp tools correctly to ensure safety**
- **apply what I have learnt through IDEAs/FPTs in my designing and making**
- show that my knowledge of cams and their movement is reflected in my designs
- **make a prototype to test out their design ideas**
- **produce step-by-step plans for making my design, including the materials and tools needed**
- **can draw up an evaluation to be carried out by others**

Year 6

Unit 6A. Shelters

A shelter of tubular design

Outcomes -

- **understand that there are many different types of shelters built for a variety of purposes**
- **can identify which parts support and strengthen simple structures**
- **recognise that under certain circumstances structures can fail when loaded** (they will be familiar with common techniques for reinforcing and strengthening structures and will incorporate some of these in their shelter models)
- **use appropriately a variety of temporary and permanent joining techniques using framework materials and textiles**
- **apply what I have learnt through IDEAs/FPTs in my designing and making**
- **make models of my ideas**
- **work as part of a team**
- **produce several clear design ideas, including step-by-step lists of what needs to be done and lists of resources to be used**
- **make suggestions for alternative methods of construction if necessary**
- **evaluate my own and other children's shelters identifying what is and what is not working, including appearance**

Unit 6B. Slippers

Flow chart outlining the design and making process

Associated language:

- designing eg specification, flow chart, mock-up, accurate, users, fabric swatches, working drawing
- making eg pattern/template, working properties
- knowledge and understanding eg seam, seam allowance, insulation, sole, upper, inner, reinforce, right side/wrong side, stitch, stitching, tacking, wadding, sewing machine, hem

Outcomes -

- **relate the way slippers are designed for the intended user and purpose**
- **evaluate slippers considering appearance, function, cost and safety**
- **distinguish between functional and decorative products**
- identify the different materials that have been used in a slipper and why they have been chosen
- **understand that a pattern/template must be used to make a pair of slippers the same size**
- use a variety of sewing and decorating techniques and choose appropriate techniques for making slippers
- use a sewing machine to join or decorate a product (if available)
- **apply what I have learnt through IDEAs/FPTs in my designing and making**
- **develop alternative ideas and check out that my ideas will work by modelling with paper**
- **demonstrate a clear idea of who will use the slipper and draw up an appropriate design specification**
- **make a working drawing**
- **work independently and systematically using my step-by-step plan eg a flow chart to sequence my work**
- join the fabric parts and use decorative techniques to achieve a well-constructed and finished slipper
- **evaluate my slippers critically against the design specification**

Unit 6C. Fairground

A moving model of a fairground activity to contribute to a group produced model fairground

Associated language:

- designing eg model, mock-up, select, modify, improvements, design proposal, criteria
- making eg framework, construct, temporary joins, permanent joins
- knowledge and understanding eg rotation, spindle, axle, drive belt, pulley, electric motor, speed, framework, horizontal, vertical, electric circuit, switch, gearing up or down, computer control, mechanism

Outcomes -

- identify products which incorporate a pulley and drive belt and are driven by a motor or are computer controlled
- **identify control systems in everyday life and name the key elements of a system**
- connect an electric motor in a circuit to make it work in various ways
- **use a belt and pulley system to produce a variety of types of rotation eg reverse, in another plane, faster, slower**
- **use construction kit components to model their ideas for parts of a product they would like to make**
- **apply what I have learnt through IDEAs/FPTs in my designing and making**
- **model my design using temporary fixings**
- **identify criteria for the ride against which to evaluate it during and after making**
- make a product in which an electric motor successfully drives a rotating part
- control a model using an interface connection to a computer
- **evaluate the effectiveness of my design and adjust it to improve efficiency or effectiveness**