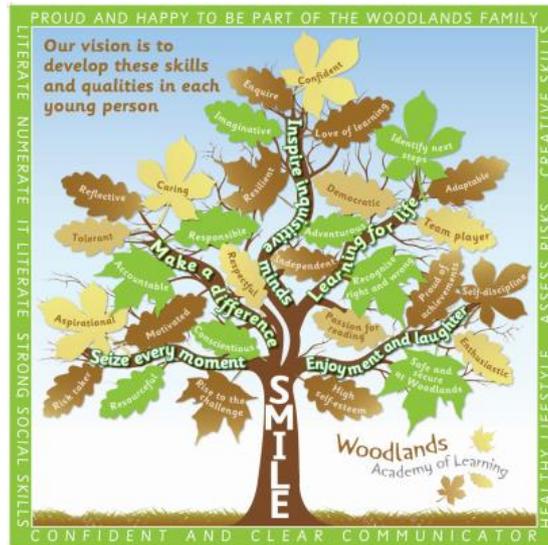




**Design & Technology**  
**In Action**  
**at Woodlands Academy**

Created by L Corbett



## What is Design and Technology?

*“Design is a funny word. Some people think design means how it looks. But of course, if you look deeper, it’s really how it works.”*  
**Steve Jobs, Wired Magazine 1994**

*“Design is the fundamental soul of a man-made creation that ends up expressing itself in successive outer layers of the product or service.”*  
**Steve Jobs, Fortune Magazine 2000**

*“Technology makes possibilities. Design makes solutions.”*  
**John Maeda**

# Intent:

At Woodlands Academy of Learning, we believe that high quality Design and Technology lessons encourage children to release their creativity and imagination, to design and make products to solve real problems in a variety of contexts. Children are urged to consider their own needs whilst appreciating the needs, opinions and values of others. Design and Technology should inspire young minds, satisfy an inquisitive nature and provide opportunities for new lines of enquiry, analysis, investigative teamwork and problem solving. We encourage learners to question themselves, each other and the products created. High quality Design and Technology should provide children with the skills required to tackle relevant problems, challenge themselves to become innovative thinkers and risk takers; as well as nurturing children's self-esteem and confidence in preparation for an essential contribution to global culture, creativity, wealth and well-being.

Through our skills based curriculum, Design and technology often complements other subjects including mathematics, science, computing and art. Our aim is for children to realise their potential as designers, technicians, investigators, risk-takers and problem solvers by providing them with a platform to dig deep through challenge and enjoyment. Vital areas for children's development are:

- Nurturing the technical and practical expertise needed participate in a constantly evolving technical world.
- Developing a sense of curiosity for how things work
- Encouraging questioning of application, creation, and evaluation
- Building confidence to communicate ideas confidently through the design and construction of products
- To understand and apply the principles of nutrition and a healthy diet
- Practising how to combine, prepare and serve a range of ingredients
- Understanding and using a wide repertoire of subject specific technical language.

# Implementation:

Staff work closely within year groups and phases to ensure a broad and balanced curriculum is provided for learners. A strong focus on skills is evident in lesson material encouraging children to become detectives, forging the path of their own learning journey. The Design and Technology curriculum requires a range of skills, particularly fine motor skills that begin in EYFS and are continually revisited and refined through key stages 1 and 2. The cyclical nature of planning at Woodlands ensures that crucial construction skills including measuring, shaping, cutting, joining and assembling materials are practised at every opportunity. Likewise, learners are encouraged to draw their ideas for a product in the early stages then progress to annotate and label designs before producing detailed drawings and prototypes that identify possible modifications for improved aesthetic quality and durability. Food technology begins with basic

skills such as rolling, mixing and pouring; pupils understanding of healthy and unhealthy foods described through colour, shape and taste. The core skills are continually refined, allowing learners to develop an understanding of hygiene, safe food storage as well as how to use and mix a range of ingredients to prepare a savoury snack perhaps with an added dietary requirement.

Progression of skills is fluid between year groups with learners using this as a platform to delve deeper. Each lesson plans for progression and depth of understanding. Questioning from Blooms Hierarchy is crucial to encourage higher order thinking of application, analysis and evaluation. Provision for SEND includes opportunities for teamwork, peer tutoring or small adult led groups whilst higher attainers are encouraged to investigate problems and challenge themselves.

Each Unit of Discovery is delivered in a six-week cycle. Within this, Design and Technology is taught through:

- A two-day immersion. This can be adapted as two full days, four afternoons or a series of sessions throughout the six-week period.
- A taste time session. A requirement of one session within twelve weeks.
- A focus on one significant inventor per year group. The choice can link to a Unit of Discovery or Science topic.
- Enrichment opportunities through home learning challenges to support learning.
- A working partnership for year 5 pupils with a local high school.

## **Key Concepts**

- Products to be made for a purpose
- Individuality should be ensured in children's design and construction of products.
- Delivery of the four strands:
  - Planning, design and development
  - Working with tools, equipment, materials and components.
  - Evaluation
  - Cooking and nutrition
- Opportunities to create 'innovative' products in KS2.
- Teaching the importance of making on-going changes and improvements during construction stages.
- Researching individual designers and inventors in the History of Technology.
- Understanding what makes a healthy diet.
- Opportunities to use ingredients a range of healthy snacks or meals.

## Core Learning in skills and knowledge

<b>Aspect:</b>	<b>Planning, design and development</b>
Nursery	Create simple representations of events, people and objects.
Reception	Begins to use new learning about materials in original ways, thinking about uses and purposes.
Y1	Generate ideas through drawings and words to help me design a product fit for a specific purpose
Y2	Generate ideas through observation and labelled drawings to design a functional product fit for a specific purpose.
Y3	Generate clear criteria using detailed sketches and models, consider appropriate methods and tools and produce a product fit for a range of needs.
Y4	Develop a clear design journey, suggesting effective tools and materials whilst also considering possible further improvements to appeal to a particular user.
Y5	Research and develop design criteria to create an innovative, appealing and functional product for a specific use whilst also considering possible constraints and suggesting further modification and improvement.
Y6	Research and communicate the design journey through diagrams and prototypes to ensure the specific functionality and aesthetic quality of a product whilst also creating specific modification where appropriate.

<b>Aspect:</b>	<b>Working with tools, equipment, materials and components</b>
Nursery	Handle tools, objects, construction and malleable materials safely and with increasing control.
Reception	Select and use tools and techniques needed to shape, assemble and join materials.
Y1	Knows how to measure, cut and experiment with different materials whilst using temporary joining methods and simple finishing techniques to improve the appearance of a product.
Y2	Select tools and materials for a purpose whilst using a range of construction methods with some accuracy to enhance the finished product.
Y3	Use tools safely, select an effective construction technique to create a specific outcome and consider an appropriate finishing technique to enhance the finished product.
Y4	Knows how to modify a range of materials with accuracy, combine construction materials, and use simple stitches to join textiles adding strength and visual appeal to a product.
Y5	Select from a wider range of materials, textiles and components showing skill and accuracy, investigate more complex mechanical systems and use finishing techniques and embellishments to maximise aesthetic quality.
Y6	Select tools, assemble components and construct products whilst considering on-going modification, use complex mechanical systems and assess a range of finishing techniques to create a durable and desirable product.

<b>Aspect:</b>	<b>Evaluation</b>
Nursery	Explain what my product is
Reception	Explain what a finished product is and begin to understand if it was successful.
Y1	Begin to evaluate a product by discussing it and saying how and why it was made.
Y2	Evaluate a product against the design criteria, suggesting what works well and future improvements.
Y3	Evaluate ideas and products against my own design criteria, recognising whether the product meets its intended purpose and suggesting future improvements.
Y4	Reflect during the construction and evaluate the product by testing durability and purpose. Use the results to identify future design modifications.
Y5	Reflect during the construction. Evaluate my product against specific design criteria, modify plans to show improvements to construction and consider others' views to improve work.
Y6	Reflect during the construction. Evaluate my product against the design criteria and suggest improvements for future users by detailing modifications through drawings, labels and annotations.

<b>Aspect:</b>	<b>Cooking and nutrition</b>
Nursery	Begin to recognise some of the tools and processes used in food preparation (using a knife to chop fruit and vegetables or spoon to stir the cake mixture).
Reception	Demonstrate basic skills to aide food preparation: stirring, mixing, pouring, rolling and cutting; and name a range of fruit and vegetables.
Y1	Understands healthy and unhealthy food, describe in terms of colour, shape and taste; use simple cooking utensils safely and practice basic food handling hygiene.
Y2	Name and describe food from each section of the Eatwell guide, understand that food is farmed, grown or caught and select a utensil to prepare ingredients (measure, grate, peel or chop).
Y3	Place food in the Eatwell guide and discuss how each section plays a role in our daily diet, understand how to prepare and store food hygienically and use a range of utensils safely.
Y4	Select and utilise particular ingredients for a food product, show an awareness and reasons for different dietary requirements and know that food is sourced globally.
Y5	Select the correct ingredients and tools to follow a recipe. Apply the rules for safe and hygienic practice when using utensils and equipment. Understand the seasonality of some foods.
Y6	Create and refine recipes including ingredients, methods and cooking times; understand the effect that different food types have on the body (impact of too much salt/sugar) and understand the importance of correct storage and handling of ingredients (mico-organisms)

## Curriculum Map Overview

### Key concepts to be simmering throughout the topics

Inventors	Innovation	Evaluation	Hygiene
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	Autumn	Spring	Summer
YN	cooking and nutrition	structures	textiles
YR	cooking and nutrition	textiles	mechanism
Y1	mechanisms	structures	cooking and nutrition
Y2	cooking and nutrition	mechanisms	textiles
Y3	cooking and nutrition	shell structures	mechanical control
Y4	mechanisms	cooking and nutrition	textiles
Y5	circuits and switches	cooking and nutrition	structures
Y6	structures	mechanical control	cooking and nutrition

mechanisms	structures	textiles	cooking and nutrition
YR – summer Y1 – autumn Y2 – autumn Y3 – summer Y4 – autumn Y5 – autumn Y6 – autumn/spring	YN – spring Y1 – spring Y3 – spring Y5 - summer	YN – summer YR – spring Y2 – summer Y4 - summer	YN- autumn YR – autumn Y1 – summer Y2 – spring Y3 – autumn Y4 – spring Y5 – spring Y6 - summer

Design and Technology topics will follow the National Curriculum objectives

2 x topics will explore mechanisms, structures, textile, circuits and mechanical controls

1 x topic will focus on “Where does my food come from?” Objectives are progressive and each year group’s lesson content follows a specific order:

Introduction to food production, Growing plant foods, Food crops, Rearing animals for food, Food production: Hands on!, Foods and microbes, In the kitchen: making and tasting!, Food manufacture, Catering and Food shopping.

## Key Subject Specific Vocabulary

Nursery	hold, move, sound, snip, press, lift, fold, join, sweet, sour
Reception	record, build, draw, cut, stick, tie, join, shape, mark, observe, mix, roll, sweet, sour, texture
Y1	create, build, model, base, measure, mould, join, hygiene, cooked, uncooked, healthy, unhealthy, mix, stir, cut, chop, pour, portion
Y2	design, observe, components, fold, overlap, template, assemble, disassemble, combine permanent, temporary, free standing, circuit, hinge, lever, wheel, textile, evaluate, improve, texture, consistency, measure, peel, grate
Y3	purpose, technique, criteria, clarify, detail, model, score, strength, strengthen, weakness, circuit, pneumatic, hydraulic, stability, columns, storage, slice, spread, accuracy, protein, carbohydrates, dairy, fats, oils, vitamins, minerals, nutrition
Y4	constraints, reflect, pin, sew, stitch, running stitch, back stitch, thread, gears, levers, cams, visual, appeal, cook(ing), chill(ing), freeze, freezing, frozen, raw, natural, bake, knead, processed, diet, dietary
Y5	Innovate, innovative, specification, prototype, modify, modification, pulley(s), linkage, quality, outcome, structure, weave, plait, seam, applique, utensils, beat, whisk, hazard, savoury, gluten, vegetarian.
Y6	annotation, cross-section, sustainable, durable, aesthetic, embroidery, embellishment, dowel, hacksaw, screwdriver, screwing, filing, sanding, impact, dice, glaze, proportion, ratio, refine, micro-organism(s)

### Example progression of vocabulary: years 1-6

Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Design Make Evaluate Product User Ideas Tools	Design Make Evaluate Product User Purpose Criteria Investigate	Design Evaluate Purpose Criteria Annotate Appearance Prototype Sketch	Design Evaluate Criteria Sketch Annotate Function Aesthetics Prototype Finishing techniques	Criteria Annotate Function Aesthetics Prototype Finishing techniques Innovative ideas Design brief Design specification	Functionality Aesthetics Prototype Techniques Innovative ideas Design brief Design specification Critically evaluate Modify Analyse
<b><u>Food:</u></b> <b><u>Preparing</u></b> <b><u>fruit and</u></b> <b><u>vegetables</u></b> Fruit Vegetables Chop Grate	<b><u>Food:</u></b> <b><u>Preparing</u></b> <b><u>fruit and</u></b> <b><u>vegetables</u></b> Fruit Vegetables Ingredients Taste	<b><u>Food:</u></b> <b><u>Healthy and</u></b> <b><u>varied diet</u></b> Ingredients Equipment Taste Texture Appearance	<b><u>Food:</u></b> <b><u>Healthy and</u></b> <b><u>varied diet</u></b> Equipment Taste Texture Appearance Sweet	<b><u>Food:</u></b> <b><u>Celebrating</u></b> <b><u>culture and</u></b> <b><u>seasonality</u></b> Savoury Fresh Processed Grown	<b><u>Food:</u></b> <b><u>Celebrating</u></b> <b><u>culture and</u></b> <b><u>seasonality</u></b> Savoury Grown Caught Reared

Slice Peel Taste Colour Smell Diet Healthy	Colour Smell Texture Diet Healthy Sweet Sour Crunchy Soft Juicy	Sweet Savoury Fresh Processed Healthy Diet Varied Nutrients Hygienic	Savoury Fresh Processed Nutrients Varied Grown Caught Reared	Caught Reared Seasonality Source Autumnal Nutritional value Dietary needs Consumer	Produce Seasonality Sustainability Source Autumnal Nutritional value Dietary needs Consumer
<b><u>Structures:</u></b> <b><u>Freestanding structures</u></b>  Structure Freestanding Material Wall Tower Base Join Fold Strong Weak	<b><u>Textiles:</u></b> <b><u>Templates and joining techniques</u></b>  Fabric Joining Sewing Gluing Pinning Stapling Decorate Template Thread Needle	<b><u>Structures:</u></b> <b><u>Shell structures</u></b>  Shell structure Strengthening Stiffening Ribbed Corrugated Laminated Net Tabs Graphics Scoring	<b><u>Textiles: 2D shape to 3D product</u></b>  Fabric Thread Needle Template Fastening Stitching techniques Decorative techniques Seam Seam allowance Mock-up Pattern Piece	<b><u>Structures:</u></b> <b><u>Frame structures</u></b>  Strengthening Stiffening Frame structure Framework Reinforce Stability Triangulation Joint Diagonal Horizontal Vertical Rigid/Rigidity	<b><u>Textiles:</u></b> <b><u>Combing different fabric shapes (including computer aided design)</u></b>  Pattern pieces Seam allowance Mock-up Decorative techniques Stitching techniques Disassemble Perspective Computer aided design Transfer paper Tacking Wadding Manufacture
<b><u>Mechanisms:</u></b> <b><u>Sliders and levers</u></b>  Slider Lever Pivot Slot Guide/Bridge Forwards Backwards Push Pull	<b><u>Mechanisms:</u></b> <b><u>Wheels and axles</u></b>  Vehicle Wheel Axle Axle holder Body Chassis Fixed axle Free axle Dowel	<b><u>Mechanical Systems:</u></b> <b><u>Levers and linkages</u></b>  Lever Slot Guide/Bridge Linkage Mechanism Fixed Pivot Loose Pivot Input Output	<b><u>Electrical Systems:</u></b> <b><u>Simple circuits and switches</u></b>  Series circuit Fault Input device Output device Toggle switch Push-to-make switch Push-to-break switch Bulb Buzzer Battery	<b><u>Mechanical Systems:</u></b> <b><u>Pulleys or gears</u></b>  Input Output Pulley Drive belt Driver gear Follower gear Gear Mechanical system Electrical system Motor	<b><u>Electrical Systems:</u></b> <b><u>More complex switches and circuits (including programming, monitoring and control)</u></b>  Input device Output device Series circuit Toggle switch Push-to-make switch Push-to-break switch

			Control		Control Parallel circuit Micro switch Reed switch Light dependent resistor Computer control input
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**Provision for SEND from this policy**

Design and technology is taught to all children at Woodlands. We provide a curriculum that delivers a broad and balanced education where key skills are continually revisited and deepened. Teachers provide learning experiences at every opportunity, often tailored to match to the needs of individuals. Inclusive practise should enable all children to achieve the best version of themselves irrespective of gender, ethnic, social or cultural background, home language or any aspect that may affect participation in, or progress in their learning journey.

SEND children may possibly not need the same level of support with Design and Technology as other areas of their academic work. Children with SEND in certain areas of the curriculum may thrive through the creative aspect of Design and Technology. All pupils should always be able participate, contribute and achieve.

Subject: <b>Design and Technology</b>			
<b>Universal strategies and approaches (Band 0)</b>			
Quality first teaching Clear progression in planning Evidence of prior learning Working wall Vocabulary Assessment tool Teaching/learning styles (kinaesthetic) Evidence of planning and evaluation Pupil voice Questioning BAD approach through tasks Knowledge organisers Visual timelines			
Cognition and Learning	Communication and interaction	Social, emotional mental health	Sensory and Physical
Sentence stems Vocabulary bank Wobble board	Whiteboard work Partner talk Key vocabulary Visual timetable Pupil voice Instant AfL feedback	Partner talk Meet and greet Check in Real to feel Heart to heart Rules, routines and expectations	choice of equipment

		Self-Regulation Station	
<b>Reasonable Adjustments (LA and Environmental SEND) (Band 1)</b>			
Learning buddy Peer tutoring Vocabulary and definitions Calming and sensory toys			
Cognition and Learning	Communication and interaction	Social, emotional mental health	Sensory and Physical
Sentence stems I-pad to capture pupil comments and evaluation Visual cues Task lists Task slicing Small group targeted support – motor skills	Peer support Talk partners Adult led discussion	Unconditional positive regard Conditional and unconditional positive feedback Identify and respond to preferred learning styles Personalised approach to rewards/motivation	Pencil grips Handle rulers Easi-grip scissors 
<b>SEND School Based Support (Band 2-3)</b>			
Pre-teach subject specific vocabulary – colour coded (planning. Evaluate, analyse. Modify) Small group intervention Peer tutoring Differentiated recording Calming and sensory toys			
Cognition and Learning	Communication and interaction	Social, emotional mental health	Sensory and Physical
Precision Teaching Multi-sensory approaches Individual timeline/task lists Tailored group interventions Scribe Multi-sensory dyslexia friendly strategies(reading overlays) Individual approaches and strategies recommended by external support services I-pad to capture pupil comments and evaluation Talking tins	Peer support Talk partners Adult led discussion Now/Next boards	Unconditional positive regard 1:1 Identify and respond to preferred learning styles Personalised approach to rewards/motivation	Pencil grips Handle rulers Easi-grip scissors  Range of materials needed for task – allow chn time to investigate and handle

Over-learning			
<b>SEND EHCP (Band 4)</b>			
Targeted adult support WALT/date on whiteboard Whiteboard available for recording Calming and sensory toys Longer time scale of opportunities (lessons broken down into smaller steps)			
Cognition and Learning	Communication and interaction	Social, emotional mental health	Sensory and Physical
Objects of Reference Makaton Photographs to capture 'wow' moments I-pad to record children's skills Smaller steps in learning	Makaton	Unconditional positive regard 1:1 Identify and respond to specific learning styles Personalised approach to rewards/motivation	Exploration/manipulation of materials and tools

### **Knowledge Ladder (Substantive and Disciplinary)**

Expectations of the skills that children need to develop during their primary education have been taken from the National Curriculum alongside guidance from the Design and Technology Association. Beginning with the 'Development Matters' guidance and ending with objectives from the Primary Curriculum (Year 6), skills have been differentiated and developed through each academic year. The journey is cyclical, allowing each year group to draw upon prior learning and revise vocabulary before moving forwards with learning new skills.

The skills have been matched with units of work (immersion days) to demonstrate the coverage across each year group and the journey through the academy, allowing children to have the opportunity to rehearse and apply new skills on a number of occasions.

	<b>Disciplinary knowledge</b>	<b>Substantive knowledge</b>
<b>Reception</b>  <b>Textiles - hats</b>	<b><u>Research</u></b> <ul style="list-style-type: none"> <li>• Investigate a range of hats</li> <li>• Know that hats have different purposes (sunhat, rainhat, beekeepers hat, part of a uniform)</li> <li>• Know that different hats use different materials</li> </ul>	<b><u>Research</u></b> <ul style="list-style-type: none"> <li>- With adult support:</li> <li>- explore different materials freely</li> <li>- talk about what type of material has been used and why</li> <li>- talk about how the materials help the hat do its job.</li> </ul>

		<ul style="list-style-type: none"> <li>- examine each hat and investigate how it has been joined together</li> </ul>
	<p><b><u>Planning</u></b></p> <ul style="list-style-type: none"> <li>• Understand that a sun hat needs to keep the wearer shaded and cool.</li> <li>• Begin to recognise which materials are suitable for a purpose.</li> <li>• Know that a sunhat needs a peak, a wide brim or neck covering</li> <li>• Begin to recognise how to keep the face protected from insects</li> <li>• Recognise some joining techniques to join materials safely and sensibly</li> <li>• Begin to use specific vocabulary (material, join, seam, stitch, peak, brim etc)</li> </ul>	<p><b><u>Planning</u></b></p> <ul style="list-style-type: none"> <li>• With adult support, discuss: <ul style="list-style-type: none"> <li>- the criteria needed to make a sunhat.</li> <li>- the materials needed</li> <li>- how to keep insects away from the face (netting, corks)</li> </ul> </li> <li>• As a group: <ul style="list-style-type: none"> <li>- Investigate different materials to make the sunhat with</li> <li>- Discuss which materials would be successful and any that wouldn't</li> <li>- Investigate joining materials with emerging care and precision, through different methods (glue, staples, velcro, split pins, basic running stitch)</li> <li>- Develop an annotated drawing with simple labels</li> </ul> </li> </ul>
	<p><b><u>Creating</u></b></p> <ul style="list-style-type: none"> <li>• Know how to join materials to create a hat for a purpose</li> <li>• Begin to use some appropriate vocabulary when making the product</li> <li>• Understand how to embellish the hat to improve its purpose.</li> <li>• Understand that the sun can be dangerous and must not be looked at.</li> <li>• Know not to look directly into the beam of light from the torch.</li> </ul>	<p><b><u>Creating</u></b></p> <ul style="list-style-type: none"> <li>• With adult support: <ul style="list-style-type: none"> <li>- create a card/paper template for the sunhat</li> <li>- mark the materials using non-standard measures</li> <li>- cut the materials to create the sunhat shape</li> <li>- use chosen methods to join any materials</li> <li>- begin to add any embellishments using chosen materials (decoration, netting, string and beads etc)</li> </ul> </li> <li>• Investigate the success of the sunhat. (Barnaby Bear/teddy to model the hat. Use a torch as the sun). Does the sunhat do its job?</li> </ul>
	<p><b><u>Evaluating</u></b></p>	<p><b><u>Evaluating</u></b></p> <ul style="list-style-type: none"> <li>• With adult support:</li> </ul>

	<ul style="list-style-type: none"> <li>• Understand what was needed to make a successful sunhat</li> <li>• Express feelings about the finished design</li> <li>• Talk about how it could be improved</li> </ul>	<ul style="list-style-type: none"> <li>- discuss the finished product against the original criteria</li> <li>- identify the strengths of the product</li> <li>- identify any problems with the design of the product</li> <li>- suggest ways to improve the design of the product in the future</li> </ul>
<b>Reception</b>  <b>Mechanisms Hinges &amp; Catches</b>	<u><b>Research</b></u> <ul style="list-style-type: none"> <li>• Explore hinges and catches in the immediate environment</li> <li>• Begin to understand that hinges are moveable joints that connect two surfaces</li> <li>• Know that boxes are used by different people – toy box, jewellery box</li> <li>• Know the purpose of a specific box</li> <li>• Talk about the design of a specific box</li> <li>• Know that a catch secures something shut</li> <li>• Explore catches using everyday materials</li> </ul>	<u><b>Research</b></u> <ul style="list-style-type: none"> <li>• With adult guidance: <ul style="list-style-type: none"> <li>- discuss how different hinges and catches work (window, door, box)</li> <li>- use specific vocabulary (open, close, hinge, catch, joint)</li> <li>- examine boxes with hinges (toy box, jewellery box, treasure chest)</li> <li>- Talk about the job of the box – is it used for storage (toys), keeping something special (jewellery), to give someone a gift etc</li> </ul> </li> <li>• With adult guidance: <ul style="list-style-type: none"> <li>- Investigate catches using different materials eg, thread, split pins, treasury tag, elastic band, pipe cleaner, bag tie etc</li> </ul> </li> </ul>
	<u><b>Planning</b></u> <ul style="list-style-type: none"> <li>• Recognise a hole punch and understand how it works</li> <li>• Begin to recognise and use specific vocabulary for the design of the story box</li> <li>• Understand that the box needs to have a hinge to open and a catch to secure</li> <li>• Understand that decoration needs to be added to make the story box appealing to the user</li> </ul>	<u><b>Planning</b></u> <ul style="list-style-type: none"> <li>• With adult support: <ul style="list-style-type: none"> <li>- investigate using a hole punch on paper or thin card</li> <li>- begin to position hole punch to create a hole in the desired place.</li> <li>- create simple annotated criteria to make a story box with a hinged lid/catch to secure</li> <li>- Make a list of items needed for the hinge and the catch</li> </ul> </li> </ul>

		<ul style="list-style-type: none"> <li>- Decide upon suitable decoration for the finished item</li> </ul>
	<p><b><u>Creating</u></b></p> <ul style="list-style-type: none"> <li>• Begin to understand non-standard units of measure for marking out materials</li> <li>• Use tools to cut and join materials safely and sensibly</li> <li>• Be able to suggest ways of adding detail and decoration</li> </ul>	<p><b><u>Creating</u></b></p> <ul style="list-style-type: none"> <li>• With adult support adapt a simple template for the story box:</li> <li>• With adult support: <ul style="list-style-type: none"> <li>- Mark out the materials</li> <li>- Cut and join the materials</li> <li>- Fold the materials</li> </ul> </li> <li>• Attach a simple hinge and a catch to the story box</li> <li>• Add decoration to the storybox using a range of materials (shiny paper, paint, felt tip pens etc)</li> </ul>
	<p><b><u>Evaluating</u></b></p> <ul style="list-style-type: none"> <li>• Understand what was needed to make a successful sunhat</li> <li>• Express feelings about the finished design</li> <li>• Talk about how it could be improved</li> </ul>	<p><b><u>Evaluating</u></b></p> <ul style="list-style-type: none"> <li>• With adult support: <ul style="list-style-type: none"> <li>- discuss the finished product against the original criteria</li> <li>- identify the strengths of the product</li> <li>- identify any problems with the design of the product</li> <li>- suggest ways to improve the design of the product in the future</li> </ul> </li> </ul>

<p><b>Year 2 Sliders and levers</b></p>	<p><b><u>Research</u></b></p> <ul style="list-style-type: none"> <li>• Working as a group, explore the audience and purpose of a collection of books with moving parts.</li> <li>• With adult support, investigate everyday products that have moving parts (sliders and levers)</li> <li>• Begin to name some items using slider or lever mechanisms</li> <li>• Begin to understand how the moving parts work on everyday items <ul style="list-style-type: none"> <li>- Understand push/pull forces</li> </ul> </li> </ul>	<p><b><u>Research</u></b></p> <ul style="list-style-type: none"> <li>• With adult support, investigate how the products have been made so that they meet their purpose and audience.</li> <li>• Working as a group, evaluate how well the product meets the purpose and the audience</li> <li>• Identify and list the key features of the existing products.</li> <li>• Answer given questions to develop understanding of specific mechanisms (Is it a pivot? Where is the lever? What effect does it have?)</li> </ul>
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	<ul style="list-style-type: none"> <li>- Understand vertical/horizontal direction</li> <li>- Recognise that a pivot moves around a fixed point</li> <li>• Learn subject specific vocabulary e.g. lever, pivot, slider, left, right, push, pull, up, down, forwards, backwards, in, out.</li> <li>• Know that materials can be joined and fixed together (tape, glue, staples, paper fasteners)</li> </ul>	<ul style="list-style-type: none"> <li>• Begin to use subject specific vocabulary to describe an existing product</li> <li>• In small groups, construct different simple sliders and levers</li> </ul>
	<p><b><u>Planning</u></b></p> <ul style="list-style-type: none"> <li>• In groups, discuss the journey of the product.</li> <li>• Begin to describe the product that will be created.</li> <li>• Identify if the product will use a slider/lever/pivot. Know how this will help the product to move.</li> <li>• Name the mechanisms needed</li> <li>• Know the correct construction sequence to make a slider or lever.</li> <li>• Understand that decoration will improve the appearance of the product</li> <li>• Use decoration that meets the requirements of the target user.</li> </ul>	<p><b><u>Planning</u></b></p> <ul style="list-style-type: none"> <li>• Identify the audience for the product</li> <li>• Identify the purpose of the product</li> <li>• Consider the context of the moving picture (linked to a book character, aspect of science, historical figure etc)</li> <li>• Generate simple design criteria to establish the success of the finished product</li> <li>• Identify mechanisms through a labelled drawing</li> <li>• Develop ideas through talking, drawing and making mock-ups of their ideas with paper and card.</li> <li>• Suggest finishing techniques that might be used e.g. using digital text and graphics, paint or felt tipped pens.</li> </ul>
	<p><b><u>Creating</u></b></p> <ul style="list-style-type: none"> <li>• Understand that sliders and levers need to move freely</li> <li>• Use non-standard units of measure for marking out materials needed to create components</li> <li>• Identify different tools and their uses (eg) <ul style="list-style-type: none"> <li>- Scissors</li> </ul> </li> </ul>	<p><b><u>Creating</u></b></p> <ul style="list-style-type: none"> <li>• With some adult support <ul style="list-style-type: none"> <li>- measure and mark out the materials</li> <li>- cut and shape materials</li> <li>- use tools sensibly and safely</li> <li>- assemble and join components</li> </ul> </li> </ul>

	<ul style="list-style-type: none"> <li>- Paper fasteners</li> <li>• Identify different ways of joining materials (eg) <ul style="list-style-type: none"> <li>- Glue</li> <li>- Blu tak</li> <li>- Sellotape</li> <li>- staples</li> </ul> </li> <li>• Use appropriate embellishments for a moving picture</li> </ul>	<ul style="list-style-type: none"> <li>• Enhance the design through embellishment/decoration</li> </ul>
	<p><b><u>Evaluating</u></b></p> <ul style="list-style-type: none"> <li>• Understand what was needed to make a successful moving picture</li> <li>• Identify if the finished product was successful</li> <li>• Talk about how the picture would: <ul style="list-style-type: none"> <li>- look better</li> <li>- move more freely</li> </ul> </li> <li>• Understand that different sliders and levers can be used</li> </ul>	<p><b><u>Evaluating</u></b></p> <ul style="list-style-type: none"> <li>• Evaluate the final product against the original design criteria.</li> <li>• Discuss if the product fits the purpose</li> <li>• Make some suggestions about future improvements in design.</li> </ul>
<p><b>Year 2</b></p> <p><b>Puppets/ Textiles</b></p>	<p><b><u>Research</u></b></p> <ul style="list-style-type: none"> <li>• Investigate the history of puppetry</li> <li>• Know that puppets were used in theatre and storytelling</li> <li>• Understand how puppets were a form entertainment using the British seaside and ‘Punch &amp; Judy’ as an example.</li> <li>• Discuss the intended audience for different puppets</li> <li>• Use a puppet to engage in role play and story telling</li> <li>• Discuss how puppets have changed</li> <li>• Introduce and develop vocabulary eg pattern, template, joins, stitch, embellishment</li> </ul>	<p><b><u>Research</u></b></p> <ul style="list-style-type: none"> <li>• Working with a partner, explore the audience and purpose of a collection of puppets.</li> <li>• Discuss with a partner how the puppet is used.</li> <li>• Working with a partner, investigate how the puppet is made</li> <li>• Working with a partner discuss how the puppet is joined.</li> <li>• Discuss with a partner which audience the puppet is aimed at</li> <li>• Investigate the decoration of the puppet</li> <li>• Working as a group, evaluate how well the product meets the purpose and the audience</li> <li>• Identify and list the key features of the existing products</li> <li>• Make a labelled drawing of an existing product.</li> </ul>

	<p><b><u>Planning</u></b></p> <ul style="list-style-type: none"> <li>• Investigate suitable fabrics that will make a successful puppet</li> <li>• Investigate suitable joining techniques – basic running stitch</li> <li>• Investigate embellishment features (eyes, nose, mouth, whiskers, bowtie etc)</li> <li>• Discuss safety whilst using the sewing needles</li> <li>• In small groups, practise threading a needle and securing the end of the thread.</li> <li>• With adult support, practise running stitch on hessian or woven fabric</li> </ul>	<p><b><u>Planning</u></b></p> <ul style="list-style-type: none"> <li>• As a group describe the products that will be designed and created</li> <li>• Identify the purpose of the product and the desired audience</li> <li>• Generate simple design criteria to establish the success of the product</li> <li>• Begin to use the vocabulary to explain how the product will be created</li> <li>• Select finishing techniques to enhance the appearance</li> <li>• Create a labelled drawing showing the finished product.</li> </ul>
	<p><b><u>Creating</u></b></p> <ul style="list-style-type: none"> <li>• Begin to use the appropriate vocabulary when creating a puppet</li> <li>• Practise using standard units of measure – ruler beginning at 0cm</li> <li>• Use adult support to thread a needle and secure the thread</li> <li>• Create a neat and consistent running stitch</li> <li>• Select appropriate materials to reflect the desired embellishment</li> </ul>	<p><b><u>Creating</u></b></p> <ul style="list-style-type: none"> <li>• With some adult support: <ul style="list-style-type: none"> <li>- measure and mark out the materials</li> <li>- cut and shape materials</li> <li>- begin to use tools (needles) sensibly and safely</li> <li>- assemble and join components using a running stitch</li> </ul> </li> <li>• Enhance the design through embellishment/decoration</li> </ul>
	<p><b><u>Evaluating</u></b></p> <ul style="list-style-type: none"> <li>• Understand what was needed to make a successful puppet</li> <li>• Identify if the finished product was successful</li> <li>• Talk about how the puppet could: <ul style="list-style-type: none"> <li>- look better</li> <li>- be manipulated in a different way (mouth operated, using sticks or strings)</li> </ul> </li> <li>• Understand that different puppets can be created</li> </ul>	<p><b><u>Evaluating</u></b></p> <ul style="list-style-type: none"> <li>• Evaluate the final product against the original design criteria.</li> <li>• Discuss if the product fits the purpose</li> <li>• Make some suggestions about future improvements in design</li> </ul>
<b>Year 6</b>	<p><b><u>Research</u></b></p> <ul style="list-style-type: none"> <li>• Investigate the history of the</li> </ul>	<p><b><u>Research</u></b></p>

<p><b>Fairgrounds: Autumn/ Spring</b></p>	<p>fairground (eg) steam powered ride 1861, Thomas Bradshaw. Steam powered merry go round. Travelling fairgrounds.</p> <ul style="list-style-type: none"> <li>• Compare how have fairgrounds evolved.</li> <li>• Identify the materials used in construction of a fairground ride.</li> <li>• Identify how materials and procedures have evolved (health and safety, cost, environmentally friendly)</li> <li>• Use prior learning of the different types of movement (year 4 – moving picture books)</li> <li>• Understand what products are driven by electricity</li> <li>• Understand how products are driven: electricity, motors, pulleys</li> <li>• Be confident in creating a simple circuit (Y5 nightlights)</li> <li>• Know how motors are used within moving objects</li> <li>• Understand how to control the speed and direction of movement on an item.</li> </ul>	<p>Use secondary sources (internet, video clips, personal knowledge, photographs):</p> <ul style="list-style-type: none"> <li>• to investigate journey of a fairground ride since its creation.</li> <li>• to identify the materials used to construct a fairground ride.</li> <li>• to identify how procedures and materials have evolved</li> <li>• to identify different types of motion (linear, rotary, reciprocating, oscillating) and link each to an existing fairground ride.</li> <li>• Investigate electrical objects. Investigate how movement is created via electricity, friction and pulley systems.</li> <li>• Create a working circuit using motors to encourage movement, speed and direction.</li> </ul>
	<p><b>Planning</b></p> <ul style="list-style-type: none"> <li>• To have knowledge of different types of materials and their properties.</li> <li>• Know which would be most appropriate for fairground rides</li> <li>• Investigate different types of fairground rides and target audience for each one</li> <li>• Use technical vocabulary (electrical circuit, motor, switch, gears, pulley, rotary, linear, oscillating, reciprocating) to create a detailed plan of the intended product</li> <li>• Revise plans and annotate to account for alterations and improvements</li> </ul>	<p><b>Planning</b></p> <ul style="list-style-type: none"> <li>• Investigate the designs of different fairground rides taking into consideration type of movement, speed and direction and <ul style="list-style-type: none"> <li>- Know how it is controlled.</li> <li>- Identify which materials are suitable and why</li> </ul> </li> <li>• Develop own design ideas through consideration of: <ul style="list-style-type: none"> <li>- Target audience (age)</li> <li>- Purpose</li> <li>- Restrictions (height, age)</li> <li>- Type movement</li> <li>- Number of riders</li> <li>- Health and safety (barriers/belts, harness)</li> </ul> </li> </ul>

		<ul style="list-style-type: none"> <li>• Create a labelled design clearly showing the components, materials and movement of the fairground ride</li> </ul>
	<p><b><u>Creating</u></b></p> <ul style="list-style-type: none"> <li>• Make reference to the planned design</li> <li>• Communicate effectively with a partner to discuss construction.</li> <li>• Build a working circuit that incorporates a battery, a motor and a handmade switch, such as a reversing switch. Ensure there are secure electrical connections.</li> <li>• Know how to measure, mark and cut accurately.</li> <li>• Know different methods to shape and join pieces of a model together.</li> </ul>	<p><b><u>Creating</u></b></p> <ul style="list-style-type: none"> <li>• Use construction kits and a range of materials and components to develop skills, knowledge and understanding.</li> <li>• Replicate the intended design of the fairground ride including: <ul style="list-style-type: none"> <li>• components such as electrical circuit, reversing switch and motor</li> </ul> </li> <li>• Use accurate measuring, marking, cutting, shaping and joining skills.</li> <li>• Use joining techniques which will enhance the finished product</li> </ul>

### **Learning Journey**

#### **Teacher:**

The teacher learning journey has been broken into four steps (research, planning, creating and evaluating). Each step highlight the WALT objective/s and the skills needed by pupils to achieve as well as key questions to illicit children’s understanding. An indication of the level of support is also detailed. Younger children will be experiencing these skills for the first time therefore a larger amount of teacher led, as a class and group work is needed. As the curriculum is spiral, older children who are re-visiting these skills will be encouraged to work independently or with a partner.

### Year 3: Structures (Desk Tidy)

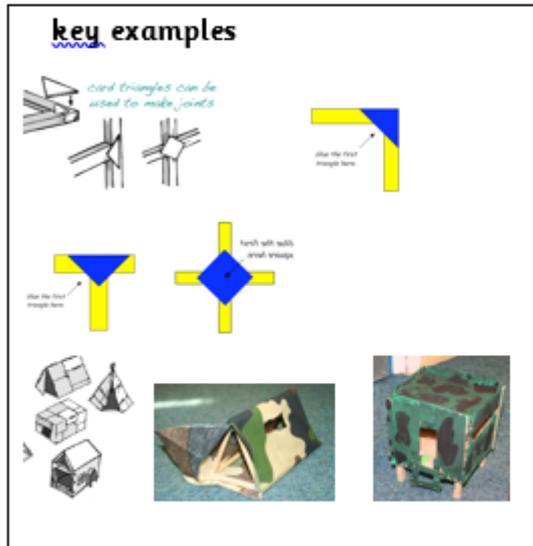
	<u>Knowledge</u>	<u>Skills and Disciplinary Knowledge</u>
<b>Step 1</b>	<p><b>WALT: explore shell structures through questioning and disassembly</b></p> <p><b>WALT: evaluate existing products</b></p>	<p><b>Research</b></p> <ul style="list-style-type: none"> <li>• Investigate a range of different shell structures including packaging boxes</li> <li>• Develop chn’s understanding of shell structures through questioning:               <ul style="list-style-type: none"> <li>- What is the purpose? (protecting, containing, presenting)</li> <li>- What materials have been used?</li> <li>- How has the structure been constructed?</li> <li>- Has the material been strengthened? (folded, corrugated, laminated)</li> </ul> </li> <li>• In groups/pairs, disassemble a small package identifying and discuss:               <ul style="list-style-type: none"> <li>- parts of a net including the tabs.</li> <li>- the arrangements of the different faces on the net of the packaging.</li> <li>- how the tabs are used to join the free edges</li> </ul> </li> <li>• In groups/pairs evaluate existing products to:               <ul style="list-style-type: none"> <li>- Determine which designs are effective</li> <li>- Judge the suitability of the shell structure for the end user and purpose</li> <li>- Consider suitable and unsuitable materials</li> <li>- Contemplate colours, logos, graphics, lettering – deciding which is preferred and why</li> </ul> </li> </ul>
<b>Step 2</b>	<p><b>WALT: construct and strengthen shell structures</b></p> <p><b>WALT: design a desk tidy</b></p>	<p><b>Planning</b></p> <ul style="list-style-type: none"> <li>• In pairs or groups:               <ul style="list-style-type: none"> <li>- practise constructing nets out of card, joining flat faces with masking tape to create 3D shapes</li> <li>- practise the skill of scoring and accurate cutting</li> <li>- investigate different ways of stiffening and strengthening the shell structure.</li> </ul> </li> <li>• As a group:               <ul style="list-style-type: none"> <li>- create a design brief focusing on the context of a desk tidy</li> <li>- discuss the use and purpose</li> <li>- decide who the desk tidy is aimed at</li> </ul> </li> <li>• Produce an annotated sketch to model the intended design</li> <li>• List materials needed</li> <li>• Show the structure as an accurate net with tabs</li> </ul>
<b>Step 3</b>	<p><b>WALT: create a shell structure</b></p> <p><b>Create a desk tidy using strengthening techniques to ensure sturdiness. Embellish</b></p>	<p><b>Creating</b></p> <ul style="list-style-type: none"> <li>• With minimal adult support use the annotated designs to:               <ul style="list-style-type: none"> <li>- measure and mark out the materials</li> <li>- cut and shape materials</li> <li>- use tools sensibly and safely</li> <li>- assemble and join components</li> <li>- use strengthening techniques to ensure a sturdy structure.</li> </ul> </li> </ul>

	<b>and personalise for user.</b>	<ul style="list-style-type: none"> <li>• Use decoration and embellishments to personalise and improve the look of the finished structure (lettering, logo, colour etc)</li> </ul>
<b>Step 4</b>	<p><b>WALT: evaluate a finished product</b></p> <p><b>WALT: suggest future improvements in design and construction</b></p>	<p><b>Evaluating</b></p> <ul style="list-style-type: none"> <li>• Evaluate the final product against the original design criteria.</li> <li>• Discuss if the product fits the purpose</li> <li>• Discuss if the product meets the needs of the user</li> <li>• Make some suggestions about future improvements in design, drawing on the original criteria: <ul style="list-style-type: none"> <li>- Different materials</li> <li>- Alternative methods for strengthening</li> </ul> </li> <li>• Different net shape or placement of tabs</li> </ul>

**Pupil:**

The pupil learning journey shows the WALTs for each step of the topic. This will be placed in pupils Art & DT books. Pupils will RAG rate their understanding at the beginning of each session – red if unsure and struggling, orange if confident in some areas but unsure in other aspects and green if the confidence and understanding was there. At the end of the session, pupils will return to this and complete the self-assessment again to demonstrate the learning that has taken place and also highlight next steps for staff to put into place to ensure pupils become confident in their learning. Also included on the learning journeys are key and real life examples of the aspect of DT as well as key subject vocabulary which pupils can show their understanding of by writing or drawing a definition.

Year five				
Year five			Design and Technology	
Lead aspect:	mechanisms	Circuits and switches	structures	textiles



Learning Journey		
Knowledge	Start of Unit	End of Lesson
WALT: Research key events and individuals linked to the development of the structure		
WALT: investigate the features, properties and construction of a range of shelters		
WALT: use construction materials to make a prototype shelter		
WALT: create an annotated plan for a bird hide		
WALT: construct a good quality bird hide		
WALT: evaluate a finished product against the design criteria		
WALT: suggest alternatives future design and consider the effect the changes would have		

Vocabulary	
strengthen	
reinforce	
triangulation	
framework	
shelter	
camouflage	
prototype	

## **Talk in Every Lesson**

Exploratory talk will be used in every lesson to engage with the learning objective. It will be used to strengthen and deepen children's understanding of their learning, enabling them to explore the knowledge before they present to the class or complete a task.

- Children will be given the opportunity to think for themselves for at least one minute (wait time) and then discuss with a talk partner before sharing their response with the class for any question that is posed.
- Teacher scans the responses provided. "Can someone tell me...?"
- Teachers will plan for some 'open' questions in every lesson.
- Teachers will plan for some 'why' questions in every lesson and ask the children to explain their ideas to the class.
- Teachers will provide sentence/talk stems for every question posed to support children in structuring their response. Sentence/talk stems will be adapted based on the subject (drawing upon subject-specific language and sentence structures).
- Teachers will introduce children to the vocabulary they will require for the objective at the beginning of every lesson.
- Teachers will always hold back on providing any of the correct answers to a question until a number of children have given their idea:
  - Student provides idea.
  - Teacher repeats their idea to them ("So you are saying/you think...") and then praises them for contributing and asks if any other students have an idea.

## **Impact:**

Assessment of children's learning in Design Technology is an ongoing monitoring of children's understanding, knowledge and skills by the class teacher. This assessment informs differentiation, support and challenge required by the children. Class teachers conduct summative assessment each half term across key stages 1 and 2 to inform them and the subject leader of progress or skills and knowledge still to be embedded. Design Technology is monitored by the subject lead throughout the year through detailed planning demonstrating progression, book monitoring, looking at outcomes and pupil interviews to discuss their learning and understanding and establish the impact of the teaching taking place. All year groups have a specific display area within a central location to highlight and celebrate children's' achievements.

Staff assess each child's learning journey against core learning statements to provide a clear picture of attainment. These statements are shared with parents and carers.

Teachers assess core learning regularly. Judgements are made reflecting individual's learning against specific criteria and objectives. Individuals working towards ARE and those showing greater depth are listed with all others working within are related expectations. This shows individuals needing further scaffolding and support alongside those who will benefit from

deeper challenge opportunities. This information is used by the subject lead to calculate the percentages of children working at each stages thus giving a clear picture of DT across the academy that, in turn, highlights strengths and areas for development. Progress in DT will then be reported to parents at the end of the academic year in each child's School Report against the key aspects

<b>Learning Focus</b>	<b>End of First Teaching Unit</b>		<b>Mid-point assessment</b>		<b>End of Year Assessment</b>	
	<b>Working Towards</b>	<b>Working at GD</b>	<b>Working Towards</b>	<b>Working at GD</b>	<b>Working Towards</b>	<b>Working at GD</b>
Aspect: Planning, design and development						
Aspect: Working with tools, equipment, materials and components						
Aspect: Evaluation						
Aspect: Cooking and nutrition						