West Drayton Academy

Believe • Empower • Achieve

DT CURRICULUM

INTENT

At West Drayton Academy, the Design and Technology curriculum provides children with real-life contexts for learning. Through research of design, children gain an understanding of why products have been designed. They are able to make links between early concepts by significant designers and gain an understanding of how their products have shaped our modern world today. Our Design and technology scheme aims to create innovative and creative thinkers who have an appreciation for the product design cycle through making, creating and evaluating their products. Our aim is to encourage pupils to become resourceful citizens, equipping them with the relevant skills and knowledge to support them with contributing to future designs.

IMPLEMENTATION

At West Drayton Academy, we use the Kapow scheme approach to teach Design and Technology. Our main approach is to work through the three main stages of the design process: design, make and evaluate. Through this approach, children will understand that products have been designed with a specific purpose and for a product to be successful, it must meet design criteria. Through continued evaluation and discussion, children will be able to determine whether their product meets a suitable design brief for its intended purpose. Cooking and nutrition is also a specific focus at West Drayton Academy, where we will be looking at key principles, skills and techniques in food, including where food comes from. As a School, all children from Year 1 to Year 6 have the Kapow scheme embedded in their Design and Technology lessons and these are taught three times a year (once every half a term). The scheme works through a spiral curriculum and provides clear progression of learning throughout KS1 and KS2 with key areas being revisited again and again, with increasing complexity, allowing pupils to revisit and build on previous learning.

Key overview of our learning:

Through the Kapow approach, children begin the topic by focusing on specific vocabulary and information, then they work through the process of design, make and evaluate.

1) Knowledge organisers:
A source of keywords and specific information that is integral to the child's learning and scheme.

Textiles - Cushions

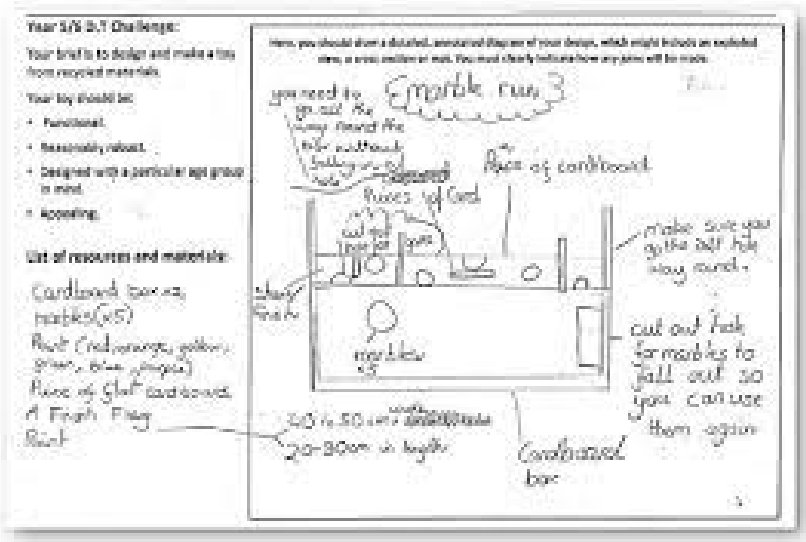
Accurate	Neat, correct shape, size and pattern with no mistakes.
Appliqué	Appliqué is a type of textiles work where small pieces of cloth are sewn or stuck in a pattern onto a larger piece.
Cross-stitch	A two-stitch style of sewing which forms a cross pattern.
Cushion	A stuffed shape of fabric, used to make sitting more comfortable.
Decorate	To add details to a design to improve its appearance.
Detail	The small features of an object.
Fabric	A natural or man-made woven or knitted material that is made from plant fibres, animal fur or synthetic material.
Patch	A piece of material sewn over the top of a larger piece, sometimes just for decoration and sometimes to cover a hole in the underneath material.
Running-stitch	A simple style of sewing in a straight line with no overlapping.
Seam	Where two edges of cloth are joined or sewn together.
Stencil	A shape that you can draw around.
Stuffing	Soft material used to fill cushions and stuffed toys.
Target audience	A person or particular group of people at whom a product is aimed.

Beads, buttons or sequins can be used to decorate your cushion.

2) Design:

Designs must visually represent the idea in the child's mind.

Children label their diagrams with keywords and be encouraged to explain the purpose of each part of their design.



Visual representations of existing products and significant designers are present in DT sketchbooks. This features as part of the research element of the lessons. Children in all Key Stage are encouraged to make purposeful annotations to support their understanding of skills.

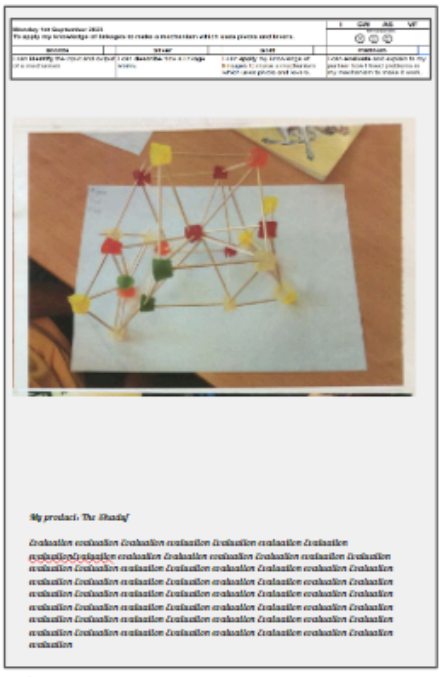
3) Make:

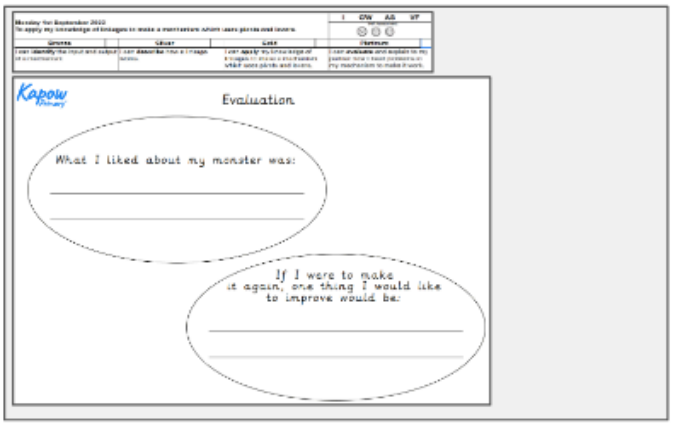
Children move on to using the relevant resources to begin making their product. Taking photos of children working as they build and construct is an integral part of the design processes. The concept of 'making in the moment' supports in evaluating children's process of making.

4)

4) Evaluate:

Evaluation of the final product.
The final part of the design process is where the children are able to show their skills and learning progression and carefully evaluate their finished product.





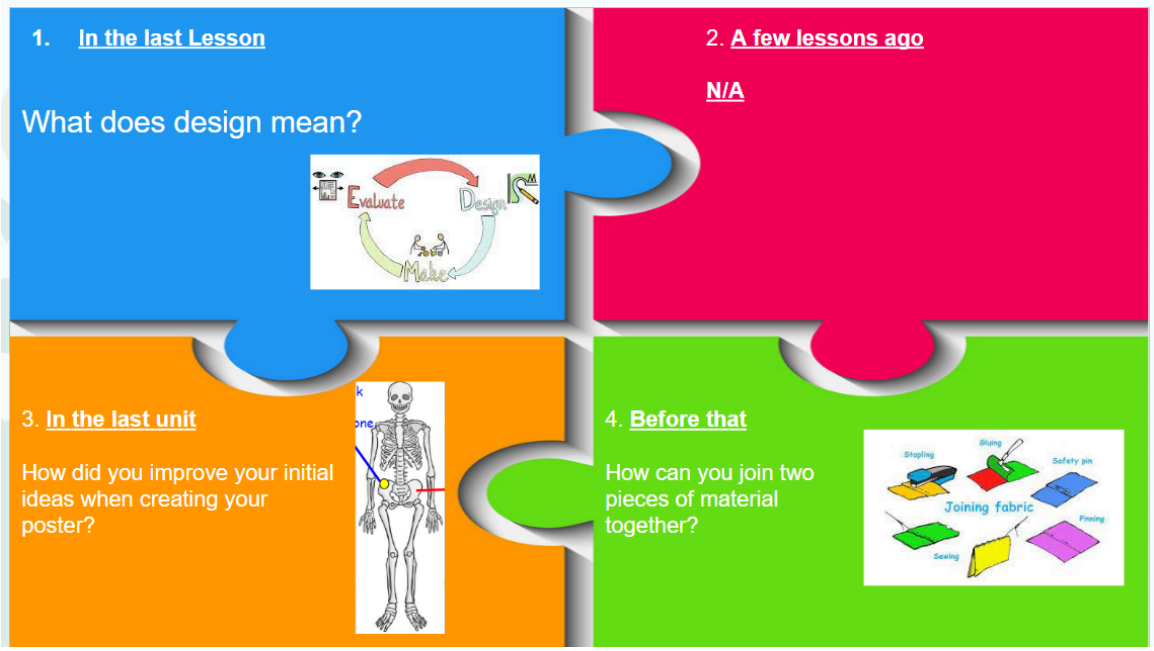
Vocabulary
Each unit in the Kapow Scheme also has key vocabulary words that can be used in each topic, for each year group, for display purposes around the classroom to support with key language during teaching and learning of the units.

GRADES

At West Drayton Academy, we refer to the differences of gender, relationships, age, disability, ethnicity and sexual orientation through GRADES. Our aim with Grades is to encourage children to recognise, respect and welcome differences. GRADES is embedded in DT through the study of a range of designers such as Gustav Eiffel, Anish Kapoor, Elon Musk and many more, where teachers are encouraged to make appropriate GRADES links to the curriculum where possible. Kapow also has a strong focus in supporting British values throughout the units and the promotion of Mutual respect and tolerance of different faiths and beliefs also helps teachers to make links to GRADES with ease.

PREVIOUS LEARNING

At the beginning of the lesson, teachers share a 'Previous Learning' slide with pupils. This provides teachers with the opportunity to discuss prior knowledge and previously taught skills from past lessons. The aim is that children are supported in making connections between what they already know and their new learning.



SOLO Taxonomy

Each lesson will have a clear Learning Intention (LI) and Success Criteria. At WDA, we use SOLO Taxonomy to provide opportunities for children to demonstrate their learning and different levels of understanding, moving from surface level learning, to deeper learning when connections can be made and explored.

> *"SOLO Taxonomy provides a simple and robust way of describing how learning outcomes grow in complexity from surface to **deep** understanding"*
>
> Biggs & Collis 1982

There are four stages of Success Criteria: bronze, silver, gold and platinum. Pupils who achieve the learning intention will be working at the gold level of understanding. At the end of the lesson, pupils will self-assess which level of understanding they have achieved during the lesson. When marking, the teacher will highlight the level achieved by the pupil.

WB Monday 15 January 2024 **LI: To apply my knowlegde of a mill mechanism to construct a moving product.**								I GW AS VF	
Y1 Skills: Measure, mark out cut and shape a range of materials. Use tools and a hole punch safely.									
Bronze	☐	**Silver**	☐	**Gold**	☐	**Platinum**	☐		
I can **identify** tools, materials and designs that I will use to make my product pleasing to the client.		I can **combine** materials to make a product.		I can **apply** my knowlegde of a mill mechanism to construct a moving product..		I can **evaluate** my product during construction and justify my ideas.			

The four levels (bronze, silver, gold and platinum) can be defined using the following structure:

SOLO level		Verbs
Bronze	**Uni-structural**	**define, identify, name. draw, find, label, match, follow a simple procedure**
Silver	**Multi-structural**	**describe, list, outline, complete, continue, combine, enumerate, perform serial skills**
Gold	**Relational**	**sequence, classify, compare & contrast, explain (cause & effect), analyse, form an analogy, organise, distinguish, question, relate, apply, argue, criticise, justify**
Platinum	**Extended abstract**	**generalise, predict, evaluate, reflect, hypothesise, theorise, create, prove, justify, argue, compose, prioritise, design, construct, perform, Formulate, generate**

LONG TERM OVERVIEW

West Drayton Academy
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	Autumn 2		Spring 2		Summer 2
Year 1	Mechanisms: Wheel and Axles		Construct a Windmill		Food: Fruit and Vegetables Making a fruit salad
Year 2	Making a moving monster		Textile Pouches		Food: A Balanced Diet Structure: Baby Bear's Chair
Year 3	Electronic Poster		Textiles: Cushions		Food: Eating Seasonally Digital World:eCharm wearable technology
Year 4	Structure: Pavilions		Textiles: Fastenings		Food: Adapting a Recipe: Biscuits
Year 5	Digital World: Monitoring Devices		Structure: Bridges		Textiles: Stuffed Toy
Year 6	Mechanical Systems: Automata		Digital World: Navigating the World		Textiles: Waistcoats

SKILLS PROGRESSION

Design: Developing, planning and communicating ideas

Y1	Y2	Y3	Y4	Y5	Y6
D1 Draw on their own experience to help generate ideas. D2 Identify a target group for what they intend to design and make.	D5 Generate ideas by drawing on their own and other people's experiences. D6 Identify a purpose for what they intend to design and make.	D11 Generate ideas for an item, considering its purpose and the user/s. D12 Identify a purpose and establish criteria for a successful product.	D16 Generate ideas, considering the purposes for which they are designing.	D19 Generate ideas through brainstorming and identify a purpose for their product.	D24 Develop a design specification: create own design criteria; draw upon market research; use research for user's individual needs; create innovative design; follow and refine a logical plan.
	D7 Develop their design ideas applying findings from their earlier research.			D20 Use results of investigations, information sources, including ICT when developing design ideas.	
D3 Model their ideas in card and paper.	D8 Develop their design ideas through discussion, observation, drawing and modelling.	D13 Explore, develop and communicate design proposals by modelling ideas.	D17 Develop a clear idea of what has to be done, planning how to use materials, equipment and processes, and suggesting alternative methods of making, if the first attempts fail.	D21 Develop a clear idea of what has to be done, planning how to use materials, equipment and processes, and suggesting alternative methods of making if the first attempts fail.	D25 Explore, develop and communicate aspects of their design proposals by modelling their ideas in a variety of ways.
D4 Suggest ideas and explain what they are going to do.	D9 Identify simple design criteria.	D14 Plan the order of their work before starting.		D22 Plan the order of their work, choosing appropriate materials, tools and techniques.	
	D10 Make simple drawings and label the parts.	D15 Make drawings with labels when designing.	D18 Make labelled drawings from different views showing specific features.	D23 Draw up a specification for their design.	D26 Communicate their ideas through detailed labelled drawings, annotated sketches – **clearly explaining how parts of a design will work**, cross-sectional planning and exploded diagrams and **CAD (Computer Aided Design**)

Make:
Working with tools, equipments, materials and components to make quality products (including food)

Y1	Y2	Y3	Y4	Y5	Y6
M1 With help measure, mark out, cut and shape a range of materials. Use tools eg **scissors and a hole punch** safely.	M5 Begin to select tools and materials; use vocab' to name and describe them.	M11 Select tools and techniques for making their product.	M17 Select appropriate tools and techniques for making their product.	M23 Select appropriate materials, tools and techniques.	M28 Select appropriate tools, materials, components and techniques. M29 Produce list of tools, equipment, materials needed
M2 Assemble, join and combine materials and components together using a variety of temporary methods e.g. glue or masking tape.	M6 Assemble, join and combine materials in order to make a product.	M12 Think about their ideas as they make progress and be willing to change things if this helps them improve their work.	M18 Join and combine materials and components accurately in temporary and permanent ways. M19 Use simple **graphical communication** techniques.		M30 Construct products using permanent joining techniques. M31 Assemble components make working models.
M3 Make their design using appropriate techniques.	M7 Cut, shape and **join fabric** to **make a simple garment**. Use basic **sewing** techniques.	M13 Measure, tape or pin, cut and **join fabric** with some accuracy.	M20 Measure, tape or pin, cut and **join fabric** with some accuracy. M21 Sew using a range of different **stitches, weave and knit.**	M24 Measure accurately (time, **dry ingredients, liquids).**	M32 Make modifications as they go along. M33 **Pin, sew and stitch** materials together create a product
	M8 Measure, cut and **score** with some accuracy.	M14 Measure, mark out, cut, **score** and assemble components with more accuracy.	M22 Measure, mark out, cut and shape a range of materials, using appropriate tools, equipment and techniques.	M25 Measure and mark out accurately.	
M4 Use simple finishing techniques to improve the appearance of their product.	M9 Choose and use appropriate finishing techniques.	M15 Use finishing techniques to strengthen and improve the appearance of their product using a range of equipment including ICT.		M26 Cut and join with accuracy to ensure a good-quality finish to the product.	M34 Apply a range of finishing techniques. M35 Achieve a quality product.

	M10 Use hand tools safely and appropriately.	M16 Work safely and accurately with a range of simple tools.		M27 Use skills in using different tools and equipment safely and accurately.	M36 Use tools safely and accurately.

Evaluate: Evaluating processes and products

<table>
<tr><th>Y1</th><th>Y2</th><th>Y3</th><th>Y4</th><th>Y5</th><th>Y6</th></tr>
<tr><td>E1 Evaluate their products as they are developed, identifying strengths and possible changes they might make.</td><td>E4 Evaluate their products as they are developed, identifying strengths and possible changes they might make.</td><td rowspan="3">E7 Evaluate their product against original design criteria e.g. how well it meets its intended purpose.</td><td rowspan="3">E9 Evaluate their work both during and at the end of the assignment.</td><td rowspan="3">E12 Evaluate a product against the original design specification.</td><td>E14 Evaluate their products, identifying strengths and areas for development, and carrying out appropriate tests. Record their evaluations using drawings with labels.</td></tr>
<tr><td>E2 Evaluate their product by discussing how well it works in relation to the purpose.</td><td>E5 Evaluate against their design criteria.</td><td>E15 Evaluate against their original criteria and suggest ways that their product could be improved.</td></tr>
<tr><td>E3 Evaluate their product by asking questions about what they have made and how they have gone about it.</td><td>E6 Talk about their ideas, saying what they like and dislike about them.</td><td colspan="2">E10 Evaluate products and identify criteria that can be used for their own designs.</td><td colspan="2">E13 Evaluate it personally and seek evaluation from others.</td></tr>
<tr><td colspan="2"></td><td>E8 Disassemble and evaluate familiar products.</td><td colspan="3">E11 Evaluate their products carrying out appropriate tests.</td></tr>
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INCLUSION

At West Drayton Academy, teachers ensure that they make learning inclusive for all children. SEND children are given the opportunity to access the lessons through differentiated learning and the use of visual resources helps enhance understanding and meaning of key vocabulary. Scaffolded sheets are also used to ensure that all children are able to meet the objectives of the lesson; our use of Solo taxonomy through the different levels of understanding also supports the teaching of this. Through the KAPOW scheme, teachers are able to make the relevant amendments to support the teaching and learning of all pupils (SEND and GDS) and it provides a range of strategies to support: Adaptive teaching suggestions, customisable colour schemes in lesson presentations, use of knowledge organisers to pre-teach and/or recap key language and ideas while varying teaching methods to engage different learning styles and needs. Differentiated guidance is also available for every lesson to ensure that lessons can be accessed by all pupils and opportunities to stretch pupils' learning through key questioning are available when required.

IMPACT

The DT Subject Leader monitors the quality of teaching and learning in DT across the school including planning reviews, pupil voice and book sampling exercises to measure impact and further improve outcomes of pupils across the School.

The Skills tracker is used as an assessment tool for teachers after each unit is taught. The aim is to use their teacher judgements to carefully assess and keep track of the skills learnt by children.

SKILLS																			
Design				Make						Cooking and Nutrition			Evaluate	Technical Knowledge				Key Events and Individuals	Skills	
Identify a purpose and establish criteria for a successful product.	Plan the order of their work before starting.	Explore, develop and communicate design proposals by modelling ideas.	Make drawings with labels when designing.	Select tools and techniques for making their product.	Measure, mark out, cut, score and assemble components with more accuracy.	Work safely and accurately with a range of simple tools.	Think about their ideas as they make progress and be willing to change things if this helps them improve their work.	Measure, tape or pin, cut and join fabric with some accuracy.	Use finishing techniques to strengthen and improve the appearance of their product using a range of equipment	Understand that food is grown (such as; tomatoes, wheat and potatoes), reared (such as; pigs, chickens and cattle), and caught (such as	Demonstrate hygienic food preparation and storage	Know how to use a range of techniques such as: peeling, chopping, grating, cutting, slicing, mixing, spreading, kneading	Evaluate their product against original design criteria e.g. how well it meets its intended purpose. Disassemble and evaluate	In early KS2 pupils should also know how mechanical systems such as levers and linkages creates movements.	How simple electrical circuits and components can be used to create functional products.	How to program a computer to control their products.	How to make strong, stif shell structures.	Across KS2 children should know about inventors, designers, engineers, chefs and manufacturers who have developed ground breaking	% of Skills Acheived	No. of Skills Achieved
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%		20

Examples from books are also used as evidence to support teacher judgements and the SOLO strips in books also supports this.

At the beginning or end of each unit for KAPOW, there is also an **'Assessment quiz.'** These consist of 10 question quizzes which include nine multiple choice questions and one open ended; these are also used by teachers to support with assessing understanding.