



Ashdene Primary School – Design Technology

Purpose of Study	Design and technology is an inspiring, rigorous and practical subject. Using creativity and imagination, pupils design and make products that solve real and relevant problems within a variety of contexts, considering their own and others' needs, wants and values. They acquire a broad range of subject knowledge and draw on disciplines such as mathematics, science, engineering, computing and art. Pupils learn how to take risks, becoming resourceful, innovative, enterprising and capable citizens. Through the evaluation of past and present design and technology, they develop a critical understanding of its impact on daily life and the wider world. High-quality design and technology education makes an essential contribution to the creativity, culture, wealth and well-being of the nation.
Aims	<p>The national curriculum for design and technology aims to ensure that all pupils:</p> <ul style="list-style-type: none"> To develop the creative, technical and practical expertise needed to perform everyday tasks confidently and to participate successfully in an increasingly technological world. To build and apply a repertoire of knowledge, understanding and skills in order to design and make high-quality prototypes and products for a wide range of users To critique, evaluate and test their ideas and products and the work of others. To understand and apply the principles of nutrition and learn how to cook.
Attainment Targets	By the end of each key stage, pupils are expected to know, apply and understand the matters, skills and processes specified in the relevant programme of study.
Curriculum Design	<p>The Ashdene Design and Technology Curriculum explicitly sets out the substantive and disciplinary knowledge children will learn in each lesson, ensuring there is clear interplay between the types of knowledge. To support schema development, lessons are sequenced to build on prior learning, each lesson having clearly defined knowledge to revisit, which will then be built on during the lesson or in those coming. Knowledge revisits are split into three areas: skills, subject specific and health and safety. Each of these areas needs to be retrieved and practiced to ensure children know what they are and that they remember how to approach or complete such challenges successfully and safely.</p> <p>The Ashdene Design and Technology Curriculum has been designed to ensure that in every year group children will cover a food, textiles and engineering topic. At Ashdene, we prioritise the STEM subjects and all year groups have a STEM-based topic that is covered for a full term each year. These topics make explicit links between the Design and Technology, Science and Computing curriculums.</p>

Topic Overview

	HT1	HT2	HT3	HT4	HT5	HT6
Reception	Food - Gingerbread		STEM – Things with wings	STEM – Things with wings		Textiles – Picnic Blanket
Year 1		Textiles – Finger Puppets	STEM - Fairgrounds	STEM - Fairgrounds		Food - Seaside Picnic
Year 2		Food - British Cream Tea	STEM – Pirate Ships	STEM – Pirate Ships		Textiles – Rainforest 2D felting scene
Year 3	Textiles - Stone Age to Iron age		STEM – Trains	STEM – Trains	Food – Egyptian bread	
Year 4	Textiles - Romans		STEM – Motorised vehicles	STEM – Motorised vehicles	Food – Greek dishes	
Year 5	Textiles – Anglo Saxons		STEM – Hovercrafts	STEM – Hovercrafts	Food - Mexican	
Year 6	Engineering – Mechanical systems Victorian toys		Food – Chinese banquet		STEM – Microbit guitars	STEM – Microbit guitars



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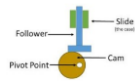




Year 6











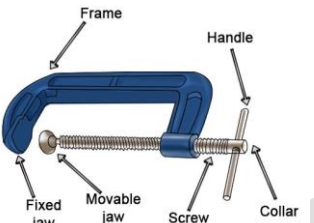


Year 6 HT1 and HT2

Engineering

Brief: To design, make and evaluate an automata toy for a 6 year old child to play with.

Revisit of prior knowledge	Cutting Skills Sawing Skills	Engineering Specific		Health And Safety	
	Complete Year 6 Sheet 1 – Symmetrical cuts	Share an image of a junior hacksaw and ask what it is. Ask the children to explain when and why it might be used.			
Knowledge					
Substantive knowledge		Disciplinary Knowledge		Key Vocabulary	
	Theoretical	Tools and Equipment	Knowledge of methods that chefs, engineers and textile workers use		
Evaluate	Different shaped cams create different types of movement. Cams turn one form of movement into another in a machine, such as a car engine.	Cams Followers	Automata toys work using cams to create movement. Movement differs when different shaped cams are used. 		
	When a circular cam is placed at the edge of another circular cam at a 90° angle it will rotate with a continuous movement. This is commonly used in simple spinning toys.  	Tape measures – cm/mm	Non-circular cams are used to create different types of linear movement. The shape of these non-circular cams will influence how smoothly or quickly the follower rises and falls. If the non-circular cam is placed directly underneath the follower, only linear movement will occur. If it is placed towards the edge, then the	Cam (noun)	A shaped component used to turn one form of movement into another.
Design				rotational movement	Spinning around the pivot point.
				pivot point	The point around where rotational movement occurs.
				linear movement	Up and down movement caused by a non-circular cam.
				circular cam	A round cam



Make			<p>follower will rotate, as well as going up and down.</p>  <p>Use annotated 2D and 3D sketches and exploded diagrams to develop and communicate design ideas.</p>	<table><tr><td>non-circular cam</td><td>Any cam which is not round</td></tr><tr><td>follower</td><td>The component that is moved up and down or rotated by the cam.</td></tr><tr><td>slide</td><td>The housing (case) for the follower that allows it to move.</td></tr><tr><td>G-clamp</td><td></td></tr><tr><td>Spreader clamp</td><td></td></tr><tr><td>Exploded diagram</td><td>Diagram detailing each part </td></tr></table>	non-circular cam	Any cam which is not round	follower	The component that is moved up and down or rotated by the cam.	slide	The housing (case) for the follower that allows it to move.	G-clamp		Spreader clamp		Exploded diagram	Diagram detailing each part 
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<p>Safety: Inspect tools for cracks, chips and wear.</p> <p>Safety: Always tie back long hair and tuck it out of the way.</p> <p>Tighten and loosen a G and spreader clamp by turning the handle.</p>  <p>G-clamps can come in a range of sizes which are designed for different levels of duty. For example, a smaller G-clamp should be used for lighter-duty work, such as small repairs, whereas a larger version can be used for heavy-duty work, including sawing and drilling.</p>	<p>G-clamp Spreader clamp Tape measures Junior hacksaw Sandpaper</p>	<p>Join a cam to a shaft/follower successfully so it only rotates with the shaft/follower.</p>  <p>Position components within the 3D structure, allowing for alterations if necessary so ensure movements are as required.</p>	<p>Year 6 Engineering - Key Vocabulary - Match up (wordwall.net)</p> 													



	<p>Junior hacksaws are used to cut wood into straight lines. They cut when pulled towards user or backwards (look at the teeth position on the blade).</p> <p>Sandpaper is used to smooth cut wood and avoid splinters.</p>			
Evaluate			<p>Consider the views of others, including its intended user, to improve work.</p> <p>Critically evaluate their design, its manufacturing process and whether it is fit for purpose against the original design brief.</p> <p>Say how they would develop their design based on the strengths and development points identified.</p>	



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