



Ivington C.E Primary Design Technology Learning Journey –



Key Steps to Mastery Key Steps

DESIGN					
YEAR 4		Year 5		Year 6	
		Review Year 4		Review Year 5	
Pupils should be taught to:		Pupils should be taught to:		Pupils should be taught to:	
<ul style="list-style-type: none"> • identify the design features of their products that will appeal to intended customers; • use their knowledge of a broad range of existing products to help generate their ideas; • design innovative and appealing products that have a clear purpose and are aimed at a specific user; • explain how particular parts of their products work; • use annotated sketches and cross-sectional drawings to develop and communicate their ideas; • when designing, explore different initial ideas before coming up with a final design; • when planning, start to explain their choice of materials and components including function and aesthetics; • test ideas out through using prototypes; • use computer-aided design to develop and communicate their ideas • develop and follow simple design criteria; • work in a broader range of relevant contexts, for example entertainment, the home, school, leisure, food industry and the wider environment. 		<ul style="list-style-type: none"> • use research to inform and develop detailed design criteria to inform the design of innovative, functional and appealing products that are fit for purpose and aimed at a target market; • use their knowledge of a broad range of existing products to help generate their ideas; • design products that have a clear purpose and indicate the design features of their products that will appeal to the intended user; • explain how particular parts of their products work; • use annotated sketches, cross-sectional drawings and exploded diagrams (possibly including computer-aided design) to develop and communicate their ideas; • generate a range of design ideas and clearly communicate final designs; • consider the availability and costings of resources when planning out designs; • work in a broad range of relevant contexts, for example conservation, the home, school, leisure, culture, enterprise, industry and the wider environment 		<ul style="list-style-type: none"> • use research to inform and develop detailed design criteria to inform the design of innovative, functional and appealing products that are fit for purpose and aimed at a target market; • use their knowledge of a broad range of existing products to help generate their ideas; • design products that have a clear purpose and indicate the design features of their products that will appeal to the intended user; • explain how particular parts of their products work; • use annotated sketches, cross-sectional drawings and exploded diagrams (possibly including computer-aided design) to develop and communicate their ideas; • generate a range of design ideas and clearly communicate final designs; • consider the availability and costings of resources when planning out designs; • work in a broad range of relevant contexts, for example conservation, the home, school, leisure, culture, enterprise, industry and the wider environment 	

MAKE

MAKE					
	YEAR 4		Year 5		Year 6
	Review Year 3		Review Year 4		Review Year 5
	Pupils should be taught to:		Pupils should be taught to:		Pupils should be taught to:
	Planning		Planning		Planning
	<ul style="list-style-type: none"> with growing confidence, carefully select from a range of tools and equipment, explaining their choices; select from a range of materials and components according to their functional properties and aesthetic qualities; place the main stages of making in a systematic order; 		<ul style="list-style-type: none"> independently plan by suggesting what to do next; with growing confidence, select from a wide range of tools and equipment, explaining their choices; select from a range of materials and components according to their functional properties and aesthetic qualities; create step-by-step plans as a guide to making 		<ul style="list-style-type: none"> independently plan by suggesting what to do next; with growing confidence, select from a wide range of tools and equipment, explaining their choices; select from a range of materials and components according to their functional properties and aesthetic qualities; create step-by-step plans as a guide to making;
	Practical skills and techniques		Practical skills and techniques		Practical skills and techniques
	<ul style="list-style-type: none"> I can learn to use a range of tools and equipment safely, appropriately and accurately and learn to follow hygiene procedures; I can use a wider range of materials and components, including construction materials and kits, textiles and mechanical and electrical components; with growing independence, I can measure and mark out to the nearest cm and millimetre; I can cut, shape and score materials with some degree of accuracy; 		<ul style="list-style-type: none"> I can learn to use a range of tools and equipment safely and appropriately and learn to follow hygiene procedures; I can independently take exact measurements and mark out, to within 1 millimetre; I can use a full range of materials and components, including construction materials and kits, textiles, and mechanical components; I can cut a range of materials with precision and accuracy; I can shape and score materials with precision and accuracy; I can assemble, join and combine materials and components with accuracy; 		<ul style="list-style-type: none"> I can learn to use a range of tools and equipment safely and appropriately and learn to follow hygiene procedures; I can independently take exact measurements and mark out, to within 1 millimetre; I can use a full range of materials and components, including construction materials and kits, textiles, and mechanical components; I can cut a range of materials with precision and accuracy; I can shape and score materials with precision and accuracy; I can assemble, join and combine materials and components with accuracy;

	<ul style="list-style-type: none"> • I can assemble, join and combine material and components with some degree of accuracy; • I can demonstrate how to measure, cut, shape and join fabric with some accuracy to make a simple product; • I can join textiles with an appropriate sewing technique; • I can begin to select and use different and appropriate finishing techniques to improve the appearance of a product such as hemming, tie-dye, fabric paints and digital graphics 		<ul style="list-style-type: none"> • I can demonstrate how to measure, make a seam allowance, tape, pin, cut, shape and join fabric with precision to make a more complex product; • I can join textiles using a greater variety of stitches, such as backstitch, whip stitch, blanket stitch; • I can refine the finish using techniques to improve the appearance of their product, such as sanding or a more precise scissor cut after roughly cutting out a shape 		<ul style="list-style-type: none"> • I can demonstrate how to measure, make a seam allowance, tape, pin, cut, shape and join fabric with precision to make a more complex product; • I can join textiles using a greater variety of stitches, such as backstitch, whip stitch, blanket stitch; • I can refine the finish using techniques to improve the appearance of their product, such as sanding or a more precise scissor cut after roughly cutting out a shape
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EVALUATE					
YEAR 4		Year 5		Year 6	
Review Year 3		Review Year 4		Review Year 5	
Pupils should be taught to:		Pupils should be taught to:		Pupils should be taught to:	
<p>Children investigate and analyse a range of existing products.</p> <p>They evaluate their ideas and products against their own design criteria and consider the views of others to improve their work.</p> <p>They understand how key events and individuals in design and technology have helped shape the world.</p>		<p>Children investigate and analyse a range of existing products.</p> <p>They evaluate their ideas and products against their own design criteria and consider the views of others to improve their work.</p> <p>They understand how key events and individuals in design and technology have helped shape the world.</p>		<p>Children investigate and analyse a range of existing products.</p> <p>They evaluate their ideas and products against their own design criteria and consider the views of others to improve their work.</p> <p>They understand how key events and individuals in design and technology have helped shape the world.</p>	
<ul style="list-style-type: none"> • I can explore and evaluate existing products, explaining the purpose of the product and 		<ul style="list-style-type: none"> • I can complete detailed competitor analysis of other products on the market; 		<ul style="list-style-type: none"> • I can complete detailed competitor analysis of other products on the market; 	

<p>whether it is designed well to meet the intended purpose;</p> <ul style="list-style-type: none">• I can explore what materials/ingredients products are made from and suggest reasons for this;• I can consider my design criteria as I make progress and am willing to alter my plans, sometimes considering the views of others if this helps them to improve my product;• I can evaluate my product against my original design criteria;• I can evaluate the key events, including technological developments, and designs of individuals in design and technology that have helped shape the world.		<ul style="list-style-type: none">• I can critically evaluate the quality of design, manufacture and fitness for purpose of products as I design and make;• I can evaluate my ideas and products against the original design criteria, making changes as needed.		<ul style="list-style-type: none">• I can critically evaluate the quality of design, manufacture and fitness for purpose of products as I design and make;• I can evaluate my ideas and products against the original design criteria, making changes as needed.
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TECHNICAL KNOWLEDGE

	YEAR 4		Year 5		Year 6
	Review Year 4		Review Year 4		Review Year 5
	Pupils should be taught to:		Pupils should be taught to:		Pupils should be taught to:
	<p>Children apply their understanding of how to strengthen, stiffen and reinforce more complex structures.</p> <p>They understand and use mechanical systems in their products [for example, gears, pulleys, cams, levers and linkages].</p> <p>They understand and use electrical systems in their products [for example, series circuits incorporating switches, bulbs, buzzers and motors].</p> <p>They apply their understanding of computing to program, monitor and control their products.</p>		<p>Children apply their understanding of how to strengthen, stiffen and reinforce more complex structures.</p> <p>They understand and use mechanical systems in their products [for example, gears, pulleys, cams, levers and linkages].</p> <p>They understand and use electrical systems in their products [for example, series circuits incorporating switches, bulbs, buzzers and motors].</p> <p>They apply their understanding of computing to program, monitor and control their products</p>		<p>Children apply their understanding of how to strengthen, stiffen and reinforce more complex structures.</p> <p>They understand and use mechanical systems in their products [for example, gears, pulleys, cams, levers and linkages].</p> <p>They understand and use electrical systems in their products [for example, series circuits incorporating switches, bulbs, buzzers and motors].</p> <p>They apply their understanding of computing to program, monitor and control their products.</p>
	<ul style="list-style-type: none"> I can understand that materials have both functional properties and aesthetic qualities; I can apply my understanding of how to strengthen, stiffen and reinforce more complex structures in order to create more useful characteristics of products. I can understand and demonstrate how mechanical and electrical systems have an input and output process; I can make and represent simple electrical circuits, such as a series and parallel, and components to create functional products; I can explain how mechanical systems such as levers and linkages create movement; 		<ul style="list-style-type: none"> I can apply my understanding of how to strengthen, stiffen and reinforce more complex structures in order to create more useful characteristics of products; I can understand and demonstrate that mechanical and electrical systems have an input, process and output; I can explain how mechanical systems, such as cams, create movement and use mechanical systems in my products; I can apply my understanding of computing to program, monitor and control a product. 		<ul style="list-style-type: none"> I can apply my understanding of how to strengthen, stiffen and reinforce more complex structures in order to create more useful characteristics of products; I can understand and demonstrate that mechanical and electrical systems have an input, process and output; I can explain how mechanical systems, such as cams, create movement and use mechanical systems in my products; I can apply my understanding of computing to program, monitor and control a product.

- I can use mechanical systems in my products