

**Providing the rich soil that enables
our children to develop deep roots and flourish.**

Immersion Curriculum: Design and Technology Y3/4 (Cycle B)

At Amberley, each unit of design and technology contains the key elements of: mastering practical skills, design, make, evaluate and improve, and taking inspiration from design through a topic of either food, materials, textiles, electrical and electronics, computing, construction and mechanics.



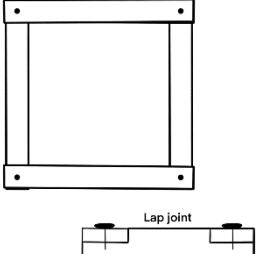
Intent:

For all learners to...


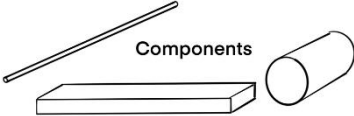
- work with tools, equipment, materials and components to make quality products,
 - making creative and informed choices on the way
- pupils to critique, evaluate and test their ideas and products and works of others
 - foster enjoyment in designing and making things for a specific purpose
- pupils to have progressive development of knowledge and skills of the DT curriculum
- pupils learn to take managed risks becoming resourceful and innovative learners

Impact:

The children of Amberley will understand and develop the traits and skills needed to become a Design Technologist. They understand that DT is about solving problems, and they strive to be creative, aiming to show perseverance when solving these problems.

Project		Milestone for end of Year 4	National Curriculum Objectives: By the end of the Key Stage 2	Technical drawing/photo
Frames		<ul style="list-style-type: none"> • Cut materials accurately and safely by selecting appropriate tools • Measure and mark out to the nearest millimetre • Apply appropriate cutting and shaping techniques that include cut within the perimeter of the material (such as slots or cut outs) • Select appropriate joining techniques 	<p>Design</p> <ul style="list-style-type: none"> • use research and develop design criteria to inform the design of innovative, functional, appealing products that are fit for purpose, aimed at particular individuals or groups • generate, develop, model and communicate their ideas through discussion, annotated sketches, cross-sectional and exploded diagrams, prototypes, pattern pieces and computer-aided design <p>Make</p> <ul style="list-style-type: none"> • select from and use a wider range of tools and equipment to perform practical tasks [for example, cutting, shaping, joining and finishing], accurately • select from and use a wider range of materials and components, including construction materials, textiles and ingredients, according to their functional properties and aesthetic qualities <p>Evaluate</p> <ul style="list-style-type: none"> • investigate and analyse a range of existing products • evaluate their ideas and products against their own design criteria and consider the views of others to improve their work • understand how key events and individuals in design and technology have helped shape the world <p>Technical knowledge</p> <ul style="list-style-type: none"> • apply their understanding of how to strengthen, stiffen and reinforce more complex structures • understand and use mechanical systems in their products [for example, gears, pulleys, cams, levers and linkages] • understand and use electrical systems in their products [for example, series circuits incorporating switches, bulbs, buzzers and motors] • apply their understanding of computing to program, monitor and control their products. 	
Duration	Cycle	<p>Ongoing Milestones:</p> <ul style="list-style-type: none"> • Choose suitable techniques to construct products or to repair items • Strengthen materials using suitable techniques • Design with purpose by identifying opportunities to design. • Make products by working efficiently (such as by carefully selecting materials). • Refine work and techniques as work progresses, continually evaluating the product design • Improve upon existing designs giving reasons for choices • Disassemble products to understand how they work 	<p>Key Vocabulary for the Year:</p> <p>Refer to whole school vocabulary progression document.</p>	
Term 1`	B			

Project		Milestone for end of Year 4	National Curriculum Objectives: By the end of the Key Stage 2	Technical drawing/photo
Ski Lift (French Alps)		<ul style="list-style-type: none"> Use scientific knowledge of the transference of forces to choose appropriate mechanisms for a product (such as levers, winding mechanisms, pulleys and gears) 	<p>Design</p> <ul style="list-style-type: none"> use research and develop design criteria to inform the design of innovative, functional, appealing products that are fit for purpose, aimed at particular individuals or groups generate, develop, model and communicate their ideas through discussion, annotated sketches, cross-sectional and exploded diagrams, prototypes, pattern pieces and computer-aided design <p>Make</p> <ul style="list-style-type: none"> select from and use a wider range of tools and equipment to perform practical tasks [for example, cutting, shaping, joining and finishing], accurately select from and use a wider range of materials and components, including construction materials, textiles and ingredients, according to their functional properties and aesthetic qualities 	
Duration	Cycle	<p>Ongoing Milestones:</p> <ul style="list-style-type: none"> Choose suitable techniques to construct products or to repair items Strengthen materials using suitable techniques Design with purpose by identifying opportunities to design. Make products by working efficiently (such as by carefully selecting materials). Refine work and techniques as work progresses, continually evaluating the product design Improve upon existing designs giving reasons for choices Disassemble products to understand how they work 	<p>Evaluate</p> <ul style="list-style-type: none"> investigate and analyse a range of existing products evaluate their ideas and products against their own design criteria and consider the views of others to improve their work understand how key events and individuals in design and technology have helped shape the world <p>Technical knowledge</p> <ul style="list-style-type: none"> apply their understanding of how to strengthen, stiffen and reinforce more complex structures understand and use mechanical systems in their products [for example, gears, pulleys, cams, levers and linkages] understand and use electrical systems in their products [for example, series circuits incorporating switches, bulbs, buzzers and motors] apply their understanding of computing to program, monitor and control their products. 	
Term 2	B		<p>Key Vocabulary for the Year:</p> <p>Refer to whole school vocabulary progression document.</p>	

Project		Milestone for end of Year 4	National Curriculum Objectives: By the end of the Key Stage 2	Technical drawing/photo
Planes (WWI)		<ul style="list-style-type: none"> Identify some of the great designers in all areas of the study (including pioneers in horticultural techniques) to generate ideas for designs Cut materials accurately and safely by selecting appropriate tools Measure and mark out to the nearest millimetre Apply appropriate cutting and shaping techniques that include cut within the perimeter of the material (such as slots or cut outs) Select appropriate joining techniques 	<p>Design</p> <ul style="list-style-type: none"> use research and develop design criteria to inform the design of innovative, functional, appealing products that are fit for purpose, aimed at particular individuals or groups generate, develop, model and communicate their ideas through discussion, annotated sketches, cross-sectional and exploded diagrams, prototypes, pattern pieces and computer-aided design <p>Make</p> <ul style="list-style-type: none"> select from and use a wider range of tools and equipment to perform practical tasks [for example, cutting, shaping, joining and finishing], accurately select from and use a wider range of materials and components, including construction materials, textiles and ingredients, according to their functional properties and aesthetic qualities <p>Evaluate</p> <ul style="list-style-type: none"> investigate and analyse a range of existing products evaluate their ideas and products against their own design criteria and consider the views of others to improve their work understand how key events and individuals in design and technology have helped shape the world 	<p>Designs can vary - up to children's own ideas</p> <p>Previous examples</p>  <p>Components</p> 
Duration	Cycle	<p>Ongoing Milestones:</p> <ul style="list-style-type: none"> Choose suitable techniques to construct products or to repair items Strengthen materials using suitable techniques Design with purpose by identifying opportunities to design. Make products by working efficiently (such as by carefully selecting materials). Refine work and techniques as work progresses, continually evaluating the product design Improve upon existing designs giving reasons for choices Disassemble products to understand how they work 	<p>Technical knowledge</p> <ul style="list-style-type: none"> apply their understanding of how to strengthen, stiffen and reinforce more complex structures understand and use mechanical systems in their products [for example, gears, pulleys, cams, levers and linkages] understand and use electrical systems in their products [for example, series circuits incorporating switches, bulbs, buzzers and motors] apply their understanding of computing to program, monitor and control their products. 	
Term 3	B			

Project		Milestone for end of Year 4	National Curriculum Objectives: By the end of the Key Stage 2	Technical drawing/photo
Tea Stirrers (Iron Age)		<ul style="list-style-type: none"> Identify some of the great designers in all areas of the study (including pioneers in horticultural techniques) to generate ideas for designs Cut materials accurately and safely by selecting appropriate tools Measure and mark out to the nearest millimetre Apply appropriate cutting and shaping techniques that include cut within the perimeter of the material (such as slots or cut outs) 	<p>Design</p> <ul style="list-style-type: none"> use research and develop design criteria to inform the design of innovative, functional, appealing products that are fit for purpose, aimed at particular individuals or groups generate, develop, model and communicate their ideas through discussion, annotated sketches, cross-sectional and exploded diagrams, prototypes, pattern pieces and computer-aided design <p>Make</p> <ul style="list-style-type: none"> select from and use a wider range of tools and equipment to perform practical tasks [for example, cutting, shaping, joining and finishing], accurately select from and use a wider range of materials and components, including construction materials, textiles and ingredients, according to their functional properties and aesthetic qualities <p>Evaluate</p> <ul style="list-style-type: none"> investigate and analyse a range of existing products evaluate their ideas and products against their own design criteria and consider the views of others to improve their work understand how key events and individuals in design and technology have helped shape the world <p>Technical knowledge</p> <ul style="list-style-type: none"> apply their understanding of how to strengthen, stiffen and reinforce more complex structures understand and use mechanical systems in their products [for example, gears, pulleys, cams, levers and linkages] understand and use electrical systems in their products [for example, series circuits incorporating switches, bulbs, buzzers and motors] <p>apply their understanding of computing to program, monitor and control their products.</p>	
Duration	Cycle	<p>Ongoing Milestones:</p> <ul style="list-style-type: none"> Choose suitable techniques to construct products or to repair items Strengthen materials using suitable techniques Design with purpose by identifying opportunities to design. Make products by working efficiently (such as by carefully selecting materials). Refine work and techniques as work progresses, continually evaluating the product design Improve upon existing designs giving reasons for choices Disassemble products to understand how they work 	<p>Key Vocabulary for the Year:</p> <p>Refer to whole school vocabulary progression document.</p>	
Term 4	B			

Project		Milestone for end of Year 4	National Curriculum Objectives: By the end of the Key Stage 2	Technical drawing/photo
Moving Pictures (fixed linear pivots)		<ul style="list-style-type: none"> Use scientific knowledge of the transference of forces to choose appropriate mechanisms for a product (such as levers, winding mechanisms, pulleys and gears) Cut materials accurately and safely by selecting appropriate tools Measure and mark out to the nearest millimetre Apply appropriate cutting and shaping techniques that include cut within the perimeter of the material (such as slots or cut outs) Select appropriate joining techniques 	<p>Design</p> <ul style="list-style-type: none"> use research and develop design criteria to inform the design of innovative, functional, appealing products that are fit for purpose, aimed at particular individuals or groups generate, develop, model and communicate their ideas through discussion, annotated sketches, cross-sectional and exploded diagrams, prototypes, pattern pieces and computer-aided design <p>Make</p> <ul style="list-style-type: none"> select from and use a wider range of tools and equipment to perform practical tasks [for example, cutting, shaping, joining and finishing], accurately select from and use a wider range of materials and components, including construction materials, textiles and ingredients, according to their functional properties and aesthetic qualities <p>Evaluate</p> <ul style="list-style-type: none"> investigate and analyse a range of existing products evaluate their ideas and products against their own design criteria and consider the views of others to improve their work understand how key events and individuals in design and technology have helped shape the world 	
Duration	Cycle	Ongoing Milestones:	Technical knowledge	
Term 5/6	B	<ul style="list-style-type: none"> Choose suitable techniques to construct products or to repair items Strengthen materials using suitable techniques Design with purpose by identifying opportunities to design. Make products by working efficiently (such as by carefully selecting materials). Refine work and techniques as work progresses, continually evaluating the product design Improve upon existing designs giving reasons for choices Disassemble products to understand how they work 	<ul style="list-style-type: none"> apply their understanding of how to strengthen, stiffen and reinforce more complex structures understand and use mechanical systems in their products [for example, gears, pulleys, cams, levers and linkages] understand and use electrical systems in their products [for example, series circuits incorporating switches, bulbs, buzzers and motors] <p>apply their understanding of computing to program, monitor and control their products.</p>	
			Key Vocabulary for the Year:	
			Refer to whole school vocabulary progression document.	

Focus		Milestone for end of Lower Key Stage 2 (Year 4)	National Curriculum Objectives: By the end of the Key Stage 2
Food: Dessert		<ul style="list-style-type: none"> • Prepare ingredients hygienically using appropriate utensils. • Measure ingredients to the nearest gram accurately. • Follow a recipe. • Assemble or cook ingredients (controlling the temperature of the oven or hob, if cooking). 	<ul style="list-style-type: none"> • Understand and apply the principles of a healthy and varied diet • Prepare and cook a variety of predominantly savoury dishes using a range of cooking techniques • Understand seasonality, and know where and how a variety of ingredients are grown, reared, caught and processed. <p><u>Links to PSHCE curriculum</u></p> <ul style="list-style-type: none"> • What constitutes a healthy diet (including understanding calories and other nutritional content) • The principles of planning and preparing a range of healthy meals
Duration	Cycle		
1 week	B	<p>Ongoing:</p> <ul style="list-style-type: none"> • Design with purpose by identifying opportunities to design. • Make products by working efficiently (such as by carefully selecting materials). 	<p>Key Vocabulary for the Year:</p> <p>Refer to whole school vocabulary progression document.</p>