



Amberley CE Primary School



St. James' CE Primary School,
Coldwaltham



Enabling every child to thrive and succeed

At Arun Villages Federation, we care for EVERYONE. We embrace challenges and all opportunities to learn, recognising the value of education and persevering even when it feels difficult.

We are uncompromising in our aspirations, proud of our – and each other's - achievements and look forward to embracing the experiences the wider world offers.

Respect, Kindness, Honesty, Positivity and Teamwork

Design and Technology

Intent

At Arun Villages Federation we intend to build a Design and Technology curriculum which is inspiring, rigorous, and practical. We want our children to use creativity and imagination, to design and make products that solve real and relevant problems within a variety of contexts, considering their own and others' needs, wants and values. The subject also aims to promote a critical understanding of the impact of their own and others' design decisions and products on the environment and communities, both locally and in the wider world. We intend for all children to acquire appropriate subject knowledge, skills and understanding as set out in the National Curriculum. It is our aim for our Design and Technology offer to prepare our children, to give them the opportunities, resourcefulness, responsibilities, and experiences they need to be successful in later life.

Implementation

Design and Technology is a crucial part of school life and learning and it is for this reason that as a federation we are dedicated to the teaching and delivery of a high-quality Design and Technology curriculum. At Arun Villages Federation, our children will be taught termly projects from the researched based '*Projects on a Page*' planning guidance written by The Design & Technology Association as a sound basis for both our planning.

Each project contains:

- Investigative and Evaluative Activities (IEAs) where children learn from a range of existing products and find out about D&T in the wider world;
- Focused Tasks (FTs) where they are taught specific technical knowledge, designing skills and making skills;
- Design, Make and Evaluate Assignment (DMEA) where children create functional products with users and purposes in mind.

This is implemented through:

- A well thought out, whole school, two-year cycle of the DT curriculum which allows for progression across the key stages in all areas of DT (textiles, mechanisms, structures, food and electrical systems)
- Well planned and resourced projects providing children with a hands-on and enriching experience
- A range of skills being taught ensuring that children are aware of health and safety issues related to the tasks undertaken
- Each project in each class, addressing the principles of designing, making, and evaluating and incorporating relevant technical knowledge and understanding in relevant contexts.

- Using the three S's definition, which is consistent with the National Curriculum purpose of study statement, children should design and make: **S**omething (the product); **S**omebody (the user) and **S**ome purpose (the task or tasks that the product should perform)
- Pupils being introduced to specific designers, chefs, nutritionists, etc. helping to engender an appreciation of human creativity and achievement and increase the cultural capital from which they can draw in the future.

At AVF, we promote Design and Technology in the wider school through a Computing Club afterschool and the use of our Forest School and Nature Space. In the Nature Space, each class has a plot and is in charge of their own patch, to grow and harvest food.

Early Years Foundation Stage

During the EYFS pupils explore and use a variety of media and materials through a combination of child initiated and adult directed activities. They have the opportunities to learn to:

- Use different media and materials to express their own ideas
- Use what they have learnt about media and materials in original ways, thinking about form, function and purpose
- Make plans and construct with a purpose in mind using a variety of resources
- Develop skills to use simple tools and techniques appropriately, effectively and safely
- Select appropriate resources for a product and adapt their work where necessary
- Cook and prepare food adhering to good health and hygiene routines

Impact

Children will have clear enjoyment and confidence in Design and Technology that they will then apply to other areas of the curriculum. Through carefully planned and implemented learning activities the children develop the creative, technical and practical expertise needed to perform everyday tasks confidently and to participate successfully in an increasingly technological world. They gain a firm foundation of knowledge and skills to see them equipped to take on further learning in their next step of their education. Teachers will assess the children's key learning each term using knowledge organisers and the federation's D&T progression documentation. This informs the Design and Technology coordinator of any further areas for curriculum development, pupil support and/or training requirements for staff. EYFS pupils' progress and attainment tells us whether each individual child is below expected, at expected or above expected attainment for their age.

Design and Technology Progression Map – Whole School Cycle A & B

Cycle A & B Key Learning, Context and Key people/events				
	EYFS	KS1	LKS2	UKS2
Key learning (A)	<p>Aut: Develop their own ideas and then decide which materials to use to express them.</p> <p>Spr: I know that I can use blocks and construction kits to create different places or objects.</p> <p>Sum: I can manage my own personal hygiene and make healthy choices about food.</p>	<p>Aut: I know the movement of simple mechanisms such as levers/sliders.</p> <p>Spr: I know how freestanding structures can be made stronger, stiffer and more stable.</p> <p>Sum: I know that all food comes from plants or animals. I know that food has to be farmed, grown elsewhere, caught or found.</p>	<p>Aut: I know how simple electrical circuits and components can be used to create functional products.</p> <p>Spr: I know that a single fabric shape can be used to make a 3-D textiles product.</p> <p>Sum: I know that food ingredients can be fresh, pre-cooked and processed. I know that food is grown in the UK, Europe and the wider world. I know how to cook predominantly savoury dishes.</p>	<p>Aut: I know that a recipe can be adapted by adding or substituting one or more ingredients.</p> <p>Spr: I know how to reinforce and strengthen a 3-D framework.</p> <p>Sum: I know how mechanical systems such as cams or pulleys or gears create movement.</p>
Context (A)	<p>Aut: Designing and making a hat/piece of clothing for marvellous me!</p> <p>Spr: Chairs for three bears!</p> <p>Sum: Where do we get our fantastic fruit and veg from?</p>	<p>Aut: Sliders and Levers: A moving picture card</p> <p>Spr: Freestanding structures: Model playground equipment</p> <p>Sum: Preparing fruit and vegetables: Handa's Surprise – Fruit smoothie</p>	<p>Aut: Simple circuits and switches: Reading/Night light</p> <p>Spr: 2D-Shape to 3-D product: Purses and Wallets</p> <p>Sum:</p>	<p>Aut: Celebrating culture and seasonality: Celebratory bread – religious focus</p> <p>Spr: Frame structures: model market stall</p> <p>Sum: Pulleys or Gears: controllable toy vehicle marketed towards the younger children in school</p>
Key People/ Events (A)	<p>Aut:</p> <p>Spr:</p> <p>Sum:</p>	<p>Aut:</p> <p>Spr: Gaudi and Eric McMillan</p> <p>Sum:</p>	<p>Aut:</p> <p>Spr: Coco Chanel</p> <p>Sum:</p>	<p>Aut: Nadia Hussain</p> <p>Spr:</p> <p>Sum: Henry Ford</p>
Key learning (B)	<p>Aut: I know that I can Join different materials and</p>	<p>Aut: I know the movement of simple mechanisms such as wheels and axles.</p>	<p>Aut: I know how mechanical systems such as levers and linkages or pneumatic systems create movement.</p>	<p>Aut: I know more complex electrical circuits and components can be used to create functional products.</p>

	<p>explore different textures. Spr: I know that food comes from plants and animals. Sum: I know I can use and explore different materials freely, to develop my ideas about how to use them and what to make.</p>	<p>Spr: I know that all food comes from plants or animals. I know the five food groups. Sum: I know that a 3-D textiles product can be assembled from two identical fabric shapes.</p>	<p>Spr: I know how to program a computer to control their products. Sum: I know how to make strong, stiff shell structures.</p>	<p>Spr: I know that 3-D textiles product can be made from a combination of fabric shapes. Sum: I know how to program a computer to monitor changes in the environment and control their products.</p>
Context (B)	<p>Aut: Let's celebrate with a Christmas decoration! Spr: Feast for a beast – looking and making food products Sum: Wheels - let's look at vehicles. Can we make a moving machine?</p>	<p>Aut: Wheels and Axles: pull/push toy emergency vehicle Spr: Preparing fruit and vegetables: Vegetable salads/kebabs Sum: Templates and joining techniques: Glove puppets</p>	<p>Aut: Levers and Linkages: information book Or Pneumatics: Jack-in-the-box, moving toy Spr: Simple programming and control: model traffic lights/illuminated signs for school roads Sum: Computer Aided: Gift or party boxes</p>	<p>Aut: More Complex Switches: alarm for precious artefact or an electronic boardgame Spr: Combing different fabric shapes: slippers or sandals Sum: Cams - a shop display with moving parts e.g. lifting or rotating images of items for sale</p>
Key People/ Events (B)			<p>Aut: Spr: Harry Beck</p>	<p>Spr: Tinker Hatfield</p>
Designing	EYFS	KS1	LKS2	UKS2
Understand context, user and purposes		<ul style="list-style-type: none"> work confidently within a range of contexts, such as imaginary, story-based, home, school, gardens, playgrounds, local community, industry and the wider environment state what products they are designing and making describe who and what their products are for say how their products will work for their intended users 	<ul style="list-style-type: none"> gather information about the needs and wants of particular individuals and groups develop their own design criteria and use these to inform their ideas <p>work confidently within a range of contexts, such as the home, school, leisure, culture, enterprise, industry and the wider environment</p> <ul style="list-style-type: none"> describe the purpose of their products 	<p>carry out research, using surveys, interviews, questionnaires and web-based resources</p> <ul style="list-style-type: none"> identify the needs, wants, preferences and values of particular individuals and groups <i>develop a simple design specification to guide their thinking</i> <p>work confidently within a range of contexts, such as the home, school, leisure, culture,</p>

		<ul style="list-style-type: none"> • use simple design criteria to help develop their own ideas 	<ul style="list-style-type: none"> • indicate the design features of their products that will appeal to intended users • explain how particular parts of their products work 	<p>enterprise, industry and the wider environment</p> <ul style="list-style-type: none"> • describe the purpose of their products • indicate the design features of their products that will appeal to intended users • explain how particular parts of their products work
Generate, develop, model and communicate ideas		<p>generate ideas by drawing on their own experiences</p> <ul style="list-style-type: none"> • use knowledge of existing products to help come up with ideas • develop and communicate ideas by talking and drawing • model ideas by exploring materials, components and construction kits and by making templates and mock-ups • use information and communication technology, where appropriate, to develop and communicate their ideas 	<ul style="list-style-type: none"> • generate realistic ideas, focusing on the needs of the user • <i>make design decisions that take account of the availability of resources</i> • share and clarify ideas through discussion • model their ideas using prototypes and pattern pieces • use annotated sketches, cross-sectional drawings and exploded diagrams to develop and communicate their ideas • use computer-aided design to develop and communicate their ideas 	<ul style="list-style-type: none"> • generate innovative ideas, drawing on research • <i>make design decisions, taking account of constraints such as time, resources and cost</i> • share and clarify ideas through discussion • model their ideas using prototypes and pattern pieces • use annotated sketches, cross-sectional drawings and exploded diagrams to develop and communicate their ideas • use computer-aided design to develop and communicate their ideas
Making	EYFS	KS1	LKS2	UKS2
Planning		<ul style="list-style-type: none"> • <i>plan by suggesting what to do next</i> • select from a range of tools and equipment, <i>explaining their choices</i> • select from a range of materials and components according to their characteristics 	<ul style="list-style-type: none"> • <i>order the main stages of making</i> • select tools and equipment suitable for the task • <i>explain their choice of tools and equipment in relation to the skills and techniques they will be using</i> • select materials and components suitable for the task • explain their choice of materials and components according to functional properties and 	<ul style="list-style-type: none"> • <i>produce appropriate lists of tools, equipment and materials that they need</i> • <i>formulate step-by-step plans as a guide to making</i> • select tools and equipment suitable for the task • <i>explain their choice of tools and equipment in relation to the skills and techniques they will be using</i>

			aesthetic qualities	<ul style="list-style-type: none"> • select materials and components suitable for the task • explain their choice of materials and components according to functional properties and aesthetic qualities
Practical skills and techniques		<ul style="list-style-type: none"> • follow procedures for safety and hygiene • use a range of materials and components, including construction materials and kits, textiles, food ingredients and mechanical components • measure, mark out, cut and shape materials and components • assemble, join and combine materials and components • use finishing techniques, including those from art and design 	<ul style="list-style-type: none"> • measure, mark out, cut and shape materials and components with some accuracy • assemble, join and combine materials and components with some accuracy • apply a range of finishing techniques, including those from art and design, with some Accuracy • follow procedures for safety and hygiene • use a wider range of materials and components than KS1, including construction materials and kits, textiles, food ingredients, mechanical components and electrical components 	<ul style="list-style-type: none"> • accurately measure, mark out, cut and shape materials and components • accurately assemble, join and combine materials and components • accurately apply a range of finishing techniques, including those from art and design • <i>use techniques that involve a number of steps</i> • demonstrate resourcefulness when tackling practical problems • follow procedures for safety and hygiene • use a wider range of materials and components than KS1, including construction materials and kits, textiles, food ingredients, mechanical components and electrical components
Evaluating	EYFS	KS1	LKS2	UKS2
Own ideas and products		<ul style="list-style-type: none"> • talk about their design ideas and what they are making • make simple judgements about their products and ideas against design criteria • <i>suggest how their products could be improved</i> 	<p>In early KS2 pupils should also:</p> <ul style="list-style-type: none"> • refer to their design criteria as they design and make • use their design criteria to evaluate their completed products • identify the strengths and areas for development in their ideas and products 	<ul style="list-style-type: none"> • critically evaluate the quality of the design, manufacture and fitness for purpose of their products as they design and make • <i>evaluate their ideas and products against their original design specification</i> • identify the strengths and areas for development in their ideas and products

			<ul style="list-style-type: none"> consider the views of others, including intended users, to improve their work 	<ul style="list-style-type: none"> consider the views of others, including intended users, to improve their work
Existing products		<ul style="list-style-type: none"> what products are who products are for what products are for how products work how products are used where products might be used what materials products are made from what they like and dislike about products 	<ul style="list-style-type: none"> who designed and made the products where products were designed and made when products were designed and made whether products can be recycled or reused how well products have been designed how well products have been made why materials have been chosen what methods of construction have been used how well products work how well products achieve their purposes how well products meet user needs and wants 	<ul style="list-style-type: none"> how much products cost to make how innovative products are how sustainable the materials in products are what impact products have beyond their intended purpose how well products have been designed how well products have been made why materials have been chosen what methods of construction have been used how well products work how well products achieve their purposes how well products meet user needs and wants
Key events and individuals		Not a requirement at KS1	about inventors, designers, engineers, chefs and manufacturers who have developed ground-breaking products	about inventors, designers, engineers, chefs and manufacturers who have developed ground-breaking products
Technical knowledge	EYFS	KS1	LKS2	UKS2
Making products work		<ul style="list-style-type: none"> about the simple working characteristics of materials and components about the movement of simple mechanisms such as levers, sliders, wheels and axles how freestanding structures can be made stronger, stiffer and more stable <i>that a 3-D textiles product can be assembled from two</i> 	<ul style="list-style-type: none"> how mechanical systems such as levers and linkages or pneumatic systems create movement 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, stiff shell structures 	<ul style="list-style-type: none"> how mechanical systems such as cams or pulleys or gears create movement how more complex electrical circuits and components can be used to create functional products how to program a computer to monitor changes in the environment and control their products

		<p><i>identical fabric shapes</i></p> <ul style="list-style-type: none"> • <i>that food ingredients should be combined according to their sensory characteristics</i> • <i>the correct technical vocabulary for the projects they are undertaking</i> 	<ul style="list-style-type: none"> • <i>that a single fabric shape can be used to make a 3D textiles product</i> • <i>that food ingredients can be fresh, pre-cooked and processed</i> • how to use learning from science to help design and make products that work • how to use learning from mathematics to help design and make products that work • that materials have both functional properties and aesthetic qualities • <i>that materials can be combined and mixed to create more useful characteristics</i> • that mechanical and electrical systems have an input, process and output • <i>the correct technical vocabulary for the projects they are undertaking</i> 	<ul style="list-style-type: none"> • how to reinforce and strengthen a 3D framework • <i>that a 3D textiles product can be made from a combination of fabric shapes</i> • <i>that a recipe can be adapted by adding or substituting one or more ingredients</i> • how to use learning from science to help design and make products that work • how to use learning from mathematics to help design and make products that work • that materials have both functional properties and aesthetic qualities • <i>that materials can be combined and mixed to create more useful characteristics</i> • that mechanical and electrical systems have an input, process and output • <i>the correct technical vocabulary for the projects they are undertaking</i>
Cooking and Nutrition	EYFS	KS1	LKS2	UKS2
Where food comes from		<ul style="list-style-type: none"> • that all food comes from plants or animals • that food has to be farmed, grown elsewhere (e.g. home) or caught 	<ul style="list-style-type: none"> • that food is grown (such as tomatoes, wheat and potatoes), reared (such as pigs, chickens and cattle) and caught (such as fish) in the UK, Europe and the wider world 	<ul style="list-style-type: none"> • that seasons may affect the food available • how food is processed into ingredients that can be eaten or used in cooking
Food preparation, cooking and nutrition		<ul style="list-style-type: none"> • how to name and sort foods into the five groups in The eatwell plate • that everyone should eat at least five portions of fruit and vegetables every day • how to prepare simple dishes 	<ul style="list-style-type: none"> • that a healthy diet is made up from a variety and balance of different food and drink, as depicted in The eatwell plate • that to be active and healthy, food and drink are needed to provide energy for the body 	<ul style="list-style-type: none"> • <i>that recipes can be adapted to change the appearance, taste, texture and aroma</i> • that different food and drink contain different substances – nutrients, water and fibre – that are needed for health

		<p>safely and hygienically, without using a heat source</p> <ul style="list-style-type: none"> • how to use techniques such as cutting, peeling and grating 		<ul style="list-style-type: none"> • how to prepare and cook a variety of predominantly savoury dishes safely and hygienically including, where appropriate, the use of a heat source • how to use a range of techniques such as peeling, chopping, slicing, grating, mixing, spreading, kneading and baking 		<ul style="list-style-type: none"> • how to prepare and cook a variety of predominantly savoury dishes safely and hygienically including, where appropriate, the use of a heat source • how to use a range of techniques such as peeling, chopping, slicing, grating, mixing, spreading, kneading and baking
Key Vocabulary		<p>Mechanism, lever, slider, slot, guide, bridge, pivot, push, pull, plan, design, make, evaluate, user, purpose, ideas, design criteria, product, function</p> <p>Structure, freestanding, buttress, stability, mock-up, cut, fold, fix, join, strong, base, surface</p> <p>Plant, fruit, vegetable, nutrients, pith, salad, senses, slice, peel, healthy diet, cutting, squeezing.</p>		<p>series circuit, fault, connection, toggle switch, push-to-make switch, push-to-break switch, battery, battery holder, bulb, bulb holder, wire, insulator, conductor, crocodile clip</p> <ul style="list-style-type: none"> • control, program, system, input device, output device • user, purpose, function, prototype, design criteria, innovative, appealing, 		<p>ingredients, yeast, dough, bran, flour, wholemeal, unleavened, baking soda, spice, herbs</p> <ul style="list-style-type: none"> • fat, sugar, carbohydrate, protein, vitamins, nutrients, nutrition, healthy, varied, gluten, dairy, allergy, intolerance, savoury, source, seasonality • utensils, combine, fold, knead, stir, pour, mix, rubbing in, whisk, beat, roll out, shape, sprinkle, crumble • design specification, innovative, research, evaluate, design brief
Assessment						