

Progression in Design and Technology

At Breachwood Green School the Design and Technology curriculum intention is to ensure children build on key knowledge and skills within the areas of developing, planning and communicating ideas through research and design; working with tools, equipment, materials and components to make quality products; and evaluating processes and products. The documents below highlight the knowledge and skills children will gain at each stage of the curriculum. Our children are given opportunity to build on a range of skills through collaborative working and problem solving. Design and technology brings learning to life and is a motivating context for discovering English, Maths, Science, Art, PSHE and ICT. Our Design and Technology projects provide opportunities for children to develop their capability by combining design and making skills with knowledge and understanding to create quality products. Children should be given the chance to create products they can see, touch and taste for themselves and experience a feeling of pride in doing so. We feel it is vital to nurture children's creativity; encouraging them to innovate, take risks and learn from mistakes to support them in becoming resourceful, enterprising and capable citizens.

Progression in Design and Technology - EYFS

Early Years prerequisite skills for DT within the national curriculum. The EYFS framework is structured very differently to the national curriculum as it is organised across seven areas of learning rather than subject areas. The aim of this document is to help subject leaders to understand how the skills taught across EYFS feed into national curriculum subjects. This document demonstrates which early year's outcomes are prerequisite skills for DT within the national curriculum. The table below outlines the most relevant early year's outcomes from 30-50 months to ELG, brought together from different areas of the Early Years Foundation Stage, to match the programme of study for DT. The most relevant early years outcomes for DT are taken from the following areas of learning: • Physical Development • Understanding the World • Expressive Arts and Design • Communication and Language.

	Age band: 30-50 months	Age band: 40-60 months	ELG
Developing, planning and communicating ideas	<ul style="list-style-type: none"> Begin to use representations to communicate ideas, e.g. drawing a line and saying 'That's me.' 	<ul style="list-style-type: none"> Create simple representations of events, people and objects. Choose particular colours to use for a purpose. 	<ul style="list-style-type: none"> Draw on their own experience to help generate ideas Suggest ideas and explain what they are going to do
Working with tools, equipment, materials and components to make quality products	<ul style="list-style-type: none"> To use one-handed tools and equipment, e.g. makes snips in paper with child scissors. To understand that equipment and tools have to be used safely. 	<ul style="list-style-type: none"> Handles tools, objects, construction and malleable materials safely and with increasing control Manipulates materials to achieve a planned effect Constructs with a purpose in mind, using a variety of resources Selects appropriate resources and adapt work where necessary Selects tools and techniques needed to shape, assemble and join materials they are using e.g. scissors for cutting paper Cut along straight lines Join materials using glue and tape Explore what happens when they mix colours 	<ul style="list-style-type: none"> Build and construct with a purpose in mind, using a variety of resources and adapting their work where necessary Select and use simple tools and techniques competently and appropriately Safely use and explore a variety of materials, tools and techniques, experimenting with colour, design, texture, form and function. Fold, tear and cut paper and card Roll paper to create tubes and curl paper Cut along lines, straight and curved Use a hole punch Start to use a template Choose how to join materials using glue and tape
Evaluate processes and products	<ul style="list-style-type: none"> Uses talk to connect ideas Understands use of objects 	<ul style="list-style-type: none"> Links statements and stick to main theme Uses talk to organise, sequence and clarify ideas 	<ul style="list-style-type: none"> Evaluate their product by talking about the things that went well and the things that did not work.

Progression in Design and Technology Knowledge

	EYFS	KS1	Lower KS2	Upper KS2
Sheet Materials	<ul style="list-style-type: none"> • Tear and cut paper and card • Curl paper • Cut along lines, straight and curved • Use a hole punch • Start to use a template 	<ul style="list-style-type: none"> • Fold, tear and cut paper and card • Roll paper to create tubes and curl paper • Cut along lines, straight and curved • Use a hole punch and insert paper fasteners for card linkages • Create hinges • Use simple pop ups • Investigate strengthening sheet materials • Investigate joining's which are temporary, fixed and moving 	<ul style="list-style-type: none"> • Cut slots • Cut internal shapes • Use lolly sticks/card to make levers and linkages • Use linkages to make movement larger or more varied • Use and explore complex pop ups • Create nets 	<ul style="list-style-type: none"> • Cut accurately and safely to a marked line • Join and combing materials with temporary, fixed or moving joining's • Use a craft knife, cutting mat and safety ruler under one to one supervision if appropriate • Choose an appropriate sheet material for a purpose
Construction	<ul style="list-style-type: none"> • Build and construct with a purpose in mind, using a variety of resources and adapting their work where necessary • Select and use simple tools and techniques competently and appropriately • Choose how to join materials using glue and tape 	<ul style="list-style-type: none"> • Make vehicles with construction kits which contain free running wheels • Use a range of materials to create models with wheels and axles e.g. tubes, dowel, cotton reels • Attach wheels to a chassis using an axle • Join appropriately for different materials and situations e.g. glue, tape • Mark out materials to be cut using a template • Cut dowel using hacksaw and bench hook • See glue gun used by an adult • Begin to use ICT to create a 3D model (Purplemash 2DIY) 	<ul style="list-style-type: none"> • Incorporate a circuit with a bulb or buzzer into a model • Create a shell or frame structure, strengthen frames with diagonal struts • Make structures more stable by giving them a wide base • Prototype frame and shell structures • Measure and mark out square section wood, strip and dowel accordingly to 1cm • Use glue gun with close supervision (one to one) • Cut using hacksaw and bench hook 	<ul style="list-style-type: none"> • Use bradawl to mark hole positions • Use hand drill to drill tight and loose fit holes • Cut strip wood, dowel, square section wood accurately to 1mm • Join materials using appropriate methods • Incorporate motor and a switch into a model • Control a model using an ICT control programme • Understand that mechanical and electrical systems have an input, process and output. • Use a cam to make an up and down mechanism • Build frameworks using a range of materials e.g. wood, card, corrugated plastic to support mechanisms • Use glue gun with close supervision

Textiles	<ul style="list-style-type: none"> • Safely use and explore a variety of materials, tools and techniques, experimenting with colour, design, texture, form and function. • Start to use a template 	<ul style="list-style-type: none"> • Colour fabrics using a range of techniques e.g. fabric paints, printing, painting • Cut out shapes which have been created by drawing round a template onto the fabric • Join fabrics by using running stitch, and over sewing • Decorate fabrics with buttons, beads, sequins, braids, ribbons and fix using glue or tape • Make templates and mock ups of their ideas in card and paper 	<ul style="list-style-type: none"> • Understand seam allowance • Join fabrics using running stitch, over sewing, back stitch • Explore fastenings and recreate some e.g. sew on buttons and make loops • Prototype a product using j cloths • Use appropriate decoration techniques e.g. applique (glued or simple stitches) • Create a simple pattern • Understand the need for patterns 	<ul style="list-style-type: none"> • Create 3D products using pattern pieces and seam allowance • Understand pattern layout • Decorate textiles appropriately often before joining components • Pin and tack fabric pieces together • Join fabrics using over sewing, back stitch, blanket stitch or machine stitching (closer supervision) • Combine fabrics to create more useful properties • Make quality products
Food	<ul style="list-style-type: none"> • Eat a healthy range of foodstuffs and begin to understand the need for a variety of foods to keep healthy • Talk about foods that can be grown on a farm or in a garden. • Begin to group different fruits and vegetables 	<ul style="list-style-type: none"> • Understand that all food comes from plants or animals. • Know that food has to be farmed, grown elsewhere (e.g. home) or caught. • Develop a food vocabulary using taste, smell, texture and feel • Group familiar food products e.g. fruit and vegetables • Work safely and hygienically • Understand the need for a variety of foods in a diet • Measure and weigh food items, non-statutory measures e.g. spoons, cups 	<ul style="list-style-type: none"> • Start to know that food is grown (e.g. tomatoes, wheat and potatoes), reared (e.g. pigs, chickens and cattle) and caught (e.g. fish) in the UK, Europe and the wider world. • Know that to be active and healthy, food and drink are needed to provide energy for the body. • Develop sensory knowledge using, smell, taste, texture and feel • Analyse the taste, texture, smell and appearance of a range of foods • Make healthy eating choices from an understanding of a balanced diet • Join and combine a range of ingredients e.g. snack foods • Work safely and hygienically • Understand how to prepare and cook a variety of predominantly savoury dishes safely and hygienically including where appropriate, the use of a heat source. 	<ul style="list-style-type: none"> • Know that food is grown (e.g. tomatoes, wheat and potatoes), reared (e.g. pigs, chickens and cattle) and caught (e.g. fish) in the UK, Europe and the wider world. • Understand that seasons may affect the food available. • Understand how food is processed into ingredients that can be eaten or used in cooking. • Know that different food and drink contain different substances – nutrients, water and fibre – that are needed for health. • Select and prepare food for a particular purpose • Taste a range of ingredients, food items to develop a sensory food vocabulary for use when designing • Join and combine food ingredients appropriately e.g. beating, rubbing in, decorate appropriately • Work safely and hygienically • Show awareness of a healthy diet from an understanding of a balanced diet

Progression in Design and Technology Skills

	EYFS	KS1	LKS2	UKS2
Developing, planning and communicating ideas	<ul style="list-style-type: none"> Draw on their own experience to help generate ideas Suggest ideas and explain what they are going to do 	<ul style="list-style-type: none"> Begin to draw on their own experience to help generate ideas and conduct research into products available in the market. Begin to understand the development of existing products: what they are for, how they work, materials used. Start to suggest ideas and explain what they are going to do next. Understand how to identify a target group for what they intend to design and make based on a design criteria. Begin to develop their ideas through talk and drawings. Model ideas with kits, reclaimed materials Select pictures to help develop ideas 	<ul style="list-style-type: none"> With growing confidence generate ideas for an item, considering its purpose and the user/s. Start to order the main stages of making a product. Identify a purpose and establish criteria for a successful product. Understand how well products have been designed, made, what materials have been used and the construction technique. Learn about inventors, designers, engineers, chefs and manufacturers who have developed ground-breaking products. Start to understand whether products can be recycled or reused. Know how to make drawings with labels when designing. When planning explain their choices of materials and components including function and aesthetics. 	<ul style="list-style-type: none"> Generate, develop, model and communicate their ideas through discussion, annotated sketches, cross-sectional and exploded diagrams, prototypes, pattern pieces and CAD. Use research and develop design criteria to inform the design of innovative, functional, appealing products that are fit for purpose. Accurately apply a range of finishing techniques, including those from art and design. Draw up a specification for their design – link with Mathematics and Science. Plan the order of their work, choosing appropriate materials, tools, techniques. Suggest alternative methods of making if the first attempt fails. Identify the strengths and areas for development in their ideas and products. Know how much products cost to make, how sustainable and innovative they are and the impact products have beyond their intended use.
Working with tools, equipment, materials and components to make quality products	<ul style="list-style-type: none"> Select and use simple tools and techniques competently and appropriately Safely use and explore a variety of materials, tools and techniques, experimenting with colour, design, texture, form and function. 	<ul style="list-style-type: none"> Begin to make their design using appropriate techniques. Begin to build structures, exploring how they can be made stronger, stiffer and more stable. Explore and use mechanisms (e.g. levers, sliders, wheels and axles) in their products. With help measure, mark out, cut and shape a range of materials. Explore using tools e.g. scissors and a hole punch safely. Begin to assemble, join and combine materials and components together using a variety of temporary methods e.g. glues or masking tape. Begin to use simple finishing techniques to improve the appearance of their product. Cut, peel, grate, chop and spread a range of food and ingredients. 	<ul style="list-style-type: none"> Select a wider range of tools and techniques for making their product i.e. construction materials and kits, textiles, food ingredients, mechanical components and electrical components. Explain their choice of tools and equipment in relation to the skills and techniques they will be using. Start to understand that mechanical and electrical systems have an input, process and output. Start to understand that mechanical systems such as levers and linkages or pneumatic systems create movement. Know how simple electrical circuits and components can be used to create functional products. Measure, mark out, cut, score and assemble components with more accuracy. Start to work safely and accurately with a range of simple tools. 	<ul style="list-style-type: none"> Confidently select appropriate tools, materials, components and techniques and use them safely and accurately. Assemble components to make working models and achieve a quality product. With confidence pin, sew and stitch materials together to create a product. Demonstrate when to make modifications as they go along. Construct products using permanent joining techniques. Know how more complex electrical circuits and components can be used to create functional products and how to program a computer to monitor changes in the environment and control their product. Know how to strengthen and reinforce a 3D framework. Use finishing techniques to strengthen and improve the appearance of their product using a range of equipment including ICT. Prepare food products considering the properties of ingredients and sensory characteristics

		<ul style="list-style-type: none"> • Begin to work safely and hygienically. • Measure and weigh food items using non-statutory measures e.g. spoons, cups. 	<ul style="list-style-type: none"> • Start to think about their ideas as they make progress and be willing to change things if this helps them to improve their work. • Start to measure, tape or pin, cut and join fabric with some accuracy. • Use chopping, peeling, slicing, grating, mixing, spreading and kneading. • Measure and weigh food items using standard measures. 	<ul style="list-style-type: none"> • Know how to use a range of techniques such as peeling, chopping, slicing, grating, mixing, spreading, kneading and baking. • Know how to prepare and cook a variety of predominantly savoury dishes safely and hygienically including where appropriate, the use of a heat source.
<p>Evaluate processes and products</p>	<ul style="list-style-type: none"> • Evaluate their product by talking about the things that went well and the things that did not work. 	<ul style="list-style-type: none"> • Say what they like and do not like about items they have made and attempt to say why • Begin to evaluate their products as they are developed, identifying strengths and possible changes they might make. 	<ul style="list-style-type: none"> • Start to evaluate their product against original design criteria e.g. how well it meets its intended purpose. • Begin to disassemble and evaluate familiar products and consider the views of others to improve them. • Evaluate the key designs of individuals in design and technology and how they have helped to shape the world. 	<ul style="list-style-type: none"> • Evaluate their products identifying strengths and areas for development, and carrying out appropriate tests. • Record their evaluations using drawings with labels against their original criteria and suggest ways that their product could be improved. • Evaluate the key designs of individuals in design and technology that helped to shape the world.

Design & Technology Projects - 2 Year Cycle - adapted for lockdown to include skills not taught in cycle B

Cycle A	Autumn	Spring	Summer
KS1	<p align="center">Sensational Salads</p> <p>Skills and Knowledge: Develop a food vocabulary using taste, smell, texture and feel. Group familiar food products e.g. fruit and vegetables. Cut, peel, grate and chop a range of ingredients. Work safely and hygienically. Understand the need for a variety of foods in a diet. Begin to understand that all food comes from plants or animals. Begin to understand that everyone should eat at least 5 portions of fruit and vegetables every day. Know how to prepare simple dishes safely and hygienically, without using a heat source. <i>Measure and weigh food items, non-statutory measures e.g. spoons, cups.</i></p>	<p align="center">Vehicles</p> <p>Skills and Knowledge: Make vehicles with construction kits which contain free running wheels. Use a range of materials to create models with wheels and axles e.g. tubes, dowel, cotton reels. Attach wheels to a chassis using an axle. Join appropriately for different materials and situations e.g. glue, tape. Mark out materials to be cut using a template. Cut dowel using a hacksaw and bench hook. See glue gun used by an adult. Use ICT to create models. (Purplemash 2DIY 3D modelling of a vehicle). <i>Decorate fabrics with buttons, beads, sequins, braids, ribbons and fix using glue or tape.</i></p>	<p align="center">Moving Pictures</p> <p>Skills and Knowledge: Fold, tear and cut paper and card. Roll paper to create tubes. Cut along lines, straight and curved. Curl paper. Use a hole punch. Insert paper fasteners for card linkages. Create hinges and use simple pop ups. Investigate different methods of joining materials which are temporary, fixed and moving.</p>
LKS2	<p align="center">Moving Monsters</p> <p>Skills and Knowledge: Cut slots and internal shapes. Use lolly sticks/card to make levers and linkages. Use linkages to make movement larger or more varied. Use and explore complex pop ups. Create nets. <i>Decorate fabrics with buttons, beads, sequins, braids, ribbons and fix using glue or tape.</i></p>	<p align="center">Battery Operated Lights/Torches (moved from Autumn 1)</p> <p>Skills and Knowledge: Incorporate a circuit with a bulb or buzzer into a model. Create shell or frame structures, strengthen frames with diagonal struts. Make structures more stable by giving them a wide base. Prototype frame and shell structures. Measure and mark square selection, strip and dowel accordingly to 1cm. Use glue gun with close supervision (one to one). Cut strip wood/dowel using hacksaw and bench hook. See glue gun used by adult.</p>	<p align="center">Sandwich Snacks</p> <p>Skills and Knowledge: Develop sensory vocabulary/knowledge using, smell, taste, texture and feel. Analyse the taste, texture, smell and appearance of a range of foods. Follow instructions. Make healthy eating choices from an understanding of a balanced diet. Join and combine a range of ingredients e.g. snack foods. Work safely and hygienically. Measure and weigh ingredients appropriately and <i>using non-statutory measures e.g. spoons, cups.</i></p>
UKS2	<p align="center">Slippers</p> <p>Skills and Knowledge: <i>Create 3D products using pattern pieces and seam allowance. Understand pattern layout. Decorate textiles appropriately often before joining components. Pin and tack fabric pieces together. Join fabrics using over sewing, back stitch, blanket stitch or machine stitching (closer supervision). Combine fabrics to create more useful properties. Make quality products.</i></p>	<p align="center">Moving Toys</p> <p>Skills and Knowledge: Cut slots. Cut accurately and safely to a marked line. Join and combine materials with temporary, fixed or moving joints. Use craft knife, cutting mat and safety ruler under one to one supervision if appropriate. Choose an appropriate sheet material for the purpose. Use bradawl to mark hole positions. Use hand drill to drill tight and loose fit holes. Cut strip wood, dowel, square section wood accurately to 1mm. Join materials using appropriate methods. Incorporate motor and a switch into a model. Use a cam to make an up and down mechanism. Build frameworks using a range of materials e.g. wood, card, corrugated plastic to support mechanisms. Use glue gun with close supervision.</p>	<p align="center">Biscuits</p> <p>Skills and Knowledge: Prepare food products, taking into account the properties of the ingredients and sensory characteristics. Select and prepare food for a particular purpose. Taste a range of ingredients, food items to develop a sensory food vocabulary for use when designing. Weigh and measure using scales. Cut and shape ingredients using appropriate tools and equipment e.g. grating. Join and combine food ingredients appropriately e.g. beating, rubbing in, decorate appropriately. Work safely and hygienically Show awareness of a healthy diet from an understanding of a balanced diet.</p>



Design & Technology Projects - 2 Year Cycle Topics/skills not covered

Cycle B	Autumn	Spring	Summer
KS1	<p align="center">Homes</p> <p>Skills and Knowledge: Fold, tear and cut paper and card. Cut along lines, straight and curved. Create hinges. Investigate strengthening sheet materials and joining materials using temporary, fixed and moving joints. Join appropriately for different materials and situations e.g. glue, tape. Mark out materials to be cut using a template. Begin to use simple finishing techniques to improve the appearance of their product.</p>	<p align="center">Puppets</p> <p>Colour fabrics using a range of techniques e.g. fabric paints, printing, painting. Cut out shapes which have been created by drawing round a template onto the fabric. Join fabrics by using running stitch and over sewing. Decorate fabrics with buttons, beads, sequins, braids, ribbons and fix using glue or tape.</p> <p>Make templates and mock ups of their ideas in card and paper.</p>	<p align="center">Teddy Bears Picnic</p> <p>Skills and Knowledge: Develop a food vocabulary using taste, smell, texture and feel. Group familiar food products e.g. fruit and vegetables. Cut, peel, grate, and chop a range of ingredients. Work safely and hygienically. Understand the need for a variety of foods in a diet. Measure and weigh food items, non-statutory measures e.g. spoons, cups. Begin to understand that all food comes from plants or animals and has to be farmed, grown or caught.</p>
LKS2	<p align="center">Bread</p> <p>Skills and Knowledge: Develop sensory vocabulary/knowledge using, smell, taste, texture and feel. Analyse the taste, texture, smell and appearance of a range of foods. Follow instructions. Join and combine a range of ingredients to make a product. Work safely and hygienically. Measure and weigh ingredients appropriately.</p>	<p align="center">Money Containers</p> <p>Skills and Knowledge: Understand seam allowance and measure, tape or pin fabric. Join fabrics using running stitch, over sewing, back stitch. Explore fastenings and recreate some e.g. sew on buttons and make loops. Prototype a product using j cloths. Use appropriate decoration techniques e.g. applique (glued or simple stitches). Create a simple pattern and understand the need for patterns</p>	<p align="center">Photograph Frames</p> <p>Skills and Knowledge: Cut slots and internal shapes. Create nets. Measure, mark out, cut, score and assemble components with more accuracy. Start to work safely and accurately with a range of simple tools. Start to think about their ideas as they make progress and be willing to change things if this helps them to improve their work.</p>
UKS2	<p align="center">Shelters</p> <p>Skills and Knowledge: Cut slots. Cut accurately and safely to a marked line. Join and combine materials with temporary, fixed or moving joints. Use craft knife, cutting mat and safety ruler under one to one supervision if appropriate. Choose an appropriate sheet material for the purpose. Use bradawl to mark hole positions. Use hand drill to drill tight and loose fit holes. Cut strip wood, dowel, square section wood accurately to 1mm. Join materials using appropriate methods. Build frameworks using a range of materials e.g. wood, card, corrugated plastic to support mechanisms. Use glue gun with close supervision.</p>	<p align="center">Musical Instruments</p> <p>Skills and Knowledge: Cut slots. Cut accurately and safely to a marked line. Join and combining materials with temporary, fixed or moving joints. Use craft knife, cutting mat and safety ruler under one to one supervision if appropriate. Choose an appropriate sheet material for the purpose. Use bradawl to mark hole positions. Use hand drill to drill tight and loose fit holes. Cut strip wood, dowel, square section wood accurately to 1mm. Join materials using appropriate methods. Build frameworks using a range of materials e.g. wood, card, corrugated plastic to support mechanisms. Use glue gun with close supervision.</p> <p align="center">Slippers - not taught/skills not covered so moved to Cycle A</p>	<p align="center">Fairground</p> <p>Skills and Knowledge: Cut slots. Cut accurately and safely to a marked line. Join and combining materials with temporary, fixed or moving joints. Use craft knife, cutting mat and safety ruler under one to one supervision if appropriate. Choose an appropriate sheet material for the purpose. Use a bradawl to mark the position of holes. Use a hand drill to drill both tight and loose fit holes. Cut strip wood, dowel, square section wood accurately to 1mm. Join materials using appropriate methods. Incorporate motor and a switch into a model. Control a model using an ICT control programme. Use a cam to make an up and down mechanism. Build frameworks using a range of materials e.g. wood, card, corrugated plastic to support mechanisms. Use glue gun with close supervision</p>