GLF CURRICULUM DESIGN AND TECHNOLOGY PROGRESSION

Design and Technology

This progression document should be used by school leaders and teachers to:

- Support assessment
- Find out what has previously been taught
- Track back to adapt teaching to the needs of individuals, groups of children or the class based on gaps in knowledge and skills.
- Support with planning

This document should be used alongside the Design and Technology National Curriculum and EYFS Early Learning Goals

GLF CURRICULUM DESIGN AND TECHNOLOGY PROGRESSION

EYFS

Design and Technology – Early Years Foundational Knowledge - Expressive Art and Design

The development of children's artistic and cultural awareness supports their imagination and creativity. It is important that children have regular opportunities to engage with the arts, enabling them to explore and play with a wide range of media and materials. The quality and variety of what children see, hear and participate in is crucial for developing their understanding, self-expression, vocabulary and ability to communicate through the arts. The frequency, repetition and depth of their experiences are fundamental to their progress in interpreting and appreciating what they hear, respond to and observe.

- *Statutory framework for the early years foundation stage Setting the standards for learning, development and care for children from birth to five March 2021*

Pupil starting points:

It is important that we make no assumptions about what pupils do or do not know on entry to our settings. The relationships we build with our pupils are fundamental to understanding and developing them as individuals with deep knowledge of their context through positive relationships with parents / carers and robust transition procedures such as home visits and baseline systems. The below is an 'indicator' of what we might expect our pupils to know linked to *Birth to 5 Matters* and *Development Matters* and the 2-year-old check.

In Expressive Art and Design, pupils may have experience of: experimenting with ways to enclose a space, creating shapes, playing with colour (for example combining colours), using 3D and 2D structures to explore materials, mark making with a variety of media, exploring paint using body parts as well as brushes and other tools, exploring different materials, making simple models which express their ideas. Through observation and interaction, we can find out what our children already know and can do and can use the below to build on this.

GLF CURRICULUM DESIGN AND TECHNOLOGY PROGRESSION

What will pupils know and be able to do:	2-3 years	3-4 years	4-5 years
Range of materials	▪ Explore different materials, using all of their senses to investigate them. ▪ Manipulate and play with different materials. ▪ Use their imagination as they consider what they can do with different materials. ▪ Use block play to begin to build and design.	▪ Explore different materials freely, to develop their ideas about how to use them and what to make. ▪ Join different materials beginning to explain choice linked to shape and texture / properties. ▪ Uses various construction materials, e.g. joining pieces, stacking vertically and horizontally, balancing, making enclosures and creating spaces.	▪ Develops their own ideas through experimentation with a diverse range of materials. ▪ Increasingly chooses more appropriate materials for the job e.g. cotton reels / lids for wheels, wool / thread for hair. ▪ Join different materials explaining why they have chosen a specific fixing. ▪ Purposefully chooses construction materials for a specific job.
Essential vocabulary	make, hard, soft, small, big	build, join, plastic, paper, cardboard	material, wood, foil, fabric, fixing

What will I explicitly teach:	Where could pupils meet this in provision (this is not exhaustive)			
	Specific Provision			***Wider Provision***
• Model naming and describing materials. • Teach pupils to stretch, squash, roll, tear, scrunch and join materials. • Model imaginative construction. • Explain choices of materials and shapes.	**Workshop / junk modelling area:** • Range of materials including paper, fabric, foil • Joining equipment including clips, tape, glue • Junk modelling equipment • Natural materials	**Small and large construction:** • Woodworking tools • Small construction sets • Small and large loose parts: - Blocks - Boxes (including nets) - Crates, planks and blankets - Cotton reels, lids, wooden wheels, natural loose parts	**Mathematics area:** • 3D shapes • Paper shapes • Cubes and multilink • Puzzle pieces	Pupils will also meet this in other aspects of the provision. For example, when exploring: dough, magnifying glasses, mirrors, magnets, logs, pebbles, sand, soil, slime, foam, water beads, transient art.

GLF CURRICULUM DESIGN AND TECHNOLOGY PROGRESSION

Prompting questions for Thinking Hard:	2-3 years	3-4 years	4-5 years
Range of materials	▪ What does it feel like / What can you see? ▪ What shall we make? ▪ Which block might fit on top of that one? Why?	▪ What did you use? Why? ▪ How did you join them together? ▪ How did you get that to balance / stay up?	▪ Why did you choose that? Can you explain your thinking? ▪ Why do you think that worked / didn't work? ▪ What could you use instead?

GLF CURRICULUM DESIGN AND TECHNOLOGY PROGRESSION

What will pupils know and be able to do:	2-3 years	3-4 years	4-5 years
Tools and fixings	▪ Begin to use scissors and Sellotape cutters accurately. ▪ Use basic fixings e.g. PVA glue, Pritt stick, masking tape, Sellotape (but may still get tangled).	▪ Use scissors accurately. ▪ Begin to use cutlery accurately. ▪ With supervision, use staplers and hole punches safely. ▪ Use masking tape, Sellotape (and cutter), elastic bands, Pritt stick and PVA glue accurately. ▪ Begin to use treasury tags. ▪ With supervision, begin to use an age-appropriate hammer and screws (goggles and gloves).	▪ Accurately use a range of small tools - scissors, cutlery, stapler, hole punch, trowel. ▪ Know how to use an age-appropriate hammer, screws, nails, hand drills, hand vice and a saw safely (goggles and gloves). ▪ Use a range of fixings explaining choices – staples / stapler, hole punch, treasury tags, split pins, different glues, Sellotape, masking tape.
Essential vocabulary	scissors, tape, glue, together, safe	stapler, hole punch, treasury tag, tools, goggles, safely	trowel, drill, vice, saw, split pins, safety equipment

What will I explicitly teach:	Where could pupils meet this in provision (this is not exhaustive)			
	Specific Provision			***Wider Provision***
• Scissor use and safety. • Cutting tape safely on and off a cutter. • The different types of fixing and which to use in different scenarios, including different types of glue and tape. • Correct use of cutlery. • Safe use of hole punches, staplers, trowels, hammer, hand drills, hand vice and saw.	**Workshop / junk modelling area:** • Range of fixing / joining equipment – different tapes, glues, treasury tags, elastic bands, split pins, screws, nuts and bolts. • Range of materials for joining – paper, plastic, cardboard, foil, fabric, wood.	**Woodwork area (and small and large construction):** • Woodworking tools • Meccano, Lego, or similar construction kits • Small loose parts	**Fine motor area:** • Cutting and sticking • Tap-a-shape • Nuts and bolts • Golf tees / vegetables • Pasta / dough (for cutting)	Pupils will also meet this in other aspects of the provision. For example, role play (post office / shop / Santa's grotto / garden centre), writing area – book making and though a selection of appropriate mark making tools, art area – painting and collage.

GLF CURRICULUM DESIGN AND TECHNOLOGY PROGRESSION

Prompting questions for Thinking Hard:	2-3 years	3-4 years	4-5 years
Tools and fixings	▪ Can you explain / show me how to use the scissors? ▪ How can we stop the tape from getting tangled? ▪ How can we stick them together? What shall we use?	▪ Can you find a … how can we fix it to the …? ▪ What tool are you using? How do you use it safely? ▪ Which fixing will be best for…?	▪ Which fixing shall we use for this job and why? ▪ Which tools will you use? Can you explain your choices? ▪ How can we stay safe when we are doing this?

GLF CURRICULUM DESIGN AND TECHNOLOGY PROGRESSION

What will pupils know and be able to do:	2-3 years	3-4 years	4-5 years
Discussion and evaluation	▪ Say what they have made. Use key words to assign meaning to their creations e.g. dog, mummy, head, tail, face. ▪ Begin to talk about the colours they have used and why. ▪ Begin to name what they have used to create e.g. box, paper, tape	▪ Say what they like about their creations. ▪ Say what was hard and easy about their creations. ▪ Talk about the colours they have used and why. ▪ Use increasingly accurate vocabulary to name what they have used to create e.g. egg box, cereal box, juice bottle, plastic, cardboard. ▪ Begin to talk to others about and share their creations showing increasingly more interest in what others have done. I like xxx because….	▪ Share their creations explaining the process they have used e.g. colours, fixings and materials using mostly accurate vocabulary. ▪ Return to and build on their previous learning, refining ideas and developing their ability to represent them. ▪ Say what works well / why they are proud / pleased about their creation and what they might do to make it even better. ▪ Create collaboratively, sharing ideas, resources and skills.
Essential vocabulary	made, used, paper, box, tape / glue (plus colour language see painting section)	hard, easy, because, enjoyed, favourite (plus colour language – see painting section)	materials, fixings, better, proud, idea,

What will I explicitly teach:	Where could pupils meet this in provision (this is not exhaustive)			
	Specific Provision			***Wider Provision***
• Model explaining what you have made, what you used and why, including colours. • Vocabulary to enable pupils to name different materials and fixings. • How to share what they have created with others using precise language. I have made a xxx by xxx. • How to give their peers feedback on what they have done using stem sentences e.g. I like xxx because.	**Workshop / Junk modelling area:** • Range of materials including paper, fabric, foil • Joining / fixing materials and equipment including clips, tape, glue • Reclaimed materials e.g. boxes, cartons, bottles • Natural materials	**Transient Art** • Natural resources such as moss, flowers, petals, grass, stones, seeds, fir cones, twigs, small pieces of wood, shells, feathers… the list goes on… • Seasonal resources such as pumpkin seeds, conkers, horse chestnuts, acorns, autumn leaves. • Mini pom poms , cotton wool, plain or coloured pasta, beads, buttons, pieces of cut up drinking straws, coloured aquarium gravel, cotton reels, craft sticks, corks and other small loose parts.	**Woodwork area (and small and large construction):** • Woodworking tools and fixings • Wood and small loose parts • Meccano, Lego, or similar construction kits	Pupils will also meet this in other aspects of the provision. For example, in the art / painting area they can discuss and evaluate their paintings and drawings, when building in the large loose parts they can evaluate their structure / design

GLF CURRICULUM DESIGN AND TECHNOLOGY PROGRESSION

Prompting questions for Thinking Hard:	2-3 years	3-4 years	4-5 years
Discussion and evaluation	▪ What have you made? Can you tell me about it? ▪ Why did you choose those colours? ▪ What did you use to make your chair? Link to Goldilocks) Can you name the different things you used?	▪ What did you find easy / hard when you made your xxx? ▪ What do you like best about your Dot Painting? (linked to The Dot) Why? ▪ Tell me, what have you used to make your House? (Link to Three Pigs) Why did you choose that? ▪ What do you like about xxx's model? Why?	▪ Tell me about how you fixed xxx to xxx? Can you tell me about the materials you chose to use for your vehicle (linked to William Bee) and why? ▪ What are you pleased about? What could you make even better? Why?

GLF CURRICULUM DESIGN AND TECHNOLOGY PROGRESSION

Year 1

DT taught in Autumn 1, Autumn 2, Spring 1 and Summer 2

Developing, planning and communicating ideas	Working with tools, equipment, materials and components to make quality products	Evaluating processes and products	Food and Nutrition	Inspiration from the wider world
Begin to draw on their own experience to help generate ideas and research conducted on criteria. 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. Understand how to identify a target group for what they intend to design and make. Begin to develop their ideas through talk and drawings.	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 [for example, 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. Colour and decorate textiles using a number of techniques (such as dyeing, adding sequins or printing).	Start to evaluate their product by discussing how well it works. When looking at existing products explain what they like and dislike about products and why. Begin to evaluate their products as they are developed, identifying strengths and possible changes they might make against their design criteria.	Begin to understand that all food comes from plants or animals. Explore the understanding that food has to be farmed, grown elsewhere (e.g. home) or caught. Start to understand how to name and sort foods into the five groups in 'The Eat well plate'. Begin to understand that everyone should eat at least five portions of fruit and vegetables every day to have a healthy and varied diet. Know how to prepare simple dishes safely and hygienically, without using a heat source.	Explore objects and designs to identify likes and dislikes of the designs. Suggest improvements to existing designs. Explore how products have been created.
Disciplinary vocabulary:	Measure build, cut, stick, model, fold, glue, plan, materials			

GLF CURRICULUM DESIGN AND TECHNOLOGY PROGRESSION

Year 2

DT taught in Autumn 1, Autumn 2, Spring 1 and Summer 2

Developing, planning and communicating ideas	Working with tools, equipment, materials and components to make quality products	Evaluating processes and products	Food and Nutrition	Inspiration from the wider world
Start to generate ideas by drawing on their own and other people's experiences. Begin to develop their design ideas through discussion, observation, drawing and modelling. Identify a purpose for what they intend to design and make for a functional product. Understand how to identify a target group for what they intend to design and make based on a design criteria. Develop their ideas through talk and drawings and label parts. Make templates and mock ups of their ideas in card and paper or using ICT.	Begin to select from a range of tools and materials; use correct vocabulary to name and describe them. Build structures, exploring how they can be made stronger, stiffer and more stable. With help measure to the nearest centimetre, cut and score with some accuracy. Learn to use and handle a range tools safely and appropriately. Start to assemble, join and combine materials in order to make a product. Use materials to practise gluing and nailing materials to make and strengthen products. Demonstrate how to cut, shape and join fabric to make a simple product. Use basic sewing techniques – learn how to do running stitch, how to start and end and how to thread a needle. Start to choose and use appropriate finishing techniques based on own ideas. Shape textiles using templates.	Evaluate their work against their design criteria. Look at a range of existing products explain what they like and dislike about products and why. Start to evaluate their products as they are developed, identifying strengths and possible changes they might make. With confidence talk about their ideas, saying what they like and dislike about them.	Understand that all food comes from plants or animals. Know that food has to be farmed, grown elsewhere (e.g. home) or caught. Understand how to name and sort foods into the five groups in 'The Eat well plate' Know that everyone should eat at least five portions of fruit and vegetables every day to have a healthy and varied diet. Cut, peel or grate ingredients safely and hygienically. Measure or weigh using measuring cups or electronic scales. Assemble or cook healthy ingredients.	Explore objects and designs to identify likes and dislikes of the designs. Suggest improvements to existing designs. Explore how products have been created.
Disciplinary vocabulary:	accurate , criteria, evaluate, design, product, template. score, textile			

GLF CURRICULUM DESIGN AND TECHNOLOGY PROGRESSION

Year 3

DT taught in Autumn 1, Autumn 2, Spring 1 and Summer 2

Developing, planning and communicating ideas	Working with tools, equipment, materials and components to make quality products	Evaluating processes and products	Food and Nutrition	Inspiration from the wider world
With growing confidence generate ideas for an item, considering and discussing 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. Know to make annotated sketches when designing. When planning, explain their choice of materials and components including function and aesthetics.	Select a wider range of tools, techniques and materials 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 systems create movement. Measure to the nearest millimetre, mark out, cut, score and assemble components with more accuracy. Start to work safely and accurately with a range of simple tools. Consider how to strengthen, stiffen and reinforce more complex structures Start to think about their ideas as they make progress and be willing to change things if this helps them to improve their work. tart to use different stitches to make decoration (embroidery).	Start to evaluate their product against original design criteria e.g. how well it meets its intended purpose. Evaluate how key designs and individuals in design and technology have helped shape the world.	Start to know 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. Understand how to prepare and cook a variety of dishes safely and hygienically including, where appropriate, the use of a heat source. 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).	Identify some of the great designers (such as James Brindley, Brunel, Mackintosh, Philip Treacy, Marcel Breuer) to generate ideas for designs. Improve upon existing designs, giving reasons for choices.
Disciplinary vocabulary:	prototype, construction, evaluation , exploded diagram, assemble , components , function, axels			

GLF CURRICULUM DESIGN AND TECHNOLOGY PROGRESSION

Year 4

DT taught in Autumn 1, Autumn 2, Spring 1, Spring 2

Developing, planning and communicating ideas	Working with tools, equipment, materials and components to make quality products	Evaluating processes and products	Food and Nutrition	Inspiration from the wider world
Start to generate ideas, considering the purposes for which they are designing- link with Mathematics and Science. Confidently make annotated sketches from different views showing specific features. Develop a clear idea of what has to be done, planning how to use materials, equipment and processes, and suggesting alternative methods of making, if the first attempts fail. Identify the strengths and areas for development in their ideas and products. When planning, consider the views of others, including intended users, to improve their work. When planning, discuss choice of materials and components according to function and aesthetic.	Select a wider range of tools and techniques for making their product safely. Know how to measure to the nearest millimetre, mark out, cut and shape a range of materials, using appropriate tools, equipment and techniques. Start to join and combine materials and components accurately in temporary and permanent ways. Know how mechanical systems such as cams or pulleys or gears create movement. Understand how more complex electrical circuits and components can be used to create functional products. Understand how to stiffen, reinforce and strengthen a 3D framework. Sew using a range of different stitches. Demonstrate how to measure, tape or pin, cut and join fabric with some accuracy. Use finishing techniques to improve the appearance of their product using a range of equipment including ICT.	Evaluate their products carrying out appropriate tests. Start to evaluate their work both during and at the end of the assignment. Be able to disassemble and evaluate familiar products and consider the views of others to improve them. Evaluate/explore the key designs of individuals in design and technology who have helped shape the world.	Understand 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. Understand how to prepare and cook a variety of dishes safely and hygienically including, where appropriate, the use of a heat source. Prepare ingredients hygienically using appropriate utensils. Measure ingredients to the nearest gram accurately. Follow a recipe. Assemble or cook healthy ingredients (controlling the temperature of the oven or hob, if cooking).	Identify some of the great designers (such as Brunel, Mackintosh, Philip Treacy, Marcel Breuer, Gustave Trouvé) in all of the areas of study to generate ideas for designs. Improve upon existing designs, giving reasons for choices. Disassemble products to understand how they work.

Disciplinary vocabulary: Prototype, Construction, Evaluation, Assemble, Disassemble, Components, Pulleys, Reinforce

GLF CURRICULUM DESIGN AND TECHNOLOGY PROGRESSION

Year 5

DT taught in Autumn 1, Autumn 2, Spring 1, Summer 1

Developing, planning and communicating ideas	Working with tools, equipment, materials and components to make quality products	Evaluating processes and products	Food and Nutrition	Inspiration from the wider world
Start to generate, develop, model and communicate their ideas through discussion, annotated sketches, cross-sectional and exploded diagrams, prototypes, pattern pieces. Begin to use research and develop design criteria to inform the design of innovative, functional, appealing products that are fit for purpose. With growing confidence apply a range of finishing techniques, including those from art and design. Draw up a specification for their design-link with Mathematics and Science. Use results of investigations, information sources, including ICT when developing design ideas. With growing confidence select appropriate materials, tools and techniques.	Select appropriate materials, tools and techniques e.g. cutting, shaping, joining and finishing, accurately. Select from and use a wider range of materials and components, according to their functional properties and aesthetic qualities. Apply their understanding of how to strengthen, stiffen and reinforce more complex structures – shaduf, periscopes Understand how mechanical systems such as cams or pulleys or gears create movement. Begin to measure and mark out more accurately. Demonstrate how to use skills in using different tools and equipment safely and accurately with growing confidence cut and join with accuracy to ensure a good-quality finish to the product. Weigh and measure accurately (time, dry ingredients, liquids). Use finishing techniques to strengthen and improve the appearance of their product using a range of equipment including ICT.	Start to evaluate a product against the original design specification and by carrying out tests. Evaluate their work both during and at the end of the assignment. Begin to evaluate it personally and seek evaluation from others. Evaluate the key designs of individuals in design and technology has helped shape the world.	Understand 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. Begin to understand that seasons may affect the food available. Understand how food is processed into ingredients that can be eaten or used in cooking. Understand the importance of correct storage and handling of ingredients (using knowledge of microorganisms). Measure accurately and calculate ratios of ingredients to scale up or down from a recipe. Demonstrate a range of baking and cooking techniques. Create and refine recipes, including healthy seasonal ingredients, methods, cooking times and temperatures.	Combine elements of design from a range of inspirational designs throughout history, giving reasons for choices. Create innovative designs that improve upon existing products.

Disciplinary vocabulary: Aesthetics, Annotations, chassis, Cross-sections, Gears, Cams, Malleable, Mechanism

GLF CURRICULUM DESIGN AND TECHNOLOGY PROGRESSION

Year 6

DT taught in Autumn 1, Autumn 2, Spring 1, Summer 2

Developing, planning and communicating ideas	Working with tools, equipment, materials and components to make quality products	Evaluating processes and products	Food and Nutrition	Inspiration from the wider world
Generate, develop, model and communicate their ideas through discussion, annotated sketches, cross-sectional and exploded diagrams, prototypes, pattern pieces. 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 and techniques. Suggest alternative methods of making if the first attempts fail. 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 purpose.	Confidently select appropriate tools, materials, components and techniques and use them. Use tools safely and accurately. Assemble components to make working models. Apply their understanding of how to strengthen, stiffen and reinforce more complex structures Aim to make and to achieve a quality product. With confidence pin, sew and stitch materials together to create a product. 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. Know how to reinforce and strengthen a 3D framework. Use finishing techniques to strengthen and improve the appearance of their product using a range of equipment including ICT.	valuate their products, identifying strengths and areas for development, and carrying out appropriate tests. Evaluate their work both during and at the end of the assignment and consider the views of others to improve work. Evaluate against their original criteria and suggest ways that their product could be improved. Evaluate the key designs of individuals in design and technology has helped shape the world.	Know 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. Understand that seasons may affect the food available. Understand how food is processed into ingredients that can be eaten or used in cooking. Understand the importance of correct storage and handling of ingredients (using knowledge of microorganisms). Measure accurately and calculate ratios of ingredients to scale up or down from a recipe. Demonstrate a range of baking and cooking techniques. Create and refine recipes, including healthy seasonal ingredients, methods, cooking times and temperatures.	Combine elements of design from a range of inspirational designers throughout history, giving reasons for choices. Create innovative designs that improve upon existing products. Evaluate the design of products so as to suggest improvements to the user experience.
Disciplinary vocabulary:	Aesthetics , Annotations , Cross-sections , Ergonomics, Gears, Cams, Mechanism, Pneumatics			