

Design and Technology Skills and Knowledge Progression Map

Intent

Our Design and Technology curriculum aims to nurture curiosity, creativity and early problem-solving skills by enabling children to explore how things are made and how they work. We want pupils to develop confidence in designing and making purposeful products using a range of simple tools and materials. Through practical, hands-on experiences, children learn to express their ideas, make decisions and begin to evaluate their creations. Our intention is to lay strong foundations for innovation, independence and resilience, preparing pupils for the next stage of their Design and Technology learning

Implementation

Our Design and Technology curriculum follows the Kapow Primary progression of skills and knowledge while making full use of continuous provision in the Early Years. In Nursery and Reception, Kapow's play-based exploration activities are embedded within continuous provision, enabling children to develop early technical skills such as joining materials, constructing with different resources and using simple tools safely in a hands-on, child-led environment. As pupils move into Key Stage 1, teaching becomes more structured through Kapow's design-make-evaluate units, where skills are explicitly modelled and vocabulary is systematically introduced. Each unit builds on what children have learned through both continuous provision and prior Kapow projects, ensuring a clear sequence of development. Across the infant phase, pupils have regular opportunities to practise techniques, explore real products and create purposeful items for real users, supported by strong cross-curricular links and practical investigation.

Impact

By the end of KS1, children at Hatfield Peverel Infant and Nursey demonstrate increased confidence, independence and creativity in generating ideas, selecting materials and evaluating their work. They can talk about what they have made and how they made it, showing an emerging understanding of function and purpose. Pupils develop fine-motor skills, resilience and the ability to solve simple practical problems. Our progression in Design and Technology ensures that all children leave the infant phase with a positive attitude towards making and designing, ready to build on their skills in the junior years.

National Curriculum

Pupils should be taught:

- to use a range of materials creatively to design and make products
- to use drawing, painting and sculpture to develop and share their ideas, experiences and imagination
- to develop a wide range of art and design techniques in using colour, pattern, texture, line, shape, form and space
- about the work of a range of artists, craft makers and designers, describing the differences and similarities between different practices and disciplines, and making links to their own work

Development Matters

(0-3)

- Build with a range of resources.
- Explore different materials, using all their senses to investigate them. Manipulate and play with different materials.
- Use their imagination as they consider what they can do with different materials.
- Make simple models which express their ideas.
- Build independently with a range of appropriate resources.

(3-4)

- Select and use activities and resources, with help when needed. This helps them to achieve a goal they have chosen or one which is suggested to them.
- Use large-muscle movements to wave flags and streamers, paint and make marks.

- Choose the right resources to carry out their own plan.
- Use one-handed tools and equipment, for example, making snips in paper with scissors.
- Explore how things work.
- Make imaginative and complex 'small worlds' with blocks and construction kits, such as a city with different buildings and a park.
- Explore different materials freely, in order to develop their ideas about how to use them and what to make.
- Develop their own ideas and then decide which materials to use to express them.
- Create closed shapes with continuous lines, and begin to use these shapes to represent objects.

(Reception)

- Progress towards a more fluent style of moving, with developing control and grace.
- Develop their small motor skills so that they can use a range of tools competently, safely and confidently.
- Use their core muscle strength to achieve a good posture when sitting at a table or sitting on the floor.
- Explore, use and refine a variety of artistic effects to express their ideas and feelings.
- Return to and build on their previous learning, refining ideas and developing their ability to represent them.
- Create collaboratively, sharing ideas, resources and skills.

Early Learning Goals

Speaking:

Participate in small group, class and one-to-one discussions, offering their own ideas, using recently introduced vocabulary.

Expressive Arts and design: Creating with materials

Safely use and explore a variety of materials, tools and techniques, experimenting with colour, design, texture, form and function.

Physical development: Fine motor skills

Hold a pencil effectively in preparation for fluent writing – using the tripod grip in almost all cases;

Use a range of small tools, including scissors, paint brushes and cutlery;
Begin to show accuracy and care when drawing.

Inclusion including SEND		Assessment	Cultural Capital	
All children will be given the same task because we believe in teaching a mastery approach across all subject areas and equal access for all. Quality first teaching for all children. Teacher modelling and scaffolded practice for all children. Focus groups with adult support for children needed further support. Pre-teach sessions. Talk partners to build confidence. Now and next boards to support completion of tasks. Intervention. External advice sought to support inclusion.		Prior knowledge/retrieval opportunities are included at the beginning of units of work so that planning can be adapted/amended to support gaps or misconceptions. Clear sequence of lessons which identify the key knowledge that children need to know at the end of a lesson/unit of work. Children’s topic, sketch books and art folders to record thoughts and ideas. Photographs on tapestry.	The Kapow DT curriculum builds cultural capital by immersing pupils in real-life design contexts, expanding technical vocabulary, exploring food from different cultures, and developing safe, practical skills. Pupils learn that DT is used by designers, engineers and chefs to solve real-world problems.	
At Hatfield Peverel Infant and Nursery School, we use Kapow Primary Design and Technology scheme of work as this aims to inspire pupils to become curious, creative and innovative thinkers with a broad understanding of how products are designed and made, therefore thinking like designers and engineers. The intention is for pupils to develop the confidence to identify problems, generate ideas, plan and create products and evaluate their outcomes.				
	Nursery	Reception	Year 1	Year 2
Structures Skills	- To explore stacking and balancing blocks or simple shapes. - To join materials using tape or glue with support. - To build simple models (e.g., towers, bridges) using everyday objects. - To understand that some shapes and part of shapes are stronger and more stable than others.	Ongoing - To build towers and models using a variety of construction resources and everyday objects. - To apply skills taught in junk modelling free access. Junk modelling Design: - To make verbal plans and material choices. - To develop a junk model. Make: - To improve fine motor/scissor skills with a variety of materials. - To join materials in a variety of ways (temporary and permanent). - To join different materials together. - To describe their junk model, and how they intend to put it together. Evaluate:	Constructing a Windmill Design: - To learn the importance of a clear design criteria. Including individual preferences and requirements in a design. Make: - To make stable structures from card, tape and glue. - To learn how to turn 2D nets into 3D structures. - To follow instructions to cut and assemble the supporting structure of a windmill. - To make functioning turbines and axles which are assembled into a main supporting structure. Evaluate: - To evaluate a windmill according to the design	Baby Bears Chair Design: - To generate and communicate ideas using sketching and modelling. - To learn about different types of structures, found in the natural world and in everyday objects. Make: - To make a structure according to design criteria. - To create joints and structures from paper/card and tape. - To build a strong and stiff structure by folding paper. Evaluate: - To explore the features of structures. - To complare the stability of different shapes.

		- To give a verbal evaluation of their own and others' junk models with adult support. - To check to see if their model matches their plan. - To consider what they would do differently if they were to do it again. - To describe their favourite and least favourite part of their model. Boats Design: - To design a junk model boat. - To use knowledge from exploration to inform design. Make: - To make a boat that floats and is waterproof, considering material choices. Evaluate: - To make predictions about, and evaluating different materials to see if they are waterproof. - To make predictions about, and evaluating existing boats to see which floats best. - To test their design and reflecting on what could have been done differently. - To investigate how the shapes and structure of a boat affect the way it moves.	criteria, testing whether the structure is strong and stable and altering it if it isn't. To suggest points for improvements	- To test the strength of own structures. - To identify the weakest part of a structure. - To evaluate the strength, stiffness and stability of own structure.
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Knowledge	- Stack and arrange objects to make simple structures. - Use joining methods like tape or glue to hold parts together.	Junk Modelling Technical: - Know there are a range to different materials that can be used to make a model and that they are all slightly different. - Make simple suggestions to fix their junk model. Boats Technical: - Know that 'waterproof' materials are those which do not absorb water. Additional: - Know now that some objects float and others sink. - Know the different parts of a boat.	Technical: - Understand that the shape of materials can be changed to improve the strength and stiffness of structures. - Understand that cylinders are a strong type of structure (e.g. the main shape used for windmills and lighthouses). - Understand that axles are used in structures and mechanisms to make parts turn in a circle. - Begin to understand that different structures are used for different purposes. - Know that a structure is something that has been made and put together Additional: - Know that a client is the person I am designing for. - Know that design criteria is a list of points to ensure the product meets the clients needs and wants. - Know that a windmill harnesses the power of wind for a purpose like grinding grain, pumping water or generating electricity. - Know that windmill turbines use wind to turn and make the machines inside work. - Know that a windmill is a structure with sails that are moved by the wind. - Know the three main parts of a windmill are the turbine, axle and structure.	Technical: - Know that shapes and structures with wide, flat bases or legs are the most stable. - Understand that the shape of a structure affects its strength. - Know that materials can be manipulated to improve strength and stiffness. - Know that a structure is something which has been formed or made from parts. - Know that a 'stable' structure is one which is firmly fixed and unlikely to change or move. - Know that a 'strong' structure is one which does not break easily. - Know that a 'stiff' structure or material is one which does not bend easily. Additional: - Know that natural structures are those found in nature. - Know that man-made structures are those made by people.
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Textiles Skills	- To handle and explore different fabrics and textures. - To decorate fabric using crayons, fabric paint or sticking shapes. - To discuss textures using describing words. - To develop fine motor by practicing threading with beads and threading cards.	Ongoing - To use a range of tools safely and with control to explore dough. - To apply skills taught to a range of materials free access. Bookmarks Design: - To discuss what a good design needs. - To design a simple pattern with paper. - To design a bookmark. - To choose from available materials. Make: - To develop fine motor/cutting skills with scissors. - To explore fine motor/threading and weaving (under, over technique) with a variety of materials. - To use a prepared needle and wool to practise threading. Evaluate: - To reflect on a finished product and comparing to their design.	Puppets Design: - To use a template to create a design for a puppet. Make: - To cut fabric neatly with scissors. - To use joining methods to decorate a puppet. - To sequence the steps taken during construction. Evaluate: - To reflect on a finished product, explaining likes and dislikes.	
Knowledge	- Name different items of clothing - Use different words to describe different textures. - Know that fabric can be used for a variety of purposes, such as clothing or decoration.	- Know that a design is a way of planning our idea before we start. - Know that threading is putting one material through an object.	- Know that 'joining technique' means connecting two pieces of material together. - Know that there are various temporary methods of joining fabric by using staples, glue or pins. - Understand that different techniques for joining materials can be used for different purposes. - Understand that a template (or fabric pattern) is used to cut out the same shape multiple times.	

			Know that drawing a design idea is useful to see how an idea will look.	
Cooking and Nutrition Skills	- To wash hands before handling food. - To stir, pour, and mix ingredients safely. - To use one handed tools safely. - To describe taste and smell, using words such as sweet, sour, strong. - To identify some healthy and unhealthy foods.	Baking Make: - To ensure hands are washed before handling food. - To discuss what ingredients are needed. - To measure ingredients with support. Evaluate: - To taste and evaluate - To describe appearance, taste and smell. - To evaluate and share opinions.	Smoothies Design: - To design smoothie carton packaging by-hand. - To learn where and how fruits and vegetables grow. Make: - To chop fruit and vegetables safely to make a smoothie. - To juice fruits safely to make a smoothie. - To identify if a food is a fruit. Evaluate: - To taste and evaluate different food combinations. - To describe appearance, smell and taste. - To suggest information to be included on packaging. - To compare their own smoothie with someone else's.	

Knowledge	- Know that eating fruit and vegetables helps keep the body healthy. - Know that staying hydrated keeps us healthy. - Know that ingredients mix together to make different foods.	- Identify foods that help their bodies grow strong and those that should be eaten less often. - Understand the need for a varied diet, including fruit, vegetables, and dairy. - Develop an awareness that food provides energy for playing, running, and learning. - Learn that reducing sugary food and drinks is important for healthy teeth and bodies.	- Know that a blender is a machine which mixes ingredients together into a smooth liquid. - Know that a fruit has seeds and a vegetable does not. - Know that fruits grow on trees or vines. - Know that vegetables can grow either above or below ground. - Know that vegetables is any edible part of a plant.	
Mechanisms/ Mechanical Systems Skills	- To explore moving parts like wheels, levers, and sliders in toys. - To push and pull objects to see how they move. - To understand that their actions have consequences.	- To explore a range of wheeled toys and discuss. - To explore pulling and pushing objects and discuss. - To observe how a toy moves and predict what will happen if the force changes. - To manipulate small mechanisms such as turning knobs on wind-up toys, pulling back friction cars, pressing buttons, or squeezing pneumatic components.		Fairground Wheel Design: - To conduct simple surveys or discussions to gather opinions on what others need or like in a design. - To use a survey to find out what people like. - To use a simple design brief that outlines the intended use, target user, and key features of the product, to create simple design criteria. - To use design criteria as steps for making a product successful. - To create ideas with design criteria in mind. - To refer to specific parts of existing products when generating ideas. - To use labels to explain parts of a design, label materials, etc. - To use drawings to help explain how something works. Make:

				• To choose materials, ingredients or components from a wider range of materials, ingredients or components. • To explain their choices based on the properties of materials and components. • To describe some properties of materials like hard, soft, flexible, waterproof, strong etc. • To follow and recall simple safety instructions. • To use tools safely, like sharp scissors and knives. • To choose and use known geometric shapes when making. Triangle, pyramid, square, cube, circle, sphere. • To begin to shape objects to improve how they work. • To consider balance in their finishing, like evenly spaced decoration. Evaluate: • To discuss a range of existing products and saying what they like and dislike about them. • To evaluate existing products against design criteria. • To evaluate their ideas and creations against simple design criteria. • To use design criteria to help to decide if their product is a success. • To suggest improvements to their peers' designs and products. • To understand that improve means to make something better. • To understand that their suggestions can improve someone else's work.
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				Making a Moving Monster Design: - To create a class design criteria for a moving monster. - To design a moving monster for a specific audience in accordance with a design criteria. Make: - To make linkages using card for levers and split pins for pivots. - To experiment with linkages adjusting the widths, lengths and thicknesses of card used. - To cut and assemble components neatly. Evaluate: - To evaluate own designs against design criteria. - To use peer feedback to modify a final design.
Knowledge	- Begin to show an awareness of actions having an effect on a toy, such as a lever - Begin to show an awareness of toys using forces such as pushing and pulling	- Recognise and know that actions (pushing, pulling, winding) have an immediate effect on the toy, encouraging repetition and investigation. - Know that toys move using forces like pushing, pulling, twisting, or winding.		Fairground Wheel Technical: - To know everyday objects have mechanisms. - To know many things that move have parts inside to help them work. - To know mechanisms usually limit unwanted movement. - To know everyday objects utilise wheels and axles. - To know wheels must be able to turn to work effectively. - To know axles allow wheels to turn without falling off. Additional: - To know the features of a fairground wheel include the

				wheel, frame, pods, a base an axle and an axle holder Making a Moving Monster Technical: - To know that mechanisms are a collection of moving parts that work together as a machine to produce movement. - To know that there is always an input and output in a mechanism. - To know that an input is the energy that is used to start something working. - To know that an output is the movement that happens as a result of the input. - To know that a lever is something that turns on a pivot. - To know that a linkage mechanism is made up of a series of levers Additional: - To know some real-life objects that contain mechanisms.
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Vocabulary				
	Nursery	Reception	Year 1	Year 2
	junk, box, bottle, cardboard, paper, glue, scissors, stick, cut, make, build, big, small, strong, safe, fold, colour, shape, pattern, texture, push, pull, move, boat, float, sink	Junk modelling: recycled, materials, tools, join, attach, connect, design, model, purpose, idea, plan, user, strong, weak, change, same, different Boats: boat, float, sink, waterproof, materials, wood, plastic, join, stick, cut, design, model, plan, test, change, improve, strong, weak, same, different, user, purpose Bookmarks:	Smoothies: blend, blender, chopping board, compare, cut, design, evaluate, flavour, fork, fruit, healthy, ingredients, juice, juicer, leaf, plant, recipe, root, seed, select, smoothie, stem, table knife, taste, tree, vegetable, vine Puppets:	Making a moving monster: axle, design criteria, input, linkage, mechanical, output, pivot, wheel Fairground Wheel: design brief, design criteria, evaluate, frame, model, opinion, rotate, survey Baby Bear's Chair: design criteria, man-made, natural, properties, structure, stable, shape, model, test

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		paper, card, decorate, design, make, fold, cut, stick, join, materials, pattern, colour, shape, texture, plan, idea, improve, strong, weak, same, different, user, purpose	decorate, design, fabric, glue, model, hand puppet, safety pin, staple, stencil, template Constructing a windmill: base, centre, design, equal, evaluate, middle, rotate, rotor, rotor blades, sails, same, stable, strong, structure, test, weak, wind, windmill	
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From Kapow 2025

VB November 2025