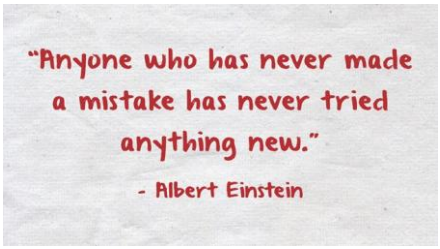
Pinewood Design and Technology Knowledge Progression Overview

Design,
Create,
Evaluate!



At Pinewood we want children to be able to design, make and evaluate while having fun and enjoying the process. We try to link our DT teaching to our learning journeys and give children opportunities to work individually and collaboratively with others on purposeful projects. Skills are dependent on specific knowledge. A skill is the capacity to perform or discuss and in order to do this a deep body knowledge needs to be acquired and retained.

EYFS: 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.

KS1: Design and technology is an inspiring, rigorous and practical subject. Using creativity and imagination, pupils design and make products that solve real and relevant problems within a variety of contexts, considering their own and others' needs, wants and values. They acquire a broad range of subject knowledge and draw on disciplines such as mathematics, science, engineering, computing and art. Pupils learn how to take risks, becoming resourceful, innovative, enterprising and capable citizens. Through the evaluation of past and present design and technology, they develop a critical understanding of its impact on daily life and the wider world. High-quality design and technology education makes an essential contribution to the creativity, culture, wealth and well-being of the nation.

Aims: The national curriculum for design and technology aims to ensure that all pupils: develop the creative, technical and practical expertise needed to perform everyday tasks confidently; build and apply a repertoire of knowledge, understanding and skills in order to design and make high-quality prototypes; critique, evaluate and test their ideas; apply the principles of nutrition and learn how to cook. Pupils should be taught the knowledge, understanding and skills needed to engage in an iterative process of designing and making. They should work in a range of relevant contexts [for example, the home and school, gardens and playgrounds, the local community, industry and the wider environment]. When designing and making, pupils should be taught to:

Design: purposeful, functional, appealing products for themselves and other users based on design criteria. Generate, develop, model and communicate their ideas through talking, drawing, templates, mock-ups and, where appropriate, information and communication technology.

Make: use a range of tools and equipment to perform practical tasks [for example, cutting, shaping, joining and finishing]. To select from and use a wide range of materials and components, including construction materials, textiles and ingredients, according to their characteristics

Evaluate: explore and evaluate a range of existing products; evaluate their ideas and products against design criteria

Technical knowledge: build structures, exploring how they can be made stronger, stiffer and more stable. Explore and use mechanisms [for example, levers, sliders, wheels and axles] in their products

Substantive knowledge- The what we need to know (including key vocabulary and their meanings)

Design, Make, Evaluate:

In F1 children have access to large construction materials and have access to a wide range of workshop materials and equipment through continuous provision. The resources are more basic in F1 (colour collage materials) and as they move through to F2 this leads into fixing and joining techniques such as treasury tags and split pins in the workshop. These areas give children the opportunities to develop their own ideas and create them in F1 and in F2 they dive deeper by exploring their use and working collaboratively with each other with an outcome in mind. In F1 the children are encouraged to talk about what they have created and in F2 its more about the process they went through to achieve the outcome. In year 1, children make more detailed plans and designs with sketches and labels with more consideration given to the materials being used. This is built upon in year 2 where children continue to design, make and evaluate different products with a range of purposes.

Key Vocabulary			
F1	F2	Y1	Y2
Junk model, plan, make, join	Junk model, plan, make, join, create, fix	planning, investigating design, evaluate, make, user, purpose, ideas, product, labels	investigating, planning, design, make, evaluate, user, label, create, purpose, ideas, design criteria, product, function

Technical Knowledge

F1 explore this concept through continuous provision and as they move through to F2 this leads into fixing and joining techniques such as treasury tags and split pins in the workshop. In year 1 children begin to know how different mechanisms work (eg. Sliders) and in year 2 children experiment with and make their own moving pictures with pulleys, levers and sliders. They also make pull-a-long trollys with wheels and axles.

Key Vocabulary			
F1	F2	Y1	Y2

Safe, safely, ideas, plan, moving, not moving	Safe, safely, safety, materials, tools, equipment, product, moving, not moving	Safe, safely, safety, materials, tools, equipment, product, build, structures, stronger, stiffer, moving, not moving	Safe, safely, safety, materials, tools, equipment, product, build, structures, stronger, stiffer, moving, not moving, mechanisms, wheels, axles, sliders, strengthen, stiffen, reinforce, pulleys, linkages.

Cooking and Nutrition:

In F1 we talk about the importance of hygiene when cooking and cook/bake each half term linked to the topic. In F2 children learn the importance of healthy and non-healthy foods and can articulate hygiene rules when preparing food. In year 1, children design and prepare a healthy snack and in year 2 they design and make pizzas for our end of year party.

Key Vocabulary			
F1	F2	Y1	Y2
fruit and vegetable names, names of some utensils equipment and utensils	fruit and vegetable names, names of equipment and utensils, sensory vocabulary e.g. soft, juicy, crunchy, sweet, sticky,	fruit and vegetable names, recipe, names of equipment and utensils sensory vocabulary e.g. soft, juicy, crunchy, sweet, sticky, smooth, sharp, crisp, sour, hard flesh, skin, seed, pip, core, slicing, peeling, cutting, squeezing, healthy diet, choosing, ingredients,	fruit and vegetable names, recipe, names of equipment and utensils sensory vocabulary e.g. soft, juicy, crunchy, sweet, sticky, smooth, sharp, crisp, sour, hard flesh, skin, seed, pip, core, slicing, peeling, cutting, squeezing, healthy diet, choosing, ingredients, preference, greasy, moist, cook, fresh, savoury, hygienic, edible, grown, reared, caught, frozen, tinned, processed, seasonal, harvested healthy/varied diet

Disciplinary

Disciplinary knowledge in Design and Technology is the interpretation of the acquired knowledge above, how that knowledge can be used and combined in order to create a specific and desired outcome. It is also the critical evaluation of other designers work and of their own work; evaluating and having the ability to critique different products..

F1	F2	Y1	Y2	Y2 Exceeding
Design				
Know how to develop my own ideas and then decide which materials to use to express them	Know how to explore, use and refine a variety of artistic effects to express my ideas and feelings	Know how to draw on their own experience to help generate ideas Know how to suggest ideas and explain what they are going to do Know how to model their ideas in card and paper or on a design template	Know how to generate ideas by drawing their own and other people's experiences Know how to develop their design ideas through discussion, observation, drawing and modelling Know how to identify simple design criteria Know how to make simple drawings and label parts	Know how to generate ideas for an item, considering its purpose and the user/s Know how to identify a purpose and establish criteria for a successful product Know how to plan the order of their work before starting Know how to explore, develop and communicate design proposals by modelling ideas
Make				
Know how to use various construction materials Know how to safely explore a variety of tools	Know how to construct, stacking blocks vertically and horizontally, making enclosures and creating spaces Know how to join construction pieces together to build and balance	Know how to make their design using appropriate techniques Know how to with help, measure, mark out, cut and shape a range of materials Know how to use tools safely e.g. hole punch, scissors	Know how to select tools and materials: use vocab to name and describe them Know how to measure, score and cut with some accuracy Know how to use hand tools safely and appropriately	Know how to select tools and techniques for making their product Know how to measure, mark out, cut, score and assemble components with more accuracy Know how to work safely and accurately with a

	Know how to choose the right resources to carry out a task/plan Know the different techniques for joining materials, such as using tape, glue	Know how to assemble, join and combine materials and components together using a variety of temporary methods Know how to use simple finishing techniques to improve the appearance of their product	Know how to assemble, join and combine materials in order to make a product Know how to cut, shape and join fabric to make a simple product Know how to use basic sewing techniques Know how to choose and use appropriate finishing techniques	range of simple tools Know how to think about their ideas as they make progress and be willing to change things if this helps them improve their work Know how to measure, tape or pin, cut and join fabric with some accuracy Know how to use finishing techniques to strengthen and improve the appearance of their product using a range of equipment including ICT
Evaluate				
Know how to talk about what I am creating	Share their creations, explaining the process they have used Beginning to know how to build on my previous learning, refining ideas and developing my ability to represent them	Know how to evaluate products by discussing how well it works in relation to the purpose Know how to evaluate their product by asking questions about what they have made and how they have gone about it	Know how to evaluate against their design criteria Know how to evaluate their products as they are developed, identifying strengths and possible changes they might make Know how to talk about their ideas, saying what they like and dislike about them	Know how to evaluate their product against original design criteria e.g. how well it meets the intended purpose Know how to improve their finished product in relation to the design criteria
Technical Knowledge				

Know how to develop my ideas about how to use them and what to make Know which things move and which things are non-moving	Safely use and explore a variety of materials, tools and techniques, experimenting with colour, design, texture, form and function Begin to know how a product moves	Know how to build structures exploring how they can be made stronger and stiffer Know how a product moves	Know how to build structures exploring how they can be made stronger, stiffer and more stable Know how to explore and use mechanisms, (e.g. wheels and axles, sliders) in their products	Know how to apply their understanding of how to strengthen, stiffen and reinforce more complex structures Know how to use mechanical systems in their products (e.g. pulleys, levers and linkages)
Cooking and Nutrition				
Know how to wash hands Know some names of fruit and vegetables I have experienced the process of preparing food	Know that some food is healthy and some food is not Know how to follow simple hygiene rules Know how to follow a recipe with support	Know the basic principles of healthy and varied diet to prepare dishes Know where some food comes from Know and basic food handling, hygienic practices and personal hygiene Know how to follow a recipe	Know how to use the basic principles of a healthy and varied diet to prepare dishes Know where a variety of food comes from Know how to manage basic food handling, hygienic practices and personal hygiene	Know and understand and apply the principles of a healthy and varied diet Know how to weigh out ingredients and follow a healthy recipe Know and understand seasonality and know where and how a variety of ingredients are grown/processed