



# Boyne Hill Infant and Nursery School - Knowledge & Skills Progression Overview

## Design and Technology

**Purpose:** 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 wellbeing of the nation.

**Intent:** At Boyne Hill, we aim to develop our pupils' creative, technical and practical expertise which will enable them to perform everyday tasks confidently and to participate successfully in an increasingly technological world; to build and apply knowledge, understanding and skills in order to design and make prototypes and products for a wide range of users; to critique, evaluate and test their ideas and products and the work of others; to understand and apply the principles of nutrition and learn some basic baking and food preparation skills. It is our intention that our pupils will develop the skills to become reflective about what they have produced. We want them to explore different materials, techniques and processes that they can then build on through their time in school. We want them to learn collaboratively, discuss problems and find ways to overcome them as well as reflecting on how these processes have improved or hindered their final product. Our pupils will be introduced to the design process, clearly having chances to research, design, make and evaluate in many different topic areas and use the work of others to help make them more reflective in their evaluations. They will also be given time to explore designers and techniques and refine them before putting them to use in their own product designs. They should then be able to select materials, techniques and processes that they would like to use in their own models as they gain the relevant experiences.

<b>Early Years Foundation Stage</b> Links the EYFS Framework	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 play with a wide range of media and materials. The quality and variety of what the 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.	
<b>3-4 Years (FS1 Nursery)</b> Development Matters 2021	<b>PSED</b>	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.
	<b>PD</b>	Choose the right resources to carry out their own plan. Use one-handed tools and equipment, for example, making snips in paper with scissors.
	<b>UW</b>	Explore how things work.
	<b>EAD</b>	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.
<b>4-5 Years</b>	<b>PD</b>	Develop their small motor skills so that they can use a range of tools competently, safely and confidently.

<b>(FS2 Reception)</b> Development Matters 2021	<b>EAD</b>	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.
<b>Early Learning Goal (ELG)</b>	<b>PD</b> Fine Motor Skills	Use a range of small tools, including scissors, paintbrushes and cutlery.
	<b>PSED</b> Managing Self	Be confident to try new activities and show independence, resilience and perseverance in the face of challenge.
	<b>EAD</b> Creating with Materials	Safely use and explore a variety of materials, tools and techniques, experimenting with colour, design, texture, form and function. Share their creations, explaining the process they have used.

<b>Years 1 &amp; 2 (KS1)</b> <i>Statutory requirements</i>	<p><b>Design</b></p> <ul style="list-style-type: none"> <li>Design purposeful, functional, appealing products for themselves and other users based on design criteria.</li> <li>Generate, develop, model and communicate their ideas through talking, drawing, templates, mock-ups and, where appropriate, information and communication technology.</li> </ul> <p><b>Make</b></p> <ul style="list-style-type: none"> <li>Select from and use a range of tools and equipment to perform practical tasks (for example, cutting, shaping, joining and finishing).</li> <li>Select from and use a wide range of materials and components, including construction materials, textiles and ingredients, according to their characteristics.</li> </ul> <p><b>Evaluate</b></p> <ul style="list-style-type: none"> <li>Explore and evaluate a range of existing products.</li> <li>Evaluate their ideas and products against design criteria.</li> </ul> <p><b>Technical knowledge</b></p> <ul style="list-style-type: none"> <li>Build structures, exploring how they can be made stronger, stiffer and more stable.</li> <li>Explore and use mechanisms (for example, levers, sliders, wheels and axles) in their products.</li> </ul>
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<b>Design</b>			
<b>FS1</b>	<b>FS2</b>	<b>YR1</b>	<b>YR2</b>
Select appropriate resources with support.	Select appropriate resources with more independence.	Design smoothie carton packaging by-hand or on IT software.	Design a healthy wrap based on a food combination which work well together.
Use gestures and talking to show design.	Use gestures, talking and arrangements of materials and components to show designs.	Use a template to create a design for a puppet.	Design a pouch.
Use contexts set out by the teacher and by pupils to explore making things.	Use the language of designing and making: <i>join, build, shape, longer, shorter, heavier, lighter etc.</i>	Design a vehicle that includes wheels, axles and axle holders, which will allow the wheels to move.	Select a suitable linkage system to produce the desired motions.

		Create clearly labelled drawings which illustrate movement.	Design a wheel selecting appropriate materials based on their properties.
		Explain how to adapt mechanisms, using bridges or guides to control the movement.	Create a class design criteria for a moving monster.
		Design a moving story book for a given audience.	Design a moving monster for a specific audience in accordance with a design criteria.

**End of Key Stage 1 Expectations:**

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

**Make**

<b>FS1</b>	<b>FS2</b>	<b>YR1</b>	<b>YR2</b>
Construct with a developing purpose, using a variety of resources.	Construct with a clear purpose, using a variety of resources.	Chop fruit and vegetables safely to make a smoothie.	Slice food safely using the bridge or claw grip.
Use simple tools and techniques.	Build/construct with a set range of objects.	Identify if a food is a fruit or a vegetable.	Construct a wrap that meets a design brief.
Build/construct with a range of objects.	Select tools & techniques to shape, assemble and join structures with materials and components.	Learn where and how fruits and vegetables grow.	Select and cut fabrics for sewing.
Select tools & techniques to shape and assemble structures with materials and components.	Suggest how to make an activity safe and hygienic.	Cut fabric neatly with scissors.	Decorate a pouch using fabric glue or running stitch.
Discuss how to make an activity safe and hygienic.	Record their experiences by drawing, writing, voice recording.	Use joining methods to decorate a puppet.	Thread a needle.
With support, record experiences by drawing, writing or voice recording.	Understand that different media can be combined for a purpose.	Sequence steps for construction.	Sew running stitch, with evenly spaced, neat, even stitches to join fabric.
		Adapt mechanisms.	Neatly pin and cut fabric using a template.
		Follow a design to create moving models that use levers and sliders.	Select materials according to their characteristics.
			Follow a design brief.
			Making linkages using card for levers and split pins for pivots.

			Experiment with linkages adjusting the widths, lengths and thicknesses of card used.
			Cut and assemble components neatly.
<b>End of Key Stage 1 Expectations:</b>			
1. Select from and use a range of tools and equipment to perform practical tasks, for example, cutting, shaping, joining and finishing.			
2. Select from and use a wide range of materials and components, including construction materials, textiles and ingredients, according to their characteristics.			
<b>Evaluate</b>			
<b>FS1</b>	<b>FS2</b>	<b>YR1</b>	<b>YR2</b>
Begin to adapt work if necessary.	Adapt work if necessary.	Taste and evaluate different food combinations.	Describe the taste, texture and smell of fruit and vegetables.
Consider and manage some risks.	Be willing to dismantle, examine and talk about existing objects and structures.	Describe appearance, smell and taste.	Taste test food combinations and final products.
Talk about and practise some appropriate safety measures independently.	Consider and manage risks relevant to their work.	Suggest information to be included on packaging.	Describe the information that should be included on a label.
Talk about how things work.	Take some appropriate safety measures independently.	Reflect on a finished product, explaining likes and dislikes.	Evaluate which grip was most effective.
Look at similarities and differences between existing objects, materials and tools.	Talk in more detail about how things work.	Test mechanisms, identifying what stops wheels from turning, knowing that a wheel needs an axle in order to move.	Troubleshoot scenarios posed by the teacher.
Show an interest in technological toys.	Show interest and begin to use technological toys.	Test a finished product, seeing whether it moves as planned and if not, explain why and how it can be fixed.	Evaluate the quality of the stitching on others' work.
Begin to describe the textures they have come across in their work.	Describe the textures they have come across in their work.	Review the success of a product by testing it with its intended audience.	Discuss as a class, the success of their stitching against the success criteria.
			Identify aspects of their peers' work that they particularly like and why.
			Evaluate different designs.
			Test and adapt a design.

			Evaluate own designs against design criteria.
			Use peer feedback to modify a final design.

**End of Key Stage 1 Expectations:**

1. Explore and evaluate a range of existing products.
2. Evaluate their ideas and products against design criteria.

**Technical Knowledge**

FS1	FS2	YR1	YR2
	Be able to join some materials with support.	Know that wheels need to be round to rotate and move.	Know that different materials have different properties and are therefore suitable for different uses.
	Cut and join textiles to make a product with support.	Understand that for a wheel to move it must be attached to a rotating axle.	Know that mechanisms are a collection of moving parts that work together as a machine to produce movement.
	Begin to make choices about materials and textiles that will be used.	Know that an axle moves within an axle holder which is fixed to the vehicle or toy.	Know that there is always an input and output in a mechanism.
		Know that the frame of a vehicle (chassis) needs to be balanced.	Know that an input is the energy that is used to start something working.
		Know that a mechanism is the parts of an object that move together. know that a slider mechanism has a slider, slots , guides and an object.	Know that an output is the movement that happens as a result of the input.
		Know that a slider mechanism moves an object from side to side.	Know that a lever is something that turns on a pivot.
		Know that bridges and guides are bits of card that purposefully restrict the movement of the slider.	Know that a linkage mechanism is made up of a series of levers.

**End of Key Stage 1 Expectations:**

1. Build structures, exploring how they can be made stronger, stiffer and more stable.
2. Explore and use mechanisms, for example, levers, sliders, wheels and axles in their products.

**Cooking and Nutrition**

FS1	FS2	YR1	YR2
Discuss how we use our senses when cooking.	Begin to understand some food preparation tools, techniques and processes.	Understand the difference between fruits and vegetables.	Know that 'diet' means the food and drink that a person or animal usually eats.

Practise stirring ingredients.	Practise stirring, mixing, pouring and blending.	Understand that some foods typically known as vegetables are actually fruits (e.g. cucumber).	Understand what makes a balanced diet.
Know the importance of washing hands before handling food.	Discuss how to make an activity safe and hygienic.	Know that a blender is a machine which mixes ingredients together into a smooth liquid.	Know where to find the nutritional information on packaging.
	Discuss how we use our senses when cooking.	Know that a fruit has seeds and a vegetable does not.	Know that the five main food groups are: Carbohydrates, fruits and vegetables, protein, dairy and foods high in fat and sugar.
	Understand the need for variety in food.	Know that fruits grow on trees or vines.	Understand that we should eat a range of different foods from each food group, and roughly how much of each food group.
	Begin to understand that eating well contributes to good overall health.	Know that vegetables can grow either above or below ground.	Know that nutrients are substances in food that all living things need to make energy, grow and develop.
		Know that vegetables can come from different parts of the plant (e.g. roots: potatoes, leaves: lettuce, fruit: cucumber).	Know that 'ingredients' means the items in a mixture or recipe.
			Know that we should only have a maximum of five teaspoons of sugar a day to stay healthy.
			Know that many food and drinks we do not expect to contain sugar do; we call these 'hidden sugars'.

**End of Key Stage 1 Expectations:**

1. Use the basic principles of a healthy and varied diet to prepare dishes.
2. Understand where our food comes from.