

Our Curriculum at Shirley Infant School



DESIGN & TECHNOLOGY

SUBJECT DESIGN

A Shirley School Citizen...

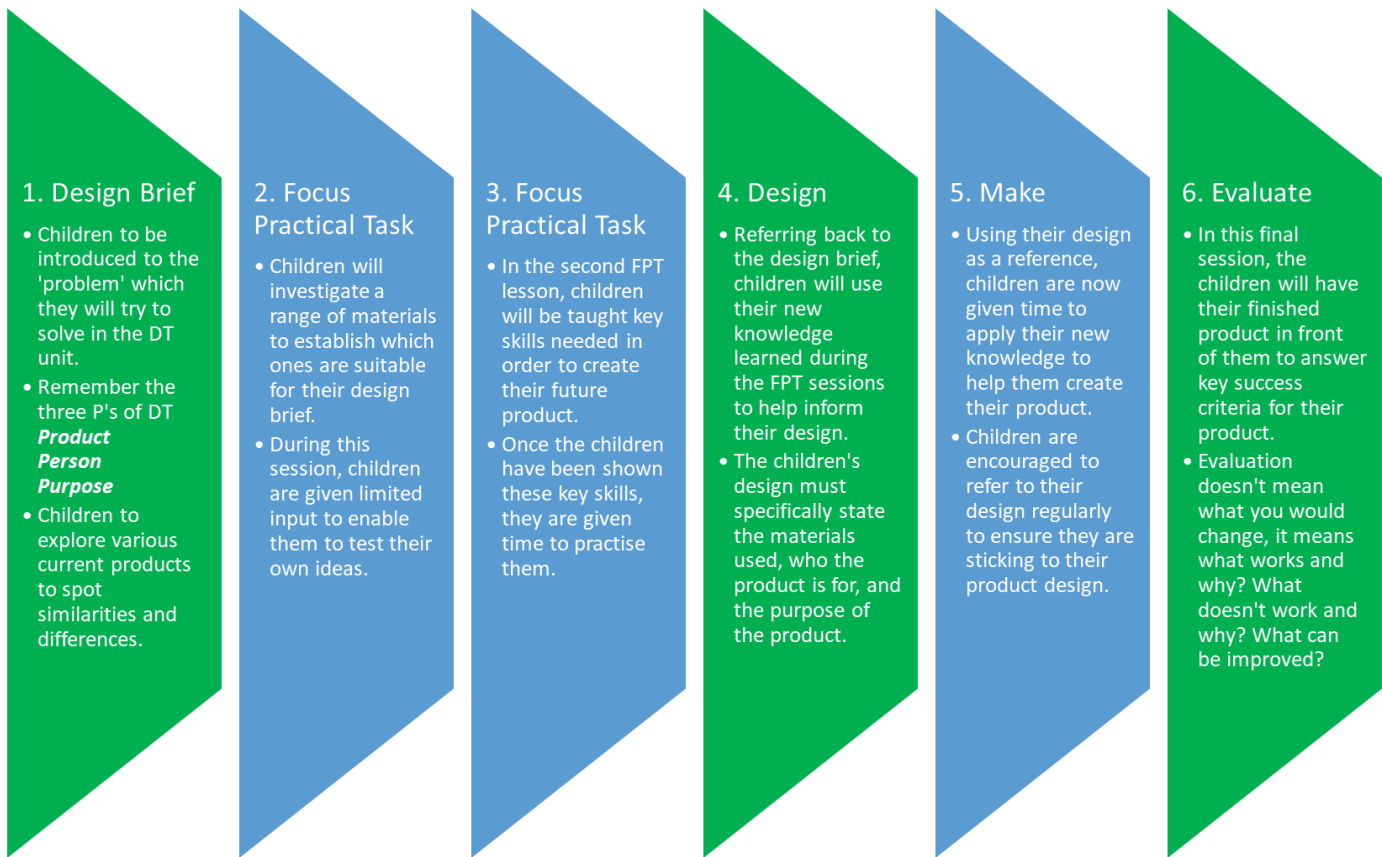
At Shirley Infant School, children are provided with the tools and platform to become creative, innovative and self-reflective problem solvers. Through a range of specifically planned progressive topics, children are encouraged to think logically about the world around us, to question the purpose of every product and to ask the questions 'how' and 'why' can this product be improved?

THE DESIGN PROCESS IN KEY STAGE 1

Children in Key Stage 1 at Shirley Infant School, will approach Design & Technology topics through **six key steps**. Across these six steps, children will open the door to many **different techniques, mechanisms and systems** which will be necessary to help inform the children's development of their product.

Through **Focus Practical Task** sessions where the children will **experiment** with different resources and techniques to establish which best fits the Design Brief. Once the children have developed their **knowledge** of these **skills**, they are encouraged to constantly **reflect** on their learning to design and make their desired product.

The last and arguably most important stage of this approach is the **evaluation** stage, where children won't only test if their **product** is what they designed to make, but does it fit their design brief? Does it **function** as the product they set out to make? If not, the children will assess their product to see what changes can be made. This could be as simple as changing **materials** or it could be as complex as deciding to use a different mechanism next time around to make sure the wheels roll smoothly or the pulley system does not get jammed.



1 - DESIGN BRIEF

Firstly, the children will be introduced to the 'problem' which they will try to solve in the Design & Technology unit. Remember the three P's of DT Product, Person and Purpose - the children will be tasked to create a product for a specific person which will have a specific purpose. Children will explore various current products to spot similarities and differences before the practical sessions.

2 - FOCUS PRACTICAL TASK

Children will investigate a range of materials to establish which ones are suitable for their design brief. During this session, children are given limited input to enable them to test their own ideas. children are given limited input to enable them to test their own ideas.

3 - FOCUS PRACTICAL TASK

In the second FPT lesson, children will be taught key skills needed in order to create their future product. Once the children have been shown these key skills, they are given time to practice them.

4 - THE DESIGN STAGE

Referring back to the design brief, children will use their new knowledge learned during the FPT sessions to help inform their design. The children's design must specifically state the materials used, who the product is for, and the purpose of the product.

5 - THE MAKING OF THEIR PRODUCT

Using their design as a reference, children are now given time to apply their new knowledge to help them create their product. Children are encouraged to refer to their design regularly to ensure they are sticking to their product design.

6 - MAKING EVALUATIONS

In this final session, the children will have their finished product in front of them to answer key success criteria for their product. Evaluation doesn't mean what you would change, it means what works and why? What doesn't work and why? What can be improved?

CONCEPTS AND KEY SKILLS

Throughout our DT curriculum at Shirley Infant School, we teach the children through four main concepts:

- Designers and inventors;
- Generating ideas;
- Making;
- Evaluating

	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
Year R		Pets Leaf pets			Let's pretend Gingerbread making	Under the Sea Paper joining
Year 1	Moving Pictures		Vehicles		Fruity Surprise	
Year 2				Winding Mechanisms	Cool couscous	

Designers and inventors

Generating ideas

Making

Evaluating

SKILLS A SHIRLEY DESIGNER WILL USE...

As well as having four main concepts within our DT curriculum, each topic allows for children to apply skills to develop their understanding of the design and evaluation process.

Designers and inventors -

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Generating ideas -

- **Looking and talking:** Shirley designers will be able to explore a range of products already available and have opportunities to discuss their findings.
- **Experimenting:** A Shirley Designer will be given opportunities to explore and experiment with key equipment, to help generate ideas of which material is most successful.
- **Making a proposal:** Children will be able to use what they have discovered during experimenting and discussion to create their own design.

Making - materials and techniques

- **Structures:** A Shirley designer will continuously have access to creating sculptures throughout continuous provision. This skill will also be discreetly taught within DT sessions focusing on key elements of successful structures.

- **Mechanisms:** Through their time at Shirley School children will develop understanding and technique of making mechanisms through a range of different products.
- **Food:** At Shirley Schools children will develop their understanding of food hygiene and techniques, to successfully work with food safely, making a range of different products.

Evaluating -

Use of techniques - A Shirley designer will evaluate their application of the techniques taught within the topic within their final product.

The product - Children will be able to successfully discuss if their product has met the design brief.

Comparing - A Shirley designer will be able to notice similarities and differences to others' work.

Reflecting - A Shirley designer will be able to not only identify the successes but also start to understand how they could use different techniques to improve the final product.

TOPIC OVERVIEW

Throughout the children's time at Shirley Infant School they will take part in various Design & Technology topics that will teach them new ways of observing and evaluating products before setting out to create their very own product fit for a purpose. During their time in Year R, children will explore different ways of making and joining different materials. As the year progresses the key DT skills are explored and refined ready for the start of KS1. Moving their way into Year 1, the children will build on their knowledge of simple joins to progress to make elements that also move such as sliders and pivots. This progression continues when they create vehicles during a unit based on **wheels and**

axels. With the theme of the moon landing, the children will investigate which materials are most suitable for the given design brief before setting out to make a moon buggy. Building on once again around materials which move and rotate, the children are taught to retrieve their knowledge from Year 1 to design, make and evaluate their own **winding mechanism**. As part of the Great Fire of London topic, Year 2 use their winding mechanism to create an image with moving flames.

As well as exploring a range of mechanisms, structures and materials, the children will gain experiences in working with food. In Year R, linking to the traditional tales topic, the children work collaboratively measuring ingredients to make their own gingerbread men. Sticking with the theme of food, Year 1 children are tasked to design their own fruit kebab. This means they are required to taste test various fruits before applying the practical skill of chopping safely to create their own fruit kebabs. Finally, in year 2 children continue to build on their chopping skills and design of a product. However, they now start to include the ideas and opinions of others.

Year R	Year 1	Year 2
Autumn 2 - Leaf pets Summer 1 - Gingerbread making (enhancement session) Summer 2 - Paper joining	Autumn 1 - Moving pictures Spring 1 - Vehicles Summer 1 - Fruit kebabs	Spring 2 - Winding mechanisms Summer 1 - Cool Couscous

KNOWLEDGE PROGRESSION

In Shirley Schools children foremost have the opportunity to implement their own ideas into their DT learning. Children are given opportunities to expand their understanding of skills and techniques, growing in confidence to create their own design and understanding the importance in fulfilling its purpose. They are encouraged to question and adapt at any opportunity always keeping the purpose in mind. They explore, investigate, design, edit and evaluate to produce something of their very own.

	EYFS	Year 1	Year 2
Investigate	<ul style="list-style-type: none"> To begin to choose appropriate materials for a design. 	<ul style="list-style-type: none"> To explore and evaluate a range of existing products. 	<ul style="list-style-type: none"> To explore and evaluate a range of existing products.
Design	<ul style="list-style-type: none"> Select appropriate resource To construct for design Use language of designing and making (join, build, shape, longer, shorter, heavier) 	<ul style="list-style-type: none"> To use templates to design purposeful and functional products To generate own ideas Explain what my product is for and how it works Use pictures and words to form a plan 	<ul style="list-style-type: none"> Generate own ideas of purposeful and functional products using prior knowledge. Explain what I want to do and describe how I may do it Explain purpose of product and how it is suitable for the user Describe design using pictures, models and diagrams - begin to use ICT Choose appropriate tools and materials to design product.
Create	<ul style="list-style-type: none"> To use appropriate tools and techniques To choose appropriate materials. Replicate structures with materials and components 	<ul style="list-style-type: none"> To choose and use appropriate tools, materials and methods to create their product. Explain what I am making and why Consider what I need to do next Measure, mark and cut materials 	<ul style="list-style-type: none"> To choose and use appropriate tools, materials and methods to create their product. Explain what I am making and why it fits the purpose Make suggestions as to what I need to do next Measure, mark out and shape materials Describe which tools I am using and why Use finishing techniques to enhance aesthetic
Evaluate	<ul style="list-style-type: none"> To adapt work if necessary Dismantle and examine structures To discuss how objects work To describe textures To say what I like about their product. 	<ul style="list-style-type: none"> Did the product fulfil the design functions of the success criteria? Discuss my work linking my product to the design brief Discuss similarities and differences between the products of others. 	<ul style="list-style-type: none"> Did the product fulfil the design functions of the success criteria? Describe what went well thinking about design criteria Compare product made to similar products Does the product fit the purpose
Vocabulary	Feature Model Construction Join Build Evaluate	Design Investigate Join Build Materials Evaluate Lever Slider Hygiene Cut	Design Investigate Join Build Materials Evaluate Wheels Axels Hygiene Cut

SUBJECT SPECIFIC ENHANCEMENTS

Junk Modeling play -

Throughout year R, children are given opportunities to explore junk modeling. Resources are left out for children to explore in the continuous provision. They spend time exploring different shapes, materials, colours, sizes and practice joining these pieces together. Whilst children are doing this, they are developing key skills they will use in future DT sessions. As children continue into KS1 they will revisit these key skills of joining and making to support them in creating their own designs.

Southampton University Girls in STEM

- Science, technology engineering and mathematics.



<https://www.youtube.com/watch?v=dTxGC0XmKPY>

Global Day of the Engineer - Monday 4th March 2024



World Engineering Day is a chance for children to discover, celebrate and highlight achievements from engineers around the world. Children will take a look at a range of engineers and inventors and discover how their achievements made an impact.

Children will have a chance to become engineers/inventors themselves. They will be set a **challenge** to create a new playground for the school.



They will do this by spending the morning exploring different materials and shapes. Which shape is the strongest? How can we join materials together to create the strongest shape?

Then after they have had opportunities to explore and experiment, they will spend the afternoon collaborating with peers to create their very own playground.

<https://discovere.org/programs/world-engineering-day/>

<https://nationaltoday.com/global-day-of-the-engineer/>

Links for parents -

Can you make the tallest tower?

<https://discovere.org/engineering-activities/grade-k-lesson-reach-for-the-skies/>

Design and Technology (D&T) | KS2 | Axles | BBC Teach

[Design and Technology \(D&T\) | KS2 | Axles | BBC Teach](#)

How to make an upcycled robot

<https://www.bbc.co.uk/bitesize/topics/zrpsb7h/articles/zqmgkhv>

How to make a rainbow windsock

<https://www.bbc.co.uk/bitesize/topics/zrpsb7h/articles/z662h4j>

Projects for home

<https://www.theschoolrun.com/5-home-design-and-technology-projects-primary-children>