

Our Curriculum at Shirley Infant School



Design & Technology

1: Subject Design - What to expect to see from a Shirley Infant School designer?

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

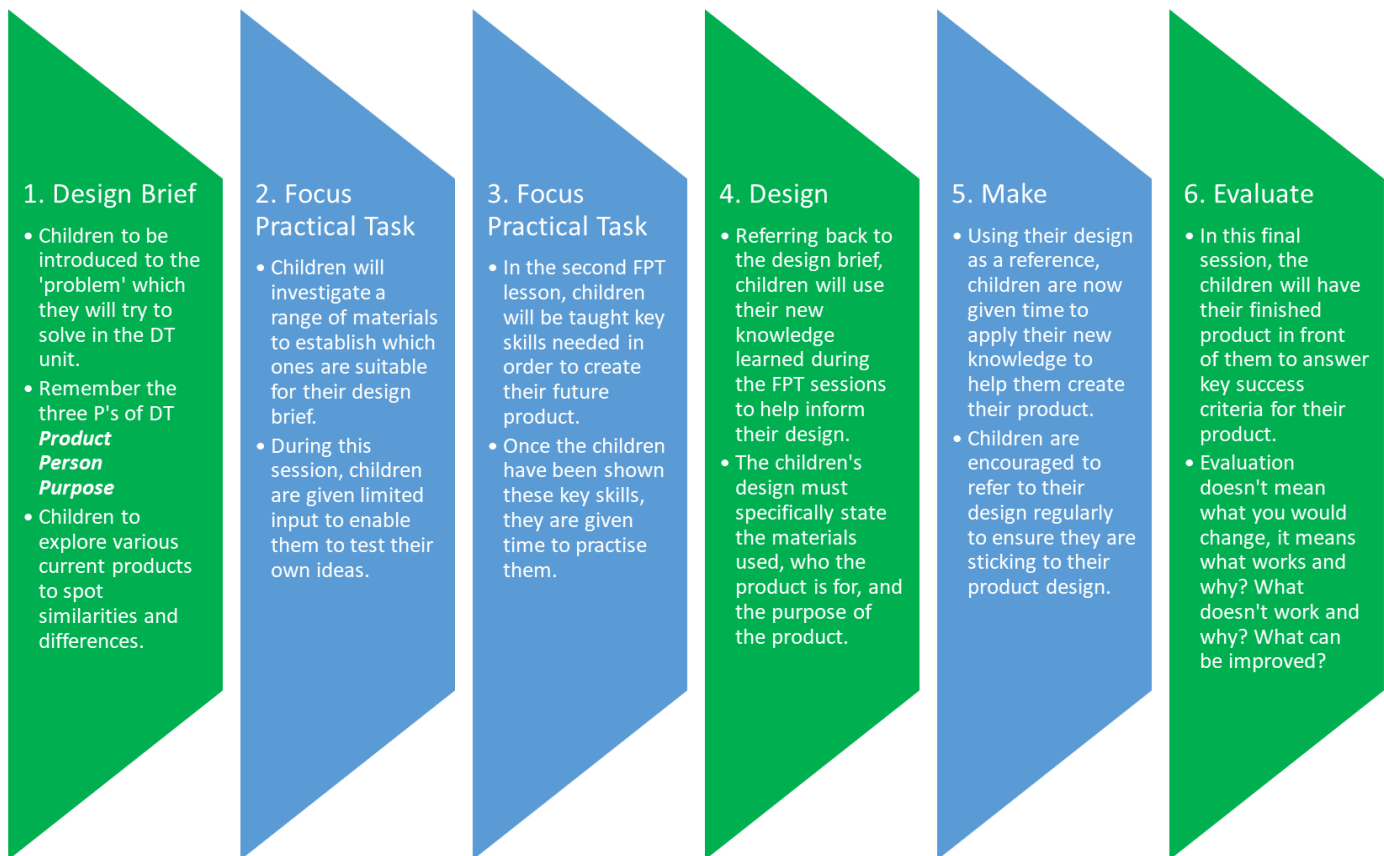
of every product and to ask the questions 'how' and 'why' can this product be improved?

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 practise 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?

2 - Concepts

Design & Technology at Shirley Infant School

| | Year R | Year 1 | Year 2 |
|-------------|---|---|---|
| Investigate | To begin to choose appropriate materials for a design. | To explore and evaluate a range of existing products. | To explore and evaluate a range of existing products. |
| Design | To construct a model for design. | To use templates to design purposeful and functional products. | Generate own ideas of purposeful and functional products using prior knowledge. |
| Create | To use appropriate tools. To choose appropriate materials. | To choose and use appropriate tools, materials and methods to create their product. | To choose and use appropriate tools, materials and methods to create their product. |
| Evaluate | To say what I like about their product. | Did the product fulfil the design functions of the success criteria? | Did the product fulfil the design functions of the success criteria? |
| Vocabulary | Vehicle Emergency Feature Model Construction Join Build Evaluate | Design Investigate Join Build Materials Evaluate Lever Slider | Design Investigate Join Build Materials Evaluate Wheels Axels |

3 - 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 vehicles with the theme of emergencies. As the weeks progress, children will design, make and evaluate their own emergency vehicles. Moving their way into Year 1, the children will build on their knowledge of 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.

Design & Technology Topics across Shirley Infant School

| | Autumn | Spring | Summer |
|--------|-----------------|--------------------|--------------------|
| Year R | | Emergency Vehicles | Gingerbread Making |
| Year 1 | Moving Pictures | Vehicles | Fruity Surprise |

| | | | |
|--------|--|-----------------------|-------------------|
| Year 2 | | Winding Mechanisms | Memory Magnets |
|--------|--|-----------------------|-------------------|

4. Knowledge Progressions

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 a model 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 | Vehicle Emergency Feature Model Construction Join Build Evaluate | Design Investigate Join Build Materials Evaluate Lever Slider | Design Investigate Join Build Materials Evaluate Wheels Axels |

5 - MTPS and Front Sheets

What I already know...

Children have experience exploring techniques, planning and design and constructing in a DT project from Year 1.

Children have create 3D pictures with flaps and other moving parts in Yr 1.

Chn have experience with moving parts: axle and chassis from moving vehicles in Year 1.

Winding Mechanisms

Children will explore different toys and objects to understand how winding mechanisms are used in different products. They will learn the correct vocab to describe a moving mechanism. They will explore different threads and how they affect the working of a winding mechanism and from this make design choices to design, make and evaluate their own winding mechanism.



I will learn...

- ⇒ To identify toys and objects with winding mechanisms.
- ⇒ To investigate and evaluate different types of thread.
- ⇒ To apply previous knowledge to create realistic backgrounds for their mechanisms.
- ⇒ To design from knowledge of investigation.
- ⇒ To make and then evaluate their final product against the design criteria.

Key Vocabulary



Learning values
Curiosity



6 - Planning

Much like other areas of the curriculum, Design & Technology planning and lesson structure consists of a short, usually whole-class input to provide an overview for the days learning, before a practical hands-on main activity. Although children are given the freedom and autonomy to make their own decisions come to life, they are often asked to justify their approach and method to deepen their understanding. Each unit follows the progression of skills so that children design meaningful products based on their knowledge from practical experiences.

Foundation subject planning - DT

Unit/Topic: Moving Vehicles (Spring 1)

Session 1 – Introduction and Design Brief

| Learning Objectives | Input | Main Activity | Plenary |
|---|---|--|--|
| <p>NC Objective: Explore and evaluate a range of existing products.</p> <p>Learning Objective: I can identify different types of vehicles and name their different parts.</p> | <p>Remind the children of what DT is. Explain we will be designing a vehicle for a purpose. Discuss what 'vehicle' means. Name as many different types of vehicles as possible- write list on IWB</p> <p>Identify any other types of vehicles. Ensure photos available for EAL support the understanding of new vocab. Key questions- What is the same? Why do they all have wheels? How do they move? Why are they different shapes? What are the vehicles designed to do? What noises do they make...why?</p> <p>Explain how we will be designing and making a vehicle for a specific task this term. We need to investigate the different parts of vehicles. Tell chn to think about this while they enjoy their activities.</p> | <p>Split chn into 3 groups.</p> <p>1- Explore and investigate a range of vehicles while playing with them. Teacher focus-discuss the different parts of the vehicles. Ensure 1:1 discussions with EPP, lowest 20% during this element.</p> <p>2- Draw a vehicle and label parts of vehicle. SEND: outline of a car available to support task (can also be used for other if needed due to fine motor skills)</p> <p>3- Make lego/duplo vehicles.</p> <p>20 minutes per activity, then rotate.</p> <p>I can identify different types of vehicles and name their different parts.</p> | <p>What have chn found out about vehicles today?</p> <p>Label the parts of a vehicle chn know on IWB picture.</p> <p>GD chn to draw own vehicle on SWB and label parts independently during plenary.</p> |
| | <p>https://hwb.wales.gov.uk/cms/hwbcontent/layouts/NGFLSolution/MaterialDescription.aspx?LearningMaterialId=46331&lang=en</p> | <p>ocabulary T, Purpose, design, product</p> | |
| | <p>Resources Toy vehicles, lego/duplo etc. (with wheels), vehicles to label</p> | | |
| | <p>Hexagon words for unit of work Vehicle, chassis, wheel, fixed, axle, evaluate, design, moving</p> | | |

7 - Assessment

| | Below | | ARE | | Greater Depth | |
|----------|--|---------|---|----------|---|---------|
| | | | <ul style="list-style-type: none"> I can explore a range of winding mechanisms I can experiment with tools and materials to make a winding mechanism. I can use what I've learnt to inform my design. I can make my product using my design. I can recognise if my design has been successful. | | <ul style="list-style-type: none"> I can explore a range of winding mechanisms and make comparisons. I can name and discuss the different parts of a Winding Mechanism and its uses. I can select and use appropriate tools and materials, and am starting to explain why they are appropriate. I can use what I've learnt to inform my design. I can make my product using my design. I can recognise if my design has been successful and explain ways to improve it. | |
| Children | ~~~~~ ~~~~~ | | ~~~~~ | | | |
| | (all required some support to complete the structure of their winding mechanism) | | ~~~~~ | | | |
| | EPP:1 | Total:3 | EPP: 2 | Total:23 | EPP:0 | Total:4 |

Above is an example of the assessment grids for Design & Technology. Teachers use their professional judgment to plot the children's attainment outcome for the unit based upon the learning criteria. As noted on the above example, the teacher has indicated that support was required for children working towards the expected standard, which in turn helps to further support them in future units.

8 - Subject Specific Enhancements

- Southampton University Girls in STEM
- Global Day of the Engineer – Monday 4th March 2024
- DT / Junk Modelling play