

# Design and Technology at Fairfield

Design and Technology	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
<b>YR</b>						
<b><u>Y1</u></b>						
<b><u>Y2</u></b>						
<b><u>Y3</u></b>	<u>Linked to Extreme Earth</u>		<u>Linked to Stone Age</u>		<u>Linked to Ancient Egypt</u> <u>Moving Mummies</u>	
<b><u>Y4</u></b>	<u>Bridges</u>		<u>Food – bread</u>		<u>Electrics - torches</u>	
<b><u>Y5</u></b>	<u>Shelters</u>		<u>CAMs – moving models</u>		<u>Greek food</u>	
<b><u>Y6</u></b>	<u>Electronic games</u>				<u>Fairgrounds</u>	



# Design and Technology: Year 2 Puppets, winding mechanisms, baking

*This year in Design Technology I will learn to:*

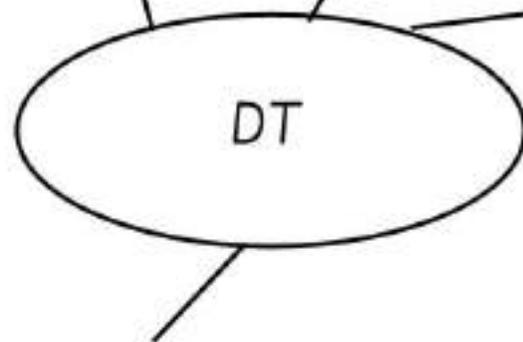
- Generate, develop, model and communicate your ideas through talking, drawing, templates, mock-ups and, where appropriate, information and communication technology.*
- Investigate different techniques for stiffening a variety of materials and explore different methods of enabling structures to remain stable.*
- Use the basic principles of a healthy and varied diet to prepare dishes.*
- Evaluate and assess existing products and those that you have made using a design criteria.*



Hand puppets



Pizza making



Winding mechanism

Lighthouse



Baking bread



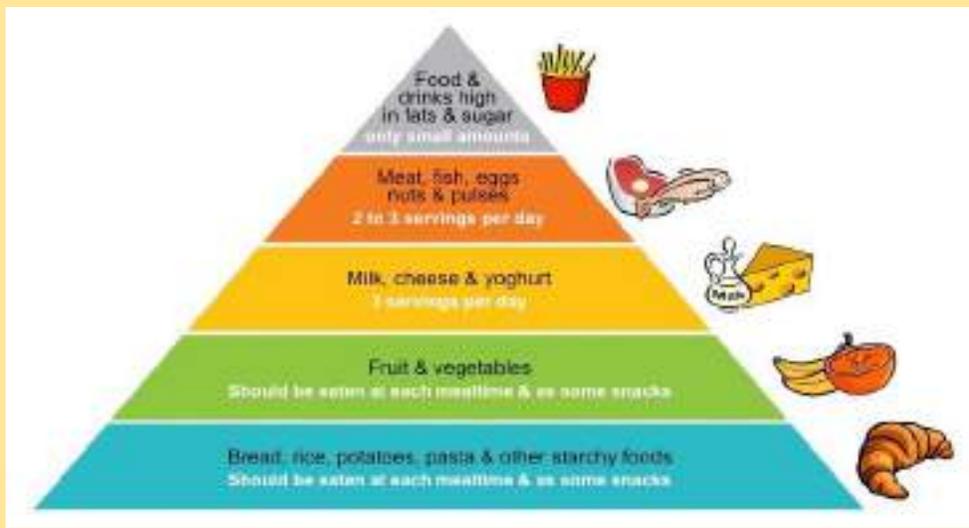
**Vocabulary**

*Make, structure, model, evaluate, textile, sewing, thread, material, develop, template join, function, tool, draw, design cut, practical, winding, equipment, shape, finish, cooking, built construct, in-*



# Design and Technology: Year 3

## Subject Specific Vocabulary



## DT Skills for Y3

To know about the different food groups in order to design and create a nutritional food product.

To know how mechanical systems such as levers and linkages or pneumatic systems create movement.

To understand how to strengthen, stiffen and reinforce more complex structures, including strengthening frames using diagonal struts.

To investigate and analyse existing products and those that have been made, considering a wide range of factors.

<b>lever</b>	A lever is a basic form of a machine. It is a long beam, which is laid across a middle point to balance and tip from side to side.
<b>linkages</b>	It is another lever connected to another lever.
<b>pneumatics</b>	Using air to create movement.
<b>frame</b>	A structure that gives a person or object a shape.
<b>strut</b>	A rod or bar, that forms part of a rigid framework.
<b>reinforce</b>	To strengthen or support with the use of extra material.
<b>evaluate</b>	When you judge a piece of work for its worth and compare it against an original design.
<b>product</b>	Is something that has been produced.

# Design and Technology: Year 4 Bridges

Subject Specific Vocabulary	
<b>bridge</b>	A structure carrying a road, path, railway etc across a river, road or obstacle.
<b>weight bearing</b>	The amount of weight put on an object e.g. bridge.
<b>structure</b>	A bridge / building made from several parts.
<b>strength</b>	Being able to withstand great force or pressure.
<b>beam bridge</b>	Simplest structural form. 
<b>arch bridge</b>	Curved shape. 
<b>truss bridge</b>	Usually triangular units 
<b>suspension bridge</b>	 The deck is hung below suspension cables.
<b>spanning</b>	Extend from side to side of.
<b>pillar</b>	A tall vertical structure.



**Sticky Knowledge about DT**

- There are many different types of bridges.
- For structures to be strong they need to be stable.
- Tees Transporter bridge opened in 1911 and has a gondola that can carry 200 people.
- Infinity bridge crosses the River Tees at Stockton and is a dual, tied arch bridge or bowstring bridge.

# Design and Technology: Year 4 Food - bread

Subject Specific Vocabulary		
<b>Dough</b>	A mixture of flour, water and sometimes yeast, used to bake bread.	
<b>Recipe</b>	A set of instructions telling you how to cook something.	
<b>Yeast</b>	A type of fungus used in baking to make bread rise.	<p><b>Sticky Knowledge about DT</b></p> <ul style="list-style-type: none"> <li><input type="checkbox"/> When yeast feeds on the sugars in flour, it gives off carbon dioxide which produces the small bubble holes in bread.</li> <li><input type="checkbox"/> It is believed that bread was being made over 30,000 years ago.</li> <li><input type="checkbox"/> There are hundreds of different types of bread. Different people around the world eat different types of bread.</li> <li><input type="checkbox"/> Bread is a great source of carbohydrates which provide energy for our bodies.</li> </ul>
<b>Flour</b>	A powder made from grinding grains (often wheat) which is used in baking.	
<b>Gluten</b>	The protein found in most flours. When dough is kneaded the gluten makes it become stretchy and helps it to rise.	
<b>Prove</b>	Leaving dough in a warm place, allowing the yeast to make it rise.	
<b>Rise</b>	When dough is left to prove the yeast makes the dough rise (get bigger).	
<b>Bake</b>	Cooking the dough in the oven to make bread.	



# Design and Technology: Year 4 Electricity - Torches

Subject Specific Vocabulary	
electricity	A form of energy.
circuit	A collection of wires and electrical equipment joined to perform a task.
switch	A device for making and breaking the connection in an electrical circuit.
wire	A thin length of metal coated in plastic to carry electricity.
conductor	A material that transmits electricity.
insulator	A substance that does not readily allow electricity to pass through.
battery	A container consisting of one or more cells in which chemical energy is converted into electricity used as a source of power.
power	Supply of electrical energy.
energy	Power often used to provide light and heat or to work machines.



Sticky Knowledge about DT
<ul style="list-style-type: none"> <li><input type="checkbox"/> The energy from a battery travels through the wire and the energy lights the bulb.</li> </ul>
<ul style="list-style-type: none"> <li><input type="checkbox"/> A simple circuit works by a flow of electricity.</li> </ul>
<ul style="list-style-type: none"> <li><input type="checkbox"/> Products are used for different purposes and different users.</li> </ul>
<ul style="list-style-type: none"> <li><input type="checkbox"/> A switch breaks a circuit.</li> </ul>
<ul style="list-style-type: none"> <li><input type="checkbox"/> A battery contains stored electricity and can be used to power products.</li> </ul>

# Design and Technology: Year 5 Shelters

Subject Specific Vocabulary	
Frame	A skeletal support for a structure
Walls	An upright structure forming a partition
Roof	A structure's exterior topmost surface
Support	Something that helps to bear a load
Buttress	A structure built against a wall for support
Reinforce	Another word for strengthen
Strengthen	To increase the strength of a structure

Key Knowledge
<input type="checkbox"/> Mankind has always sought shelter from the elements and from threats.
<input type="checkbox"/> Early humans used natural shelters such as caves or rocky overhangs.
<input type="checkbox"/> Later humans began building a variety of shelters.
<input type="checkbox"/> Shelters provide living spaces and protection from wild animals or enemies.
<input type="checkbox"/> Shelters can be temporary or permanent.
<input type="checkbox"/> Types of shelter include: dens, bus shelters, umbrellas, houses, tents, wigwams, playground shelters, castles and air raid shelters.
<input type="checkbox"/> In WW2, people sheltered from bombs in the London Underground, or in Anderson shelters in gardens or in Morrison shelters inside their homes.
<input type="checkbox"/> Depending on purpose, shelters need to have certain properties: water and wind resistance, strength and durability (how long it will last).



Types of shelter



Types of strengthening	
Joining	Glue, staples, paper clips, strong tape
Rolling	Tubes are strong structures
Folding	Concertinaing paper / card can add strength
Layering	Corrugated card or layers of materials adds strength
Shape	Certain shapes give more strength than others

# Design and Technology: Year 5 CAMS

Subject Specific Vocabulary	
cam	The rotating part of a machine that is attached to an axle and gives reciprocal or variable motion to another part of the machine via the follower.
follower	The peg or roller which follows the curvature of a cam and to which the motion is directly passed.
axle	A fixed or rotating spindle upon which wheels and cams can be affixed.
handle	The part by which an axle upon which a cam is affixed can be turned.

Key Knowledge
<input type="checkbox"/> Many machines use cams including motor car engines
<input type="checkbox"/> As a cam rotates, the follower rises and falls
<input type="checkbox"/> Cams transfer rotary motion into linear (reciprocating) motion
<input type="checkbox"/> Cams come in different shapes which change the exact type of motion



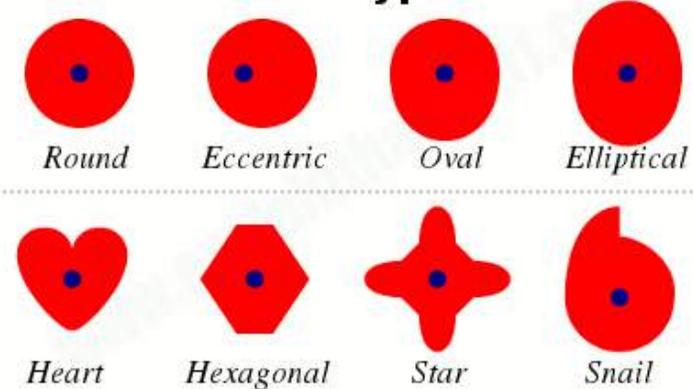
Two cams on an axle with two followers underneath

A moving toy with cams



www.explainthatstuff.com

## Some common types of cams



Types of motion	
linear	straight line motion
reciprocating	straight line back and forth motion
rotary	motion around an axis or axle
oscillating	repetitive (periodic) movement around a specific point
intermittent	a repetitive movement typically including dwell, rise, fall



# Design and Technology: Year 5 Greek food

## Subject Specific Vocabulary

Tzatziki	Yogurt, cucumber and garlic
Fava	Creamy split pea puree
Taramasalata	Fish roe dip
Olives	A small oval edible fruit, changing from green to black as it ripens
Olive oil	The oil of the olive used liberally in cooking and salads
Dolmades	Vine leaves, stuffed with a variety of fillings
Moussaka	An oven bake based on layers of ingredients with aubergines
Feta cheese	A creamy and delicious cheese used in various recipes including Greek salad
Honey and baklava	Filo pastry topping a mixture of honey and ground nuts
Pita bread	A rounded flatbread, some versions of which can be opened into a pocket
Greek salad	Tomato, feta, cucumber and olives dressed with olive oil

## Key Knowledge – Food hygiene

- Wash your hands before and after preparing food
- Tie back long hair
- Read labels and be aware of people with food allergies
- Wash all fruit and vegetables before preparing or eating
- Move carefully about the food preparation area
- Use knives and other utensils with care
- Use oven gloves to remove hot food from the oven
- After you have finished, wash up and leave the area tidy

A Greek food selection







# Design and Technology: Year 6 Fairgrounds

## Design Brief

To design a piece of equipment from a fairground that involves a moving mechanism that is controlled using ICT.



## Vocabulary

- |            |            |
|------------|------------|
| fairground | accurately |
| movement   | precision  |
| mechanism  | materials  |
| program    | drill      |
| monitor    | framework  |
| control    | tools      |
| ICT        | glue       |
| cut        |            |

## Design Skills

- Undertake research to inform design process. This may include surveys and interviews.
- Use prototypes, cross sectional diagrams, exploded diagrams and CAD software to represent diagrams.
- Consider the views of others when evaluating their own work.
- Ensure products have a high quality finish, using art skills where appropriate.
- Justify their decisions about materials and methods of construction.
- Make suggestions on how their design/ products can be improved.
- Use knowledge of inventors, designers, engineers, chefs and manufactures who have developed ground breaking products to create their own innovative designs.

## Design Process

- |   |   |   |  |   |  |
|---|---|---|--|---|--|
| <b>Research</b><br>Look at a product to see how it has been made. | <b>Skills</b><br>Practise and learn new skills to make the final product. | <b>Design</b><br>Design the product using knowledge from research and skills learned. | <b>Prototype</b><br>Make the prototype and identify any changes needed for the final design. | <b>Make</b><br>Make the final product using skills learned. | <b>Evaluate</b><br>Evaluate the final product. |
|---|---|---|--|---|--|

## Design and Technology Vision Statement

**“We are all different, but we make up one school.”**

Our school vision celebrates difference. Our **Design and Technology** curriculum is designed to give children opportunities to build upon their existing knowledge and skills and apply them in ways that are personal to them. Whilst teachers will direct children to practise particular skills and teach specific knowledge, the children will be able to demonstrate their own creativity by applying these skills to the projects that they engage in.