

Threshold Concept:

Different food costs different amounts.



All around the world, people choose to eat different food for many different reasons. One very important factor for most people is the cost of the food. There are ways we can cut down on food bills:

- ✓ If the food has been grown or reared locally, travelling and storage costs are reduced
- ✓ Check the price difference between value brands and premium products.
- ✓ Check out the price per 100g or per 100ml when choosing food
- ✓ Check the frozen and canned vegetable section and buy items that are cheaper so you always have a variety in the freezer and the cupboard.
- ✓ Bulk buy meat and fish and freeze in smaller portions until you are ready to use them. Take time to plan your meals and then compile a shopping list of everything you need.
- ✓ Using leftovers is a great way to save money and reduce food waste.



The way food is prepared and made, along with customs, and the use of local and seasonal ingredients, often combine to create dishes unique to a particular region. Understanding about global cuisine not only allows us to enjoy a huge range of styles and flavours, but also encourages dialogue around culture and inclusivity.

Threshold Concept:

Food is produced all around the world and that different countries and cultures eat different foods



Threshold Concept:

Allergies to food and food intolerances can cause a person to become unwell and that all prepacked food requires a food label that displays certain mandatory information.

Most people can eat food, without any problems, although they may have different likes or dislikes that influence what they choose. However, some people react to certain food and eating them may cause uncomfortable symptoms or, in rare cases, a severe illness. Food intolerance is the general term used to describe a range of adverse responses to food, including allergic reactions, adverse reactions resulting from enzyme deficiencies, pharmacological reactions and other non-defined responses. Allergy sufferers are protected by Natasha's Law, requiring food businesses to include full ingredients labelling on pre-packed for direct sale foods. This information helps people that have food allergies, intolerances or dietary needs to make safe and informed choices when they are choosing food items.

Threshold Concept:

Wasting food has environmental and economic



Every year in the UK, seven to ten million tons of food are wasted. It is thought that approximately 50% of the food wasted is still edible. The cost of food waste is significant – estimates show that it costs an average family £700 per year. Reducing the amount of food consumers waste not only has financial benefits but also environmental benefits. There are many ways in which consumers can help reduce food waste when buying food, cooking and storing food.

Threshold Concept:

There is a dependent relationship between diet, nutrition and health.

14 MAJOR ALLERGENS



Poor diet is now the biggest risk factor for preventable ill health in England. A healthy diet helps children grow and develop properly and reduces their risk of chronic diseases. Adults who eat a healthy diet live longer and have a lower risk of obesity, heart disease, type 2 diabetes, and certain cancers. as well as affecting our physical health, what we eat may also affect the way we feel. Improving your diet may help to: improve your mood, give you more energy and help you think more clearly.



Unit guiding question: How can we share design ideas with other people?



Follow this Link to tutorials on the Telford Langley School D&T YouTube channel.

The threshold concept that is truly essential to enable you to access future learning is ...

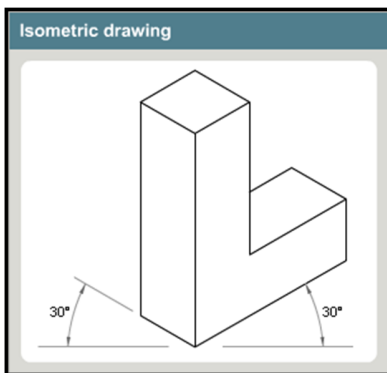
To understand that ideas can be graphically communicated to other people.

To understand that appropriate 3D drawing techniques can enhance design ideas

To understand that Computers can streamline the design process.

You Will:

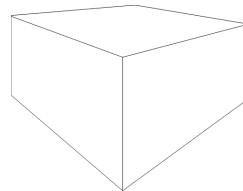
- Be able to add simple notes and labels on designs.
- To recognise the different styles of 3D drawing commonly used.
- To be able to use basic rendering techniques.
- To know what CAD is.
- To be able to use CAD to produce simple shapes
- To be able to use drawings and CAD to produce a simple design



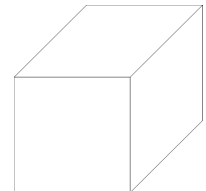
The only two angles you need in isometric drawing are 30 degrees and 90 degrees. You never draw horizontally.

A grid is used to help you draw. Staying on the grid lines makes sure you are drawing at the correct angles.

There are different ways to

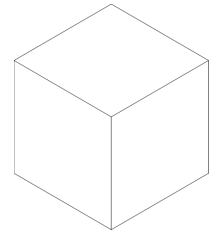


Perspective drawing



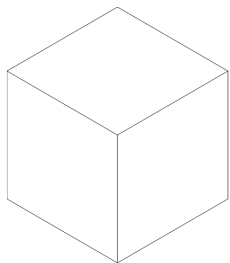
Oblique

Isometric drawings do not attempt to show any perspective at all. This means that dimensions and proportions are shown accurately.

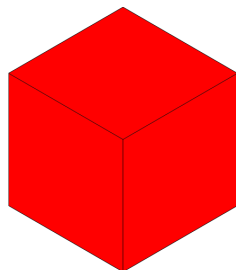


Isometric

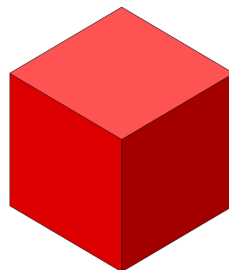
Enhancing drawings. Tone is used to enhance 3D drawings. Tone is how light or dark something is and by showing shadows and highlights we can make drawings look more realistic and 3 dimensional.



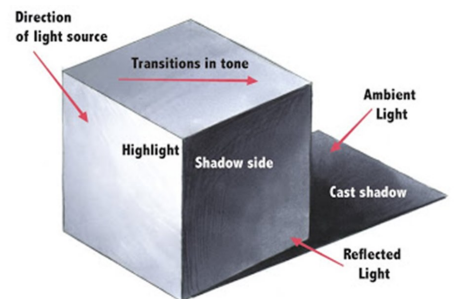
Line Drawing



Coloured



Rendered using shade and tone



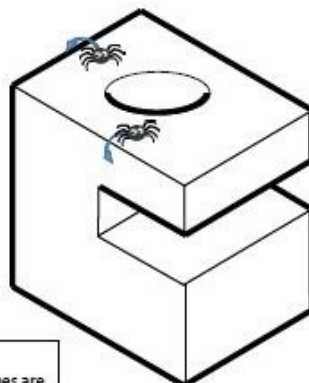
THICK AND THIN LINE TECHNIQUE

Applying thick and thin line technique to a drawing is one of many ways that a designer can enhance the form (shape) of a design drawing.

Look carefully at your drawing and imagine a spider walking over the shape.

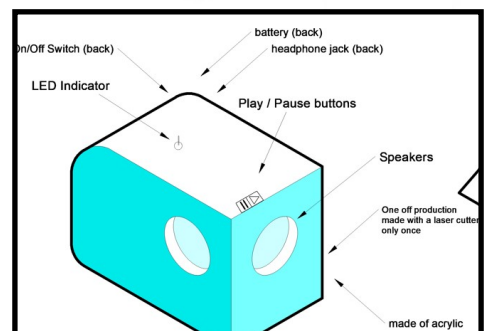
If the spider is able to disappear around an edge, then this edge will be drawn with a thick line.

If the spider is still visible once it has crawled over an edge, then this edge will be drawn with a thin line.



TASK
Go back to the three isometric drawings you did and add thick and thin lines. Try adding a hole to one of them.

Top Tip!
Follow the spider and make sure the thick lines are correct before you put them in.



Computer Aided Design (CAD) is used to make more accurate drawings and **ANNOTATION** is added to describe parts of our designs and communicate our ideas.



Threshold Concept

- To recognise there are different types of forces and these can effect the way a structure is designed to prevent failure.
- Materials are chosen for their physical and mechanical properties.
- How successful a structure is depends on how it is designed, constructed and used.

There are 4 types of structure:

Man made
Natural
Frame
Shell

Any structure can be described using a combination of these



A Natural Frame Structure



A manmade Shell Structure



A Natural Shell Structure



A Manmade Frame Structure

All Structure do the following things:

- They Support something (Like a Pillar)
- They Span a Distance (Like a bridge)
- The Enclose a space (like a house)
- The Protect something (Like a car)

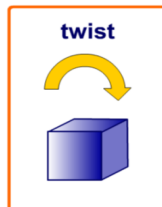
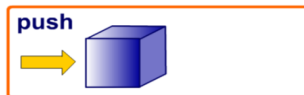
Using this information can you?

- Define what a structure is
- Name the different types of structure

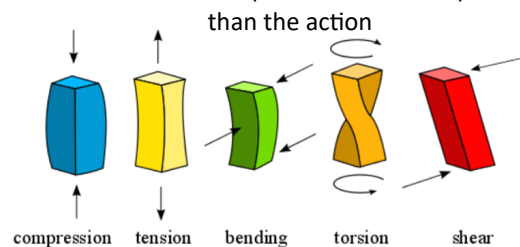


You should be able to use this knowledge to describe any structure. Eg A house is a manmade shell structure to protect people from the weather or a Tree is a natural frame structure to support leaves.

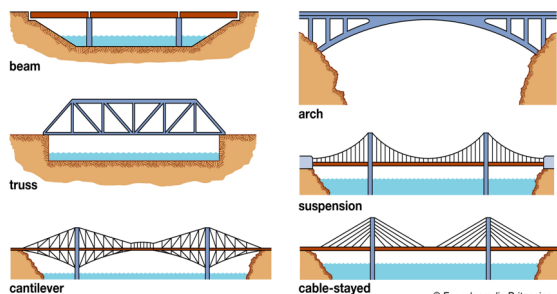
External forces are those that act on a structure to try and make it move. There are three basic forces Push, Pull and Twist. It can be hard to see forces acting on something but you can see the affect



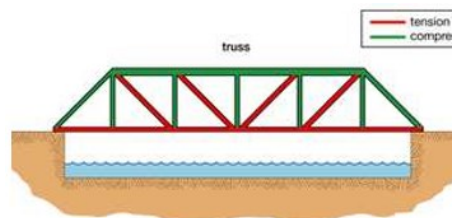
When the forces that push, pull or twist act on structure they can force that structure to change or undergo stress we use more technical language than just push, pull etc. We use language that refers to the effect (the internal forces) rather than the action



A bridge is a Manmade, frame structure that spans a distance. There are many different types of bridge that all work in different ways



Understanding how forces act on a structure let us design bridges that can support a great deal of weight.



The parts in tension will have to be able to resist being stretched and those in compression will have to resist being squashed.



Material Properties

Each material has properties that make them good for specific tasks, eg cotton is **lightweight** and **absorbent**. The properties of materials must be considered when designing a product, eg a steel pan handle would **conduct** too much heat and burn the user, whereas beech would be more appropriate as it is **tough** but a poor **conductor** of heat

These are some examples of material properties you would need to know

- | | |
|---------------------------|------------|
| Conductivity. | Elasticity |
| Corrosion Resistance. | Toughness. |
| Density. | Hardness. |
| Ductility / Malleability. | Plasticity |

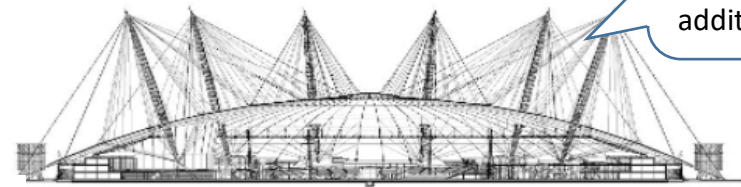


LEXICON Here are some of the words you will use in – Year 9 – RM.

Words can often have more than one meaning.



3D – 3 Dimension. A model is a 3D version of our 2D sketches



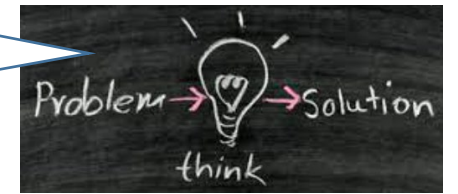
Develop – Add extra detail or information to a design or concept. Include fine detail, include additional purpose or function.

Recyclable – Capable of being returned into the raw material

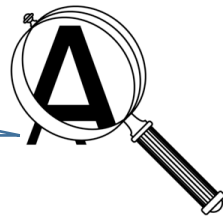


Renewable – Capable of sustained use without running out.

Solution – An answer to a problem. (Note: a liquid can also be a solution)



Analyse – A detailed look at an item – to list the positive and negative points



Evaluate – Similar to analyse. Evaluate is to compare the information, detail or components to a set of measured values



Source – Its origin or start. Where something came from originally (a material, a river or an idea).



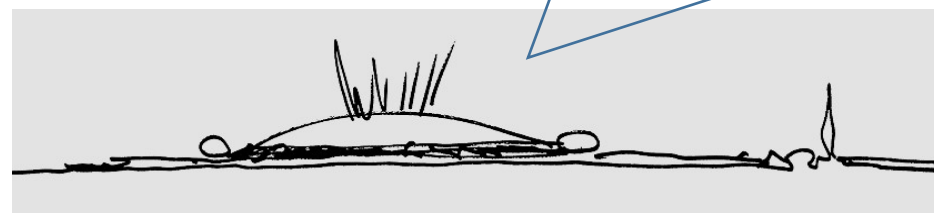
Extracted – To remove from. To gain from i.e. "I extracted the information from the paragraph"

Annotate – adding a note to a diagram, sketch or drawing. It adds information which cannot be easily seen from the drawing itself. It is more than just a label!

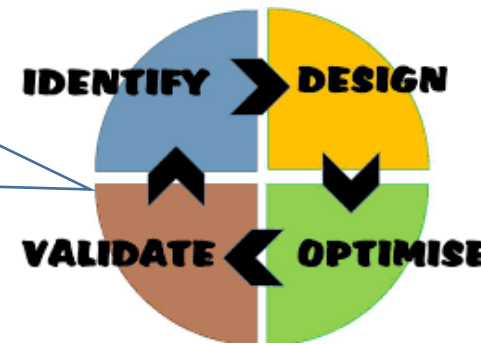


A speech bubble graphic is commonly found in comic books to show which character is talking.

Concept – An idea which at this stage is un-proven. A concept sketch shows the idea but with a basic level of detail



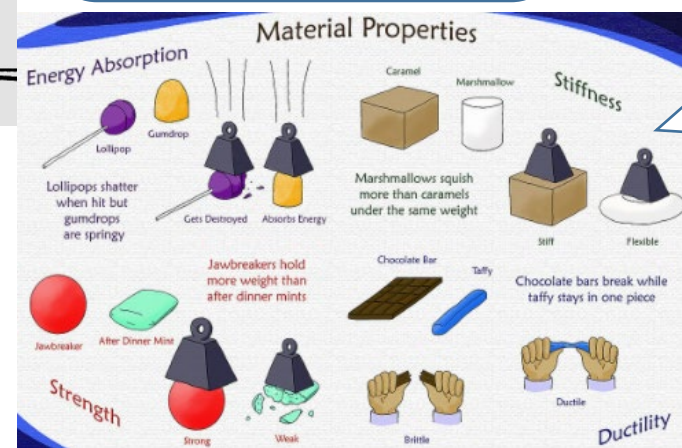
Iteration – Continual improvement. To look for and make improvements to an idea or concept – then to look for improvements to the improvements



Sustainable – Can be used without running out (see renewable). The supply is manageable. A good example of a sustainable material is wood



Design Brief – The instructions which detail and describe what is required from the task



Properties – Physical mechanical components such as; density, mass, hardness, and toughness which the material possesses

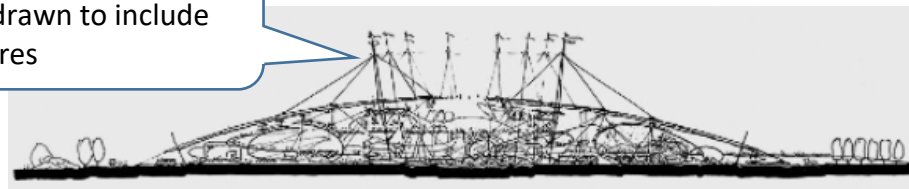


Thermoplastic

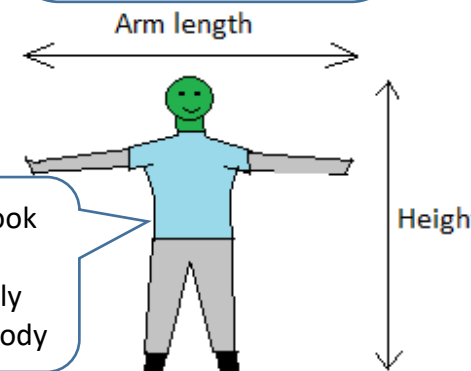
Thermoplastic – A polymer with weak cross link bonding, capable of being reheated and reshaped. **(RECYCLABLE)**



Design – An idea or a concept which has been drawn to include details and features



Proportion – Correctly sized to look realistic. I.e. the arms and legs are correctly proportioned to the rest of the body



Thermosetting plastic – A polymer with strong cross link bonding. **Cannot** be reheated or reshaped **(NON-RECYCLABLE)**



Thermoset