

## Edward Peake Church of England Middle School

**Design Technology**

**Topic: Twisty Fish**

**Year: 7**

What should I already know?

- The difference between a thermoplastic and thermosetting plastic.
- Examples of plastics and their uses.
- How to work safely in the workshop.
- How to use a coping saw to cut curved and straight lines.
- How to use files and glass paper to smooth the edges of material
- How to evaluate design ideas and a finished design.

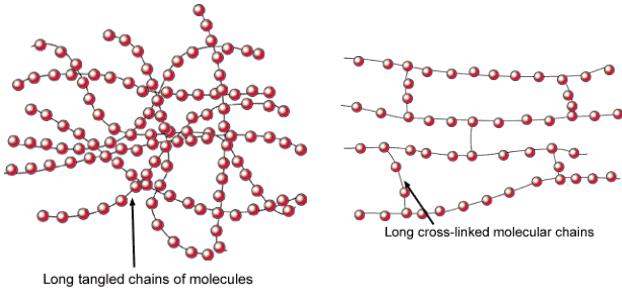
What will know by the end of the unit?

- The difference between the structure of thermoplastics and thermosetting plastics.
- What acrylic is and the properties that make it suitable for line bending.
- How to use a line bender to put bends and twists in acrylic.
- What a template is and why one is used.
- How to make a symmetrical template.
- How to mark out, cut and smooth the edges of acrylic.

### Vocabulary

Line bending	A process of bending or twisting a piece of acrylic.
Acrylic	A type of thermoplastic.
Thermoplastic	Plastics that can be heated more than once and then reshapes.
Thermosetting plastic	Plastics that once heated are set in shape.
Template	A shaped piece of rigid material used as a pattern.
Molecule	A group of atoms bonded together.
Polymer	A substance which has a long chain molecular structure.
Rigid	Unable to bend or be forced out of shape; not flexible.
Degrading	To break down or deteriorate.
Evaluation	Explaining how a task has gone.

### Thermoplastic and thermosetting plastic



Thermosetting plastic

Thermoset plastic

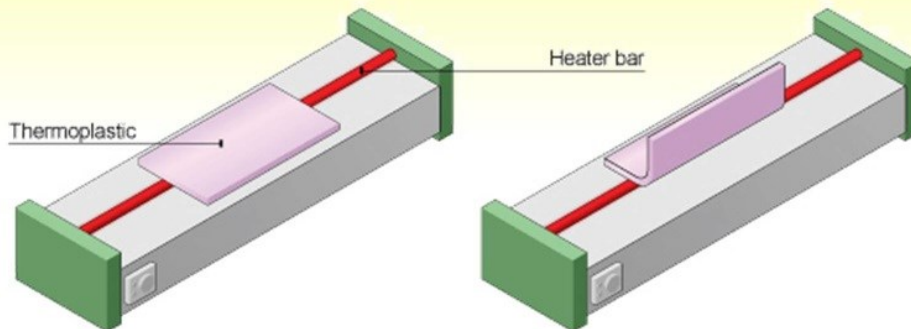
The cross links in the molecular chains give the thermosetting plastic the rigid structure that means they can not be reheated and reshaped.

### Key information

- Another common name for a line bender is a strip heater.
- Acrylic is a thermoplastic used for line bending.
- Line bending involves heating acrylic along a line to soften it, it can then be bent into shape.
- Plastics are polymers, the way the molecular chains are arranged determines whether they are thermoplastics or thermosetting plastics.

### Line bending

Line bending is used to make simple bends in a sheet of **thermoplastic** polymer such as acrylic.



Line bending involves heating the material along a line, using a heating element. The plastic softens as it heats, allowing it to be bent. As the plastic cools it will retain its shape. A wooden former is often used to ensure accurate bending.

### Investigation tasks

1. Find out different types of thermoplastics and thermosetting plastics and produce an information sheet for students learning about plastic.
2. Make a presentation sheet to educate people on alternative materials to plastic.
3. Research other methods of forming plastics and the products made using these methods.

## Edward Peake Church of England Middle School

**Design Technology**

**Topic: Chocolate Mould**

**Year: 7**

What should I already know?

- How to produce design ideas.
- How to work safely in the workshop.
- How to use a coping saw to cut curved and straight lines in timber.
- How to use files and glass paper to smooth the edges of timber
- How to evaluate design ideas and a finished design.

What will know by the end of the unit?

- How to carry out the process of vacuum forming.
- The difference between thermoplastics and thermosetting plastics and some examples of each.
- What HIPS is and the properties that make it suitable for vacuum forming.
- What MDF is and the properties that make it suitable to make a former from.
- How to make a MDF former.
- What ACCESSFM stands for and how to analysis an existing product.
- What iterative design is.

### Vocabulary

Vacuum Forming	A process of forming sheet plastic over a former to make a 3D shape.
HIPs	High Impact Polystyrene, a type of thermoplastic.
Thermoplastic	Plastics that can be heated more than once and then reshapes.
Thermosetting plastic	Plastics that once heated are set in shape.
MDF	Medium Density Fibreboard, a type of manufactured board.
Mould	A hollow shape that holds a liquid that sets to a solid.
Former	A 3D shape a mould is formed round.
Aesthetics	The appearance of something.
Function	What something does.
Evaluation	Explaining how a task has gone.

## Edward Peake Church of England Middle School

Design Technology

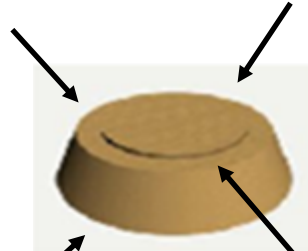
Topic: Chocolate Mould

Year: 7

### Vacuum forming mould

Angle on the sides

Smooth finish



Made from MDF

Rounded edges

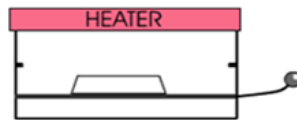
### Key information

- Thermoplastics once heated and shaped can be reheated and reshaped.
- HIPS (High Impact Polystyrene) is a thermoplastic used for vacuum forming.
- Vacuum forming works by creating a vacuum (taking all of the air out) between a former and a piece of heated thermoplastic (HIPS), which allows the plastic to be pulled down/pushed onto the former.

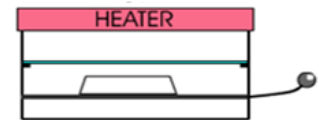
### Vacuum forming



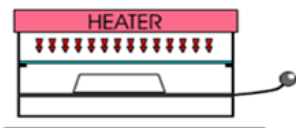
The mould is made from MDF (Medium Density Fibreboard).



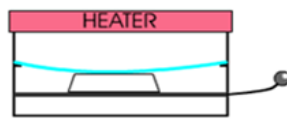
The mould is placed on the bed of the vacuum former and is lowered.



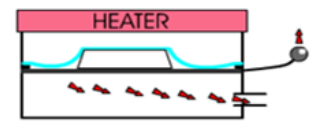
The HIPS plastic is secured onto the vacuum former.



A heater is then applied onto the HIPS plastic.



The HIPS plastic then becomes pliable.



The MDF mould is then brought up so that the HIPS plastic takes the shape of the mould.

### Investigation tasks

1. Find out about everyday objects made from plastics. Are they made from thermoplastics or thermosetting plastics? What type of plastic are they made from and why is it suitable?
2. Make a presentation sheet to educate people on some of the effects of plastic on the environment.
3. Research other methods of forming plastics and the products made using these methods.

## Edward Peake Church of England Middle School

### Food

### Topic: Food Preparation and Nutrition

Year: 7

What should I already know?

- The health and safety rules of working in the kitchen.
- How to follow a recipe.
- How to use the bridge and claw technique to prepare fruit and vegetables.
- How to weigh and measure ingredients.
- How to use the hob and oven safely.
- How to wash and dry up and put equipment away.
- How to use sensory words to describe cooked dishes.
- Where ingredients come from, and when they are in season.

What will know by the end of the unit?

- How to prepare, combine and shape tuna and chicken.
- How to use the hob for water and dry based methods.
- How to make sauces.
- How to set a mixture.
- How to make, shape and finish a dough.
- How to select and adjust a cooking process.
- How to test for doneness.
- How to carry out a sensory analysis.
- How to store food safely.

### Vocabulary

Sensory analysis	Collection of data that comes from human senses.
Simmer	Boiling gently.
Perishable	A food likely to decay or go bad quickly.
Gelatinisation	The method of thickening a sauce.
Accuracy	The degree to which something is correct.
Cross contamination	Where a substance that could be harmful transfers from one surface to another.
Function	The purpose of an ingredient in a recipe.
Coagulation	When the egg sets the mixture once it has exceeded 70 degrees C.
Binds	To join the ingredients together.

## Edward Peake Church of England Middle School

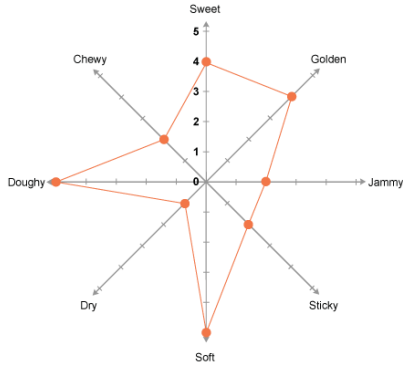
**Food**

**Topic: Food Preparation and Nutrition**

**Year: 7**

### Sensory Analysis

Sensory analysis is used to develop a product. It evaluates the appearance, aroma, taste and texture of a dish.



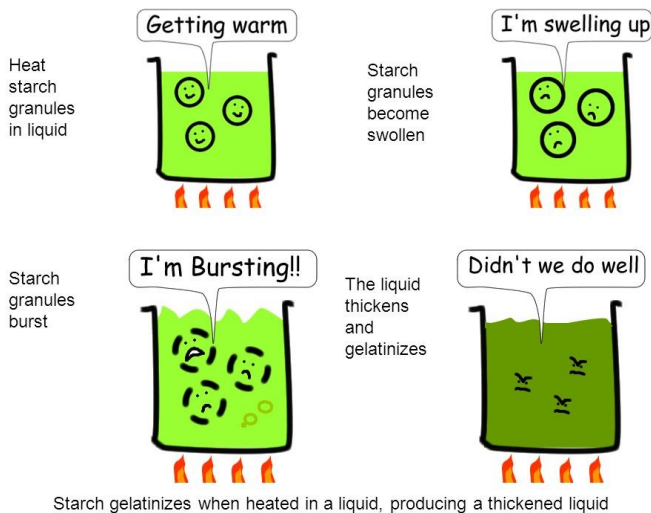
It shows you where things have gone well and where improvements to the dish could be made.

### Key information

- A use by date is the date food should be eaten by before it becomes a risk of giving you food poisoning.
- A best before date is the date past which the food may no longer be at its best but it will not cause you any harm.
- Cross contamination is when bacteria from raw meat is transferred to other foods or surfaces.
- The function of an ingredient is the role it plays in a recipe.

### Science Behind The Methods

#### Gelatinisation



#### Coagulation

**Coagulation:**  
This is when the egg sets the mixture once it has exceeded 70°C.  
Example: quiche filling



You add milk, egg and other ingredients into a quiche.

Before this mixture is cooked it is very **runny**.

When you put the mixture in the oven it the egg sets causing the filling to **harden**.

### Investigation tasks

1. Investigate the different functions of ingredients and explain them for a number of recipes.
2. Can you modify the chilli recipe to make a bolognaise sauce?
3. What other recipes can you find that use coagulation?
4. Can you modify the filling of the savoury plait, can you modify the shaping so you have a number of smaller plaits?
5. Research into different nutrients that foods provide us. Can you plan a suitable weekly menu for a teenager that enables them to get the right amount of each nutrient?

## Edward Peake Church of England Middle School

**Textiles**

**Topic: Sewing machine applique**

**Year: 7**

What should I already know?

- How to produce design ideas.
- How to work safely in the textiles room.
- How to produce a range of stitches using hand embroidery.
- How to join two pieces of material together.
- How to evaluate a completed product.

What will know by the end of the unit?

- How to make a prototype.
- How to use a pattern to mark out different shapes.
- How to use scissors to cut fabric.
- How to follow a production plan to make a product.
- How to use the appropriate materials and tools to prepare and apply applique shapes.
- How to use the sewing machine for straight and zigzag stitches.
- How to use the iron to press material.
- How to pin, tack and oversew.

### Vocabulary

Applique	Pieces of fabric are stuck or sewn onto a larger piece to make a picture or pattern.
Bobbin	A cylinder used for holding thread for a sewing machine.
Pinning	When something is attached or fastened with pins.
Tacking	When pieces of material are fastened together temporarily with long stitches.
Oversewing	When the edges of something are sewn with every stitch passing over the join.
Pressing	When pressure is applied with the iron to smooth the material out.
Seam	A line where two pieces of fabric are sewn together.
Accuracy	The degree to which something is correct.
Production Plan	The stages of making a product.

## Edward Peake Church of England Middle School

**Textiles**

**Topic: Sewing machine applique**

**Year: 7**

### Cotton



A natural plant based material.

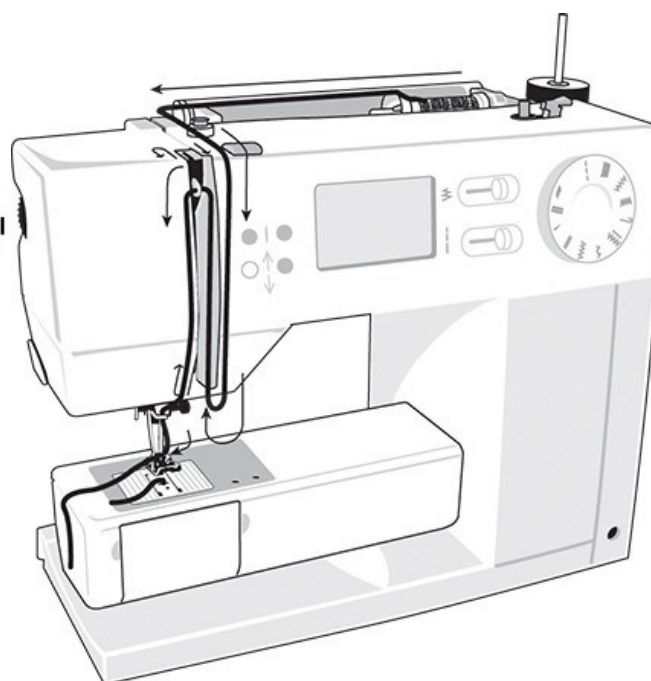
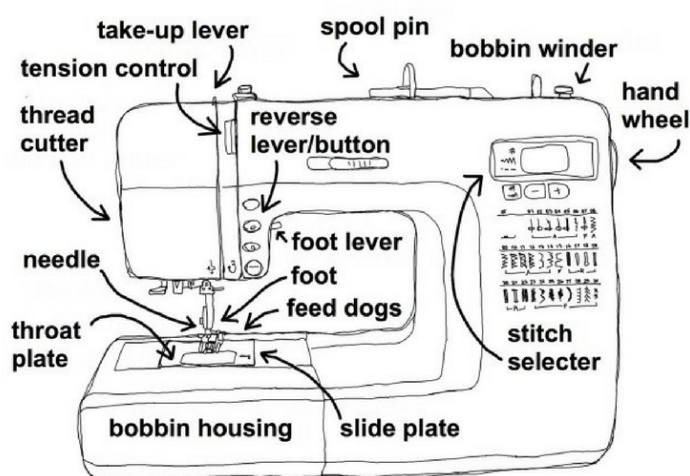
Can be dyed so it is available in a wide range of colours and patterns.



### Key information

- Applique is when pieces of fabric are stuck or sewn onto a larger piece to make a picture or pattern.
- A bobbin holds the thread in a sewing machine.
- Tacking is when pieces are held in place temporarily with long stitches.
- A seam is where two pieces of fabric are sewn together.
- Pinning is when something is held with pins.

### Parts of a Sewing Machine and How to Thread a Sewing Machine



### Investigation tasks

1. Research decorative techniques for use on textiles products and create a fact sheet.
2. Research into textiles recycling and create a poster encouraging people to take part.
3. Make a product of your choice from recycled textiles.
4. Produce a step by step guide explaining how to use the sewing machine to make an appliqued product.