

Years 5/6

Textiles

Combining different fabric shapes

Instant CPD



Tips for teachers

- ✓ Choose fabrics carefully. Shiny, heavyweight or fabrics that fray easily are often difficult to work with and can be frustrating. Have fabric cut into manageable sizes.
- ✓ Investigate using materials other than fabrics e.g. for handles. Plastic bags can be cut into strips and plaited.
- ✓ To make the activity more manageable limit the choice of decorating techniques.
- ✓ Keep scissors for fabric only.
- ✓ Make sure that you have plenty of pins and needles for children to use.
- ✓ Arrange zones in the class where children will find materials and resources.
- ✓ Ensure children have a basic understanding of stitching techniques, threading needles, starting and finishing off.
- ✓ Make mock-ups, then alter and refine and go back to initial design ideas to amend as necessary e.g. change measurements. Ensure the children keep all their modifications as part of the ongoing evaluation and for their final evaluation.
- ✓ Enlist the help of a local textile designer if available.
- ✓ Children can make their own demonstration videos to show e.g. how to join in different ways or how to complete a range of stitches. Different groups could show how to do different tasks and then share them.
- ✓ If using sewing machines, either hand or electric, make sure that their use is very closely supervised, using, for example, trained adult volunteers. If this cannot be achieved, children can tack the fabric together and an adult can use the machine.

Useful resources at www.data.org.uk

- [Designing with textiles](#)
- [Designer bags](#)
- [A to Z of D&T](#)
- [Working with Materials](#)
- [Butterflies in My Tummy](#)

Teaching aids – fasteners

Children may want to use a fastener which should be appropriate for the purpose for the product.



Zip

Velcro

Clasp



Toggles

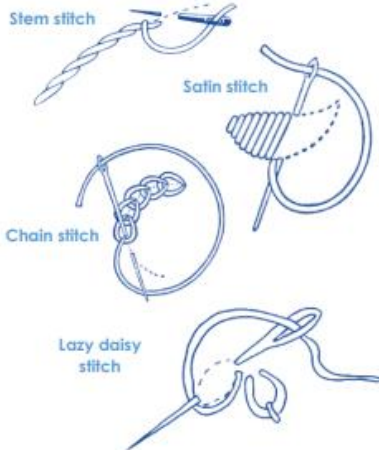
Ties

Buttons



Press studs

Stitches



Using stitches as a finish for the product.

The children could design their finish for their product using a variety of appropriate stitches. They could draw enlarged examples of e.g. insects, flowers, animals and then decide which stitch would be best for each part. Use square paper for a grid to ensure the stitches are in the right place and are the right size.



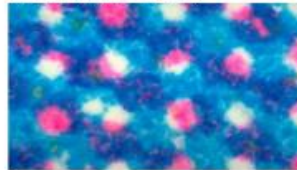
Appliqué



Embroidery

Tie Dye

Children could decorate their fabric before they make up their product by tie dyeing.



The key to success is to tie the fabric very tightly with e.g. rubber bands or string so that the dye is prevented from reaching that part of the fabric.

Designing, making and evaluating a belt for garden tools

An iterative process is the relationship between a pupil's ideas and how they are communicated and clarified through activity. This is an example of how the iterative design and make process might be experienced by an individual pupil during this project:

THOUGHT	ACTION
What are the features of a successful product? What features do I need to include in a functional, innovative and authentic product?	Researching, investigating, disassembling and evaluating existing products and consulting 'real life' designers.
What knowledge and skills do I need to be able to design and make a good quality product?	Investigating and practising using a range of methods to join fabrics together and making judgments about the strength and appropriateness of each technique.
How do I make a paper pattern for the product I want to produce?	Practising finishing techniques and, if possible, learning to use a sewing machine.
What design decisions do I need to make? How can I communicate my ideas for my product in an effective way?	Creating a 2-D paper pattern with a seam allowance.
How will I show innovation? Who will be the user of my product and what are their needs, wants and values? What will be the purpose of my product?	Developing ideas through research, working drawings, computer-aided design, discussion, paper mock-ups and modelling.
More thoughts... appraising, reflecting, refining.	Thinking about the user and purpose and developing specifications for products. Formulating a clear plan of work and allocating tasks if appropriate.
Does my product meet the needs and wants of the user? Is it appealing and does it fulfill a purpose? Is it innovative?	Constantly self-evaluating and making changes if the product is not fulfilling the specification.
	Testing final products with the intended user and making an evaluation of how successful they are.

Glossary

- **Mock up** – quick 3-D modelling using easy to work and cheaper materials and temporary joints. Useful for checking proportions and scale.
- **Pattern or template** – a shape drawn to exact shape and size, used to assist in cutting out.
- **Seam allowance** – extra fabric allowed for joining together - 15mm for domestic patterns.
- **Specification** – describes what a product has to do.
- **Tacking** – large running stitches to hold pieces of fabric together temporarily.
- **Working drawing** – detailed drawing contains all information needed to make a product but is updated as changes are made.

Years 5/6

Food

Celebrating culture and seasonality

Instant CPD



Tips for teachers

- ✓ When rubbing in flour and fat, keep ingredients and hands cool.
- ✓ The purpose of kneading bread is to strengthen the gluten (the protein in grain such as wheat). It normally takes about 10-12 minutes by hand. When ready the dough will be smooth, elastic and hold its shape.
- ✓ When developing a product e.g. soup, that requires chopping and slicing of ingredients refer to the Y3/4 Food Project Planner.
- ✓ Limit the number of ingredients added to the basic recipe and discuss when is the best time to add the new or changed ingredient(s).
- ✓ Emphasise the importance of accurate weighing and measuring.
- ✓ Some supermarkets and bakeries will allow children to visit. This could be linked to an enterprise project with a class-based food company.
- ✓ Children could design packaging for their food products as part of work on structures linked to mathematics.
- ✓ Carry out a survey to find out which cultural/seasonal food products are preferred by family and friends.
- ✓ For homework, encourage children to grow edible plants such as herbs.

Useful resources at www.data.org.uk

- [Christmas Ginger Biscuits](#)
- [Willy Wonka's Fair Trade Cookies](#)
- [Making Bread using the Six Essentials](#)
- [Are you Teaching Food in Primary D&T?](#)
- [A to Z of D&T](#)
- [Make it Safe!](#)

Other useful web-based resources:

- www.foodafactoflife.org.uk

Possible products



Biscuits

savoury scones

savoury muffins

Possible techniques that children could use



Mixing to combine ingredients if making savoury muffins or scones

Rubbing in to mix fat and flour if making a yeast-based product

Kneading a bread dough

Sensory evaluation

When carrying out sensory evaluations of products and/or separate ingredients, begin with a whole class activity then use group work to develop ideas.

Example of a recording table:

Type of cultural/seasonal food product	Appearance	Smell	Texture	Taste
Savoury scone	Golden/rough	Fresh/baked	Crumbly	Cheesy

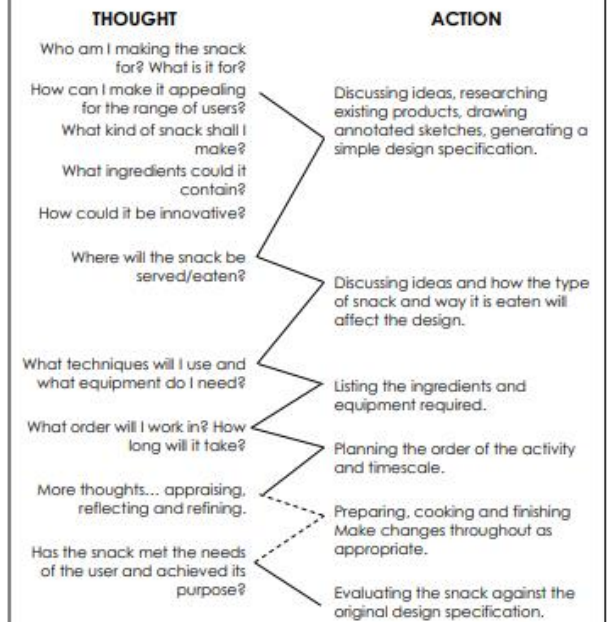
Children can also use simple ranking and rating tables as well as star diagrams.

Use packaging and/or the internet to find out about the nutritional content of the food products and the ingredients. Link this to the principles of a healthy and varied diet.

Edible plants grown in the school grounds can also be evaluated and considered as potential ingredients for products the children will later design, make and evaluate. The benefits/difficulties of selecting seasonal, organic and/or locally sourced ingredients can be discussed here.

Designing, making and evaluating a yeast-based snack for parents and children participating in the school sports day

An iterative process is the relationship between a pupil's ideas and how they are communicated and clarified through activity. This is an example of how the iterative design and make process might be experienced by an individual pupil during this project:



Glossary

- **Finishing** – related to the appearance of the product – shape, decoration and colour.
- **Rubbing in** – rubbing the dry ingredients together with the fat, lifting to put air into the mixture, so that it resembles fine breadcrumbs.
- **Knead** – pulling and squeezing dough to make it smooth.
- **Bran** – the hard, protective shell of a grain of wheat.
- **Dough** – a mixture of flour, yeast and water before it is cooked.
- **Endosperm** – the store of food inside a seed.
- **Germ** – part of the seed where the root and shoots grow from.
- **Yeast** – a tiny plant which makes bubbles of carbon dioxide when mixed with flour and warm water.
- **Unleavened bread** – flat bread where yeast has not been added.

Years
5/6

Mechanical systems Pulleys or Gears

Instant CPD



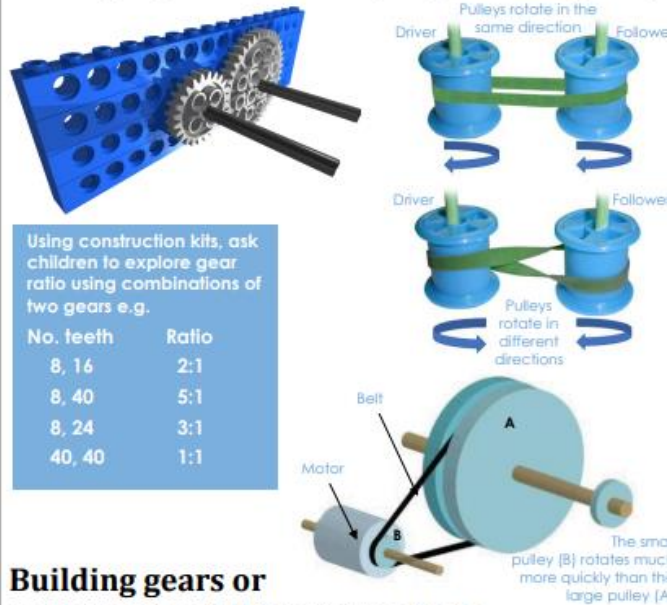
Tips for teachers

- ✓ Sourcing existing products with gears or pulleys can sometimes be difficult. Example products using construction kits or consumable materials can be premade for children to investigate.
- ✓ When beginning designing and making, ensure children are focused on making the mechanical system work, rather than the decoration.
- ✓ Focused tasks should concentrate on exploring combinations of gears or pulleys using construction kits. If you do not have construction kits, attach bought pulleys and gears to cardboard using paper fasteners.
- ✓ Gears require more accuracy than pulleys at the making stage but make it easier for children to understand the concept of ratio by counting the number of teeth on each gear.
- ✓ The key to success in these units is to use components that are compatible with each other e.g. components purchased should have the same diameter holes.
- ✓ When children are making, zone areas of the classroom so resources can be easily found and replaced independently.
- ✓ Investigate alternative methods of evaluating. Try making video or photographic diaries that help develop ongoing evaluation.
- ✓ Don't be afraid of incorporating any failed designs into display of final products. Include evaluations of why designs didn't work and how children would make them work. This links to design in the real world and the concept that designs don't always work first time around.
- ✓ Do not use rechargeable, lithium or alkaline batteries as these can overheat if short circuited.

Useful resources at www.data.org.uk

- [Levers and Linkages](#)
- [Developing Handmade Switches](#)
- [Handmade Switches Helpsheet](#)
- [Gears and Pulleys](#)
- [Fairgrounds](#)

Developing understanding of gears and pulleys



Using construction kits, ask children to explore gear ratio using combinations of two gears e.g.

No. teeth	Ratio
8, 16	2:1
8, 40	5:1
8, 24	3:1
40, 40	1:1

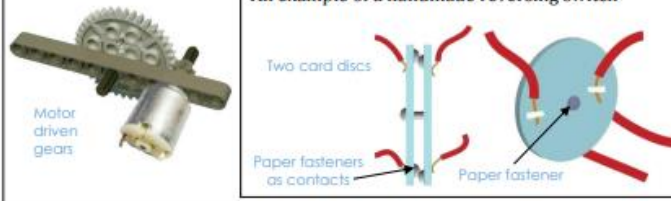
Building gears or pulleys into children's products



Construct a chassis using wooden strips (frame) or corrugated plastic. Add a pulley and/or wheels and an electric motor with battery housing.

The chassis can be used for a vehicle or to drive machines such as fairground rides.

An example of a handmade reversing switch



Designing, making and evaluating a new toy vehicle for children in a particular age range

An iterative process is the relationship between a pupil's ideas and how they are communicated and clarified through activity. This is an example of how the iterative design and make process might be experienced by an individual pupil during this project:

THOUGHT	ACTION
What type of toy vehicle shall I make? What will be its purpose? Who will use it?	Discussing ideas, drawing annotated sketches or exploded diagrams. Generating a simple design specification.
What electrical and mechanical components shall I use?	Discussing, modelling and evaluating different systems using mechanical and electrical components.
Which materials will I use to make it? How will I make fit for purpose?	Investigating and trialling possible materials and components.
How will I make the body shell for my toy vehicle?	Discussing, exploring and evaluating prototypes.
What tools and materials will I need? What order will I work in? What constraints am I working to?	Negotiating, developing and agreeing a step-by-step-plan.
Do I need to change anything?	Discussing, testing and modifying the design.
Will my product meet the needs, wants and interests of the user group?	Evaluating the product with the intended user group and against the original design specification.

Glossary

- **Pulley** – a grooved wheel over which a drive belt can run.
- **Gear** – a wheel with teeth around its circumference.
- **Drive belt** – the belt which connects and transfers movement between two pulleys.
- **Gearing up or down** – changing the rotational speed of a product by the use of pulleys or gears. When a small pulley or gear is used to drive a larger one the rotational speed is reduced and the product has been geared down.
- **Mechanical system** – a set of related parts or components used to create movement.
- **Driver** – the gear or pulley that provides the input movement to the system.
- **Follower** – the gear or pulley that provides the output movement to the system.
- **Mesh** – the point where two gears join together and transfer movement.
- **Motor spindle** – the rod on the end of the motor onto which a gear or pulley is attached.