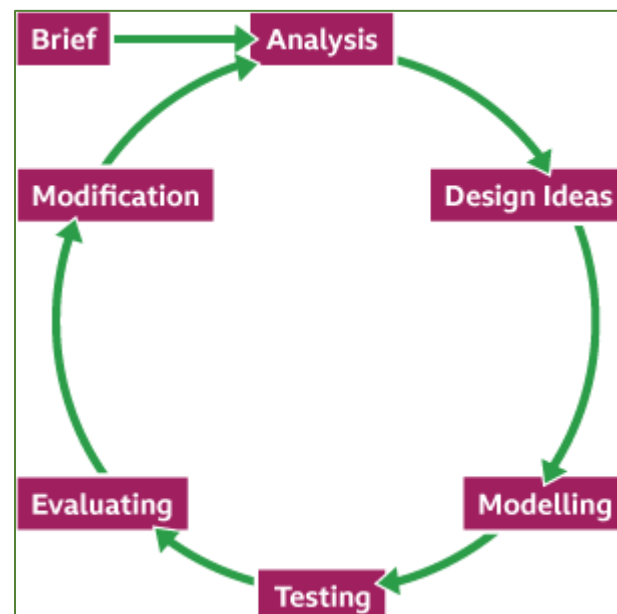


#Design and Technology



Design and Technology at Newtown Linford is about being curious and expressive. Children will follow an iterative process of designing and making. Across each phase children will have an opportunity to cook, sew, build and make using the disciplinary concepts outlined below. Staff will use 'Projects on a Page' from the Design and Technology Association to support the planning process to ensure progression across the curriculum. Children will learn about important architects, creators, designers and inventors throughout their curriculum journey.

Disciplinary Concepts: Research and Investigate, Design, Make and Use and Evaluate

Cook


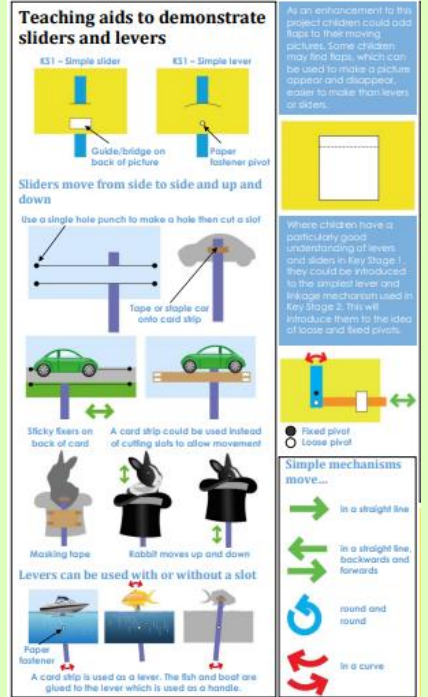
Sew

Build

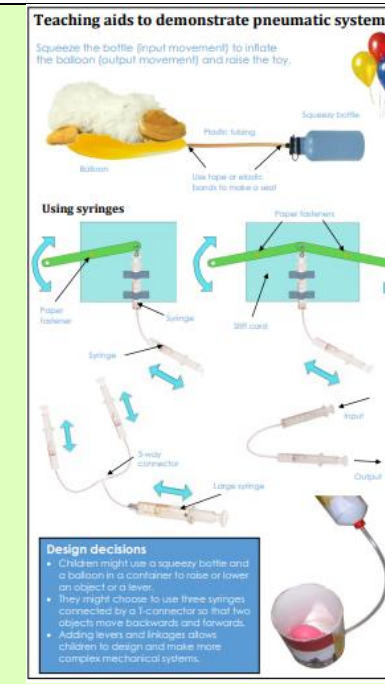
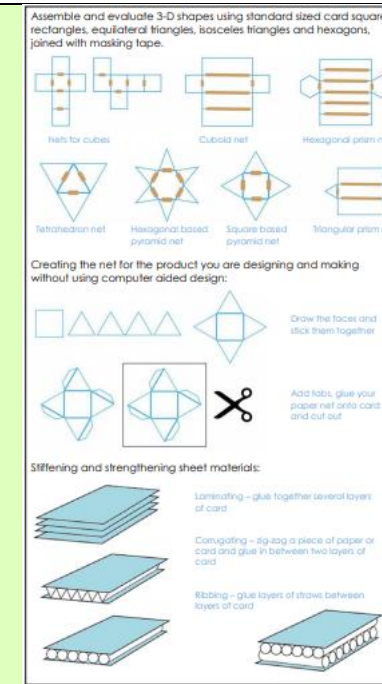
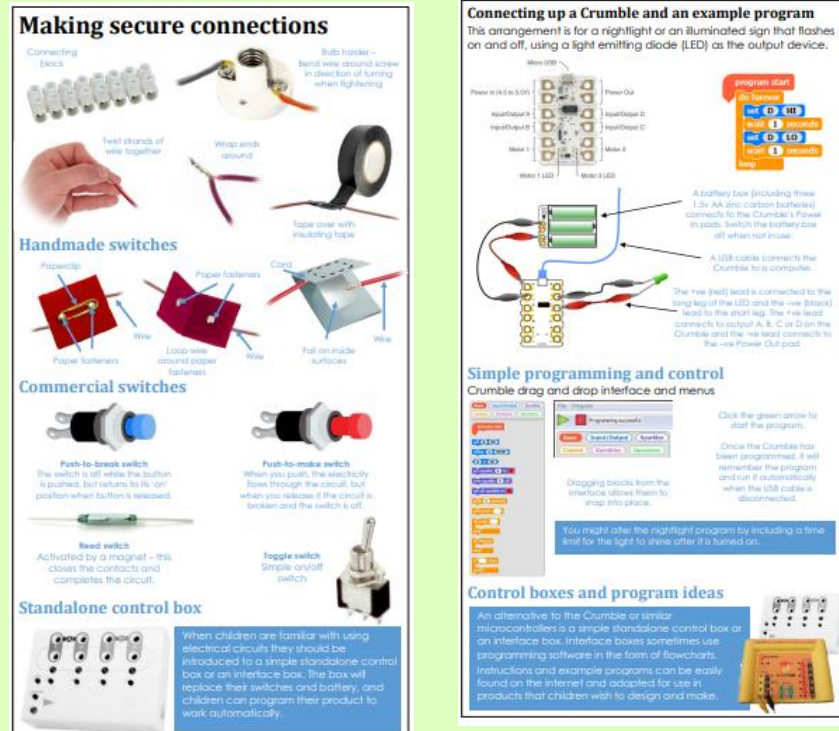
Make

Cycle A

	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
EYFS	Adult Directed Learning – Create own home through junk modelling. Continuous Provision – Opportunities for cutting and sticking. Develop use of small tools – scissors. Share creations and explain process.	Continuous Provision – Opportunities for cutting and painting. Develop use of small tools – paintbrushes. Share creations and explain process.	Continuous Provision – Opportunities for cutting and drawing. Develop use of small tools – scissors, pencils, crayons and chalk. Share creations and explain process.	Adult Directed Learning – Children cut and join a range of fabrics using simple techniques. Children in EYFS will join fabric landmarks they have cut out to a map of the UK. Continuous Provision – Opportunities for cutting and joining. Develop use of small tools – scissors, stapler and material glue. Share creations and explain process.	Continuous Provision – Opportunities for cutting and joining. Develop use of small tools – cutlery for preparing garden vegetable snacks. Share creations and explain process.	Adult Directed Learning – Children will design and create a lolly stick sea animal puppet. They will mark and cut with increasing accuracy. Continuous Provision – Opportunities for cutting and joining. Develop use of small tools – cutlery for preparing garden vegetable snacks. Share creations and explain process.
	Children will have regular access to small tools and the opportunity to explore a range of materials. They will be guided to use these safely and confidently. Continuous Provision outlined here highlights key foci for each term but multiple resources and materials will be available.					
Key Stage 1			Sew Y1/2 Textiles Templates and Joining Children will design and make puppets based on their narrative unit in English.		Civil Engineer Study – Mary 'Molly' Ferguson Make Y1/2 Mechanisms Sliders and Levers Children will design and make moving sea creatures using sliders and levers.	

					
Lower Key Stage 2	<p>Make Y3/4 Electrical Systems Circuits and Switches/ Programming and Control</p> <p>Children will design and make a light up Rudolph Christmas Card or alternative design.</p>		<p>Designer and Architect Study – Maya Lin (Environmental Projects)</p> <p>Build Y3/4 Structures Shell Structures</p> <p>Children will design and build a recyclable or reusable box.</p>	<p>Inventor Study – James Dyson (Ball Barrow/Vacuum Cleaner)</p> <p>Make Y3/4 Mechanical Systems Pneumatics</p> <p>Children will design and make a moving Viking Long Boat powered by pneumatics.</p>	

Children will design and make a flashing light for a Christmas tree or home decoration.



pper
Key
Stage 2

Electrical Engineer Study – Caroline Haslett (Electricity)

Make
Y5/6 Electrical Systems
Complex Switches/ Monitoring Circuits

Children will design and make an automatic night light for their Year R buddy.

Graphic Designer Study – Annie Atkins (Film Work)

Sew
Y5/6 Textiles
Combining Different Materials

Children design and sew the backdrop for their summer play performance.

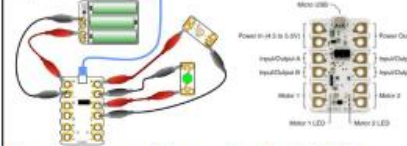
Switches and sensors



- Children need to learn how to write a sequence of instructions where a decision is made e.g. when a switch is pressed a buzzer is activated.
- They use a 'control language' or create a flowchart to produce a series of instructions.
- Children's computing knowledge and skills need to focus on using input and output devices connected to a standalone box or interface box.
- They use their learning in computing to control and monitor products they have designed and made e.g. alarm system.

Connecting up a Crumble

This arrangement is for an automatic nightlight, using a light dependent resistor (LDR) as the monitoring or input device and a light emitting diode (LED) as the output device.



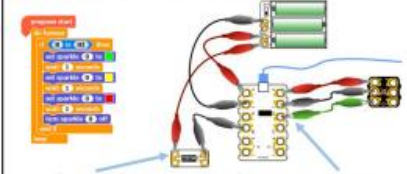
Example programs for an automatic nightlight

The LED connected to output D switches on when it goes dark. Change the value of the LDR connected to terminal C so that the system is activated at different light levels.



An example program for an electronic toy moneybox

A sparkle LED is connected to the Crumble and changes from green to yellow to red every time a plastic coin is placed through the slot of the moneybox and depresses a micro switch connected to terminal B.



Connect the crocodile clips to 'common' and 'normally open' on the micro switch. Connect the +ve lead to a +ve terminal on the battery box and -ve lead to B.

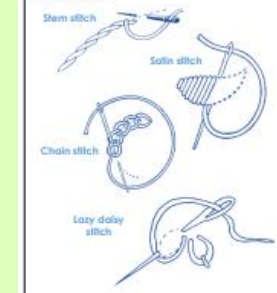
- How could children adapt the program so that it would detect a burglar stealing the moneybox?
- What type of output device could they use?
- What type of switch could detect the movement of the moneybox?
- How could the program be adapted to remind the user to save money on a regular basis?

Teaching aids - fasteners

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



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.

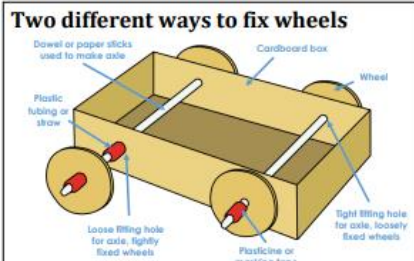

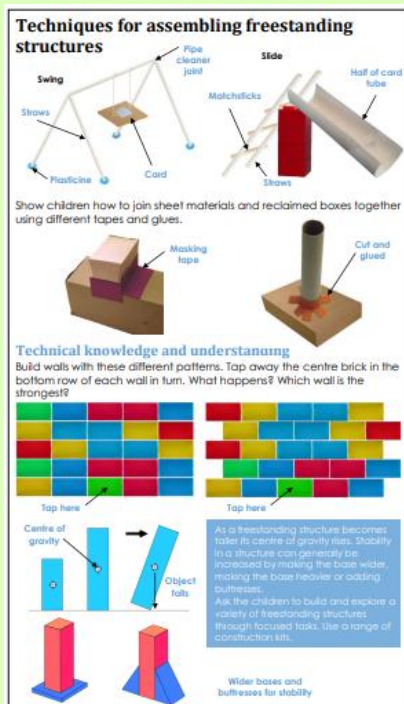


Tie Dye


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




Cycle B

	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2															
EYFS	Continuous Provision – Opportunities for cutting and sticking. Develop use of small tools – scissors. Share creations and explain process.	Adult Directed Learning – Create the Houses of Parliament through junk modelling. Continuous Provision – Opportunities for cutting and painting. Develop use of small tools – paintbrushes. Share creations and explain process.	Adult Directed Learning – Children cut and join a range of fabrics using simple techniques. Children in EYFS will join fabric elements to a seasonal quadrant. Continuous Provision – Opportunities for cutting and joining. Develop use of small tools – cutlery to cut seasonal foods. Share creations and explain process.	Continuous Provision – Opportunities for cutting and drawing. Develop use of small tools – scissors, pencils, crayons and chalk. Share creations and explain process.	Adult Directed Learning – Children will design and create lolly stick Kings and Queens puppets. They will mark and cut with increasing accuracy. Continuous Provision – Opportunities for cutting and joining. Develop use of small tools – cutlery for preparing garden vegetable snacks. Share creations and explain process.	Continuous Provision – Opportunities for cutting and joining. Develop use of small tools – scissors, stapler and material glue. Share creations and explain process.															
	Children will have regular access to small tools and the opportunity to explore a range of materials. They will be guided to use these safely and confidently. Continuous Provision outlined here highlights key foci for each term but multiple resources and materials will be available.																				
Key Stage 1		Aeronautical Engineer Study – Beatrice Shilling (Motor Racer and Engineer) Make Y1/2 Mechanism Wheels and Axles  <p>Two different ways to fix wheels</p> <p>Dowel or paper sticks used to make axle. Cardboard box. Wheel. Plastic tubing or straw. Loose fitting hole for axle, tightly fixed wheels. Plasticine or masking tape. Tight fitting hole for axle, loosely fixed wheels.</p> <p>Types of wheels</p> <p>Wood/card/MDF. Plastic. Cotton reels. Foam covered reels.</p> <p>Ways to hold moving axles</p> <p>Use pairs of clothes pegs glued with PVA to the underside of a box. Check the peg holes are large enough to allow axles to move freely. Make sure they are aligned carefully so the vehicle moves in a straight line when the wheel and axle mechanism is added.</p> <p>Use card triangles with holes for the axle. Check the holes are large enough to allow the axle to move freely. Make sure opposite triangles are aligned carefully so the vehicle moves in a straight line when the wheel and axle mechanism is added.</p> <p>Use large paper/plastic straws fixed with masking tape to the underside of a box. Check straws are positioned carefully so the vehicle will move in a straight line when the wheel and axle mechanisms are added. Make sure the straw hole is large enough to allow the axle to move freely. The wheels must be fixed tightly to the axle.</p>	Cook Y1/2 Food Preparing Fruits and Vegetables  <p>Teaching aids to demonstrate food processing skills</p> <p>Peeling. Cutting. Slicing. Grating. Squeezing.</p> <p>Food Processing Equipment</p> <table><tr><th>Utensil</th><th>Food</th><th>Effect</th><th>Mouth feel</th></tr><tr><td>Juicer</td><td>Orange</td><td>Makes juice</td><td>Liquid</td></tr><tr><td>Peeler</td><td>Apple</td><td>Unpeeled apple</td><td>Crunchy</td></tr><tr><td>Knife</td><td>Carrot</td><td>thin rings</td><td>Crispy hard</td></tr></table> <p>Hygiene – some key pointers</p> <ul style="list-style-type: none">Jewellery is removedHair is tied backSleeves are rolled upAprons are onHands are washedCuts are covered with blue waterproof dressing <p>Further information from www.food4life.org.uk</p>	Utensil	Food	Effect	Mouth feel	Juicer	Orange	Makes juice	Liquid	Peeler	Apple	Unpeeled apple	Crunchy	Knife	Carrot	thin rings	Crispy hard		Architect Study – Zaha Hadid (Comparison to buildings from the past) Build Y1/2 Structures Freestanding Structures Children will build a freestanding Balmoral Castle.  <p>Techniques for assembling freestanding structures</p> <p>Swing. Slide. Matchsticks. Pipe cleaner joint. Half of card tube. Straws. Plasticine. Card. Straws. Masking tape. Cut and glued.</p> <p>Show children how to join sheet materials and reclaimed boxes together using different tapes and glues.</p> <p>Technical knowledge and understanding</p> <p>Build walls with these different patterns. Tap away the centre brick in the bottom row of each wall in turn. What happens? Which wall is the strongest?</p> <p>Centre of gravity. Object falls. Wider bases and buttresses for stability.</p> <p>As a freestanding structure becomes taller its centre of gravity rises. Stability in a structure can generally be increased by making the base wider, making the base heavier or adding buttresses. Ask the children to build and explore a variety of freestanding structures through focused tasks. Use a range of construction kits.</p>
Utensil	Food	Effect	Mouth feel																		
Juicer	Orange	Makes juice	Liquid																		
Peeler	Apple	Unpeeled apple	Crunchy																		
Knife	Carrot	thin rings	Crispy hard																		


<div>Lower Key Stage 1</div>	<div><div>Make</div><div>Y3/4 Mechanical Systems</div><div>Children will design and make a pop-up book.</div></div> <div><div><div>Teaching aids to demonstrate levers and linkages</div><div><div><div><div><div></div><div>fixed pivot</div></div><div><div></div><div>rocker pivot</div></div></div><div><div><div><div><div></div><div></div><div></div></div><div><div></div><div></div><div></div></div><div><div></div><div></div><div></div></div></div><div><div></div><div></div><div></div></div><div><div></div><div></div><div></div></div><div><div></div><div></div><div></div></div></div><div><div></div><div></div><div></div></div><div><div></div><div></div><div></div></div><div><div></div><div></div><div></div></div></div><div><div></div><div></div><div></div></div><div><div></div><div></div><div></div></div><div><div></div><div></div><div></div></div></div><div><div></div><div></div><div></div></div><div><div></div><div></div><div></div></div><div><div></div><div></div><div></div></div></div><div><div></div><div></div><div></div></div><div><div></div><div></div><div></div></div><div><div></div><div></div><div></div></div></div><div><div></div><div></div><div></div></div><div><div></div><div></div><div></div></div><div><div></div><div></div><div></div></div></div> <div><div></div><div></div><div></div></div> <div><div></div><div></div><div></div></div> <div><div></div><div></div><div></div></div> <div><div></div><div></div><div></div></div> <div><div></div><div></div><div></div></div> <div><div></div><div></div><div></div></div> <div><div></div><div></div><div></div></div> <div><div></div><div></div><div></div></div> <div><div></div><div></div><div></div></div> <div><div></div><div></div><div></div></div> <div><div></div><div></div><div></div></div> <div><div></div><div></div><div></div></div> <div><div></div><div></div><div></div></div> <div><div></div><div></div><div></div></div> <div><div></div><div></div><div></div></div> <div><div></div><div></div><div></div></div> <div><div></div><div></div><div></div></div> <div><div></div><div></div><div></div></div> <div><div></div><div></div><div></div></div> <div><div></div><div></div><div></div></div> <div><div></div><div></div><div></div></div> <div><div></div><div></div><div></div></div> <div><div></div><div></div><div></div></div> <div><div></div><div></div><div></div></div> <div><div></div><div></div><div></div></div> <div><div></div><div></div><div></div></div> <div><div></div><div></div><div></div></div> <div><div></div><div></div><div></div></div> <div><div></div><div></div><div></div></div> <div><div></div><div></div><div></div></div> <div><div></div><div></div><div></div></div> <div><div></div><div></div><div></div></div> <div><div></div><div></div><div></div></div> <div><div></div><div></div><div></div></div> <div><div></div><div></div><div></div></div> <div><div></div><div></div><div></div></div> <div><div></div><div></div><div></div></div> <div><div></div><div></div><div></div></div> <div><div></div><div></div><div></div></div> <div><div></div><div></div><div></div></div> <div><div></div><div></div><div></div></div> <div><div></div><div></div><div></div></div> <div><div></div><div></div><div></div></div> <div><div></div><div></div><div></div></div> <div><div></div><div></div><div></div></div> <div><div></div><div></div><div></div></div> <div><div></div><div></div><div></div></div> <div><div></div><div></div><div></div></div> <div><div></div><div></div><div></div></div> <div><div></div><div></div><div></div></div> <div><div></div><div></div><div></div></div> <div><div></div><div></div><div></div></div> <div><div></div><div></div><div></div></div> <div><div></div><div></div><div></div></div> <div><div></div><div></div><div></div></div> <div><div></div><div></div><div></div></div> <div><div></div><div></div><div></div></div> <div><div></div><div></div><div></div></div> <div><div></div><div></div><div></div></div> <div><div></div><div></div><div></div></div> <div><div></div><div></div><div></div></div> <div><div></div><div></div><div></div></div> <div><div></div><div></div><div></div></div> <div><div></div><div></div><div></div></div> <div><div></div><div></div><div></div></div> <div><div></div><div></div><div></div></div> <div><div></div><div></div><div></div></div> <div><div></div><div></div><div></div></div> <div><div></div><div></div><div></div></div> <div><div></div><div></div><div></div></div> <div><div></div><div></div><div></div></div> <div><div></div><div></div><div></div></div> <div><div></div><div></div><div></div></div> <div><div></div><div></div><div></div></div> <div><div></div><div></div><div></div></div> <div><div></div><div></div><div></div></div> <div><div></div><div></div><div></div></div> <div><div></div><div></div><div></div></div> <div><div></div><div></div><div></div></div> <div><div></div><div></div><div></div></div> <div><div></div><div></div><div></div></div> <div><div></div><div></div><div></div></div> <div><div></div><div></div><div></div></div> <div><div></div><div></div><div></div></div> <div><div></div><div></div><div></div></div> <div><div></div><div></div><div></div></div> <div><div></div><div></div><div></div></div> <div><div></div><div></div><div></div></div> <div><div></div><div></div><div></div></div> <div><div></div><div></div><div></div></div> <div><div></div><div></div><div></div></div> <div><div></div><div></div><div></div></div> <div><div></div><div></div><div></div></div> <div><div></div><div></div><div></div></div> <div><div></div><div></div><div></div></div> <div><div></div><div></div><div></div></div> <div><div></div><div></div><div></div></div> <div><div></div><div></div><div></div></div> <div><div></div><div></div><div></div></div> <div><div></div><div></div><div></div></div> <div><div></div><div></div><div></div></div> <div><div></div><div></div><div></div></div> <div><div></div><div></div><div></div></div> <div><div></div><div></div><div></div></div> <div><div></div><div></div><div></div></div> <div><div></div><div></div><div></div></div> <div><div></div><div></div><div></div></div> <div><div></div><div></div><div></div></div> <div><div></div><div></div><div></div></div> <div><div></div><div></div><div></div></div> <div><div></div><div></div><div></div></div> <div><div></div><div></div><div></div></div> <div><div></div><div></div><div></div></div> <div><div></div><div></div><div></div></div> <div><div></div><div></div><div></div></div> <div><div></div><div></div><div></div></div> <div><div></div><div></div><div></div></div> <div><div></div><div></div><div></div></div> <div><div></div><div></div><div></div></div> <div><div></div><div></div><div></div></div> <div><div></div><div></div><div></div></div> <div><div></div><div></div><div></div></div> <div><div></div><div></div><div></div></div> <div><div></div><div></div><div></div></div> <div><div></div><div></div><div></div></div> <div><div></div><div></div><div></div></div> <div><div></div><div></div><div></div></div> <div><div></div><div></div><div></div></div> <div><div></div><div></div><div></div></div> <div><div></div><div></div><div></div></div> <div><div></div><div></div><div></div></div> <div><div></div><div></div><div></div></div> <div><div></div><div></div><div></div></div> <div><div></div><div></div><div></div></div> <div><div></div><div></div><div></div></div> <div><div></div><div></div><div></div></div> <div><div></div><div></div><div></div></div> <div><div></div><div></div><div></div></div> <div><div></div><div></div><div></div></div> <div><div></div><div></div><div></div></div> <div><div></div><div></div><div></div></div> <div><div></div><div></div><div></div></div> <div><div></div><div></div><div></div></div> <div><div></div><div></div><div></div></div> <div><div></div><div></div><div></div></div> <div><div></div><div></div><div></div></div> <div><div></div><div></div><div></div></div> <div><div></div><div></div><div></div></div> <div><div></div><div></div><div></div></div> <div><div></div><div></div><div></div></div> <div><div></div><div></div><div></div></div> <div><div></div><div></div><div></div></div> <div><div></div><div></div><div></div></div> <div><div></div><div></div><div></div></div> <div><div></div><div></div><div></div></div> <div><div></div><div></div><div></div></div> <div><div></div><div></div><div></div></div> <div><div></div><div></div><div></div></div> <div><div></div><div></div><div></div></div> <div><div></div><div></div><div></div></div> <div><div></div><div></div><div></div></div> <div><div></div><div></div><div></div></div> <div><div></div><div></div><div></div></div> <div><div></div><div></div><div></div></div> <div><div></div><div></div><div></div></div> <div><div></div><div></div><div></div></div> <div><div></div><div></div><div></div></div> <div><div></div><div></div><div></div></div> <div><div></div><div></div><div></div></div> <div><div></div><div></div><div></div></div> <div><div></div><div></div><div></div></div> <div><div></div><div></div><div></div></div> <div><div></div><div></div><div></div></div> <div><div></div><div></div><div></div></div> <div><div></div><div></div><div></div></div> <div><div></div><div></div><div></div></div> <div><div></div><div></div><div></div></div> <div><div></div><div></div><div></div></div> <div><div></div><div></div><div></div></div> <div><div></div><div></div><div></div></div> <div><div></div><div></div><div></div></div> <div><div></div><div></div><div></div></div> <div><div></div><div></div><div></div></div> <div><div></div><div></div><div></div></div> <div><div></div><div></div><div></div></div> <div><div></div><div></div><div></div></div> <div><div></div><div></div><div></div></div> <div><div></div><div></div><div></div></div> <div><div></div><div></div><div></div></div> <div><div></div><div></div><div></div></div> <div><div></div><div></div><div></div></div> <div><div></div><div></div><div></div></div> <div><div></div><div></div><div></div></div> <div><div></div><div></div><div></div></div> <div><div></div><div></div><div></div></div> <div><div></div><div></div><div></div></div> <div><div></div><div></div><div></div></div> <div><div></div><div></div><div></div></div> <div><div></div><div></div><div></div></div> <div><div></div><div></div><div></div></div> <div><div></div><div></div><div></div></div> <div><div></div><div></div><div></div></div> <div><div></div><div></div><div></div></div> <div><div></div><div></div><div></div></div> <div><div></div><div></div><div></div></div> <div><div></div><div></div><div></div></div> <div><div></div><div></div><div></div></div> <div><div></div><div></div><div></div></div> <div><div></div><div></div><div></div></div> <div><div></div><div></div><div></div></div> <div><div></div><div></div><div></div></div> <div><div></div><div></div><div></div></div> <div><div></div><div></div><div></div></div> <div><div></div><div></div><div></div></div> <div><div></div><div></div><div></div></div> <div><div></div><div></div><div></div></div> <div><div></div><div></div><div></div></div> <div><div></div><div></div><div></div></div> <div><div></div><div></div><div></div></div> <div><div></div><div></div><div></div></div> <div><div></div><div></div><div></div></div> <div><div></div><div></div><div></div></div> <div><div></div><div></div><div></div></div> <div><div></div><div></div><div></div></div> <div><div></div><div></div><div></div></div> <div><div></div><div></div><div></div></div> <div><div></div><div></div><div></div></div> <div><div></div><div></div><div></div></div> <div><div></div><div></div><div></div></div> <div><div></div><div></div><div></div></div> <div><div></div><div></div><div></div></div> <div><div></div><div></div><div></div></div> <div><div></div><div></div><div></div></div> <div><div></div><div></div><div></div></div> <div><div></div><div></div><div></div></div> <div><div></div><div></div><div></div></div> <div><div></div><div></div><div></div></div> <div><div></div><div></div><div></div></div> <div><div></div><div></div><div></div></div> <div><div></div><div></div><div></div></div> <div><div></div><div></div><div></div></div> <div><div></div><div></div><div></div></div> <div><div></div><div></div><div></div></div> <div><div></div><div></div><div></div></div> <div><div></div><div></div><div></div></div> <div><div></div><div></div><div></div></div> <div><div></div><div></div><div></div></div> <div><div></div><div></div><div></div></div> <div><div></div><div></div><div></div></div> <div><div></div><div></div><div></div></div> <div><div></div><div></div><div></div></div>
------------------------------	---



scones




savoury scones




savoury muffins


Possible products 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	Oniony

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.