

Year 4 Design and Technology: Textiles – Block C

How do you keep a tea towel
from slipping off a hook?

- The outline and structure of the block is as follows:

Lesson 1	Lesson 2	Lesson 3
Identification of the problem Exploring fasteners	Explicit teaching of skills	Application of skills Evaluation and adaptation

At the end of this block, pupils will ...	
Know:	Be able to:
Fastenings have different functions A shank provides a small amount of space between the button and fabric	Select appropriate fastenings and attach them to fabric Make a shank for a button



George de Mestral
(1907 – 1990) *Velcro*®

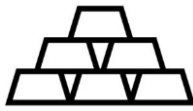


In this block, pupils will learn how to sew a button onto fabric. They will identify the different functions of fastenings and reflect on the advantages or disadvantages of using certain fasteners. They will also create a solution to the problem of a towel slipping off a hook.

CUSP Design & Technology Long term sequence	Block A	Block B	Block C	Block D	Block E	Block F
Year 1	Mechanisms	Structures	Food and Nutrition	Understanding Materials	Textiles	Food and Nutrition
Year 2	Textiles	Food and Nutrition	Mechanisms	Understanding Materials	Food and Nutrition	Structures
Year 3	Textiles	Food and Nutrition	Mechanisms	Food and Nutrition	Systems	Structures
Year 4	Food and Nutrition	Mechanisms	Textiles	Structures	Electrical Systems	Food and Nutrition
Year 5	Food and Nutrition	Systems	Textiles	Mechanisms	Structures	Food and Nutrition
Year 6	Food and Nutrition	Mechanisms	Food and Nutrition	Structures	Electrical Systems	Textiles

Point of reference:

Y4 Textiles – Block C



Prior Learning

Pupils will be able to:

- use running stitch to attach fabrics

- describe the properties of materials
- use scissors to cut accurately

Design or Technology History:

George de Mestral (1907 – 1990)

George de Mestral was a Swiss electrical engineer, best known for his invention of Velcro®. Mestral first conceptualised the hook and loop fastening system after returning from a hunting trip with his dog in the Alps in 1941. After removing several of the burdock burrs that kept sticking to his clothes and his dog's fur, he became curious as to how it worked. He examined the burrs under a microscope and noted hundreds of 'hooks' that caught on anything with a loop, such as clothing, animal fur or hair. He saw the possibility of binding two materials reversibly in a simple fashion, if he could replicate the hooks and loops. Mestral worked on his invention for ten years, successfully achieving a patent for his design in 1955.

Links to Literature:

Buttons and Fasteners 500BC - AD1840 by Gordon Bailey (teacher reference)

Everyday Skills: A Sensory Book of Fastenings by Nicola Edwards

How an Idea from Nature Changed our World: The Story of Velcro® by Dorna Schroeter

Mrs Toggle's Zipper by Robin Pulver

Health and Safety:

This block requires pupils to use: sharp sewing needles, fabric scissors or pinking shears, and sewing cotton or thread. Teachers should ensure that they follow their own school's risk assessments and policies for using the necessary materials and equipment. Pupils should be taught about how to use equipment and materials safely and responsibly as part of these lessons.

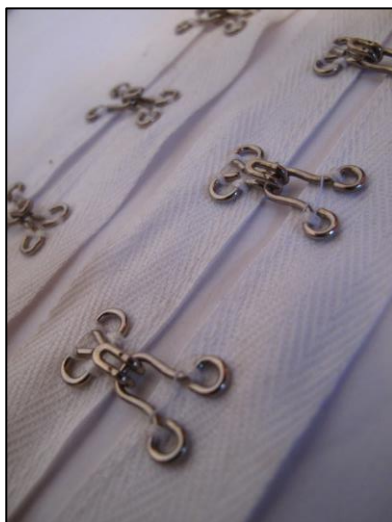
Materials:

Selection of fasteners (including buttons, buckles, press studs, snaps, Velcro®, zippers), A4 rectangles of felt, tea towels (one per two pupils), sewing cotton / thread, knitting wool, crochet hook (one per pupil), fabric scissors and / or pinking shears

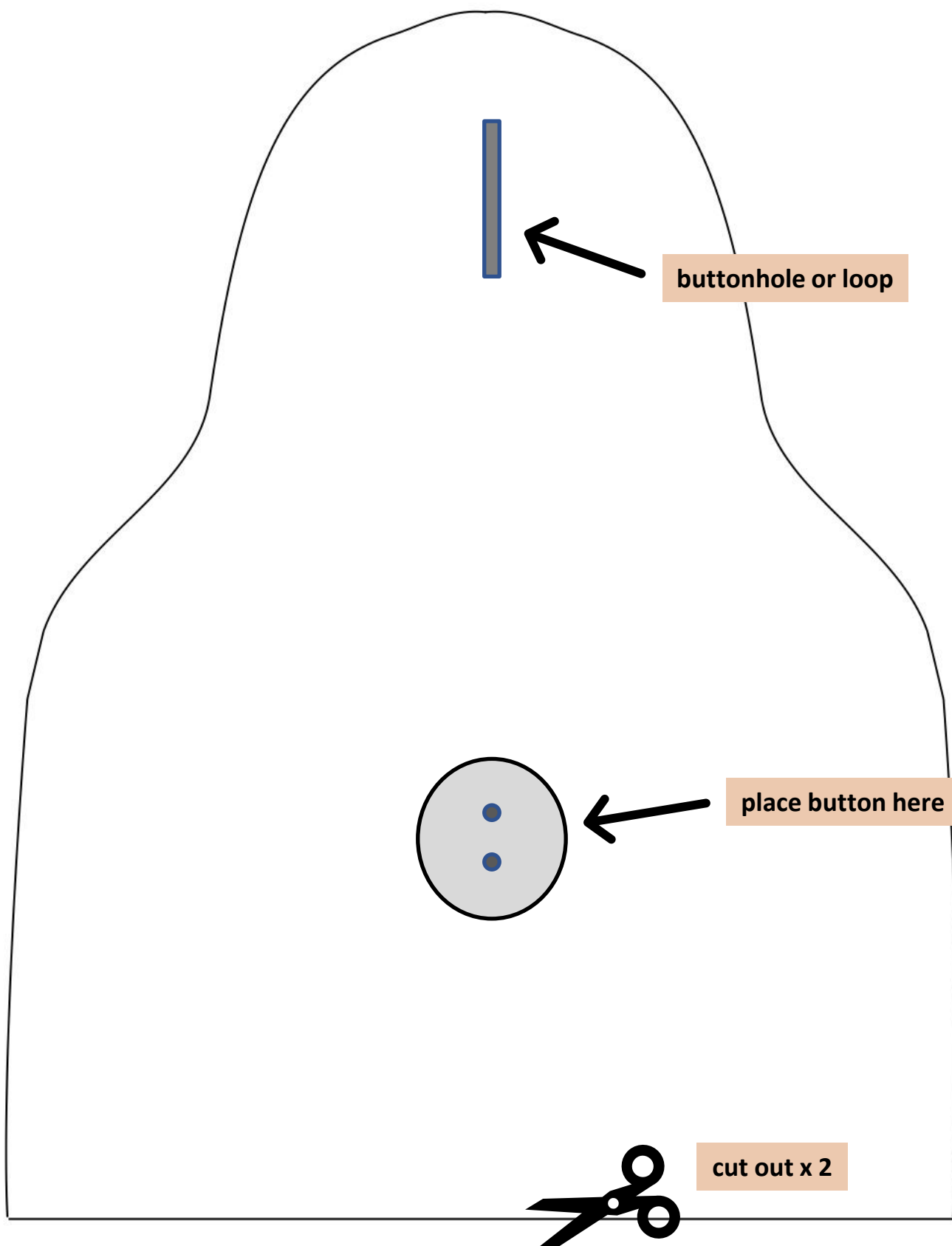
Working as a Designer

Design	Make	Evaluate	Apply
The art or process of deciding how something will look or work.	Create something by combining materials or putting parts together.	Form an opinion of the value or quality of something after careful thought.	Use something or make something work in a particular situation.

Supporting Photos: Y4 Textiles – Block C



Supporting Template: Y4 Textiles – Block C



Point of explanation:

Y4 Textiles – Block C

Core Knowledge	Explanation
shank	A shank is a short stem on the underside of a button that allows there to be a gap between the button and the cloth it is attached to.
burr	A burr is a seed container covered in tiny hooks, which attaches to animal fur and clothing, facilitating effective dispersal.
hook and loop	Hook and loop is a fastening system using two sides of material: one covered in hooks and the other covered in loops.

Technical Vocabulary	Definition
buckle (noun)	a piece of metal at one end of a belt or strap, used to fasten the two ends together
fastener	a button, zip or other device for temporarily joining together the parts of things such as clothes
raw edges	an unfinished, rough or undecorated edge





Link to Video: https://vimeo.com/638614257/7cbac2b786
<ul style="list-style-type: none"> • Explanation and demonstration of taught content • Lesson by lesson guidance • Exemplification of techniques and outcomes

Point of delivery:

Y4 Textiles – Block C

Revisiting prior learning 	Taught content 	Point of practice 	Point of reflection 
<p>1. There are different types of fasteners</p> <p>Materials can be sorted according to their properties</p> <p>Objects can have different functions and purposes</p>	<p>Explore the component parts and purposes of a range of fasteners</p> <p>Identify advantages and disadvantages of each fastener</p> <p>Explain the suitability of fasteners for specific purposes</p> <p>Record findings</p>	<p>Introduce pupils to the design question for this block: How do you keep a tea towel from slipping off a hook? Share the Knowledge Note and key vocabulary for this block.</p> <p>Through questioning, find out what pupils already know about different types of fastener and then conduct a survey of those found on the pupils' clothing. Examples taken from old clothes could also be made available for pupils to explore. Discuss the advantages and disadvantages of each and instruct pupils to record the information they have gathered, making decisions about how best to present their findings in their portfolios.</p> <p>Name the different parts of buttons (head, shank, stem and loop), zippers (teeth, slider, pull tab, tape and chain), and press studs (socket and post), and give pupils the opportunity to examine these carefully. Use questioning to elicit pupils' thoughts about why certain fasteners are used for specific purposes.</p> <p>Introduce the engineer, George de Mestral, and explain how he stumbled upon and then developed the concept for the hook and loop fastener.</p> <p>Encourage pupils to add drawings or photos of fasteners with annotations to their portfolios, explaining what they have learned.</p>	<p>Can name a range of fasteners and their component parts</p> <p>Can identify the advantages and disadvantages of using each type of fastener</p> <p>Can explain how and why different fasteners are suitable for different purposes</p> <p>Can record and present findings in a coherent way</p>
<p>2. Identify the component parts and purposes of a range of fasteners</p> <p>Identify advantages and disadvantages of each fastener</p> <p>Explain the suitability of fasteners for specific purposes</p> <p>Use running stitch</p>	<p>Use sewing techniques to attach a range of fasteners</p> <p>Evaluate outcomes and record the methods used</p>	<p>Recap on the range of fasteners that the pupils explored in the previous lesson.</p> <p>Explain that pupils will make a range of fasteners which they will add to their portfolios.</p> <p>Demonstrate how to sew a flat button onto a piece of fabric, creating a shank with the thread. Make a buttonhole from a separate piece of fabric and challenge pupils to reinforce the buttonhole by overstitching, using embroidery thread.</p> <p>Show pupils how to make a button and loop fastener by sewing a button that has a shank onto fabric and making a loop using a slip knot and chain stitch. This stitch can be created using a crochet hook or pupils can use their fingers.</p> <p>Pupils can also be shown how to attach press studs to fabric.</p> <p>Finally, challenge pupils to stitch a zipper into an opening in fabric, using running stitch.</p> <p>Encourage pupils to explain the techniques they have learned and evaluate their outcomes. Pupils then add their fastener samples to their portfolios with labels and notes about the methods used.</p> <p>Pupils complete Vocabulary Task 1.</p>	<p>Can use a range of sewing techniques accurately and effectively</p> <p>Can explain the techniques they have used</p> <p>Can identify where they have been successful and suggest improvements</p>

Point of delivery: Y4 Textiles – Block C

Revisiting prior learning 	Taught content 	Point of practice 	Point of reflection 
<p>3. Attach a range of fasteners to fabrics</p> <p>Reinforce a button hole using overstitching</p>	<p>Using running stitch, create a pocket by stitching two pieces of felt together</p> <p>Use running stitch to gather fabric to a specific length</p> <p>Apply previously learned skills and knowledge to a context</p> <p>Select and make a suitable fastener</p> <p>Explain a process and evaluate outcomes</p>	<p>Refer pupils to the key question for this block: How do you keep a tea towel from slipping off a hook? Explain to pupils that they will apply the skills and knowledge they have acquired in the previous lessons to create a hanger for a tea towel so that it can be hung on a hook or rail without slipping off.</p> <p>Recap the range of fasteners pupils made in the previous lesson and explain that they will be given the opportunity to select the fastener they feel would be most suitable for their hanger.</p> <p>Cut a tea towel in half lengthways and sew a line of running stitch 0.5cms below the raw edge. Demonstrate to pupils that by pulling this line of stitches, the fabric can be gathered to a length that is slightly shorter than the widest edge of the template they will be using.</p> <p>Use the template to cut two hanger shapes from felt and show pupils how to stitch these two sections together, leaving the bottom edge open in order to create a pocket. Teachers may wish to use tailor's chalk to indicate exactly where pupils need to sew. Once the gathered raw edge of the tea towel has been inserted into the pocket, pupils can then use a neat running stitch to sew the tea towel in place securely.</p> <p>Allow pupils to choose the type of fastener they wish to make for their hanger.</p> <p>Once completed, pupils can test to see if their hanger works effectively. Through questioning, elicit pupils' views about their work, any changes they needed to make and what they might do differently next time.</p> <p>Encourage pupils to draw their completed hanger in their portfolio with notes about the process they followed and their evaluative comments. Vocabulary Task 2 can be completed as part of the evaluation process.</p>	<p>Can use running stitch accurately to attach pieces of fabric securely</p> <p>Can recall and refer to prior learning when making a design decision</p> <p>Can apply skills and techniques effectively</p> <p>Can explain a process and identify strengths and areas for development in their own work</p>

Questions for assessment

Why are there so many different types of fastener?

What are the advantages of using a hook and loop fastener on a shoe?

Why don't we use hook and loop fasteners for everything?

What is the purpose of a button shank?

Which fastener was the hardest to attach? **Why?**

Which fastener do you think is most effective?

Why would a zip be used instead of a button?

Does it matter if the buttonhole and button are different sizes?

How would you do things differently next time?

Did you select the most suitable fastener for your hanger?

Oracy and Vocabulary: Y4 Textiles – Block C

Task 1:

Make a list of synonyms for the word *fastened*. Two have been done for you.

Synonyms for *fastened*

next ...

Antonyms for *fastened*

fixed
tied

Make a list of
antonyms for
fastened.
Use a thesaurus to
help you.

Exploration: 

Which is the most effective fastener?



or







Explain your choice.


1. Would sticky tape be an effective fastener for clothing? Why?
2. Why might you use a press stud instead of a button as a fastener?


Task 2:


Use the prompts in the table to explain and evaluate your work in Lesson 3.


<p>Explain how to make a tea towel in three steps.</p> 	Step one:
	Step two :
	Step three:
<p>Tell a partner which fastener you chose and why.</p> 	
<p>Write about two things you did well and one thing you would do differently next time.</p> 	
<p>On a scale of 1 to 10 (1 - very disappointed, 10 - extremely happy), how would you rate your feelings about your hanger?</p> 	

Vocabulary: Y4 Textiles – Block C

OWN-it	Analyse 
Underline the part of this word that means to attach.	
unfastened	
Write the <u>present</u> tense <u>opposite</u> of this word.	
unattached - _____	
Change this word from a noun to an adjective.	
hook - _____	

KNOW-it	Define 	
Tick true or false.		
A burdock is a type of animal.		
<input type="checkbox"/> true	<input type="checkbox"/> false	
Tick the fastener that matches this description.		
It has teeth and a slider.		
<input type="checkbox"/> zip	<input type="checkbox"/> button	<input type="checkbox"/> press stud
Explain what a raw edge is.		
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LINK-it	Connect 
Write a word that means the same as loop.	
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Write two different meanings of the word buckle.	
1. _____	
2. _____	
Write one synonym and one antonym of the word fasten.	
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USE-it	Use in context 
Tick the box if the word <i>buckled</i> has been used correctly in this sentence.	
The table legs <i>buckled</i> under the weight of the books that were piled on top of it.	
Write a sentence that includes these words: shank space button	

Use the word <i>fastener</i> in a sentence.	

Knowledge Note:

Y4 Textiles – Block C

Year 4: Textiles

How do you keep a tea towel from slipping off a hook?



Core content:

Identify the different functions for fastenings.
Learn how to sew a button onto fabric.
Create a solution to the problem of a towel slipping off a hook.

Technical vocabulary:

Shank – a short stem on the underside of a button that allows there to be a gap between the button and the cloth it is attached to.



Burr – a seed container covered in tiny hooks, which attaches to animal fur and clothing, facilitating effective dispersal.



Hook and loop – a fastening system using two sides of material: one covered in hooks and the other covered in loops.



Buckle – a piece of metal at one end of a belt or strap, used to fasten the two ends together.



Fastener – a button, zip or other device for temporarily joining together the parts of things such as clothes.



Raw edges – an unfinished, rough or undecorated edge.



Connections:

George de Mestral
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Swiss electrical engineer and
inventor of Velcro®



Year 4: Textiles

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Exemplification: Y4 Textiles – Block C

How do you keep a tea towel from slipping off a hook?

Conduct a survey of the different types of fasteners pupils have on their clothing

Classify the fasteners and record them

Pose questions to pupils:

Which fasteners are used most?

Why are different fasteners used for different purposes?

Look at a range of different fasteners, name each part and add annotated examples to portfolios

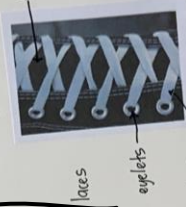
Demonstrate how to sew a button onto fabric and make a buttonhole

Y4 Textiles

How do you keep a tea towel from slipping off a hook?

Sort and classify fastenings

Identify and name parts



laces

eyelets

lace



front

back

button without a shank

prong

frame

buckle

bar

prong

frame

shank

teeth

pull tab

chain

bottom strap

slider

teeth

pull tab

chain

bottom strap

slider

teeth

pull tab

chain



safety pin

hook and eye

hook

eye

hook

eye

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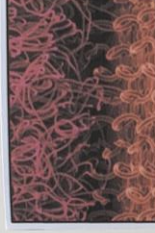
Explore and discuss the origins of the hook and loop fastening

Use a magnifier to examine and compare burdock burrs and the hook and loop fastening

Note that fine stitches are needed when attaching this form of fastening securely to fabric

George de Mestral (1907-1990)

Invented velcro® having noticed the burdock burrs attached to his dog after a walk.



hooks and loops

hook and loop fastening

Velcro®

hook and loop fastening

hook and loop fastening

hook and loop fastening

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Use a magnifier to look at the hooks and loops close up.

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* Zipper stitched in place between an opening

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Challenge pupils to attach a zip into an opening using small running stitches to ensure the zip is secured neatly

Exemplification: Y4 Textiles – Block C

How do you keep a tea towel from slipping off a hook?

Demonstrate how a tea towel can easily slip off a hook or a rail.

Cut towel in half (per pupil)

Use running stitch

raw edge

finished edge prevents fraying

button hole

Use the template to cut out x 2 pieces
use felt fabric as easy to handle and no need to neaten the edges

place button here

cut out x 2

mark where the button hole will be place

Pupils decide what fastener they will use

The fastening enables the towel to be attached to a rail too.

Use the template as a guide to cut out the holder
Felt is an ideal fabric as there is no need to worry about finishing raw edges
Felt is also easy to handle and manage while sewing

Double stitch joins the pocket and encloses the gathered part of the tea towel

Use running stitch to join the two pieces together
A double row of stitching across the opening will provide a more secure join where the tea towel is inserted

Pupils decide which fastening they will use and discuss why they made this choice
Test to see if the tea towel can be hung securely without sliding or slipping

Refer to the design question and demonstrate how the towel slips off a hook or rail
Pose the question to pupils:
Can you suggest a way that this problem could be solved?

Show pupils what is going to be made and ask them to suggest an appropriate fastener for this purpose
Allow pupils to practise using the running stitch