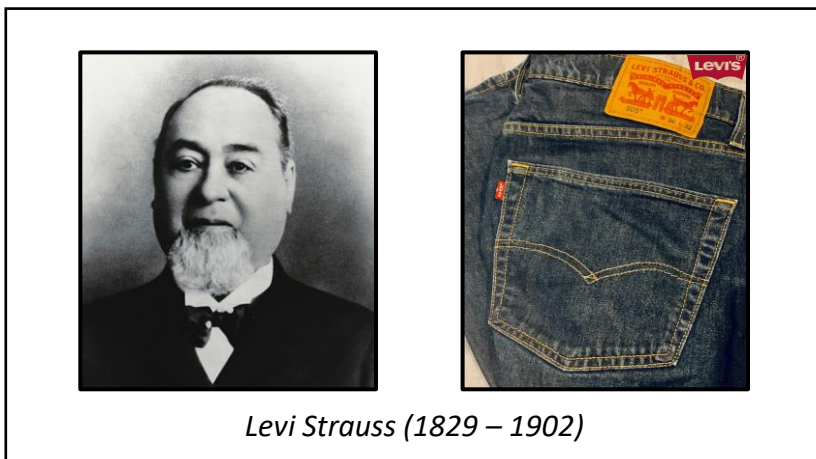


## Year 5 Design and Technology: Textiles – Block C

### Which fabric is ideal for creating a functional and hardwearing lunch bag?

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

Lesson 1	Lesson 2	Lesson 3
Identification of problem  Exploring materials	Specific teaching of skills relating to the brief	Application of skills  Evaluation and adaptation



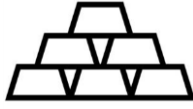
At the end of this block, pupils will ...	
Know:	Be able to:
How to waterproof cotton fabric  Which fabrics are both functional and hardwearing	Use beeswax to waterproof cotton fabric  Repurpose a pair of jeans

In this block, pupils will consider the durability of fabrics. They will design and make a functional and hardwearing lunch bag. They will create fair tests to investigate the properties of a range of fabrics and consider insulation and waterproofing.

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:

## Y5 Textiles – Block C



Prior Learning

Pupils will be able to:

- use a range of stitches to join fabric
- make simple fastenings

- explain the concept of wax resist
- identify properties of everyday materials

### Design or Technology History:

Levi Strauss (1829 – 1902)

Levi Strauss was a German-born American businessman and clothing manufacturer who founded the first company to produce riveted blue jeans. His firm of Levi Strauss & Co. began in 1853 in San Francisco, California. Jean fabric, known for its strength and durability, emerged from the cities of Genoa and Nîmes. Gênes, French for Genoa, may be the origin of the word jeans. Jean fabric, which was developed in Nîmes, became known as denim; from 'de Nîmes', meaning 'from Nîmes'.

### Links to Literature:

*Who was Levi Strauss?* by Ellen Labrecque

*The Story of Inventions* by Anna Claybourne and Adam Larkum

*Cloth Lullaby* by Amy Novesky

*Factory Girl* by Barbara Greenwood

### Materials:

Assortment of fabric off-cuts with a range of properties (e.g. hessian, lace, velvet, satin, woven fabrics, corduroy, felt, knitted fabric, tweed, natural and synthetic fabrics, lightweight cotton, fleece, polyester), adult jeans (1 pair = 2 pupils), strong thread, sewing needles, fabric scissors, chalk, pins, beeswax pellets, access to oven or wax melting pot, clothes pegs, weights, old paint brushes, cardboard, magnifier, hook and loop tape, a few old lunch bags and lunch boxes, PVA glue, sketchbook / portfolio, insulation fabric, paper and gift bags to look at pattern and joins

### Health and Safety:

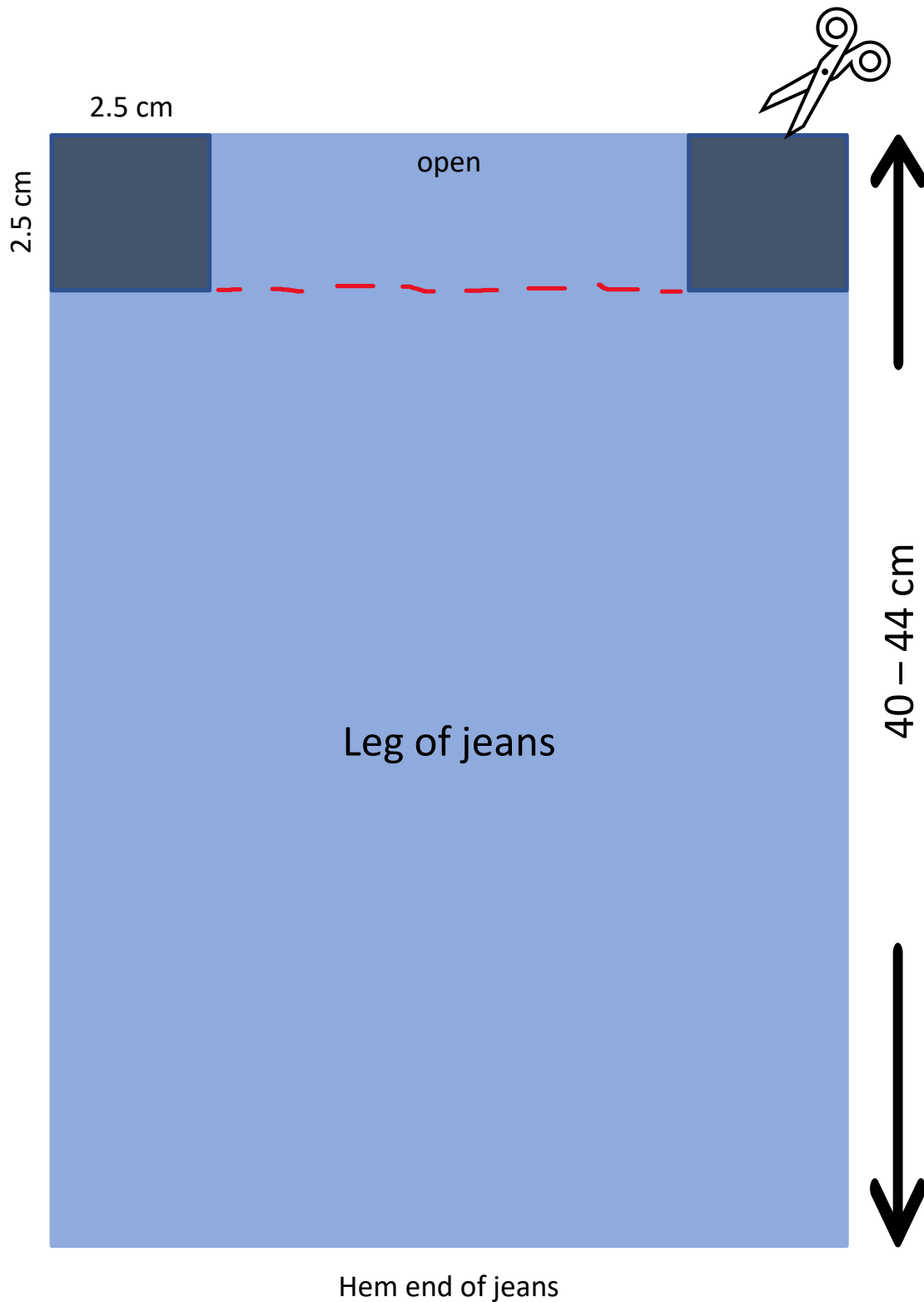
This block requires pupils to use fabric scissors, sewing needles, hot wax and an oven / hotplate or wax melting pot. Teachers should ensure that they follow their own school's risk assessments and policies for using the necessary materials and equipment. Pupils should be taught how to use the equipment and materials safely and responsibly as part of these lessons.

### 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 template for lunch bag: Y5 Textiles – Block C

Pattern for using a pair of jeans (one leg per lunch bag)



# Point of explanation:

## Y5 Textiles – Block C





Core Knowledge	Explanation
durability	Durability is the quality of being able to last for a long time without breaking or becoming weaker.
repurpose	To repurpose means to change something slightly in order to make it suitable for a different use.
functional	Something that is functional is practical and useful .

Technical Vocabulary	Definition
beeswax	a yellow sticky substance that is produced by bees and is used especially for making candles and polish for wood
swatch	a small piece of cloth used to show people what a larger piece would look or feel like
insulate	to protect something with a material that prevents heat, sound, electricity etc. from passing through





Link to Video: <a href="https://vimeo.com/632202885/342a8f3dce">https://vimeo.com/632202885/342a8f3dce</a>
<ul style="list-style-type: none"> <li>• Explanation and demonstration of taught content</li> <li>• Lesson by lesson guidance</li> <li>• Exemplification of techniques and outcomes</li> </ul>

# Point of delivery:

## Y5 Textiles – Block C

Revisiting prior learning 	Taught content 	Point of practice 	Point of reflection 
<p>1. Identify properties of everyday materials</p> <p>Compare suitability of materials for particular uses</p>	<p>Explore the different properties of a range of fabrics and how these determine their uses</p> <p>Plan and carry out a fair test</p> <p>Sort fabrics according to their properties</p> <p>Record findings</p>	<p>Introduce the question for this block: <b>Which fabric is ideal for creating a functional and hardwearing lunch bag?</b> Identify and discuss the properties that would make a material suitable for storing food.</p> <p>Introduce the Knowledge Note and key vocabulary for this block.</p> <p>Provide a wide assortment of fabric swatches for pupils to examine and test. Encourage pupils to feel the fabrics, use a magnifying lens to examine their fibres and weave, and devise a fair test to determine their strength, elasticity (ability to return to its original shape), stretchability or absorbency. Use questioning to elicit pupils' understanding of the properties they have discovered. Make links between a fabric's properties and its uses. For example, fabrics with a higher degree of elasticity are often used for sports wear. Pupils then sort their fabric samples according to their chosen criteria.</p> <p>Encourage pupils to make detailed annotations in their portfolios about each sample, reminding them to include information about texture, appearance, thickness, durability, absorbency etc. Pupils should also include information about the test they carried out, how they ensured it was fair and what their results showed. Allow pupils the opportunity to discuss and compare their findings with their peers and make decisions about which fabrics would be suitable for making a lunch bag and why.</p>	<p>Can use technical vocabulary to describe the properties of fabrics</p> <p>Can explain how properties determine uses</p> <p>Can decide on criteria for sorting fabrics</p> <p>Can plan and carry out a fair test and record findings in detail</p>
<p>2. Explore the different properties of a range of fabrics and how these determine their uses</p> <p>Sort fabrics according to their properties</p> <p>Plan and carry out a fair test</p> <p>Understand the water resistant properties of wax</p>	<p>Explore the properties of materials used in the storage of food</p> <p>Explain why materials need to be durable and waterproof</p> <p>Explore the effect of coating fabric with wax</p> <p>Record findings and conclusions</p>	<p>Remind pupils about the question for this block: <b>Which fabric is ideal for creating a functional and hardwearing lunch bag?</b></p> <p>Examining a range of lunchboxes, pupils identify the materials that have been used and their properties. Pupils suggest reasons for the prevalence of plastics. Establish, through discussion and questioning, that durable and washable materials make them suitable for use when storing food.</p> <p>Introduce the inventor of denim jeans, Levi Strauss. Show pupils the patent label and logo for Levi jeans. What does this logo tell us about the properties of the fabric? Explain that denim is renowned for its durability. Compare denim fabric to thin cotton fabric, describing the properties of each.</p> <p>Demonstrate how to change the properties of the cotton fabric by applying a thin coat of melted wax to the surface. Pupils will require close adult supervision for this activity.</p> <p>Challenge pupils to explain how the properties of the cotton have changed (can now be folded, now holds its shape, is stronger, easier to wash etc.). Is the cotton now more suitable for storing food?</p> <p>Pupils record their findings in their portfolios and complete Vocabulary Task 1.</p>	<p>Can identify the properties that make certain materials suitable for the storage of food</p> <p>Can identify how properties of a fabric have changed</p> <p>Can make accurate notes of observations and justify conclusions drawn</p>

# Point of delivery: Y5 Textiles – Block C

Revisiting prior learning 	Taught content 	Point of practice 	Point of reflection 
<p>3. Use a range of stitches including blanket stitch</p> <p>Be able to make simple fastenings</p> <p>Make accurate measurements</p>	<p>Explore which clothing items can be repurposed as a lunch bag</p> <p>Use cutting, stitching and folding to construct a rectangular-based durable lunch bag</p> <p>Make choices about fastening and decorations</p> <p>Evaluate outcomes</p>	<p>First, provide pupils with the opportunity to review sewing and stitching skills previously taught. Using off-cuts of stiff paper and a darning needle, demonstrate and then allow pupils to practise running stitch, backstitch and blanket stitch. Pupils then add these samples to their portfolios.</p> <p>Introduce the brief: <b>Make a lunch bag that is durable.</b></p> <p>Pupils explore the construction of a range of paper bags, noting that some consist of a simple sleeve shape with a join at the base, whilst others have sides that expand and a rectangular, flat base.</p> <p>Introduce the term <i>repurpose</i>. Look at some items of clothing and decide, through discussion, which materials would be best suited to make a durable and washable lunch bag.</p> <p>Demonstrate the steps for constructing a lunch bag from a pair of jeans. Show pupils how to cut a length from the leg of the jeans, explaining that the hem will form the opening of the lunch bag. Model each stage of the construction of the flat base, supporting pupils as required.</p> <p>Demonstrate how to attach hook and loop tape. Pupils will need to make choices about the positioning of the fastener but could also select alternative fastening options such as a button and loop or ties. Pupils could also make choices about how to decorate their bag.</p> <p>Allow pupils time to evaluate their own and others' completed bags, explaining the design choices they have made. Pupils then record the processes they have followed, make evaluative notes in their portfolios and complete Vocabulary Task 2.</p> <p>Extension activity: Consider insulating the bag or making a lining.</p>	<p>Can give reasons why some clothing items are more suitable than others</p> <p>Can cut and sew accurately, following a series of steps</p> <p>Can make independent decisions about details and embellishments</p> <p>Can identify strengths and areas for development in their work</p>

## Questions for assessment



**What** kind of weave makes a fabric translucent?

**Which** fabrics are likely to be hardwearing? How do you know?

**What** kinds of fabric are waterproof?

**Are** all fabrics made with thick threads more rigid?

**Can** the lunchbox keep the food warm or cool?

**Why** is it important that materials used for food storage are easy to wash?

**How** have the properties of the cotton changed? Is the cotton now more or less functional?

**Which** clothing items would be more suitable for repurposing and why?

**How** could you test materials to see if they would be suitable for use as an insulator?

**What** changes / improvements would you make to your lunch bag?

# Oracy and Vocabulary: Y5 Textiles – Block C

Task 1: Order these synonyms according to their strength of meaning.

tough	indestructible	robust	sturdy
-------	----------------	--------	--------



Write four **antonyms** of the word durable.

Exploration:



1. How can you make a flimsy fabric more rigid and durable?
2. Are all open-weave fabrics translucent?
3. Are only synthetic fabrics waterproof?

Task 2: Complete the tasks below.



Explain verbally and then in writing, the steps you followed to construct your lunch bag.



Explain some of the decisions you made about details such as fastenings and decorations.



Have you met the brief?



How could you improve the functionality of your bag?




Mark on the scale how you felt about this brief and your results.





Write some instructions for how to make your bag.  
Note any difficulties you faced and what you would do differently next time.




# Vocabulary: Y5 Textiles – Block C

OWN-it	Analyse 
Write the root word of <i>insulation</i> .	
<hr/>	
Change this abstract noun to an adjective.	
durability / <hr/>	
Tick the correct word class for the word <i>repurpose</i> .	
<input type="checkbox"/> noun <input type="checkbox"/> verb <input type="checkbox"/> adverb	

KNOW-it	Define 
Write a definition of the word <i>insulate</i> .	
<hr/>	
<hr/>	
Tick the most accurate definition of the word <i>swatch</i> .	
<input type="checkbox"/> a type of cloth <input type="checkbox"/> a sample of cloth <input type="checkbox"/> an example of a pattern	
Write a definition of the word <i>waterproof</i> . Use only <b>two</b> words.	
<div style="border: 1px solid black; height: 40px; width: 100%;"></div>	

LINK-it	Connect 
Tick the word that is <b>not</b> a synonym of <i>functional</i> .	
<input type="checkbox"/> broken <input type="checkbox"/> useful <input type="checkbox"/> practical <input type="checkbox"/> decorative	
Write <b>three</b> words that can be generated from the root word <i>function</i> .	
<div style="display: flex; justify-content: space-around; align-items: flex-start;"> <div style="border: 1px solid black; width: 150px; height: 25px; margin-bottom: 10px;"></div> <div style="border: 1px solid black; width: 150px; height: 25px; margin-bottom: 10px;"></div> </div> <div style="border: 1px solid black; width: 150px; height: 25px; margin: 0 auto;"></div>	
Tick the synonyms of the word <i>swatch</i> .	
<div style="display: grid; grid-template-columns: 1fr 1fr; gap: 10px;"> <div style="border: 1px solid black; padding: 5px; text-align: center;">example</div> <div style="border: 1px solid black; padding: 5px; text-align: center;">view</div> <div style="border: 1px solid black; padding: 5px; text-align: center;">rinse</div> <div style="border: 1px solid black; padding: 5px; text-align: center;">sample</div> </div>	

USE-it	Use in context 
Explain <b>two</b> uses of <i>beeswax</i> .	
<hr/>	
<hr/>	
Explain the difference between <i>natural</i> and <i>synthetic</i> .	
<div style="border: 1px solid black; height: 60px; width: 100%;"></div>	
Tick the sentence if the word <i>properties</i> has been used correctly. Then, write your own sentences using this word.	
<input type="checkbox"/> Being a good conductor of heat is one of the properties of copper.	



# Knowledge Note:

## Y5 Textiles – Block C

### Year 5: Textiles

*Which fabric is ideal for creating a functional and hardwearing lunch bag?*



#### Core content:

Explore the durability of fabrics.  
Design and make a functional and hardwearing lunch bag.  
Create fair tests to investigate the properties of a range of fabrics and explore insulation and waterproofing.

#### Technical vocabulary:

**Durability** – the quality of being able to last for a long time without breaking or becoming weaker.



**Repurpose** – to change something slightly in order to make it suitable for a different purpose.



**Beeswax** – a yellow sticky substance that is produced by bees.



**Swatch** – a small piece of cloth used to show people what a larger piece would look or feel like.



**Insulate** – to protect something with a material that prevents heat, sound, electricity etc. from passing through.

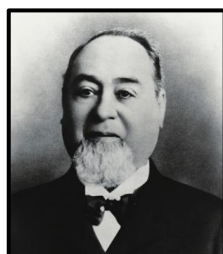


**Functional** – practical and useful.



#### Connections:

Levi Strauss (1829 – 1902)  
German-born American  
businessman and  
clothing manufacturer



### Year 5: Textiles

*Which fabric is ideal for creating a functional and hardwearing lunch bag?*



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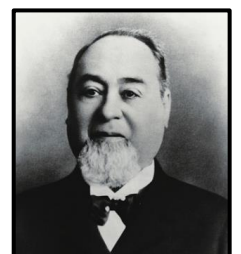


**Functional** – practical and useful.



#### Connections:

Levi Strauss (1829 – 1902)  
German-born American  
businessman and  
clothing manufacturer



# Exemplification: Y5 Textiles – Block C

## Which fabric is ideal for creating a functional and hardwearing lunch bag?

Pupils examine and test a range of fabric swatches identifying their properties and then sorting them according to their chosen criteria

Where appropriate scaffold tables to record results

### Y5 DT Textiles

Which fabric is ideal for creating a functional and hardwearing lunch bag?

Collect fabric swatches look at and test for properties

②

close weave  
natural fibre = wool

③

open weave  
heavy  
stiff

④

close weave  
natural fibre = wool

⑤

open weave  
light weight  
natural fibre = cotton

⑥

close weave  
natural fibre = cotton

⑦

thick  
plastic  
rigid  
soft on one side

⑧

brushed cotton with coating  
close weave

⑨

soft on one side  
smooth other  
mix of fibres

⑩

tips  
paper  
absorbs water

⑪

close weave  
wool  
repels water

⑫

synthetic fibre

⑬

close weave  
cotton blend

⑭

open weave  
cotton

⑮

close weave  
synthetic

⑯

open weave  
synthetic

⑰

close weave  
synthetic

⑱

open weave  
synthetic

⑲

close weave  
synthetic

⑳

open weave  
synthetic

①

close weave  
wool  
repels water

②

open weave  
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⑬

open weave  
cotton

⑭

close weave  
synthetic

⑮

open weave  
synthetic

⑯

close weave  
synthetic

⑰

open weave  
synthetic

⑱

close weave  
synthetic

⑲

open weave  
synthetic

⑳

close weave  
synthetic

①

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repels water

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soft on one side

⑦

brushed cotton with coating  
close weave

⑧

soft on one side  
smooth other  
mix of fibres

⑨

tips  
paper  
absorbs water

Pupils record their findings

Pose these questions to pupils:

Which fabrics are lightweight / heavy?

Which fabrics are rigid / stretchy?

Why are certain materials used for particular purposes?

Pupils could:

Test for absorbency

Identify natural or man made fibres

Use a magnifier to examine fibres close up

Pose the question to pupils:

What does functionality mean?

Fabric	smooth	soft	fold	tears	open weave	absorb	repels water	rough	Man made
①	✓	✓	✓	✓	×	✓	×	×	✓
②	✓	×	×	×	×	×	✓	×	✓
③	✓	✓	✓	×	×	×	✓	×	✓
④	✓	✓	×	×	×	×	✓	×	✓
⑤	×	×	×	×	×	✓	✓	×	×
⑥	×	×	×	×	✓	✓	×	×	×
⑦	×	✓	×	×	×	×	✓	×	✓

Test and record observations - choose how this is to be done.

- Does it absorb water?
- Does it repel water?
- Is it stretchy?
- What does it feel like?

Record with annotations or photographs

Use a magnifier to observe detail of weave and fibres

★ Scaffold observation recordings

## Exemplification: Y5 Textiles – Block C

# Which fabric is ideal for creating a functional and hardwearing lunch bag?

Pupils keep a record of the stitches they have practised

Pupils make notes about which stitch is suitable for which purpose

**Running Stitch**

**Backstitch**

**Blanket stitch**

Review and revisit stitches

- Practise on paper - use wool or an embroidery thread.
- Use a darning needle.

**LEVI STRAUSS & CO.**  
SAN FRANCISCO - CALIF.  
COPPER-BRAND  
CLOTHING  
No. 2  
Every Garment Guaranteed  
1st Size 32 X 30

Is all denim the same?  
Why was it produced?  
What does the Levi-label tell me straight away?  
What makes it durable?

Look at the logo for Levi Strauss jeans and discuss the power of an image

Pose this question to pupils:  
Is all denim the same?

Prompt pupils to examine the colour, weight, stretch and durability of denim fabric samples

Pupils include denim swatches in their portfolio with annotations detailing their observations

Backstitch is used in Lesson 3

This stitch will provide a stronger join than running stitch

Identify the parts of a needle


Look at stitching on clothing and suggest why particular stitches are used



## Exemplification: Y5 Textiles – Block C

# Which fabric is ideal for creating a functional and hardwearing lunch bag?



Pupils looked at fasteners in Year 4 – review and let them decide which they want to use and where they will place it on the bag in lesson 3.



Use a double boiler to melt the beeswax pellets.



Test threads to find out how strong they are.  
What weight will each take before they break.

How can we make a light cotton fabric become functional?

What has happened to the fabric?  
How is it now functional?  
What can it do that it couldn't before?

Apply quickly to the surface as it dries as soon as it is exposed to the air.  
Use an iron and an extra piece of cotton fabric, to disperse the melted wax.

Use an old paintbrush to apply the melted wax.

Test various threads to discover which is the strongest

Pupils keep a record of the threads they have tested and their results and conclusions about which is strongest

Look at the properties of the cotton fabric before and after adding the wax coating  
Make and note comparisons

## Exemplification: Y5 Textiles – Block C

# Which fabric is ideal for creating a functional and hardwearing lunch bag?

Look at various bags and examine how they are constructed



Compare different lunch containers and bags

Pose these questions to pupils:

How practical are they?

Are there different sections?

Can they be washed?

Which fabric would make a durable lunch bag?



- Use the leg of a pair of jeans as two sides are already joined
- Use the hemline as it's already finished



- Follow instructions to create the base
- Use backstitch and a strong thread to stitch across the bottom
- Open up the corners and join

create a base for the bag



- Pupils could extend the activity by testing the effectiveness of insulation fabric



- Use insulation fabric to create a space for inside the bag.



Extend the lesson by creating an insulated pocket to go inside the bag

Consider which fastening to use

Use strong thread and backstitch to join seams