

CUSP Design and Technology Curriculum: Teacher Handbook

CUSP Design and Technology is the most recent of our highly impactful CUSP subjects, which include science, geography, history, art and design as well as reading and writing.

We have purposefully built CUSP Design and Technology around the principles of evidence-led practice. This is to ensure that pupils are equipped to successfully think, work and communicate like a designer. Unapologetically ambitious, our curriculum focuses on excellence in this subject through a range of disciplines and by referencing outstanding practitioners in this field.

The intention is that the exceptional teacher instruction inspires pupils to acquire knowledge as designers and technologists and enables them to skilfully apply their understanding.

The CUSP Design and Technology curriculum is organised into blocks with each block covering a particular set of disciplines, including food and nutrition, mechanisms, structures, systems, electrical systems, understanding materials and textiles. Vertical progression in each discipline has been deliberately woven into the fabric of the curriculum so that pupils revisit key disciplines throughout their Primary journey at increasing degrees of challenge and complexity.

In addition to the core knowledge required to be successful within each discipline, the curriculum outlines key aspects of development in the Working as a Designer section. Each module will focus on promoting different aspects of these competencies. This will support teachers in understanding pupils' progress as designers more broadly, as well as how successfully they are acquiring the taught knowledge and skills.

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.

The CUSP Design and Technology package includes a sequence of skeleton lesson plans, contextual reference materials, vocabulary modules focusing on language of emotion, explanatory videos and annotated exemplifications. The teacher videos complement the content in each block and provide clear instruction about relevant techniques, skills and methods. The exemplifications can be used to inform assessment of pupil outcomes and to support teachers in developing their own subject knowledge. Teachers are also provided with a list of materials and resources that they will need to deliver each block. The components of the suite should be viewed together for maximum impact.



Learning
modules



Video
guidance



Exemplification
materials

Central to the learning modules are activities designed to develop pupils' oracy and vocabulary skills to enable them to use the language associated with design and technology meaningfully when talking about their work and the work of others.

An overview of the core content provides information about the skills covered across the term in each year group. This allows teachers to see the progression of skills included within each aspect of design and technology.

Unity Schools Partnership and Greenfields Education Ltd endeavour to trace and contact copyright owners. If there are any inadvertent omissions or errors in the acknowledgements or usage, this is unintended and Unity Schools Partnership / Greenfields will remedy these on written notification.

CUSP Design and Technology - Block structure and contents

Overview of block contents

This slide explains the context in which the block is set and provides an outline of the structure of the block.

Lesson sequence:

A summary of the key skills and techniques covered in the three lessons is recorded here.

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 Evaluation and adaptation	Application of skills Evaluation and adaptation

At the end of this block, pupils will ...

Know:	Be able to:
How to waterproof cotton fabric	Use beeswax to waterproof cotton fabric
Which fabrics are both functional and hardwearing	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.

Levi Strauss (1829 – 1902)

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	Food and Nutrition	Structures	Mechanisms
Year 6	Food and Nutrition	Mechanisms	Food and Nutrition	Structures	Electrical Systems	Textiles

CUSP Intellectual content and design copyright © 2021 Unity Schools Partnership (Curriculum structure and principles © Greenfields Education Ltd) Image(s) used under license from Shutterstock.com

Expected outcomes:

This list of expected outcomes provides details of the knowledge and skills pupils will be expected to have acquired by the end of the block.

This brief summary gives further information about the specific skills to be taught and the materials pupils will explore in the block.

Long term overview:

Where each block sits within the long term curriculum sequence is indicated here.

Point of reference

This slide provides teachers with contextual information and a list of the resources and materials needed to teach the block.

Prior Learning:

Details of the knowledge and skills pupils will already have acquired are provided as the block builds on this prior learning.

Links to Literature:

Links that are made in the lesson sequences to works of literature are listed here. Specific books and illustrators are recommended and used as a stimulus.

Working as a Designer:

Each block covers these specific elements of design and technology.

Point of reference: Y5 Textiles – Block C

Pupils will be able to:

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

Prior Learning

- 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. Genes, 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.

CUSP Intellectual content and design copyright © 2021 Unity Schools Partnership (Curriculum structure and principles © Greenfields Education Ltd) Image(s) used under license from Shutterstock.com

Design or Technology History:

Background information is provided about the specific designers studied in the block.

Materials:

Materials and resources that teachers will need to deliver the lessons are listed.

Health and Safety:

Key health and safety considerations needed for the block are recorded here. This is not an exhaustive list as schools should follow their own risk assessments and policies to ensure the safety of pupils.

Point of explanation

This slide provides teachers with explanations about and definitions of the technical vocabulary to be taught in the block.

Core Knowledge:

Detailed explanations of the core knowledge covered in each block are included here.

Link to Video:

A video has been created for each block. The video provides a step-by-step guide to the techniques and skills that are required in the block. Each video complements the sequence of lessons and needs to be accessed in conjunction with the written plans to ensure the content is taught effectively.

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: https://vimeo.com/632202885/342a8f3dce
• Explanation and demonstration of taught content • Lesson by lesson guidance • Exemplification of techniques and outcomes



Intellectual content and design copyright © 2023 Unity Schools Partnership (Curriculum structure and principles © Greenfields Education Ltd)
Image(s) used under license from Shutterstock.com

Technical Vocabulary:

The technical vocabulary that pupils will be taught and encouraged to use when discussing their own and others' work is listed here.

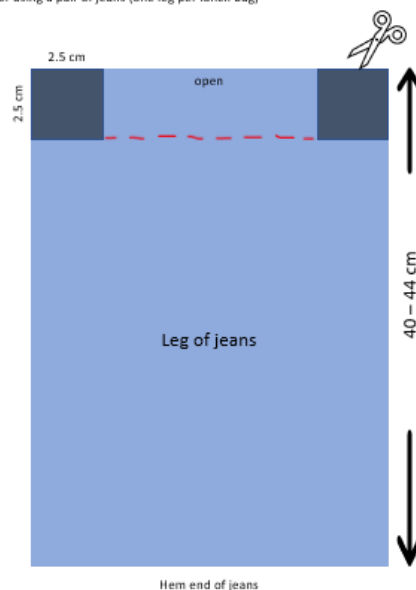
Definitions of each term are provided. These definitions are also included in the *Knowledge Note* for pupils. Pupils should be given a copy of the *Knowledge Note* for their design portfolios so they can refer back to this information as required.

Supporting template or resources

This slide is included if supporting resources are needed to teach the block.

Supporting template for lunch bag: Y5 Textiles – Block C

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



Point of delivery

This slide sets out the teaching sequence and shows how prior learning is built upon to ensure progression of skills.

Revisiting prior learning:

In Lesson 1 the prior learning relates to the knowledge and skills acquired in previous blocks. For example, Y5 Textiles Block C draws upon Y2 Understanding Materials Block D.

Taught content:

This section provides a concise description of the knowledge and skills that will be taught and what pupils will be expected to do and understand.

Questions for assessment:

Key question stems have been included to aid discussion with pupils about their responses to their own work and the work of others. These questions form an essential part of assessing what pupils understand about what they have been taught.

Suggestions for specific questions relating to techniques and skills are also included in the *Point of practice* text.

Point of delivery: Y5 Textiles – Block C

Revisiting prior learning	Taught content	Point of practice	Point of reflection
3. Use a range of stitches including blanket stitch. Be able to make simple fastenings. Make accurate measurements.	Explore which clothing items can be repurposed as a lunch bag. Use cutting, stitching and folding to construct a rectangular-based durable lunch bag. Make choices about fastenings and decorations. Evaluate outcomes.	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 practice running stitch, backstitch and blanket stitch. Pupils then add these samples to their portfolios. Introduce the brief: Make a lunch bag that is durable. 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. 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. 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. 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. 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 evaluation notes in their portfolios and complete Vocabulary Task 2. Extension activity: Consider insulating the bag or making a lining.	Can give reasons why some clothing items are more suitable than others. Can cut and sew accurately, following a series of steps. Can make independent decisions about details and embellishments. Can identify strengths and areas for development in their work.

Questions for assessment	
What kind of weave makes a fabric translucent?	Why is it important that materials used for food storage are easy to wash?
Which fabrics are likely to be hardwearing? How do you know?	How have the properties of the cotton changed? Is the cotton now more or less functional?
What kinds of fabric are waterproof?	Which clothing items would be more suitable for repurposing and why?
Are all fabrics made with thick threads more rigid?	How could you test materials to see if they would be suitable for use as an insulator?
Can the lunchbox keep the food warm or cool?	What changes / improvements would you make to your lunch bag?

CUSP Intellectual content and design copyright © 2023 Unity Schools Partnership (Curriculum structure and principles © Greenfields Education Ltd)
Image(s) used under license from Shutterstock.com

Point of practice:

This section contains the main teaching content.

It is recommended that teachers introduce the *Knowledge Note* to pupils at the start of Lesson 1.

It is suggested that *Vocabulary Task 1* is given to pupils in Lesson 2. Depending on where the task best fits in the sequence of the lesson, it would be for teachers to decide whether this is completed at the start of the lesson, mid-lesson or at the end.

Vocabulary Task 2 could then be completed by pupils in the final lesson. Again, it is for teachers to decide at what point in the lesson the task is completed.

Point of reflection:

This section relates directly to the *Taught content*. The intended outcome statements should be used as a formative assessment tool.

Oracy and Vocabulary (Tasks 1 and 2)

This slide contains two tasks for pupils to complete that relate specifically to vocabulary that is relevant to the lesson content. Teachers are advised to decide at what point in Lessons 2 and 3 these tasks are completed.

Task 1:

Task 1 is designed to help pupils to develop the skills needed to talk about their own work, the techniques they have been using and the work of others, and to use appropriate vocabulary to do this meaningfully. Words have been selected that relate to the lesson content. Task 1 varies in nature and complexity across the year groups. Activities focus on broadening pupils' understanding of the different shades of meaning in words.

Task 2:

Task 2 requires pupils to use the language of emotion and technical vocabulary relating to design or technology to articulate their feelings and responses to their own work and the work of others.

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:

- How can you make a flimsy fabric more rigid and durable?
- Are all open-weave fabrics translucent?
- 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.

Exploration:

This section poses questions to pupils about how they can expand on their work and develop skills further. These questions also require pupils to reflect on the success of their products through verbal or written responses as appropriate.



Some questions are accompanied by a speech icon or (say). This is to indicate that verbal responses are required.

Vocabulary quiz

This slide has tasks for pupils to undertake after the block has been completed. It contains a range of questions requiring simple written responses covering the following: analysing words, defining words, making connections to other known words and using words in context. Technical vocabulary listed in the *Knowledge Note* is included in this section along with other key vocabulary that is used in the block.

Analyse:

The questions in this section relate to the close analysis of the etymology and morphology of words and their origins.

Connect:

Questions in the *Connect* section require pupils to make links to other known words and compare words for meaning. Different question types are used to elicit pupils' understanding of synonyms and antonyms and how words relate to each other.

Vocabulary: Y5 Textiles – Block C

OWN-it Analyse	KNOW-it Define
Write the root word of insulation.	Write a definition of the word insulate.
Change this abstract noun to an adjective. durability /	Tick the most accurate definition of the word swatch. ☐ a type of cloth ☐ a sample of cloth ☐ an example of a pattern
Tick the correct word class for the word repurpose. ☐ noun ☐ verb ☐ adverb	Write a definition of the word waterproof. Use only two words.
LINK-it Connect	USE-it Use in context
Tick the word that is not a synonym of functional. ☐ broken ☐ useful ☐ practical ☐ decorative	Explain two uses of beeswax.
Write three words that can be generated from the root word function.	Explain the difference between natural and synthetic.
Tick the synonyms of the word swatch. example view rinse sample	Tick the sentence if the word properties has been used correctly. Then, write your own sentences using this word. ☐ Being a good conductor of heat is one of the properties of copper.

Define:

Pupils are asked to show their understanding of the words they have been taught and have been using in their lessons by answering questions relating to word definitions.

Use in context:

To further assess pupils' understanding of terminology, they are asked to use specific words appropriately in context. Some questions require pupils to write a full sentence while others require them to select the right option or complete a given sentence by filling a gap with the correct word.

Knowledge Note

This slide is an aide memoire for pupils. The *Knowledge Note* should be introduced at the start of Lesson 1 so that pupils know what core knowledge and skills they will acquire and the technical vocabulary they will learn as the lessons progress.

The slide contains two identical copies of the *Knowledge Note* with the intention that these be trimmed and stuck into design portfolios for pupils to refer to as necessary.

Core content:

Pupils are provided with a brief summary of the content of each block.

Technical vocabulary:

Key technical vocabulary that is covered in each block provides a useful glossary of terms for pupils to refer to.

Icons have been used to aid understanding of terms.

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?

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



Intellectual content and design copyright © 2023 Unity Schools Partnership (Curriculum structure and principles © Greenfields Education Ltd)
Image(s) used under license from Shutterstock.com

Key question:

This is the question or problem around which the block is constructed.

Connections:

Images, showing examples of designers or samples of their work, are presented so that pupils can refer to these as a reminder of people they have studied and their associated styles or hallmarks.

Exemplification

Annotated examples of design portfolio work and finished pieces are displayed. These show teachers how pupils could record their ideas and demonstrate their understanding. They also provide a standard against which they can assess pupils' work. The exemplification materials are also available as a complete set in a separate booklet.

Exemplification: Y5 Textiles – Block C

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

Y5 DT Textiles
Which fabric is ideal for creating a functional and hardwearing lunch bag?

Collect fabric swatches
look at and test for purposes

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 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

	smooth	soft	stiff	heavy	open weave	close weave	rough	fine
1	✓	✓	✓	✓	✓	✓	✓	✓
2	✓	✓	✓	✓	✓	✓	✓	✓
3	✓	✓	✓	✓	✓	✓	✓	✓
4	✓	✓	✓	✓	✓	✓	✓	✓
5	✓	✓	✓	✓	✓	✓	✓	✓
6	✓	✓	✓	✓	✓	✓	✓	✓
7	✓	✓	✓	✓	✓	✓	✓	✓

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?

Intellectual content and design copyright © 2023 Unity Schools Partnership (Curriculum structure and principles © Greenfields Education Ltd)
Image(s) used under license from Shutterstock.com

Assessment of pupils:

The assessment of pupils is formative and is based on pupil outcomes and questioning from each lesson. The following can be used to assess pupils' knowledge and application of skills and techniques as well as their understanding and use of relevant vocabulary.

- Expectations for each block are made explicit on slide one, e.g. *At the end of this block pupils will know how to waterproof cotton fabric and which fabrics are both functional and hardwearing.*
- The *Point of reflection* section specifies the expected outcomes for each lesson.
- The *Questions for assessment* section in each block provides specific questions to be used with pupils to elicit their level of understanding of tools, techniques and effects, e.g. *How have the properties of the cotton changed? Is the cotton now more or less functional?*
- The *Oracy and Vocabulary* tasks provide ample opportunities for teachers to evaluate pupils' ability to:
 - use the language of design and technology effectively;
 - explain techniques, skills and processes;
 - evaluate their own and others' work.
- The vocabulary quiz provides an opportunity for teachers to assess pupils' deeper understanding and application of the technical vocabulary covered in the block.
- The exemplifications demonstrate the expected standard against which teachers can assess pupils' work.

The best form of assessment in design and technology is at the point of delivery, while pupils are working. This helps us to understand pupils' development as designers, rather than their ability to produce a prescribed end outcome. By encouraging pupils to articulate their thinking and reflections, we can understand which aspects of design and technology may require additional teaching and reshape teaching to support this.

Reasonable adjustments for pupils with SEND:

As part of the planning and preparation for the delivery of each block, teachers will need to consider how specific activities, or the delivery, may need to be adjusted to ensure that pupils with SEND are able to access the materials and participate fully in the lesson.

Pupils with language and communication difficulties (including those with ASD) may need additional visual prompts to help them understand what is expected of them. The task could be broken down into smaller, more manageable chunks and individual task boards used to demonstrate these.

Some pupils may have sensory sensitivities. For those pupils, adjustments may need to be made in order for them to access materials. Pupils who have difficulties with tasks requiring fine motor skills may need appropriate adjustments to be made to enable them to access the task and / or in order to keep them safe.

Health and safety:

The blocks highlight key tools, techniques and tasks for which potential risks need to be carefully managed. However, schools should follow their own risk assessment guidelines and policies when delivering CUSP Design and Technology. Regarding food and nutrition, it is advisable for the Design and Technology subject leader to have a basic certificate in food hygiene. This can be obtained through the [City and Guilds Food Safety in Catering qualification](#) which can be completed online. A simple record (see below) of which members of staff have relevant qualifications could be kept.

Name	Qualification	Date completed

Resources:

A list of recommended resources, based on a typical class size of 30, is provided for each block. Items listed are broadly those which are above and beyond what a school may usually have in stock.

CUSP DT Long term sequence

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	Food and Nutrition	Structures	Mechanisms
Year 6	Food and Nutrition	Mechanisms	Food and Nutrition	Structures	Electrical Systems	Textiles

CUSP DT Core Content: Block A and Block B (Autumn Term)

Year	Block A	Block B
1	Core discipline: Mechanisms  Key concept: Sliders and levers How can you make a picture move?	Core discipline: Structures  Key concept: Freestanding structures How can you stop a tower from toppling over?
2	Core discipline: Textiles  Key concept: Exploring shape using a template How can you repurpose an item of clothing?	Core discipline: Food and Nutrition  Key concept: Nutrients and the body What does healthy mean?
3	Core discipline: Textiles  Key concept: Stiffening and strengthening fabric How can you make a box out of cloth?	Core discipline: Food and Nutrition  Key concept: Individual diets What do we mean by a balanced diet?
4	Core discipline: Food and Nutrition  Key concept: Ultra-processed food What's really in your food?	Core discipline: Mechanisms  Key concept: Hinges How many ways are there to open a door?
5	Core discipline: Food and Nutrition  Key concept: Food choices Why are our diets so different?	Core discipline: Systems  Key concept: Using technology to design and control How can we keep ourselves safe on the road?
6	Core discipline: Food and Nutrition  Key concept: Multicultural influences on food Can street foods save us?	Core discipline: Mechanisms  Key concept: Pulleys and gears - rotary and linear movement How do pulleys and gears let you see the world?

CUSP DT Expectations: Block A and Block B (Autumn Term)

Year	Block A	Block B
1	Mechanisms Sliders and levers How can you make a picture move? Know common uses of sliders Know different methods to create card sliders Know how sliders can create simple mechanisms Be able to design and make a slider product Be able to evaluate the success of their outcomes and recommend improvements	Structures Freestanding structures How can you stop a tower from toppling over? Know a freestanding structure is a structure that stands on its own foundation or base without attachment to anything else Be able to build structures that are freestanding using a range of different materials
2	Textiles Exploring shape using a template How can you repurpose an item of clothing? Know how to cut out shapes which have been created by using a template Know how to use a range of basic sewing skills Be able to use a template to transfer a pattern Be able to cut out and join fabric shapes using a template	Food and Nutrition Nutrients and the body What does healthy mean? Know why vegetables are so important to our health Know what processed foods are Be able to prepare a range of salad vegetables Be able to shape and season a bread snack
3	Textiles Stiffening and strengthening fabric How can you make a box out of cloth? Know fabric can be stiffened Know stiffened fabric can hold a form Be able to select and apply solutions to stiffen fabric Be able to make a box using stiffened fabric	Food and Nutrition Individual diets What do we mean by a balanced diet? Know what is meant by the term balanced Know why fresh foods are better Be able to make a fruit and yoghurt dessert Be able to make homemade chips Be able to flavour foods to increase their sensory qualities
4	Food and Nutrition Ultra-processed food What's really in your food? Know processed foods have many added ingredients Be able to make, roll and shape bread dough Be able to make a soup	Mechanisms Hinges How many ways are there to open a door? Know types of hinges and the related terminology Know common uses for hinges Be able to make a variety of model hinges Be able to make and evaluate hinged products using modelling materials
5	Food and Nutrition Food choices Why are our diets so different? Know some foods and key ingredients from other cultures Know how other cultures' food can be nutritious Be able to make, roll and cook a flatbread Be able to prepare a range of vegetables Be able to present foods to a high standard	Systems Using technology to design and control How can we keep ourselves safe on the road? Know technology can be used to program and control a product Be able to combine elements of their design knowledge to fulfil a brief
6	Food and Nutrition Multicultural influences on food Can street foods save us? Know what street foods are Know how snacks can be good foods to eat Be able to make a burrito Be able to make and roll bread dough Be able to make a savoury pastry	Mechanisms Pulleys and gears - rotary and linear movement How do pulleys and gears let you see the world? Know types of pulley systems and gears Know common uses of pulleys and gears Know how pulleys and gears can create simple mechanisms and change direction of movement Be able to design and make a model Ferris wheel powered by gears Be able to evaluate the success of their outcomes and recommend improvements

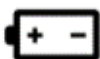
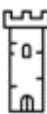
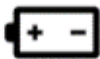
CUSP DT Core Content: Block C and Block D (Spring Term)

Year	Block C	Block D
1	Core discipline: Food and Nutrition  Key concept: Exploring food senses How does food affect your senses? CUSP link: Animals, including humans	Core discipline: Understanding Materials  Key concept: Selecting materials Can you build with bread? CUSP link: Everyday materials
2	Core discipline: Mechanisms  Key concept: Axles and wheels Are bigger wheels always better?	Core discipline: Understanding Materials  Key concept: Manipulating materials How can you waterproof a hat? CUSP link: Uses of everyday materials
3	Core discipline: Mechanisms  Key concept: Levers and linkages - mechanical advantage How can you do a lot of work with little effort? CUSP link: Forces and magnets	Core discipline: Food and Nutrition  Key concept: Food as medicine How does food affect your body and mind? CUSP link: Animals, including humans
4	Core discipline: Textiles  Key concept: Fixings and fastenings How do you keep a tea towel from slipping off a hook?	Core discipline: Structures  Key concept: Designing structures using a frame to make them stronger and sturdier Which shapes will give a structure stability?
5	Core discipline: Textiles  Key concept: Durability of fabric Which fabric is ideal for creating a functional and hardwearing lunch bag?	Core discipline: Food and Nutrition  Key concept: Cultural influences on diet What can you learn from different cultures' diets? CUSP link: World countries
6	Core discipline: Food and Nutrition  Key concept: Food and mood Does food affect the way you feel?	Core discipline: Structures  Key concept: Designing structures revisited - combining skills and knowledge How strong is a piece of spaghetti?

CUSP DT Expectations: Block C and Block D (Spring Term)

Year	Block C	Block D
1	Food and Nutrition Exploring food senses How does food affect your senses? Know why colourful food can be healthier Know how different foods can affect senses Be able to peel, chop and grate a selection of vegetables Be able to modify food to suit food senses	Understanding Materials Selecting materials Can you build with bread? Know building materials have different properties which enable them to be used for different purposes Be able to identify, sort and select materials that can be used in construction Be able to combine materials
2	Mechanisms Axles and wheels Are bigger wheels always better? Know how wheels and axles work together Know the size and position of wheels affects how they move Be able to create a simple wheel mechanism Be able to use wheel mechanisms to propel a simple vehicle	Understanding Materials Manipulating materials How can you waterproof a hat? Know materials can be modified to become waterproof Know origami comes from the Japanese words: ori - folding and kami - paper Be able to make paper waterproof Be able to transform flat paper by folding and creasing to form a hat
3	Mechanisms Levers and linkages - mechanical advantage How can you do a lot of work with little effort? Know types of levers and linkages Know key terminology relating to levers and linkages Know how levers and linkages can change the direction of movement Be able to design and make simplistic lever and linkage products Be able to evaluate the success of outcomes and recommend improvements	Food and Nutrition Food as medicine How does food affect your body and mind? Know food can help body and mind Know how to prepare and cook a range of vegetables Be able to peel and grate a range of vegetables Be able to add flavour and texture to foods
4	Textiles Fixings and fastenings How do you keep a tea towel from slipping off a hook? Know fastenings have different functions Know a shank provides a small amount of space between the button and fabric Be able to select appropriate fastenings and attach them to fabric Be able to make a shank for a button	Structures Designing structures using a frame to make them stronger and sturdier Which shapes will give a structure stability? Know triangles provide stability in a structure Know structural engineers work with architects to ensure structures withstand forces Be able to make triangles to form and join trusses Be able to identify the forces that affect structures
5	Textiles Durability of fabric Which fabric is ideal for creating a functional and hardwearing lunch bag? Know how to waterproof cotton fabric Know which fabrics are both functional and hardwearing Be able to use beeswax to waterproof cotton fabric Be able to repurpose a pair of jeans	Food and Nutrition Cultural influences on diet What can you learn from different cultures' diets? Know how foods can be used as medicines Know how eating food from different countries can help us be healthy Be able to roll and shape ingredients Be able to slice and ribbon a range of vegetables Be able to stir-fry vegetables
6	Food and Nutrition Food and mood Does food affect the way you feel? Know the difference between slow release and quick release carbohydrates Know how food can improve mood and energy levels Be able to dice, slice, peel, grate and cook a range of vegetables Be able to make a sauce and a stock Be able to use height and colour to improve the visual appeal of food	Structures Designing structures revisited - combining skills and knowledge How strong is a piece of spaghetti? Know structures can be supported with guy lines and flying buttresses Know the shorter the piece of spaghetti, the stronger it will be Be able to construct a flying buttress to support a tower Be able to use appropriate lengths of spaghetti to increase strength and stability

CUSP DT Core Content: Block E and Block F (Summer Term)

Year	Block E	Block F
1	Core discipline: Textiles  Key concept: Joining techniques How can two squares of fabric keep you warm? CUSP link: Hot and cold places	Core discipline: Food and Nutrition  Key concept: Vitamins in food Why are vegetables the best?
2	Core discipline: Food and Nutrition  Key concept: Processed food How healthy is your food?	Core discipline: Structures  Key concept: Developing strength in structures How strong is a piece of paper?
3	Core discipline: Systems  Key concept: How things are powered How are things powered?	Core discipline: Structures  Key concept: Spanning gaps What makes a bridge strong?
4	Core discipline: Electrical Systems  Key concept: Switches and circuits revisited How useful are switches? CUSP link: Electricity	Core discipline: Food and Nutrition  Key concept: Benefits of fresh food Is cheap food always worse for you? CUSP link: Animals, including humans
5	Core discipline: Structures  Key concept: Developing structures that are fit for purpose How are frames strengthened, reinforced and made rigid?	Core discipline: Mechanisms  Key concept: Pulleys and gears - transferring rotational force How can you lift a car onto a roof? CUSP link: Forces
6	Core discipline: Electrical Systems  Key concept: Complex switches and circuits Can switches perform more than one function? CUSP link: Electricity	Core discipline: Textiles  Key concept: Sustainable materials How can you reduce, recycle, repurpose?

CUSP DT Expectations: Block E and Block F (Summer Term)

Year	Block E	Block F
1	Textiles Joining techniques How can two squares of fabric keep you warm? Know fabric can be joined together using a running stitch Know the types and names of tools needed for sewing Be able to create a running stitch Be able to select tools for sewing Be able to thread a needle	Food and Nutrition Vitamins in food Why are vegetables the best? Know the importance of including a range of vegetables in a diet Be able to peel, grate, season and breadcrumb a range of vegetables
2	Food and Nutrition Processed food How healthy is your food? Know the difference between fresh food and ultra-processed foods Be able to shape and form ingredients to make delicious food Be able to use a range of culinary techniques	Structures Developing strength in structures How strong is a piece of paper? Know paper becomes stronger when it is folded Know a load is the amount of weight a structure must carry Be able to fold paper to increase strength and stability Be able to test and record how much weight paper can hold
3	Systems How things are powered How are things powered? Know different types of energy Know why designers need to carefully consider energy sources Be able to identify how things are powered Be able to suggest appropriate energy sources for design problems	Structures Spanning gaps What makes a bridge strong? Know bridges are structures that allow people and vehicles to cross over an open space Know towers, piers and arches provide strength to a bridge Be able to design and build a beam bridge that can hold the weight of 100 pennies Be able to identify and name parts of a bridge
4	Electrical Systems Switches and circuits revisited How useful are switches? Know a switch is an interruption in a circuit Know switches are widely used in a range of products Be able to incorporate different types of switches into circuits to perform a function	Food and Nutrition Benefits of fresh food Is cheap food always worse for you? Know that cheap processed food often contains additives, salt and sugar, which makes it less healthy than unprocessed food Be able to peel, grate and chop vegetables to make economical, tasty and healthy food
5	Structures Developing structures that are fit for purpose How are frames strengthened, reinforced and made rigid? Know engineers use a range of methods to strengthen and reinforce structures Be able to identify and describe ways that frames are strengthened and reinforced	Mechanisms Pulleys and gears - transferring rotational force How can you lift a car onto a roof? Know types of gears and terminology relating to gears Know common uses of pulleys and gears Know how pulleys and gears can change the direction of movement Be able to design and make products that use pulleys and gears to lift loads Be able to evaluate the success of outcomes and recommend improvements
6	Electrical Systems Complex switches and circuits Can switches perform more than one function? Know more than one switch can be used to change the functionality of a product Be able to use switches to adapt a product in response to a design brief	Textiles Sustainable materials How can you reduce, recycle, repurpose? Know plastic waste can be recycled and repurposed into practical, useful items Be able to make a crochet hook out of a chopstick Be able to use plastic bags and snack packets to create practical items