



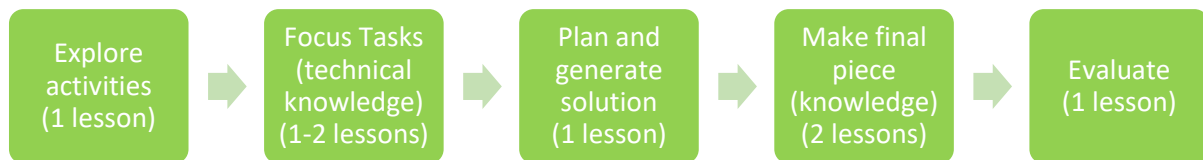
# **SHERINGDALE**

**Design Technology  
Medium Term Planning**

**'High-quality design and technology education makes an essential contribution to the creativity, culture, wealth and well-being of the nation.' National Curriculum**

For each unit:

Unit overview for most structures, systems and textiles units:



- ➔ Work to be completed in the front of the child's sketchbook. There should be a title page for each unit.
- ➔ First lesson to be an *explore lesson* where children are introduced to a designer, as well as products that support the learning of the unit. Key components of the product are highlighted by the teacher. Children are invited to explore these products and produce notes about how they work. Checks should be made on prior knowledge within this lesson and taught before making the product if not known.
- ➔ *Focus task lessons* are used to directly teach substantive and disciplinary knowledge in a practical way, using technically accurate explanations.
- ➔ In the plan and generate lessons, a problem and design brief are introduced using the format below. Children plan with increasing detail before making their product. Use of tools and techniques, including safety expectations, should also be taught in these lessons, usually at the start.
  - Problem: why are we making this product?
  - Design brief: Design, make and evaluate a \_\_\_\_\_ (product) for \_\_\_\_\_ (user) for \_\_\_\_\_ (purpose).
- ➔ Evaluate lessons should have:
  - Image of finished product in books
  - Star diagram completed
  - Explanation of thoughts
  - Explanation of how to improve
- ➔ Look at the Prior knowledge at the start of each unit to know what knowledge to recap.
- ➔ There should be challenge for each lesson.
- ➔ Cooking and Nutrition lessons do not have a set format. The focus should be on cooking.

## DT in the EYFS

The most relevant statements for DT are taken from the following areas of learning:

- Physical Development
- Expressive Arts and Design

|                          |  |   |
|--------------------------|--|---|
| Three and Four-Year-Olds | Personal, Social and Emotional Development | <ul style="list-style-type: none"> <li>• Select and use activities and resources, with help when needed. This helps them to achieve a goal they have chosen or one which is suggested to them.</li> </ul>   |
|                          | Physical Development                       | <ul style="list-style-type: none"> <li>• Use large-muscle movements to wave flags and streamers, paint and make marks.</li> <li>• Choose the right resources to carry out their own plan.</li> <li>• Use one-handed tools and equipment, for example, making snips in paper with scissors.</li> </ul>   |
|                          | Understanding the World                    | <ul style="list-style-type: none"> <li>• Explore how things work.</li> </ul>  |
|                          | Expressive Arts and Design                 | <ul style="list-style-type: none"> <li>• Make imaginative and complex 'small worlds' with blocks and construction kits, such as a city with different buildings and a park.</li> <li>• Explore different materials freely, in order to develop their ideas about how to use them and what to make.</li> <li>• Develop their own ideas and then decide which materials to use to express them.</li> <li>• Create closed shapes with continuous lines, and begin to use these shapes to represent objects.</li> </ul> |

|           |                            |  |   |
|-----------|----------------------------|--|---|
| Reception | Physical Development       | <ul style="list-style-type: none"> <li>• Progress towards a more fluent style of moving, with developing control and grace.</li> <li>• Develop their small motor skills so that they can use a range of tools competently, safely and confidently.</li> <li>• Use their core muscle strength to achieve a good posture when sitting at a table or sitting on the floor.</li> </ul> |   |
|           | Expressive Arts and Design | <ul style="list-style-type: none"> <li>• Explore, use and refine a variety of artistic effects to express their ideas and feelings.</li> <li>• Return to and build on their previous learning, refining ideas and developing their ability to represent them.</li> <li>• Create collaboratively, sharing ideas, resources and skills.</li> </ul>                                   |   |
| ELG       | Physical Development       | Fine Motor Skills  | <ul style="list-style-type: none"> <li>• Use a range of small tools, including scissors, paintbrushes and cutlery.</li> </ul> |

|                            |                         |  |
|----------------------------|-------------------------|--|
| Expressive Arts and Design | Creating with Materials | <ul style="list-style-type: none"> <li>• Safely use and explore a variety of materials, tools and techniques, experimenting with colour, design, texture, form and function.</li> <li>• Share their creations, explaining the process they have used.</li> </ul> |
| Managing self              | Healthy food choices    | <ul style="list-style-type: none"> <li>• Manage their own basic hygiene and personal needs, including dressing, going to the toilet, and understanding the importance of healthy food choices.</li> </ul>  |

# Year 1

## Autumn

### Making a fruit salad

#### Cooking and Nutrition

#### **Prior knowledge to include:**

Understanding the importance of healthy food choices (ELG)

Understand how to wash hands properly

Become increasingly confident managing basic hygiene and personal needs successfully.

Know that farms can contain plants and/or animals, and that farms create food.

#### **Key Vocabulary**

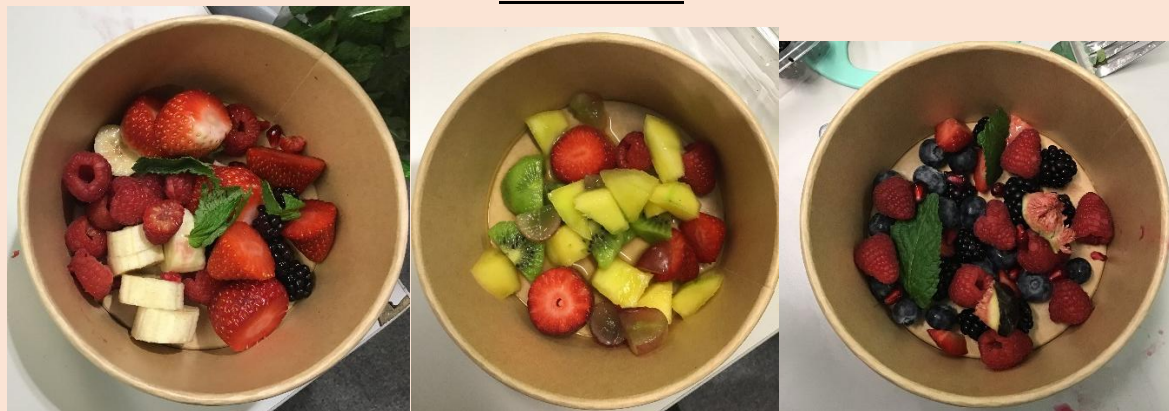
healthy

varied

#### **Materials Needed:**

Fruit (for tasting and final product), chopping boards, knives, eco-containers, fruit juicers, aprons

#### **Final Product:**



#### **Sticky Knowledge:**

- We need to eat well and exercise so that we can stay healthy
- Some food is grown (with examples)

WALT understand what makes a healthy and varied diet

- Share definitions for healthy and varied
- Organise foods into simple groups

WALT understand where food comes from

- Look at the 3 main types of farm (dairy, livestock, arable/planting and growing) to understand where food comes from

WALT sample and evaluate ingredients

WALT plan our fruit salad and how to keep clean and safe when preparing food

- Model the use of annotated drawings

WALT make a fruit salad (including safe use of tools)

- Practice and apply basic hygiene practices
- Understand how to wash hands properly and with independence

WALT evaluate our fruit salad

- Image of finished product in books
- Star diagram completed
- Explanation of thoughts
- Explanation of how to improve

## Spring

# Making a toy vehicle

**Structures and Systems - Mechanisms (wheels and axles)**

### Prior knowledge to include:

Selects resources needed to shape, assemble and join materials they are using. Use simple tools to effect changes to materials.

Handle tools, objects, construction and malleable materials safely and with increasing control

Use scissors accurately.

Can measure using non-standard units

### Key Vocabulary

Vehicle

Wheels

Axles

Chassis

### Materials Needed:

[TTS set](#) x3

A4 card x 60

Felt tip pens

Colouring pencils

### Final Product:



**Sticky Knowledge:**

- A wheel is a circular object that can help things move
- A vehicle is a machine that is used to move people or things
- An axle is a rod that passes through the centre of a wheel. It can be fixed to the wheel or the vehicle.
- Corners can be reinforced to make them stronger

**WALT explore toy vehicles**

- Checks made on ensuring prior knowledge is known
- Related products are explored with diagrams drawn to label key components

**WALT create wheels and axles**

- Wheels and axles to be made and can be used in final product

**WALT design a toy vehicle**

- Share design problem
- Share design brief template and complete with children

**WALT make a toy vehicle**

- Create chassis and body – corners to be reinforced to make them stronger

**WALT make a toy vehicle**

- Create body and paint

**WALT evaluate a toy vehicle**

- Revisit design problem and brief
- Model completion of star diagram for evaluation
- Model explanation of thoughts: things they like about their product and ways to improve
- Challenge: explain effectiveness of design choices

## **Summer**

## **Puppets**

**Textiles (running stitch)**

Prior knowledge to include:  
Experiment with textiles

**Key Vocabulary**

Textiles  
Running stitch  
Knot

**Materials Needed:**

[Pre-cut puppet set x3](#)  
[Eye clips](#) x2  
Felt  
Feathers  
Glue gun  
PVA glue

**Final Product:**



**Sticky Knowledge:**

- Textile is another word for cloth. Its name means 'woven fabric'
- Able to recognise and create the running stitch
- How to tie a knot

**WALT explore puppets**

- Checks made on ensuring prior knowledge is known
- Related products are explored with diagrams drawn to label key components and processes

**WALT sew using a running stitch**

- Model running stitch and how to thread a needle (can use a needle threader)
- Children to use binka to practice running stitch
- Once confident, children to practice running stitch in felt

**WALT design a puppet**

- Share design problem
- Share design brief template and complete with children

**WALT make a puppet**

**WALT make a puppet**

**WALT evaluate a puppet**

- Revisit design problem and brief
- Model completion of star diagram for evaluation
- Model explanation of thoughts: things they like about their product and ways to improve
- Challenge: explain effectiveness of design choices

# Year 2

## Autumn

### Making a healthy sandwich

#### Cooking and Nutrition

##### **Prior knowledge to include:**

Practice and apply basic hygiene practices.

Understand how to wash hands properly and with independence.

Understand the basic principles of a healthy and varied diet

Learn to use hand tools and equipment safely and appropriately with adult support where necessary.

Start to independently follow a recipe. Prepare ingredients using appropriate cooking utensils.

##### **Key Vocabulary**

Flour

Yeast

Bread

##### **Materials Needed:**

**NB: Please adapt ingredients to cater for any children with allergies.**

Two slices of sliced bread (carbohydrate)

Protein of choice (vegetarian option needed)

Lettuce and/or cucumber (vegetable)

Cheese slices (dairy)

Butter (fat/oil)

X30 paper plates

X5 large tin foil trays (one table to display all ingredients)

X30 Napkins

##### **Final Product:**



##### **Sticky Knowledge:**

Flour is a powder made from grain

Yeast is a tiny organism that can be used to make bread rise and adds flavour

Names of selected bread

The five main food groups are:

- fruit and vegetables that give us vitamins and fibre

- Carbohydrates (pasta, bread and rice) keep our energy levels up
- Proteins (meat, beans and eggs) help us to grow and repair
- Dairy gives us strong teeth and bones
- Fats and oils act as an energy store

WALT understand what makes a healthy and varied diet

- Share definitions for healthy and varied
- Organise foods into simple groups

WALT understand where food comes from

Look at the 3 main types of farm (dairy, livestock, arable/planting and growing) to understand where food comes from

WALT sample and evaluate ingredients

WALT plan our sandwich and how to keep clean and safe when preparing food  
Model the use of annotated drawings

WALT make a healthy sandwich (including safe use of tools)

- Practice and apply basic hygiene practices
- Understand how to wash hands properly and with independence

WALT evaluate our sandwich

- Image of finished product in books
- Star diagram completed
- Explanation of thoughts
- Explanation of how to improve

## Spring

### Moving Pictures

**Structures and Systems - Mechanisms (levers and sliders)**

**Prior knowledge to include:**

Assemble, join and combine materials.

Use a range of construction materials and components including cardboard, textiles with support from an adult.

Learn how to cut, shape and score materials.

#### **Key Vocabulary**

Lever

Pivot

Slider

Mechanism

#### **Materials Needed:**

X30 A4 plain card

X30 Plain paper (to make mechanisms)

Split pins

Blue tac

Scissors

Glue

Coloured pencils

Masking tape

**Final Product:**



**Sticky Knowledge:**

- A mechanism is a device that is used to create movement
- A pivot is the point at which something turns
- A lever is a rigid beam that turns on a pivot, that is used to lift something
- A slider is a mechanism which makes something move up, down, left or right

WALT explore moving pictures

- Checks made on ensuring prior knowledge is known
- Use a range of pop-up books and resources to show levers and sliders
- Children to explore resources
- Children to complete drawings of mechanisms in books, including explanations of movements

WALT create levers and sliders

WALT design a moving picture

- Share design problem
- Share design brief template and complete with children

WALT make a moving picture

WALT make a moving picture

WALT evaluate a moving picture

- Revisit design problem and brief
- Model completion of star diagram for evaluation
- Model explanation of thoughts: evaluate ideas and products against design criteria
- Challenge: explain effectiveness of design choices based on the properties of materials and choice of joining

**Summer**

**African Textiles (4 weeks)**

Textiles (wax resist and dyeing)

Prior knowledge to include:

Manipulate fabrics in simple ways to create the desired effect.

## **Strong and Stable Structures (2 weeks)**

### **Structures and Systems – Structures**

#### **Prior knowledge to include:**

Use a range of construction materials and components including cardboard, textiles with support from an adult.

With help, measure and mark out templates for a product.

Learn how to cut, shape and score materials.

#### **Key Vocabulary**

Wax resist

Dyeing

#### **Structures**

Reinforce

Wide base

Strength

Stiffness

#### **Materials Needed:**

Fabric dye

Wax crayons

A piece of fabric about 20cmx20cm

Paper

Masking tape

#### **Final Product:**



#### **Sticky Knowledge:**

- Wax resist is where wax can be used to create a pattern.
- Wax resists water and so the dye does not leave a mark where wax is placed.
- Dye is used to change the colour of a textile

- Strength measures how much force is needed for a material to change shape until it breaks or cannot return to its original shape
- Stiffness measures how much force is needed for a material to not change shape until it bends (and still returns to its original shape)
- Adding material can improve strength and stiffness
- Choice of material can improve strength and stiffness
- A wide base makes structures more stable

WALT explore wax resist

- Checks made on ensuring prior knowledge is known
- Related products are explored with diagrams drawn to label thoughts on processes

WALT design a wax resist textile

- Share design problem
- Share design brief template and complete with children

WALT make a wax resist textile

WALT evaluate a wax resist textile

- Image of finished product in books
- Star diagram completed
- Explanation of thoughts
- Explanation of how to improve

WALT make a strong structure using reinforcing

- Review a range of materials to test strength and stiffness
- Design criteria – Task (above 15cm? tall), made out of paper, has to withstand. has minimum 3 techniques.
- Experiment with paper to make them “stronger, stiffer and more stable” + tubes

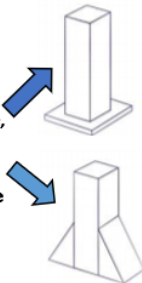
Designing - What makes a strong, stable, rigid structure?

A structure that is stable is less likely to fall over.

-Structures are more stable when they have a wider base.

-Buttresses can also make a structure more stable. A buttress is something that is built against a structure to give it more stability.

The buttress adds width to the base, making the structure more stable.



A structure that is strong and rigid is able to support more weight.

-Some materials are stronger and more rigid (stiffer) than others, e.g. card is stronger and more rigid than paper.

-Structures can also be made stronger and more rigid by making sure that parts and materials are properly joined together, e.g. with glue or tape.

-Folding and layering (adding an extra layer) of materials can also be used to strengthen and stiffen structures.

- Children to make a platform (self-standing) to hold increasing weights
- Evaluate how the winners held the most weights.

WALT make a stable structure using a wide base

- Use image of Eiffel tower to look at a structure with a wide base
- Children to make a tall structure using principle of wide base, e.g. competition to see who can make the tallest structure using newspaper and tape

# Year 3

## Autumn

### Embroidery

Textiles (back stitch)

**Prior knowledge to include:**

Sewing using a running stitch

#### Key Vocabulary

Embroidery

Running stitch

Back stitch

Cross stitch

#### Materials Needed:

Felt triangles of various colours,

Threads and needles

Card squares

#### Final Product:



#### Sticky Knowledge:

- Textile is another word for cloth. Its name means 'woven fabric'
- Able to recognise and create the running stitch, back stitch and cross stitch
- How to tie a knot

**L1: WALT explore embroidery**

- Share examples of embroidery
- Point out examples of running stitch, back stitch and cross stitch
- Children to complete annotated diagrams in books of favourite pieces

**L2: WALT sew using a back stitch and running stitch**

- Remind children of running stitch
- Model back stitch and cross stitch
- Children to practice back stitch on binka
- Once confident, children to practice back stitch in felt
- Challenge: cross stitch

**L3: WALT design a fabric winter decoration**

We want to make decorations that are personalised and look amazing.

Design brief:

1. It must be cut out accurately
2. It must have a stitch around the outside
3. It must have decorative stitching or extra items sewn on to it.
4. It must have a ribbon attached

Model annotated design (including stitch type and colour). Children to create at least 2 different annotated designs for their own bookmark.

**L4: WALT make a fabric winter decoration**

- Children to receive a pre cut shape of felt each.
- Model how to sew a line (running, back, or blanket stitch) around felt.
- Children to work on creating design.

**L5: WALT make a fabric winter decoration**

Chn to add decorations to their shape:

- Embroidery patterns,
- Add buttons or other shapes

**L6: WALT evaluate our fabric winter decoration**

- Revisit design problem and brief
- Model completion of star diagram for evaluation
- Model explanation of thoughts: evaluate ideas and products against design criteria and suggest ways to improve work
- Challenge: explain effectiveness of design choices based on the properties of materials and choice of joining

# Spring Strong Structures/Bridges

## Structures and Systems – Structures

### **Prior knowledge to include:**

Strength measures how much force is needed for a material to change shape until it breaks or cannot return to its original shape

Stiffness measures how much force is needed for a material to not change shape until it bends (and still returns to its original shape)

Adding material can improve strength and stiffness

Choice of material can improve strength and stiffness

A wide base makes structures more stable

### **Key Vocabulary**

Rigidity/stiffness – a material's resistance to bending (during the period it can return to its original shape)

Strength – a material's resistance to changing shape or breaking (when it cannot return to its original shape)

Hardness – a material's resistance to surface scratching (Y5 science)

Brittle – a material that is hard and rigid but not strong

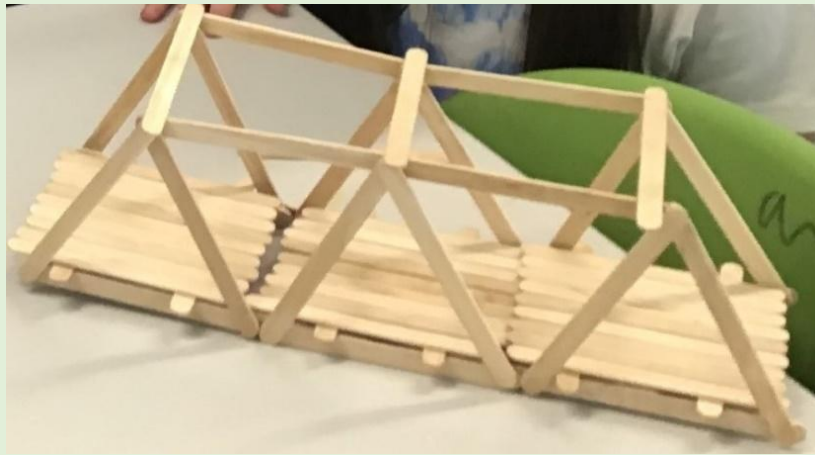
Stable – a structure's resistance to moving

### **Materials Needed:**

**Newspapers or scrap paper x loads of masking tape**

**Square cross section dowel, glue guns**

### **Final Product:**



### **Sticky Knowledge:**

- Rigidity/stiffness – a material's resistance to bending (during the period it can return to its original shape)
- Strength – a material's resistance to changing shape or breaking (when it cannot return to its original shape)
- Hardness – a material's resistance to surface scratching (Y5 science)
- Brittle – a material that is hard and rigid but not strong

- Stable – a structure’s resistance to moving

- WALT explore features of bridges

WALT create stiff structures using triangles and explore the effect of length on strength

- Truss bridge
- Build across a table with a light weight, explore length it takes to break.  
Use glue guns and lollipop sticks?

- WALT design a bridge based on design criteria

WALT make a truss bridge

- Using glue guns/ lollipop sticks?
- Look at how to reinforce

WALT make a truss bridge

WALT: evaluate a truss bridge against design criteria

## Summer

### Pasta

#### Cooking and Nutrition

##### **Prior knowledge to include:**

Understand the importance of good personal hygiene.

Understand that all food comes from plants or animals

Understand what a balanced plate looks like. Name and sort foods into the five groups.

Use and combine a range of ingredients

Measure and weigh ingredients to the nearest gram and millilitre.

##### **Key Vocabulary**

Pasta

Pesto

Knead

Fruit and vegetables

Vitamins

Minerals

Carbohydrates

Protein

Dairy

Fats and oils

##### **Materials Needed:**

**For making pasta:** zip lock bags, rolling pins, wheat, 00 flour, eggs, bowls, forks, knives, vegetable peelers, chopping board, pasta, seasonal vegetables,

**For pasta salad:** 100g of dry pasta per group of 3 children (cooked and prepared at home by teacher the night before) peppers, tinned sweetcorn, carrot, basil, spring onions, cherry tomatoes, celery, rocket (plus small Tupperware containers with lids (to take home)

### Final Product:



### Sticky Knowledge:

The five main food groups are:

- fruit and vegetables that give us vitamins, minerals and fibre
- Carbohydrates (pasta, bread and rice) keep our energy levels up
- Proteins (meat, beans and eggs) help us to grow and repair
- Dairy gives us strong teeth and bones
- Fats and oils act as an energy store

How to prepare and store food hygienically

Mould is a type of fungus that can grow on food. Mould makes food decay and spoil.

Decay means to rot, decompose or break down.

WALT make pasta

- In groups, children to make pasta
- Demonstrate hygienic food preparation and storage (such as storing food effectively and learning about mould and decay).

WALT know what a healthy diet is

- Review 5 food groups work, with a focus on vitamins and minerals

WALT know where food comes from

- Look at food lifecycles, including
  - Seed to fruit
  - Grain to bread

WALT make pesto (check allergies) – double lesson

- Look at recipe for making pesto
- Share where ingredients are grown
- Children to make pesto
- Add pasta for tasting

WALT make pesto (check allergies) – double lesson

WALT evaluate our pesto pasta

- Image of finished product in books
- Star diagram completed
- Explanation of thoughts
- Explanation of how to improve

# Year 4

## Autumn

### Pizza

#### Cooking and Nutrition

##### **Prior knowledge to include:**

Demonstrate hygienic food preparation and storage (such as storing food effectively and learning about mould and decay.

Understand where food comes from (food lifecycles – seed to fruit, grain to bread)

Understand the further principles of a healthy and varied diet (vitamins and minerals in foods)

##### **Key Vocabulary**

Seasonality

Origin

Muscle

Brain

Fruit and vegetables

Carbohydrates

Protein

Dairy

Fats and oils

##### **Materials Needed:**

Pizza boxes

Baking paper

Scales

Bowls x 15

500 ml vegetable oil

10kg flour – Groups of 3, 400g flour each. Some for dusting.

Small Caster Sugar.

Table salt.

Passata – 2l. 4 x 500ml.

Yeast – 3 boxes of 8 sachets of 7g. One Sachet per group.

Bags of cheese (7 bags)

Ham (4 packs)

Red Onion (3)

Salami (6)

Red Pepper (2)

Yellow Pepper (2)

Sweetcorn (3 tins – small)

### Final Product:



### Sticky Knowledge:

The five main food groups are:

- fruit and vegetables that give us vitamins, minerals and fibre
- Carbohydrates (pasta, bread and rice) keep our energy levels up
- Proteins (meat, beans and eggs) help us to grow and repair
- Dairy gives us strong teeth and bones
- Fats and oils act as an energy store

When, where and how ingredients to a pizza are grown (seasonality and origin)

- Origin of food is where it is from [and can give examples]
- Seasonality of food is when it is grown or available [and can give examples]

WALT understand when, where and how food is grown in the UK.

- Review ingredients of a pizza
- Introduce terms seasonality and origin
- Locate where and how key ingredients are grown

WALT understand how different foods impact on muscle and brain performance

WALT design a seasonal pizza for the UK

WALT design engaging packaging for our pizza

- Review pizza box designs for effectiveness
- List key items to include on boxes and model the design process
- Children to design pizza box

WALT create a seasonal pizza for the UK

WALT evaluate our pizza

- Image of finished product in books
- Star diagram completed
- Explanation of thoughts
- Explanation of how to improve

## Spring Torches

Structures and Systems - Electrical Systems

Prior knowledge to include:

Creating a series circuit using bulbs (Y4 science)  
 Create structures knowing how to reinforce, strengthen and stiffen  
 Know that cylinders are the strongest shape in compression  
 Know that choice of material and size (length and thickness) of material affect strength  
 Know how to reinforce structures  
 Know that triangles are strong and stable, especially equilateral triangles

**Key Vocabulary**

Switch  
 Bulb  
 Strengthen  
 Stiffen  
 Reinforce

**Materials Needed:**

30 postal tubes - 330mm x 50mm and cut in half  
 30 plastic bottles with the tops cut off  
 4 Tin foil  
 Switch: pins, paper clip each  
 Circuit: bulb, 3 x wires, battery and holder each

**Final Product:**



**Sticky Knowledge:**

- Recognise a series circuit
- Apply understanding of how to strengthen, stiffen and reinforce more complex structures.

WALT explore torches

- Checks made on ensuring prior knowledge is known
- Related products are explored with diagrams drawn to label key components

WALT make a switch

- Remind children of a circuit, as well as safety consideration of short circuits
- Share with children how to make a range of switches
  - Push/doughnut switch using foil
  - Pressure switch using foil
  - Clothes peg switch
  - Paperclip switch
- Children to make switches and check use

WALT design a torch

- Share design problem
- Share design brief template and complete with children

WALT make a torch

WALT make a torch

WALT evaluate a torch

- Revisit design problem and brief
- Model completion of star diagram for evaluation
- Model explanation of thoughts: evaluate ideas and products against design criteria and suggest ways to improve work
- Challenge: explain effectiveness of design choices based on the properties of materials and choice of joining

## Summer

# Mountain Applique

Textiles (running and blanket stitch)

### **Prior knowledge to include:**

Textile is another word for cloth. Its name means 'woven fabric'  
Able to recognise and create the running stitch, back stitch and cross stitch  
How to tie a knot

### **Key Vocabulary**

Applique

Textile

Running stitch

Blanket stitch

Satin stitch

### **Materials Needed:**

- Needles
- Thread
- Fabric
- 60 Tote bags

### **Final Product:**



### **Sticky Knowledge:**

- Textile is another word for cloth. Its name means 'woven fabric'
- Able to recognise and create the running stitch, back stitch, cross stitch, blanket stitch and satin stitch
- How to tie a knot

WALT explore applique

- Checks made on ensuring prior knowledge is known
- Related products are explored with diagrams drawn to label thoughts on processes

WALT: use running and blanket stitch to join fabric

WALT: use a Satin stitch to decorate

WALT design a decoration for a bag using applique

- Share design problem
- Share design brief template and complete with children

WALT make a decoration for a bag using applique

WALT make a decoration for a bag using applique

WALT evaluate a decoration for a bag using applique

- Revisit design problem and brief
- Model completion of star diagram for evaluation
- Model explanation of thoughts: evaluate ideas and products against design criteria and suggest ways to improve work
- Challenge: explain effectiveness of design choices based on the properties of materials and choice of joining

# Year 5

## Autumn Moving Toys

Structures and Systems – Mechanical Systems (cams)

Note: this unit complements the Computing unit. WALTs below are for both Computing and DT.

**Prior knowledge to include:**

Apply understanding of how to strengthen, stiffen and reinforce more complex structures.  
Understanding of forces (from science)

### Key Vocabulary

Cam  
Follower

### Materials Needed:

Cardboard  
Cam set including:  
Cams  
Rods  
Toy frames  
gluegun

### Final Product:



Sticky Knowledge:

- A cam mechanism is a linkage system which has a follower to convert rotary movement to linear movement
- Different cams produce different linear movements
- A follower is the part of a machine in sliding or rolling contact with a rotating cam and given motion by it.

WALT explore moving toys

- Checks made on ensuring prior knowledge is known
- Related products are explored with diagrams drawn to label key components

WALT understand the effects of a cam

- Children to understand that a cam is a linkage system which has a follower to convert rotary movement to linear movement.
- Children to explore the effect of different shape cams and the associated movement to the follower

WALT: Recap our 3D design skills

- Logging into TinkerCAD, manipulating, moving etc.
- Start a print in the lesson so children can see the process

WALT design a moving toy using a cam

- Share design problem
- Share design brief template and complete with children
- Must include a 3d printed part

WALT: model our design in CAD software

- 2 Lessons
- WALT: design part of my moving toy in TinkerCAD

WALT: 3D print part of my moving toy

- Exporting and printing
- 2 Lessons

WALT make a moving toy using a cam

- 2 Lessons

WALT evaluate a moving toy using a cam

- Revisit design problem and brief
- Model completion of star diagram for evaluation

- Model explanation of thoughts: evaluate ideas and products against design criteria and consider views of others to improve work
- explain effectiveness of design choices based on the properties of materials and choice of joining

## Spring Pasties

### Cooking and Nutrition

#### **Prior knowledge to include:**

Apply the rules for basic food hygiene and other safe practices.  
Start to know when, where and how food is grown (such as herbs, tomatoes and strawberries) in the UK, Europe and the wider world.  
Understand different foods impact on muscle and brain performance.

#### **Key Vocabulary**

Food nutrition  
Origin  
Seasonality  
Risk  
Hazard

#### **Materials Needed:**

Beef  
Potato  
Onion  
Flour  
Eggs  
Salt  
butter

#### **Final Product:**



#### **Sticky Knowledge:**

- Good nutrition means your body gets all the nutrients, vitamins, and minerals it needs to work its best.
- Origin of food is where it is from [and can give examples]
- Seasonality of food is when it is grown or available [and can give examples]
- Can identify risks and hazards when preparing and cooking

- Able to give examples of food that is local and food that is from overseas

WALT know what our local foods are

WALT read and understand food nutrition labels

WALT understand the risks and hazards in the kitchen

WALT practice cutting skills

WALT make a local food

WALT evaluate our food

- Image of finished product in books
- Star diagram completed
- Explanation of thoughts
- Explanation of how to improve

## Summer Weaving

**Textiles (weaving and weaving looms)**

**Prior knowledge to include:**

Textile is another word for cloth. Its name means 'woven fabric'

Able to recognise and create the running stitch, back stitch, cross stitch, blanket stitch and satin stitch

How to tie a knot

**Key Vocabulary**

Weave

Loom

Textile

**Materials Needed:**

Cardboard squares

Loads of wool

**Final Product:**



**Sticky Knowledge:**

- Weaving is to make cloth by repeatedly crossing a single thread through two sets of long threads on a loom
- A loom is a frame or machine used to weave

WALT explore weaving

- Checks made on ensuring prior knowledge is known

|  |
|--|
| <ul style="list-style-type: none"> <li>• Related products are explored with diagrams drawn to label thoughts on processes</li> </ul>   |
| <p>WALT weave</p> <ul style="list-style-type: none"> <li>• Model using paper strips</li> <li>• Children to practice weaving using paper strips</li> </ul>  |
| <p>WALT design a coaster using weaving</p> <ul style="list-style-type: none"> <li>• Share design problem</li> <li>• Share design brief template and complete with children</li> </ul>  |
| <p>WALT make a coaster using weaving</p> <ul style="list-style-type: none"> <li>• Model to children how to create a loom out of cardboard. Model how to weave using the loom. Show how to create diagonal designs for challenge option.</li> </ul>   |
| <p>WALT make a coaster using weaving</p>   |
| <p>WALT evaluate a coaster using weaving</p> <ul style="list-style-type: none"> <li>• Revisit design problem and brief</li> <li>• Model completion of star diagram for evaluation</li> <li>• Model explanation of thoughts: evaluate ideas and products against design criteria and consider views of others to improve work</li> <li>• Challenge: explain effectiveness of design choices based on the properties of materials and choice of joining</li> </ul> |

# Year 6

## Autumn

### Programming B – Creating Real World Appliances Using Sensors (with Computing) Structures and Systems – Computing Systems

Note: this unit complements the Computing unit – full planning to be found in computing unit. DT lessons to be used to create a product that uses the programming learnt in Computing. WALTs below are for both Computing and DT.

#### Materials Needed

Crumble packs  
 Glue guns  
 Cardboard  
 Card paper  
 Paint  
 Paper  
 Paper clips  
 Computers  
 iPads

Final product



- WALT: write a program using appropriate inputs
- WALT: write a program that include count-controlled loops
- WALT: connect and program sensors attached to crumbles
- WALT: use sensors to stop loops when conditions are met
- WALT: design a real-world project that uses a controllable device
- WALT: create and programme a project that uses a controllable device
- WALT: make and finalise the design of our project
- WALT: present and evaluate my project

## Spring

# Upcycling Clothes

Textiles (applying known stitches)

### **Prior knowledge to include:**

Textile is another word for cloth. Its name means 'woven fabric'  
Able to recognise and create the running stitch, back stitch, cross stitch, blanket stitch and satin stitch  
How to tie a knot  
How to weave

### **Key Vocabulary**

Upcycle  
running stitch, back stitch, satin stitch, blanket stitch

### **Materials Needed:**

Binka  
Needles  
Thread  
Needle threaders  
t-shirt  
material squares

**Final Product:**



**Sticky Knowledge:**

- Why it is important to repair clothes
- Textile is another word for cloth. Its name means 'woven fabric'
- Able to recognise and create the running stitch, back stitch, cross stitch, blanket stitch and satin stitch

How to tie a knot

WALT explore upcycling

- Checks made on ensuring prior knowledge is known

Related products are explored with diagrams drawn to label key components

WALT sew using a range of stitches

- Review previously taught stitches: running stitch, back stitch, satin stitch, blanket stitch

Children to practice on scrap cloth

WALT design an upcycled piece of clothing

- Share design problem

Share design brief template and complete with children

WALT make an upcycled piece of clothing

WALT make an upcycled piece of clothing

WALT evaluate an upcycled piece of clothing

- Revisit design problem and brief
- Model completion of star diagram for evaluation
- Model explanation of thoughts: evaluate ideas and products against design criteria and consider views of others to improve work

Challenge: explain effectiveness of design choices based on the properties of materials and choice of joining

**Summer**  
**World Food Study**  
**Cooking and Nutrition**

**Prior knowledge to include:**

Understand and risk assess hazards relating to the use of ovens, utensils and kitchen appliances.  
Apply understanding of when where and how food is grown when planning and designing food products.

Read and understand food nutrition labels.

Use a heat source to cook ingredients showing awareness of the need to control the temperature of the hob and/or oven.

**Key Vocabulary**

Grown

Reared

Caught

Grill

Bake

Boil

**Materials Needed:**

Potatoes

eggs

**Final Product:**



**Sticky Knowledge:**

- Understand national food hygiene regulations (such as best before and use by dates, allergy information and cross contamination).
- Know, explain and give examples of food that is grown (such as pears, wheat and potatoes), reared (such as poultry and cattle) and caught (such as fish) in the UK, Europe and the wider world.
- Apply understanding of food nutrition labels in planning and preparing dishes.
- To grill is to heat food using a part of a cooker that directs heat downwards
- To bake is to heat food using dry heat, usually in an oven
- To boil is to cook food in boiling water, or other water-based liquids (such as stock or milk).

WALT understand national food hygiene regulations

WALT understand and apply food nutrition labels

WALT know, explain and give examples of food that is grown in the UK and wider world

WALT bake

- Discuss safety aspects of baking

|   |
|---|
| <ul style="list-style-type: none"><li>• Cook food using baking</li></ul>  |
| WALT boil <ul style="list-style-type: none"><li>• Discuss safety aspects of boiling</li><li>• Cook food using boiling</li></ul>   |
| WALT evaluate our foods <ul style="list-style-type: none"><li>• Image of finished product in books</li><li>• Star diagram completed</li><li>• Explanation of thoughts</li><li>• Explanation of how to improve</li></ul> |

Note - Apply understanding of food nutrition labels in planning and preparing dishes.

| <b><u>Design Technology Overview</u></b> |                    |   |  |
|--|--------------------|---|--|
|  | <b><u>Term</u></b> | <b><u>Unit Title</u></b>                                  | <b><u>Strand</u></b>   |
| <b>Year 1</b>                            | Autumn             | Making a fruit salad                                      | Cooking and Nutrition  |
|  | Spring             | Making a toy vehicle                                      | Structures and Systems - Mechanisms (wheels and axles)   |
|  | Summer             | Puppets   | Textiles (running stitch)  |
| <b>Year 2</b>                            | Autumn             | Making a healthy sandwich                                 | Cooking and Nutrition  |
|  | Spring             | Moving Pictures   | Structures and Systems - Mechanisms (levers and sliders)   |
|  | Summer             | African Textiles (4 weeks)<br>Stable Structures (2 weeks) | Textiles (wax resist and dyeing)<br>Structures and Systems - Structures                                  |
| <b>Year 3</b>                            | Autumn             | Embroidery  | Textiles (back stitch)   |
|  | Spring             | Strong Structures   | Structures and Systems – Structures<br>2 sections – tower and bridge<br>(cylinders, wide base, triangle) |
|  | Summer             | Pasta   | Cooking and Nutrition  |
| <b>Year 4</b>                            | Autumn             | Pizza   | Cooking and Nutrition  |
|  | Spring             | Torches   | Structures and Systems - Electrical Systems  |
|  | Summer             | Mountain Applique   | Textiles (running and blanket stitch)  |
| <b>Year 5</b>                            | Autumn             | Moving Toys   | Structures and Systems – Mechanical Systems<br>(cams)  |
|  | Spring             | Local Food Study  | Cooking and Nutrition  |
|  | Summer             | Weaving   | Textiles (weaving and weaving looms)   |
| <b>Year 6</b>                            | Autumn             | Programming in Products                                   | Structures and Systems – Computing Systems   |
|  | Spring             | Upcycling Clothes   | Textiles (applying known stitches)   |
|  | Summer             | World Food Study  | Cooking and Nutrition  |