

## Year 1

### Design:

- design purposeful, functional, appealing products for themselves and other users based on design criteria
- generate, develop, model and communicate their ideas through talking, drawing, templates, mock-ups and, where appropriate, information and communication technology

### Make:

- select from and use a range of tools and equipment to perform practical tasks [for example, cutting, shaping, joining and finishing]
- select from and use a wide range of materials and components, including construction materials, textiles and ingredients, according to their characteristics

### Evaluate:

- explore and evaluate a range of existing products
- evaluate their ideas and products against design criteria

### Cooking and Nutrition:

- use the basic principles of a healthy and varied diet to prepare dishes
- understand where food comes from

### Technical knowledge:

- build structures, exploring how they can be made stronger, stiffer and more stable
- explore and use mechanisms [for example, levers, sliders, wheels and axles], in their products.

Autumn 1 <u>Superheros-Fruit Salad</u> <u>Cooking and Nutrition</u>		Spring 1 Moon Zoom- Moon buggy <u>Mechanisms and Movement</u>	Spring 2 Wonderful Weather- Sock Bunny <u>Materials for purpose</u>
<b>Skills</b> <ul style="list-style-type: none"> <li>• Develop a food vocabulary using taste, smell, texture and feel.</li> <li>• Group familiar food products e.g. fruit and vegetables.</li> <li>• Work safely and hygienically.</li> <li>• Work with an adult to make food following a simple recipe</li> <li>• Select healthy ingredients for a fruit or vegetable salad.</li> <li>• Measure and weigh food items using non-standard measures, such as spoons and cups..</li> </ul>		<b>Skills</b> <ul style="list-style-type: none"> <li>• Use wheels and axles to make a simple moving model.</li> <li>• Use a range of materials to create models.</li> <li>• Identify the suitability of materials, ensuring they are fit for purpose.</li> <li>• Cut, shape and join materials to create a product.</li> </ul>	<b>Skills</b> <ul style="list-style-type: none"> <li>• Select and use a range of materials, beginning to explain their choices.</li> <li>• Cut and shape materials.</li> <li>• Choose appropriate components and materials and suggest ways of manipulating them to achieve the desired effect.</li> <li>• Join fabrics by using running stitch, glue, staples, tape.</li> </ul>
<b>Knowledge</b> <ul style="list-style-type: none"> <li>• Fruit and vegetables are an important part of a healthy diet. It is recommended that people eat at least five portions of fruit and vegetables every day.</li> <li>• Using non-standard measures is a way of measuring that does not involve reading scales. For example, weight may be measured using a balance scale and lumps of plasticine. Length may be measured in the number of handspans or pencils laid end to end.</li> <li>• Some foods come from animals, such as meat, fish and dairy products. Other foods come from plants, such as fruit, vegetables, grains, beans and nuts.</li> <li>• The importance of being safe, clean, and hygienic when handling food. Good practices when preparing food.</li> </ul>		<b>Knowledge</b> <ul style="list-style-type: none"> <li>• An axle is a rod or spindle that passes through the centre of a wheel to connect two wheels.</li> <li>• Understand how wheels and axles are assembled and how they work.</li> </ul>	<b>Knowledge</b> <ul style="list-style-type: none"> <li>• Different materials can be used for different purposes, depending on their properties. Fabric can be cut and sewn, some materials can be manipulated, others keep their form.</li> <li>• Running stitch is a simple needlework stitch consisting of a line of small even stitches which run back and forth through the cloth without overlapping.</li> <li>• Properties of components and materials determine how they can and cannot be used. For example, material can be sewn but plastic cannot.</li> </ul>
<b>Design: Developing, planning and communicating ideas</b> <ul style="list-style-type: none"> <li>• Design a product for a given purpose.</li> <li>• Use drawings to record ideas</li> <li>• Use drawings to record ideas as they are developed</li> <li>• Select pictures to help develop ideas..</li> <li>• Select materials from limited range that will meet the design criteria.</li> <li>• Select and name the tools needed to work the materials</li> <li>• Explain what they are making and which materials they are using</li> <li>• Discuss their work as it progresses.</li> </ul>			<b>Evaluate: Evaluating processes and products</b> <ul style="list-style-type: none"> <li>• Explore and evaluate a range of existing products.</li> <li>• Say what they like and do not like about items they have made and attempt to say why.</li> <li>• Talk about their designs as they develop and identify good and bad points.</li> <li>• Talk about the changes made during the making process.</li> </ul>

## Year 2

### Design:

- design purposeful, functional, appealing products for themselves and other users based on design criteria
- generate, develop, model and communicate their ideas through talking, drawing, templates, mock-ups and, where appropriate, information and communication technology

### Make:

- select from and use a range of tools and equipment to perform practical tasks [for example, cutting, shaping, joining and finishing]
- select from and use a wide range of materials and components, including construction materials, textiles and ingredients, according to their characteristics

### Evaluate:

- explore and evaluate a range of existing products
- evaluate their ideas and products against design criteria

### Cooking and Nutrition:

- use the basic principles of a healthy and varied diet to prepare dishes
- understand where food comes from

### Technical knowledge:

- build structures, exploring how they can be made stronger, stiffer and more stable
- explore and use mechanisms [for example, levers, sliders, wheels and axles], in their products.

<div> <b>Autumn 1</b>  Wriggle and Crawl- Minibeast Mansion  Materials for purpose  Mechanisms and Movement </div>			<div> <b>Spring 1</b>  Gan Kernow- Scones  Cooking and Nutrition </div>	<div> <b>Summer 2</b>  Beachcombers- Lighthouse  Construction- Structures </div>
<b>Skills</b> <ul style="list-style-type: none"> <li>• Join appropriately for different materials and situations e.g. glue, tape.</li> <li>• Choose appropriate components and materials.</li> </ul> explore and use a range of mechanisms [for example, levers, sliders and winders], in their products.		<b>Skills</b> <ul style="list-style-type: none"> <li>• Combine ingredients for taste and aesthetic effect.</li> <li>• Work safely and hygienically.</li> <li>• Follow a recipe to make food with increasing independence.</li> <li>• Measure and weigh food items, using non-statutory measures e.g. spoons, cups.</li> <li>• Select from a range of tools and equipment to perform practical tasks such as mixing, combining, shaping and finishing.</li> </ul>		<b>Skills</b> <ul style="list-style-type: none"> <li>• Construct simple structures, models or other products using a range of materials.</li> <li>• Explore how a structure can be made stronger, taller, stiffer, and more stable.</li> <li>• Identify the suitability of materials, ensuring they are fit for purpose.</li> <li>• Learn how to turn 2D nets into 3D structures.</li> </ul>
<b>Knowledge</b> <ul style="list-style-type: none"> <li>• A mechanism is a device used to create movement in a product.</li> <li>• A lever is a rigid bar which moves around a pivot. Levers are used in everyday products.</li> <li>• A slider is a rigid bar which moves backwards and forwards along a straight line. Unlike a lever, a slider does not have a pivot point.</li> <li>• A slot is the hole through which a lever or slider is placed to enable part of a picture to move.</li> <li>• A guide or bridge is a short car strip used to keep sliders in place and control movement.</li> </ul>		<b>Knowledge</b> <ul style="list-style-type: none"> <li>• Basic recipes can be adapted to develop a product with a specified criteria.</li> <li>• The importance of being clean, and hygienic when handling food. Good practices when preparing food.</li> <li>• How to use equipment including ovens, safely and correctly.</li> <li>• The key stages of baking- measuring, mixing, forming, baking, cooling.</li> <li>• Some ingredients change properties when cooked.</li> <li>• Foods high in fat, salt and sugar should only be eaten occasionally as part of a healthy, balanced diet.</li> </ul>		<b>Knowledge</b> <ul style="list-style-type: none"> <li>• Structures can be made stronger, stiffer and more stable by using cardboard rather than paper.</li> <li>• The shape of materials can be changed to improve the strength and stiffness of structures.</li> <li>• A broader base will also make a structure more stable.</li> <li>• To understand that cylinders are a strong type of structure (e.g. the main shape used for windmills and lighthouses).</li> <li>• Different structures are used for different purposes.</li> </ul>
<b>Design: Developing, planning and communicating ideas</b> <ul style="list-style-type: none"> <li>• Design a product from a detailed design criteria.</li> <li>• Use pictures and words to convey what they want to design and make.</li> <li>• Add notes to drawings to help explanations</li> <li>• Select appropriate technique explaining First...Next...Last...</li> <li>• Explore ideas by rearranging materials.</li> <li>• Describe their models and drawings of ideas and intentions.</li> <li>• Produce a small mock up with reclaimed materials.</li> </ul>			<b>Evaluate: Evaluating processes and products</b> <ul style="list-style-type: none"> <li>• Explore and evaluate a range of existing products.</li> <li>• Talk about their designs as they develop and identify good and bad points</li> <li>• Discuss how closely their finished products meet their design criteria</li> <li>• Talk about changes made during the making process.</li> </ul>	

## Year 3

### Design:

- use research and develop design criteria to inform the design of innovative, functional, appealing products that are fit for purpose, aimed at particular individuals or groups
- generate, develop, model and communicate their ideas through discussion, annotated sketches, cross-sectional and exploded diagrams, prototypes, pattern pieces and computer-aided design

### Make:

- select from and use a wider range of tools and equipment to perform practical tasks [for example, cutting, shaping, joining and finishing], accurately
- select from and use a wider range of materials and components, including construction materials, textiles and ingredients, according to their functional properties and aesthetic qualities

### Evaluate:

- investigate and analyse a range of existing products
- evaluate their ideas and products against their own design criteria and consider the views of others to improve their work
- understand how key events and individuals in design and technology have helped shape the world

### Cooking and Nutrition:

- understand and apply the principles of a healthy and varied diet
- prepare and cook a variety of predominantly savoury dishes using a range of cooking techniques
- understand seasonality, and know where and how a variety of ingredients are grown, reared, caught and processed.

### Technical knowledge:

- apply their understanding of how to strengthen, stiffen and reinforce more complex structures
- understand and use mechanical systems in their products [for example, gears, pulleys, cams, levers and linkages]
- understand and use electrical systems in their products [for example, series circuits incorporating switches, bulbs, buzzers and motors]
- apply their understanding of computing to program, monitor and control their products

<b>Spring 1</b> <b>Scrumdiddlyumptious – Fair Trade Muffins</b> <b>Cooking and Nutrition</b>		<b>Spring 2</b> <b>Mighty Metals- Travel Game</b> <b>Materials for purpose</b>	<b>Summer 1</b> <b>Through the Ages-Pop up Books</b> <b>Mechanisms and Movement</b>
<b>Skills</b> <ul style="list-style-type: none"> <li>• Develop sensory vocabulary/knowledge using, smell, taste, texture and feel.</li> <li>• Measure and weigh food items using standard measures e.g. grams and ml.</li> <li>• Follow a recipe to make food with increasing independence.</li> <li>• Work safely and hygienically when using tools and equipment such as knives, graters and ovens.</li> <li>• Identify the main food groups (carbohydrates, protein, dairy, fruits and vegetables, fats and sugars).</li> </ul>		<b>Skills</b> <ul style="list-style-type: none"> <li>• Use research and develop design criteria to inform the design of innovative, functional products that are suitable to be used as a travel game.</li> <li>• Apply knowledge of magnets, and their properties, for functional use.</li> <li>• Generate, develop, model and communicate their ideas through discussion and annotated sketches.</li> <li>• Use ICT to create appealing packaging for the product.</li> </ul>	<b>Skills</b> <ul style="list-style-type: none"> <li>• Make mechanisms and/or structures for pop up effect by using sliders, pivots and folds to produce movement.</li> <li>• Using layers and spacers to hide the workings of mechanical parts for an aesthetically pleasing result.</li> <li>• Name each mechanism, input and output accurately.</li> </ul>
<b>Knowledge</b> <ul style="list-style-type: none"> <li>• Preparation techniques including peeling, chopping, deseeding, slicing, dicing, grating, mixing.</li> <li>• There are five main food groups that should be eaten regularly as part of a balanced diet. Str</li> <li>• Hygiene practices should be observed eg. surfaces cleaned down and wiped with antibacterial cleaner; a plastic table cover kept for food activities and used to cover wooden/old tables; aprons provided for food preparation; access to handwashing and washing-up facilities and appropriate storage facilities for food.</li> </ul>		<b>Knowledge</b> <ul style="list-style-type: none"> <li>• Design criteria are the exact goals a project must achieve to be successful. These criteria might include the product's use, appearance, cost and target user.</li> <li>• Magnets attract or repel each other and attract some materials and not others.</li> <li>• Vocabulary related to the theme, including attract, repel, magnetic field, poles, opposite, same, repulsion and attraction.</li> </ul>	<b>Knowledge</b> <ul style="list-style-type: none"> <li>• An input is the motion used to start a mechanism</li> <li>• An output is the motion that happens as a result of starting the input</li> <li>• Structures use the movement of the pages to work</li> <li>• Mechanisms control movement</li> <li>• Designers often want to hide mechanisms to make a product more aesthetically pleasing.</li> <li>• Mechanisms can be hidden and made more 3D using paper spaces, handmade zig zags or thicker corrugated card.</li> </ul>
<b>Design: Developing, planning and communicating ideas</b> <ul style="list-style-type: none"> <li>• Design innovative, functional, appealing products that are fit for purpose that are aimed at particular individuals or groups.</li> <li>• Record the plan by drawing (labelled sketches) or writing</li> <li>• Draw/sketch products to help analyse and understand how products are made.</li> <li>• Think ahead about the order of their work and decide upon tools and materials.</li> <li>• Communicate their ideas through discussion and add notes to drawings to help explanations.</li> </ul>			<b>Evaluate: Evaluating processes and products</b> <ul style="list-style-type: none"> <li>• Investigate and analyse a range of existing products.</li> <li>• Decide which design idea to develop.</li> <li>• Identify the strengths and weaknesses of their design ideas.</li> <li>• Consider and explain how the finished product could be improved.</li> </ul>

## Year 4

### Design:

- use research and develop design criteria to inform the design of innovative, functional, appealing products that are fit for purpose, aimed at particular individuals or groups
- generate, develop, model and communicate their ideas through discussion, annotated sketches, cross-sectional and exploded diagrams, prototypes, pattern pieces and computer-aided design

### Make:

- select from and use a wider range of tools and equipment to perform practical tasks [for example, cutting, shaping, joining and finishing], accurately
- select from and use a wider range of materials and components, including construction materials, textiles and ingredients, according to their functional properties and aesthetic qualities

### Evaluate:

- investigate and analyse a range of existing products
- evaluate their ideas and products against their own design criteria and consider the views of others to improve their work
- understand how key events and individuals in design and technology have helped shape the world

### Cooking and Nutrition:

- understand and apply the principles of a healthy and varied diet
- prepare and cook a variety of predominantly savoury dishes using a range of cooking techniques
- understand seasonality, and know where and how a variety of ingredients are grown, reared, caught and processed.

### Technical knowledge:

- apply their understanding of how to strengthen, stiffen and reinforce more complex structures
- understand and use mechanical systems in their products [for example, gears, pulleys, cams, levers and linkages]
- understand and use electrical systems in their products [for example, series circuits incorporating switches, bulbs, buzzers and motors]
- apply their understanding of computing to program, monitor and control their products

### Autumn 2 I am Warrior- Roman Catapult Construction

### Spring 1 Burps, Bottoms and Bile- Healthy Lunch Cooking and Nutrition

### Summer 1 and 2 Traders and Raiders- Jewellery Bag Materials for purpose

#### Skills

- Explore and use levers in models.
- Choose from a range of materials, showing an understanding of their different characteristics.
- Join materials using appropriate methods.
- Use a glue gun with close supervision.
- Cut strip, dowel, square section wood safely using a saw.

#### Skills

- Identify and use a range of preparation techniques to make a healthy lunch.
- Make healthy eating choices from an understanding of a balanced diet- explaining why their choices are healthy.
- Work safely and hygienically when using tools and equipment such as knives, graters and ovens.
- Identify and name foods that are produced in different places in the UK and beyond.

#### Skills

- Prototype a product using J cloths.
- Use appropriate decoration techniques e.g. embroidery.
- Join/ decorate fabrics using running stitch, over sewing and back stitch.

#### Knowledge

- Mechanisms can be used to add functionality to a model.
- Levers are made up of 3 parts;  
A fulcrum – the point at which the lever pivots or turns  
The load – the stuff you are trying to move  
The force – the effort it takes to move the load  
A Lever allows you to move a large load using a small amount of effort.
- A catapult is an ancient weapon or a ballistic device used mainly to launch stones, spears, and projectiles to a greater distance without the help of explosives. It is in use since ancient times and proven to be one of the most effective mechanisms in military during war.
- How to use a saw and glue gun safely.

#### Knowledge

- A healthy diet should include meat or fish, starchy foods (such as potatoes or rice), some dairy foods, a small amount of fat and plenty of fruit and vegetables.
- Some ingredients need to be prepared before they can be cooked or eaten. There are many ways to prepare ingredients: peeling skins using a vegetable peeler, such as potato skins; grating hard ingredients, such as cheese or chocolate; chopping vegetables, such as onions and peppers and slicing foods, such as bread and apples
- Hygiene practices should be observed eg. surfaces cleaned down and wiped with antibacterial cleaner; a plastic table cover kept for food activities and used to cover wooden/old tables; aprons provided for food preparation; access to handwashing and washing-up facilities and appropriate storage facilities for food.
- Particular areas of the world have conditions suited to growing certain crops, such as coffee in Peru and citrus fruits in California in the United States of America.

#### Knowledge

- Running stitch is a simple needlework stitch consisting of a line of small even stitches which run back and forth through the cloth without overlapping. Overstitch to sew together (two pieces of material) by passing small, close stitches over their coinciding edges; sew overhand. Backstitching produces a thin line of stitches, perfect for outlining in almost all embroidery patterns.
- Embroidery is the art of decorating fabric or other materials with designs stitched in strands of thread or yarn using a needle. Embroidery may also incorporate other materials such as metal strips, pearls, beads, quills, and sequins.

### Design: Developing, planning and communicating ideas

- Design innovative, functional, appealing products that are fit for purpose that are aimed at particular individuals or groups.
- Produce annotated sketches.
- Investigate similar products to the one to be made to produce own design criteria.
- Plan a sequence of actions to make a product.
- Develop more than one design or adaptation of an initial design
- Propose realistic suggestions as to how they can achieve their design.
- Make prototypes.

### Evaluate: Evaluating processes and products

- Investigate and analyse a range of existing products.
- Decide which design idea to develop.
- Identify the strengths and weaknesses of their design ideas.
- Discuss how well the finished product meets the design criteria and how well it meets the needs of the user.

## Year 5

### Design:

- use research and develop design criteria to inform the design of innovative, functional, appealing products that are fit for purpose, aimed at particular individuals or groups
- generate, develop, model and communicate their ideas through discussion, annotated sketches, cross-sectional and exploded diagrams, prototypes, pattern pieces and computer-aided design

### Make:

- select from and use a wider range of tools and equipment to perform practical tasks [for example, cutting, shaping, joining and finishing], accurately
- select from and use a wider range of materials and components, including construction materials, textiles and ingredients, according to their functional properties and aesthetic qualities

### Evaluate:

- investigate and analyse a range of existing products
- evaluate their ideas and products against their own design criteria and consider the views of others to improve their work
- understand how key events and individuals in design and technology have helped shape the world

### Cooking and Nutrition:

- understand and apply the principles of a healthy and varied diet
- prepare and cook a variety of predominantly savoury dishes using a range of cooking techniques
- understand seasonality, and know where and how a variety of ingredients are grown, reared, caught and processed.

### Technical knowledge:

- apply their understanding of how to strengthen, stiffen and reinforce more complex structures
- understand and use mechanical systems in their products [for example, gears, pulleys, cams, levers and linkages]
- understand and use electrical systems in their products [for example, series circuits incorporating switches, bulbs, buzzers and motors]
- apply their understanding of computing to program, monitor and control their products

### Autumn 2 Stargazers- Moonscape Embroidery Materials for purpose

### Spring 1 Pharaohs- Steady Hand Game Construction

### Summer 1 Sow, Grow and Farm-Seasonal Soup Cooking and Nutrition

#### Skills

- Measure, mark out, cut, shape fabrics for appliqué design
  - Join fabrics using a variety of stitches- such as oversewing, back stitch, cross stitch or machine stitching.
- Decorate fabrics with buttons, beads, sequins, braids, ribbons.

#### Skills

- Create a secure, stable base for their game, with neat edges, that relates to their design.
- Accurately cutting, folding and assembling a net.
- Decorating the base of the game to a high-quality finish.
- Incorporating a circuit into a base. Make and test a functioning circuit and assemble it within a case.
- Understand and use electrical systems in their products.

#### Skills

- Use vocabulary relating to taste, smell, texture and feel
- Use an increasing range of preparation and cooking techniques to cook a seasonal soup.
- Describe what seasonality means and explain some of the reasons why it is beneficial.
- Work safely and hygienically when using tools and equipment such as knives, graters and ovens.

#### Knowledge

- Many textile artists' work involves practices such as screen printing, repurposing found materials, embroidery, and much more
  - [Karen Rose Textiles \(karen-rose-textiles.com\)](http://karen-rose-textiles.com) Karen Rose is a textile artist who lives in the UK. Her work is inspired by the universe.
  - Appliqué is ornamental needlework in which pieces or patch of fabric in different shapes and patterns are sewn or stuck onto a larger piece to form a picture or pattern
- Running stitch is a simple needlework stitch consisting of a line of small even stitches which run back and forth through the cloth without overlapping. Overstitch to sew together (two pieces of material) by passing small, close stitches over their coinciding edges; sew overhand. Backstitching produces a thin line of stitches, perfect for outlining in almost all embroidery patterns.

#### Knowledge

- To know that 'form' means the shape and appearance of an object.
- To know the difference between 'form' and 'function'.
- To understand that 'fit for purpose' means that a product works how it should and is easy to use.
- To understand the diagram perspectives 'top view', 'side view' and 'back'.
- A buzzer sounds when the handle touches the wire. It closes the circuit which allows electricity to flow into the buzzer and make a noise.
- A net is a 2D flat shape that can become a 3D shape once assembled.

#### Knowledge

- Seasonality is the time of year when the harvest or flavour of a type of food is at its best. Buying seasonal food is beneficial for many reasons: the food tastes better; it is fresher because it hasn't been transported thousands of miles; the nutritional value is higher; the carbon footprint is lower, due to reduced transport; it supports local growers and is usually cheaper.
- Importing food impacts the environment and is one of the reasons why we should eat seasonal foods grown in the UK.
- Hygiene practices should be observed eg. surfaces cleaned down and wiped with antibacterial cleaner; a plastic table cover kept for food activities and used to cover wooden/old tables; aprons provided for food preparation; access to handwashing and washing-up facilities and appropriate storage facilities for food.

#### Design: Developing, planning and communicating ideas

- Investigate products/images to collect ideas and create own design criteria.
- Use found information to inform decisions.
- Sketch and model alternative ideas.
- Develop one idea in depth.
- Design innovative, functional appealing products that are fit for purpose that are aimed at particular individuals or groups.
- Record ideas using annotated diagrams.
- When designing produce cross sectional and exploded diagrams.
- Combine modelling and drawing to refine ideas.
- Plan the sequence of work using a storyboard.
- Use models, kits and drawings to help formulate design ideas.
- Make prototypes.

#### Evaluate: Evaluating processes and products

- Investigate and analyse a range of existing products.
- Use the design criteria to inform their decisions about ways to proceed.
- Justify their decisions about materials and methods of construction.
- Identify what does and does not work in the product.
- Make suggestions as how their or others designs could be improved.

## Year 6

### Design:

- use research and develop design criteria to inform the design of innovative, functional, appealing products that are fit for purpose, aimed at particular individuals or groups
- generate, develop, model and communicate their ideas through discussion, annotated sketches, cross-sectional and exploded diagrams, prototypes, pattern pieces and computer-aided design

### Make:

- select from and use a wider range of tools and equipment to perform practical tasks [for example, cutting, shaping, joining and finishing], accurately
- select from and use a wider range of materials and components, including construction materials, textiles and ingredients, according to their functional properties and aesthetic qualities

### Evaluate:

- investigate and analyse a range of existing products
- evaluate their ideas and products against their own design criteria and consider the views of others to improve their work
- understand how key events and individuals in design and technology have helped shape the world

### Cooking and Nutrition:

- understand and apply the principles of a healthy and varied diet
- prepare and cook a variety of predominantly savoury dishes using a range of cooking techniques
- understand seasonality, and know where and how a variety of ingredients are grown, reared, caught and processed.

### Technical knowledge:

- apply their understanding of how to strengthen, stiffen and reinforce more complex structures
- understand and use mechanical systems in their products [for example, gears, pulleys, cams, levers and linkages]
- understand and use electrical systems in their products [for example, series circuits incorporating switches, bulbs, buzzers and motors]
- apply their understanding of computing to program, monitor and control their products

### Autumn 2 A Child's War- Anderson Shelter Construction

### Spring Micro:bit-based step counter. *Link with computing unit 'Sensing with Microbits'.*

### Summer 2 Gallery Rebels- Leavers Meal Cooking and Nutrition

#### Skills

- Apply their understanding of how to strengthen, stiffen and reinforce more complex structures.
- Select the most appropriate materials and frameworks for different structures, explaining what makes them strong.
- Use hand tools safely and appropriately.

#### Skills

- apply their understanding of computing to program, monitor and control their products.
- To test a program on an emulator.

#### Skills

- Plan a two-course meal.
- Follow a recipe that requires a variety of techniques and source the necessary ingredients.
- Weigh and measure accurately (time, dry ingredients, liquids)
- Cooking techniques include baking, boiling, frying, grilling and roasting.
- Work safely and hygienically when using tools and equipment such as knives, graters and ovens.

#### Knowledge

- Strength can be added to a framework by using multiple layers. For example, corrugated cardboard can be placed with corrugations running alternately vertically and horizontally. Triangular shapes can be used instead of square shapes because they are more rigid. Frameworks can be further strengthened by adding an outer cover.

#### Knowledge

- micro:bit is an input, process, output device that can be programmed.
- It is important that instructions are given in order in programs.

#### Knowledge

- Cooking multiple dishes requires preparation and planning with timings.
- Eating a balanced diet is a positive lifestyle choice that should be sustained over time. Food that is high in fat, salt or sugar can still be eaten occasionally as part of a balanced diet.
- Preparation techniques for savoury dishes include kneading, proving, peeling, chopping, deseeding, slicing, dicing, grating, mixing and skinning.
- Hygiene practices should be observed eg. surfaces cleaned down and wiped with antibacterial cleaner; a plastic table cover kept for food activities and used to cover wooden/old tables; aprons provided for food preparation; access to handwashing and washing-up facilities and appropriate storage facilities for food.

### Design: Developing, planning and communicating ideas

- Combine modelling and drawing to refine ideas.
- Investigate products/images to collect ideas and create own design criteria.
- Plan the sequence of work using a storyboard.
- Sketch and model alternative ideas.
- Record ideas using annotated diagrams.
- Develop one idea in depth.
- Draw plans which can be read/ followed by someone else.
- Use models, kits and drawings to help formulate ideas.
- Give a report using technical vocabulary.
- Make prototypes.
- Design innovative, functional, appealing produces that are fit for purpose.
- Use found information to inform decisions that are aimed at particular individuals or groups.
- Use a computer aided design to model ideas.
- Draw plans which can be read/ followed by someone else.

### Evaluate: Evaluating processes and products

- Investigate and analyse a range of existing products.
- Use the design criteria to inform their decisions about ways to proceed.
- Justify their decisions about materials and methods of construction.
- Identify what does and does not work in the product.
- Make suggestions as how their or others designs could be improved.
- Reflect on their work using design criteria stating how well the design fits the needs of the user.