

## Long term overview

**All DT units must follow Design, make, evaluate cycle and provide opportunity to try again and make improvements based on their evaluation.**

|                | Autumn                                                                                                                                                                                                                                                    | Spring                                                                                                                                                                                                                                                                                                                                            | Summer                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
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| Year 1         | <b>Mechanisms &amp; Materials - pop-up</b>                                                                                                                                                                                                                | <b>Structures - bridges</b>                                                                                                                                                                                                                                                                                                                       | <b>Structures &amp; materials - wheeled vehicles</b><br><b>Food and nutrition - fruit salad</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| Focus designer | Simple pop up books with sliders and levers                                                                                                                                                                                                               |  Isambard Kingdom Brunel                                                                                                                                                                                                                                        | Wheel barrows, chariots, horse drawn carriages, bathing machines.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| Design task    |  Design and make a slider or pivot lever (add a lever with split pin as pivot). Then evaluate which one is best to make a Christmas card                                 |  Design a bridge to cross....<br>Isambard Kingdom Brunel                                                                                                                                                                                                        | Design and make a wheeled Victorian bathing machine (Osbourne House)<br>                                                                                                                                                                                                                                                                                                                                                                                                                  |
| Skills         | <b>Mechanisms –</b><br>Create products using sliders, levers or wheels.<br><b>Materials -</b><br>With help measure, mark out cut and shape materials safely using tools provided.<br>Explore and select from a variety of tools i.e. scissors/hole punch. | <b>Structures</b><br>Use materials to practise drilling, gluing, screwing and nailing materials to make and strengthen products.<br>Begin to recall their own experiences to help generate ideas.<br>Describe how their product is suitable for the user.<br>Make a prototype.<br>Start to evaluate their products based on the original purpose. | <b>Structures -</b><br>Use materials to practise drilling, screwing, gluing and nailing materials to make and strengthen products.<br><b>Materials -</b><br>With help measure, mark out, cut and shape materials safely using tools provided.<br>Explore and select from a variety of tools i.e. scissors/hole punch.<br>Learn to use hand tools safely and select the appropriate ones.<br>Assemble, join and combine materials.<br><br><b>Food and nutrition -</b><br>Cut ingredients safely and hygienically.<br>Assemble ingredients without the need for a heat source. |

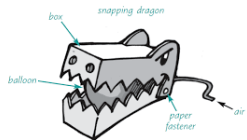
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| Knowledge  | <p><b>Mechanisms –</b><br/>Explore how to use sliders and levers.<br/>Know that different mechanisms produce different movements.</p> <p><b>Materials –</b><br/>Know how to use hand tools safely and select the appropriate ones.<br/>Know how to assemble, join and combine materials.</p> <p>Know and use technical vocabulary relevant to the project.</p> | <p><b>Structures –</b><br/>Know who Isambard Kingdom Brunel was and his link to Portsmouth.<br/>Know that triangles are the strongest shape.<br/>Know how to join materials<br/>Know how to strengthen structures.<br/>Know how to make freestanding structures stronger, stiffer and more stable.</p> <p>Know and use technical vocabulary relevant to the project.</p> | <p><b>Structures –</b><br/>Know different ways to join materials.<br/>Explore and use wheels, axles and axle holders.<br/>Know how to strengthen a structure.</p> <p><b>Materials –</b><br/>Know how to use hand tools safely and select the appropriate ones.<br/>Know how to assemble, join and combine materials.</p> <p><b>Food and nutrition -</b><br/>Know where fruit and vegetables come from and that they are grown.<br/>Know the names of fruit and vegetables.</p> <p>Know and use technical vocabulary relevant to the project.</p> |
| Vocabulary | <p><b>Mechanisms –</b><br/>Slider, pivot, lever, wheel, push, pull, turn.</p> <p><b>Materials –</b><br/>Measure, mark out, cut, shape.<br/>Tear, cut, fold.<br/>Stick, glue, tape<br/>Assemble, join.<br/>Scissors, hole-punch, split pins.</p>                                                                                                                | <p><b>Structures</b><br/>Build, balance, strong.<br/>Assemble, join, combine.<br/>Drill, glue, nail, screw.<br/>Strengthen, weight bearing, surface.</p>                                                                                                                                                                                                                 | <p><b>Structures –</b><br/>Build, balance, strong.<br/>Assemble, join, combine.<br/>Drill, glue, nail, screw.<br/>Strengthen, weight bearing, surface.</p> <p><b>Materials –</b><br/>Measure, mark out, cut, shape.<br/>Tear, cut, fold.<br/>Stick, glue, tape<br/>Assemble, join.<br/>Scissors, hole-punch, split pins.<br/>Wood, card, paper</p> <p><b>Food and nutrition -</b><br/>Cut, assemble, ingredients, hygiene, safety, knife, chopping board.<br/>Healthy diet, farm, grow.</p>                                                      |

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|                | Autumn                                                                                                                                                                                                                                                                                                                                                            | Spring                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | Summer                                                                                                                                                                                                                                       |
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| Year 2         | Mechanisms & materials - wells                                                                                                                                                                                                                                                                                                                                    | Textiles/materials - puppets                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | Food and Nutrition - healthy breakfast                                                                                                                                                                                                       |
| Focus designer | Look at roller blinds and wells as an example of application of this mechanism.                                                                                                                                                                                                                                                                                   | Furcheater hotel/The Muppets – Jim Henson                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | Designer: Katie from 'I Can cook' on cbeebies or Ainsley Harriet - 'My World Kitchen' cbeebies                                                                                                                                               |
| Design task    | <p>Winding mechanisms – linked to great fire of London</p>  <p>QCA scheme available</p>                                                                                                         |  <p>Design and make a puppet for their zoo visit</p>                                                                                                                                                                                                                                                                                                                                                                     |  <p>Design and make a healthy breakfast fit for a hero<br/>What makes a healthy, varied diet?</p>                                                         |
| Skills         | <p><b>Materials -</b><br/>With help, measure, mark out cut and shape materials safely using tools provided.<br/>Explore and select from a variety of tools i.e. scissors/hole punch.<br/>Demonstrate a range of cutting and shaping techniques (such as tearing, cutting, folding and curling).<br/>Assemble, join and combine materials using tape and glue.</p> | <p><b>Textiles -</b><br/>Shape textiles using templates.<br/>Join textiles using running stitch.<br/>Begin to thread large eyed needles.<br/>Explore different finishing techniques.<br/>Colour and decorate textiles using a number of techniques Compare and contrast these.<br/><b>Materials -</b><br/>With help, measure, mark out cut and shape materials safely using tools provided.<br/>Demonstrate a range of cutting and shaping techniques (such as tearing, cutting, folding and curling).</p> | <p><b>Food and Nutrition</b><br/>Cut ingredients safely and hygienically.<br/>Cutting, peeling and grating.<br/>Assemble ingredients without the need for a heat source.<br/>Measure or weigh using measuring cups or electronic scales.</p> |

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| Knowledge  | <p><b>Mechanisms –</b><br/>         Know how to wind string around a cylinder by turning the cylinder one way, and to release the string by turning it the opposite way.<br/>         Know how to create products using winding mechanisms.<br/>         Know and name examples of winding mechanisms in real life (roller blinds, lifeboats, lifts, etc).<br/>         Know that different mechanisms produce different movements.</p> <p><b>Materials -</b><br/>         Know how to use hand tools safely.<br/>         Know which tools are appropriate for a task.<br/>         Know how to join materials with glue and tape<br/>         Know how to shape materials with simple hand tools (scissors) and other techniques (see skills).</p> <p>Know and use technical vocabulary relevant to the project.</p> | <p><b>Textiles –</b><br/>         Know how simple 3-D textile products are made.<br/>         Know how to join fabric in different ways (stitching, glue, staple...)<br/>         Know how to start and end stitching (knotting/over-sewing)</p> <p><b>Materials –</b><br/>         Know how to use hand tools safely and select the appropriate ones. (plastic needles, scissors...)<br/>         Know how to assemble, join and combine materials. (sew, running stitch, stick)<br/>         Know how to make use of a template.<br/>         Know and use technical vocabulary relevant to the project.</p> | <p><b>Food and nutrition –</b><br/>         Know that food comes from plants or animals.<br/>         Know that food has to be farmed or grown.<br/>         Know where fruit and vegetables come from.<br/>         Know the names of fruit and vegetables.<br/>         Know of the Eat Well plate and begin to describe how to sort foods into the five groups.<br/>         Begin to understand what constitutes a healthy diet.<br/>         Know how to choose healthy ingredients to prepare a healthy dish.</p> <p>Know and use technical vocabulary relevant to the project.</p> |
| Vocabulary | <p><b>Mechanisms</b><br/>         Wind, turn, spool, drop and raise, tension, join, secure, balance.</p> <p><b>Materials</b><br/>         Measure, mark out, cut, shape.<br/>         Tear, cut, fold.<br/>         Stick, glue, tape<br/>         Assemble, join.<br/>         Scissors, hole-punch, split pins.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | <p><b>Textiles –</b><br/>         Cut, join, thread, beads, dress, shape, sew, needle, thread, knot, running stitch, join, combine, decorate, detail, fabric.</p> <p><b>Materials –</b><br/>         Measure, mark out, cut, shape.<br/>         Cut.<br/>         Stick, glue<br/>         Assemble, join.<br/>         Scissors.</p>                                                                                                                                                                                                                                                                         | <p><b>Food and nutrition</b><br/>         Cut, peel, grate, spread, assemble, ingredients, measure, weigh, grams, hygiene, safety, knife, grater, peeler, chopping board.<br/>         Healthy diet, farm, grow.</p>                                                                                                                                                                                                                                                                                                                                                                      |

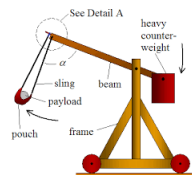
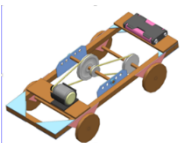
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|                | Autumn                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | Spring                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | Summer                                                                                                                                                                                                                                                                           |
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| Year 3         | <b>Mechanisms &amp; Structures - pneumatics</b><br><b>Food and Nutrition - kitchen rules, hygiene</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | <b>STEM project – elastic band cars</b><br><b>Food and Nutrition - eatwell plate</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | <b>Mechanisms &amp; Structures - boats</b>                                                                                                                                                                                                                                       |
| Focus designer | Stone age<br>Lion King stage show puppets                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | Vehicle design                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | Tudors - Mary Rose - Historic Dockyard<br>Modern boat makers – ferries, Pmth harbour<br>Food – Harvest, Yeast (bread), Seasons                                                                                                                                                   |
| Design task    | Simple pneumatics. Hiding in a cave and pop out or jaws of sabre toothed tiger open and shut.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | Yr 3 – build and test elastic band cars                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | Design and build a boat which can float, stay upright and hold weight                                                                                                                         |
| Skills         | <p><b>Mechanisms -</b><br/>           Measure, mark out and cut materials accurately and safely by selecting appropriate tools.<br/>           Select appropriate joining techniques.<br/>           Refer to their design criteria as they make.<br/>           Identify when to change things if this helps them improve their work.<br/>           Recall scientific knowledge of the transference of forces to choose appropriate mechanisms for a product (such as levers, winding mechanisms, pulleys and gears).</p> <p><b>Food &amp; Nutrition -</b><br/>           Prepare ingredients hygienically.<br/>           Assemble or cook ingredients that are predominantly savoury.<br/>           Use a range of techniques such as peeling, chopping, slicing, grating, mixing, spreading, kneading and baking.</p> | <p><b>STEM</b><br/>           Measure, mark out and cut materials accurately and safely by selecting appropriate tools.<br/>           Select appropriate joining techniques.<br/>           Refer to their design criteria as they design and make.<br/>           Identify when to change things if this helps them improve their work.</p> <p><i>Science link - Forces</i><br/> <i>Maths opportunities – measures – time, distance, data handling...</i></p> <p><b>Food &amp; Nutrition -</b><br/>           Prepare ingredients hygienically.<br/>           Assemble or cook ingredients that are predominantly savoury.<br/>           Use a range of techniques such as peeling, chopping, slicing, grating, mixing, spreading, kneading and baking.</p> | <p><b>Structures</b><br/>           Measure, mark out and cut materials accurately and safely by selecting appropriate tools.<br/>           Select appropriate joining techniques – glueing, taping.<br/>           Refer to their design criteria as they design and make.</p> |

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| Knowledge  | <p><b>Mechanisms –</b><br/>           Know what pneumatic and hydraulic systems are and that they work by pushing air and water through a pressurised system.<br/>           Know about transference of force.<br/>           Know how to join materials with accuracy.</p> <p><b>Food and nutrition –</b><br/>           Know that food and drink provide the body with energy and nutrients.<br/>           Know how to use appropriate equipment and utensils to prepare and combine food.<br/>           Know that ingredients can be combined.<br/>           Know which ingredients are grown, reared and caught.</p> <p>Know and use technical vocabulary relevant to the projects.</p> | <p><b>STEM</b><br/>           Know the difference between fixed and freely moving axles.<br/>           Know how to use tools and equipment safely.<br/>           Know different ways to power a car and create movement.<br/>           Know how to measure, cut and join accurately.</p> <p><b>Food and nutrition –</b><br/>           Know what a healthy diet is made up of as depicted in the Eatwell Plate.<br/>           Know that food and drink provide the body with energy and nutrients.<br/>           Know how to use appropriate equipment and utensils to prepare and combine food.<br/>           Know food can be fresh or processed.<br/>           Know that ingredients can be combined.</p> <p>Know and use technical vocabulary relevant to the project.</p> | <p><b>Structures –</b><br/>           Know when to change things if this helps them improve their work.<br/>           Know suitable techniques to construct products or to repair items.</p> <p>Know and use technical vocabulary relevant to the project.</p> |
| Vocabulary | <p><b>Mechanisms –</b><br/>           Pneumatic system, hydraulic system, pressure, transferring forces.</p> <p><b>Food and nutrition –</b><br/>           As Year 2 + Grate, cream, cut, skewer, sift, rubbing in method, knead, draining board, tablespoon. Carbohydrates, protein, dairy, healthy plate, whisk. Name equipment, utensils and ingredients.</p>                                                                                                                                                                                                                                                                                                                               | <p><b>STEM –</b><br/>           Build, balance, construct, strong.<br/>           Assemble, join, combine, repair.<br/>           Drill, glue, nail, screw.<br/>           Strengthen, weight bearing, surface, transferring forces</p> <p><b>Food and nutrition –</b><br/> <b>See Autumn term for additional vocab</b><br/>           Name equipment, utensils and ingredients.<br/>           Carbohydrates, protein, dairy, healthy plate, balanced diet, whisk.</p>                                                                                                                                                                                                                                                                                                               | <p><b>Structures –</b><br/>           Build, balance, construct, strong, float, upright, streamline, buoyancy<br/>           Assemble, join, combine, repair.<br/>           Strengthen, weight bearing, surface,</p>                                           |

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**Lower Juniors**

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| <b>Year 4</b>         | <b>Structures - trebuchets and catapults</b><br><b>Food and Nutrition - Pizzas (Italy)</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | <b>Mechanisms - pop up, lever and linkage</b>                                                                                                                                                                                                                                                                                                                           | <b>STEM project - cars with motors (circuits)</b><br><b>Food and Nutrition - how food is caught, grown, reared and processed</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
| <b>Focus designer</b> | Castle defence<br>Romans                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | Chn's pop up books - different mechanisms.<br>Real life application, e.g. washing airt...                                                                                                                                                                                                                                                                               | (Possible links to UTC)<br>Vehicle design                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
| <b>Design task</b>    | Design and make a prototype of a weapon to attack a Roman town.<br>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | Design and make moving pieces for a 2-D Theatre<br>                                                                                                                                                                                                                                   | Yr 4 – Build and test car with an electric motor system included<br>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
| <b>Skills</b>         | <p><b>Structures and mechanisms –</b><br/>Identify suitable techniques to construct products or to repair items<br/>Demonstrate understanding of how to strengthen materials using suitable techniques.<br/>Select appropriate joining techniques.<br/>Measure and mark out materials with accuracy.<br/>Recall scientific knowledge of the transference of forces to choose appropriate mechanisms for a product (such as levers, winding mechanisms, pulleys and gears).</p> <p><b>Food and Nutrition</b><br/>Understand and follow kitchen safety rules and good hygiene.<br/>Prepare ingredients hygienically using appropriate utensils (slice, grate, peel, cut, etc).<br/>Assemble and cook ingredients.</p> | <p><b>Mechanisms</b><br/>Explore different mechanisms for a product (such as levers, linkages, pop-up and rotary mechanisms).<br/>Measure and mark out to the nearest mm.<br/>Apply appropriate cutting and shaping techniques that include cuts within the perimeter of the material (such as slots or cut outs).<br/>Choose appropriate mechanisms for a product.</p> | <p><b>STEM</b><br/>Measure, mark out and cut materials accurately and safely by selecting appropriate tools.<br/>Select appropriate joining techniques. (glue gun)<br/>Refer to their design criteria as they design and make.<br/>Identify when to change things if this helps them improve their work.<br/>Understand and use electrical systems in their products linked to science.<br/><i>Science link – Electricity- Create simple electrical circuits including a switch</i><br/><i>Maths opportunities – measures – time, distance, data handling...</i></p> <p><b>Food and Nutrition</b><br/>Prepare ingredients hygienically using appropriate utensils (slice, grate, peel, cut, etc).<br/>Measure ingredients to the nearest gram.<br/>Assemble and cook ingredients.</p> |
| <b>Knowledge</b>      | <b>Mechanisms and Structures –</b><br>Know how to construct strong structures.<br>Know how to use tools and equipment safely.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | <b>Mechanisms –</b><br>Know how to use lever and linkage mechanisms.                                                                                                                                                                                                                                                                                                    | <b>STEM</b><br>Know the difference between fixed and freely moving axles.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |

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|            | <p>Know about transference of force.<br/>Know how to join materials with accuracy.</p> <p>Know and use technical vocabulary relevant to the project.</p> <p><b>Food and nutrition –</b><br/>Know that food is created from assembling ingredients.<br/>Know the importance of correct storage and handling of ingredients.<br/>Know the importance of a healthy balanced diet.<br/>Begin to understand that different food and drink contain different substances – nutrients, water and fibre – that are needed for health</p> <p>Know and use technical vocabulary relevant to the project.</p>                                               | <p>Know the difference between fixed and loose pivots.<br/>Know how to accurately cut slots and create moving parts.</p> <p>Know and use technical vocabulary relevant to the project.</p> | <p>Know how to use tools and equipment safely.<br/>Know different ways to power a car and create movement.<br/>Know how to measure, cut and join accurately.<br/>Know how to build a circuit.<br/>Know the name of the components in a circuit.</p> <p><b>Food and nutrition –</b><br/>Know that food is grown, reared and caught in the UK, Europe and the wider world.<br/>Begin to understand that different food and drink contain different substances – nutrients, water and fibre – that are needed for health<br/>Know food can be fresh or processed.<br/>Know and use technical vocabulary relevant to the project.</p> |
| Vocabulary | <p><b>Structures and mechanisms –</b><br/>Build, balance, construct, strong.<br/>Assemble, join, combine, repair.<br/>Drill, glue, nail, screw.<br/>Strengthen, weight bearing, surface, transferring forces.<br/>Wind, turn, spool, drop and raise, tension, join, secure, balance.</p> <p><b>Food and nutrition –</b><br/>As Year 3 + Hygiene, fresh/dry herbs, texture, slice, peel, quantity, divide, traditional food.<br/>ration, grate, peel, slice, cut, measure, divide, quantity, assemble.<br/>Name equipment, utensils and ingredients.<br/>Hygiene, fresh/dry herbs, texture, slice, peel, quantity, divide, traditional food.</p> | <p><b>Mechanisms –</b><br/>Slider, pivot, lever, linkage, rotary movement, pop-up, wheel, push, pull, turn.</p>                                                                            | <p><b>STEM –</b><br/>Build, balance, construct, strong.<br/>Assemble, join, combine, repair.<br/>Drill, glue, nail, screw.<br/>Strengthen, weight bearing, surface, transferring forces<br/>Circuit, component, cell, wire, motor, switch...</p> <p><b>Food and nutrition –</b><br/>As Year 3 + Hygiene, fresh/dry herbs, texture, slice, peel, quantity, divide, traditional food.<br/>ration, grate, peel, slice, cut, measure, divide, quantity, assemble.<br/>Name equipment, utensils and ingredients.<br/>ration, grate, peel, slice, cut, measure, divide, quantity, assemble.</p>                                         |

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**Upper Juniors**

| Year 5                | Structures/ Mechanisms/computing/electricity<br>- Ferris wheels                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | Structures/ Mechanisms - Cam toys                                                                                                                                                                                                                                                                                                                                                                                                                                     | Food and Nutrition - WW2                                                                                                                                                                                                                                                                                                                                                       |
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| <b>Focus designer</b> | Look at existing rides<br>Clarence and South parade piers                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | Look at different old fashioned cam toys<br>Mr Whitcomb                                                                                                                                                                                                                                                                                                                                                                                                               | Mary Berry                                                                                                                                                                                                                                                                                                                                                                     |
| <b>Design task</b>    | Design and make a prototype for a fairground ride.<br>Technical 3D drawing<br>Power with an electrical circuit<br>Use computer e.g. crumble to control<br>                                                                                                                                                                                                                                                                                                                 | Design and make a cam toy<br>Investigate movement of different cam shapes<br>Link to earthquakes?<br><a href="https://www.youtube.com/watch?v=UYtSpnO2jul">https://www.youtube.com/watch?v=UYtSpnO2jul</a><br>                                                                                                                                                                     | Create food using limited ingredients and investigate recipes that use food that could easily be grown at home during WW2.                                                                                                                                                                                                                                                     |
| <b>Skills</b>         | Develop and apply a range of practical skills to create products (e.g. cutting, drilling and screwing, nailing, glueing, filling and sanding).<br>Cut materials with precision and refine the finish with appropriate tools (such as sanding wood after cutting or a more precise scissor cut after roughly cutting out a shape).<br>Create circuits using electronics kits that employ a number of components.<br>Understand and use electrical systems in their product.<br>Write code to control and monitor models or products. Explain how this works. | Explore how to convert rotary motion to linear using cams.<br>Develop and apply a range of practical skills to create products (e.g. cutting, drilling and screwing, glueing, filling and sanding).<br>Cut materials with precision and refine the finish with appropriate tools (such as sanding wood after cutting or a more precise scissor cut after roughly cutting out a shape).<br>Demonstrate understanding of a range of practical skills to create products | Confidently prepare and cook a variety of predominantly savoury dishes safely and hygienically including the use of a heat source.<br>Cut, grate, peel, mash, ration, slice...<br>Measure ingredients accurately.<br>Follow recipes, including preparing ingredients, reading methods and using correct cooking times and temperatures.                                        |
| <b>Knowledge</b>      | <b>Structures/ Mechanisms/computing/electricity</b><br>Know how to use tools safely including saws, glue-guns and drills where appropriate.<br>Know how to strengthen, stiffen and reinforce 3-D framework.<br>Know that mechanical and electrical systems have an input, output and process.<br>Know how to use computing to program, monitor and control products.                                                                                                                                                                                        | <b>Structures &amp; mechanisms –</b><br>Know that mechanical systems have an input, process and output.<br>Know that cams can be shaped and positioned to create different movements.<br>Know how to place components of a cam mechanism with accuracy so the parts move together.                                                                                                                                                                                    | <b>Food and nutrition –</b><br>Know the importance of correct storage and handling of ingredients.<br>Know how seasonality affects what is available.<br>Understand that food is grown, reared and caught in the UK, Europe and the wider world.<br>Know that different food and drink contain different substances – nutrients, water and fibre – that are needed for health. |

|            | Know and use technical vocabulary relevant to the project.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | Know and use technical vocabulary relevant to the project.                                                                                                                                                                                                                                                                                                                                                                           | Know and use technical vocabulary relevant to the project.                                                                                                                                                                                  |
|------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Vocabulary | <p>Build, balance, construct, strong.<br/> Assemble, join, combine, repair.<br/> Drill, glue, nail, screw.<br/> Strengthen, weight bearing, surface, precision.</p> <p>Prototype, mock-up.<br/> transferring forces, convert, rotary motion,</p> <p>rotary movement,<br/> Gears, pulleys, cogs.</p> <p>Measure, mark out, cut, shape, precise.<br/> Stick, glue, tape<br/> Assemble, join, combine.<br/> cut, drill, screw, nail, glue, fill, sand.</p> <p>Circuit, component, cell, wire, motor, switch,</p> <p>Code, control, crumble, accelerate, brake, reverse</p> | <p>Prototype, mock-up.<br/> transferring forces, convert, rotary motion, linear motion,<br/> cam systems, follower, cam, cam shaft, handle<br/> Name different cam shapes.<br/> Measure, mark out, cut, shape, precise.<br/> Tear, cut, fold, curl.<br/> Stick, glue, tape<br/> Assemble, join, combine.<br/> Scissors, hole-punch, split pins.<br/> perimeter, slots, cut outs.<br/> cut, drill, screw, nail, glue, fill, sand.</p> | <p>As Year 4 + Nutrition, energy, calories, dice, melt, dissolve, whole/processed food, bicarbonate of soda, zest, fold. Combine, colander, vegetarian, vegan, preferences, seasonality.<br/> Name equipment, utensils and ingredients.</p> |

**All DT units must follow Design, make, evaluate cycle and provide opportunity to try again and make improvements based on their evaluation.**

**Upper Juniors**

| Year 6         | Resistant Materials/ Mechanisms - Shaduf<br>Food and nutrition - Harvest baking                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | Textiles - bags                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | Food and Nutrition - food from around the world. Sustainability.                                                                                                                                                                                                                                                                                                           |
|----------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Focus designer | Existing machinery for lifting and shifting<br>Cranes (dockyard and container boats), wells, heavy machines used for road building, etc.<br><b>Food and Nutrition</b><br>Paul Hollywood                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |  <p>Orla Kiely Cath Kidston</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | Nadiya Hussein                                                                                                                                                                                                                                                                                                                                                             |
| Design task    | <p>Series of shorter investigations:<br/>Gear ratio<br/>Investigate pulleys</p>  <p>Apply to select a mechanism to make a task easier, e.g. lifting water/building materials, etc. (Possible link to Trans-Atlantic slave trade topic – how to make jobs easier)</p>                                                                                                                                                                                                                                                                                                                                                              | <p>Design and make a kit bag to carry equipment needed in rainforest</p>                                                                                                                                                                                                                                                                                                                                                   | Prepare and cook a range of predominantly savoury dishes from around the world                                                                                                                                                                                                                                                                                             |
| Skills         | <p><b>Resistant materials/mechanisms –</b><br/>Demonstrate understanding of a range of practical skills to create products.<br/>Demonstrate understanding of the qualities of materials and justify choices appropriate tools to cut and shape.<br/>Develop and apply a range of practical skills to create products (e.g. cutting, drilling and screwing, nailing, gluing, filling and sanding).<br/>Cut materials with precision and refine the finish with appropriate tools (such as sanding wood after cutting or a more precise scissor cut after roughly cutting out a shape).</p> <p><b>Food and nutrition -</b><br/>Confidently prepare and cook a variety of predominantly savoury dishes safely and</p> | <p>Cut materials with precision and refine the finish with appropriate tools (such as sanding wood after cutting or a more precise scissor cut after roughly cutting out a shape).<br/>Use different stitches to join fabrics.<br/>Apply the qualities of materials to create suitable visual and tactile effects in the decoration of textiles (such as a motif to identify bag/waterproofing).<br/>Join textiles with a combination of stitching techniques (e.g. back stitch for seams and running stitch to attach decoration).<br/>Understand the need for patterns and seam allowance.</p> | <p>Confidently prepare and cook a variety of predominantly savoury dishes safely and hygienically including, where appropriate, the use of a heat source.<br/>Slice, grate, chop, mix, whisk, roll, knead, combine, cook, hob, boil, oven-bake.<br/>Follow recipes, including preparing ingredients, reading methods and using correct cooking times and temperatures.</p> |

|            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                                                                                                                                                                                                                                                                                                                                                                                                                |                                                                                                                                                                                                                                                                                                                             |
|------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|            | hygienically including, where appropriate, the use of a heat source.<br>measure, weigh, blend, combine, knead, prove.<br>Measure accurately and calculate ratios of ingredients to scale up or down from the recipe                                                                                                                                                                                                                                                                                                                                                   |                                                                                                                                                                                                                                                                                                                                                                                                                |                                                                                                                                                                                                                                                                                                                             |
| Knowledge  | <p><b>Resistant materials/mechanisms –</b><br/>Know how gears and pulleys can be used to speed up, slow down or change direction of movement.<br/>Know how to choose mechanisms, materials and equipment suitable for a task.<br/>Know how to combine materials and build mechanisms and structures to answer a design brief.</p> <p><b>Food and nutrition -</b><br/>Know how to mix ingredients in different ways (stir, fold, knead...)<br/>Know how to use seasonal produce to produce food.</p> <p>Know and use technical vocabulary relevant to the project.</p> | <p><b>Textiles -</b><br/>Know how to securely join two pieces of fabric together.<br/>Know when to select appropriate tools to cut and shape different materials (e.g. the nature of fabric may require sharper scissors than would be used to cut paper).<br/>Know how to produce a 3-D textile product from pattern and fabric pieces.</p> <p>Know and use technical vocabulary relevant to the project.</p> | <p><b>Food and nutrition –</b><br/>Know the importance of correct storage and handling of ingredients.<br/>Know that food is grown, reared and caught in the UK, Europe and the wider world.<br/>Know what sustainability is and why it is important.</p> <p>Know and use technical vocabulary relevant to the project.</p> |
| Vocabulary | <p>Slider, pivot, lever, linkage, rotary movement, pop-up, wheel, push, pull, turn.<br/>Gears, pulleys, cogs.</p> <p><b>Food and nutrition -</b><br/>Name equipment, utensils and ingredients.<br/>As Year 5 + absorbed, raising agent, uniform.</p>                                                                                                                                                                                                                                                                                                                  | <p>Cut, join, thread, beads, shape, sew, needle, thread, knot, running stitch, back, stitch, join, combine, decorate, detail, fabric.<br/>fabric scissors, pin, hem, seam, seam allowance, visual qualities, tactile qualities, motif.</p>                                                                                                                                                                     | <p>Name equipment, utensils and ingredients.<br/>As Year 5 + Core, sustainability, organisation, absorbed, food labelling, climate change.</p>                                                                                                                                                                              |