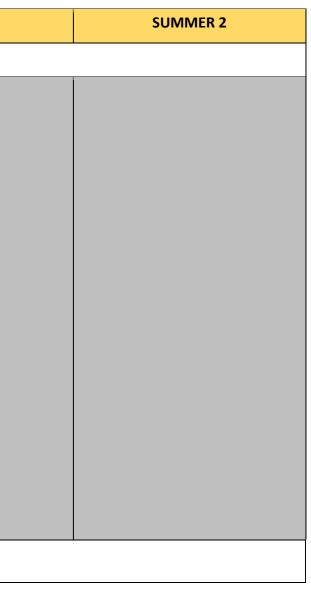
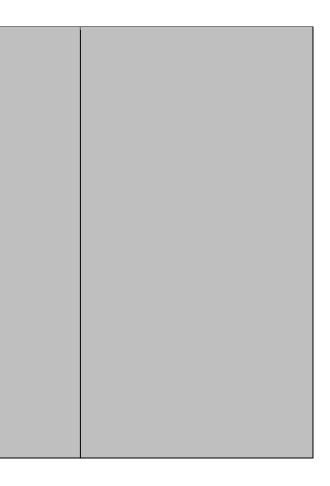
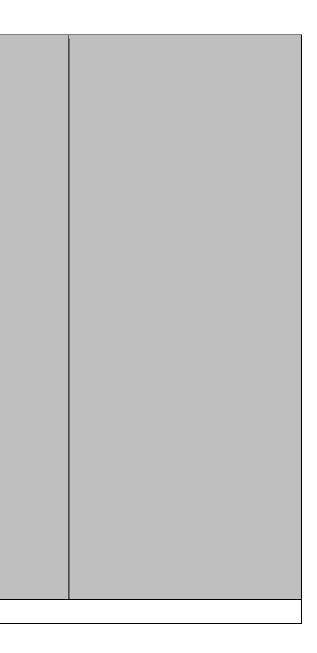
|          | Design and Technology Long Term Plan  |          |   |          |  |  |
|----------|---|----------|---|----------|--|--|
| AUTUMN 1 | AUTUMN 2  | SPRING 1 | SPRING 2  | SUMMER 1 |  |  |
|          |   | YE       | AR 1/2 Cycle A  |          |  |  |
|          | <ul> <li>Mechanical Components</li> <li>Designing</li> <li>To use their knowledge of a wheel, chassis and axle to design a vehicle to carry a toy.</li> <li>Making</li> <li>To know how objects move by experimenting with construction kits.</li> <li>To know how to make an effective chassis with wheels using an axle with cotton reels and dowels.</li> <li>Evaluating</li> <li>To know and explain why a wheel and axle wobbles based on hole position.</li> <li>To be able to evaluate why their vehicle moves.</li> <li>To be able to make comparisons between their vehicle and another.</li> <li>To know the purpose of a wheel.</li> <li>To know the difference between fixed and freely moving axles. To know what a wheel, chassis and axle is.</li> </ul> |          | <ul> <li>Food and Nutrition</li> <li>To know that food comes from plants and animals.</li> <li>To know which familiar foods come from plants and which come from animals.</li> <li>To know that it is healthy for people to eat at least five portions of fruit and vegetables every day.</li> <li>To know what texture means.</li> <li>To be able to describe the texture and taste of food when eating it.</li> <li>To use knowledge of colour, texture and taste to sort fruits and vegetables.</li> <li>To know which types of food make a healthy meal.</li> <li>To know that hands and utensils need to be washed before cooking.</li> <li>To know how to hold fruit and vegetables so that they can be cut safely with a knife.</li> <li>To know how to mix with a spoon.</li> </ul> |          |  |  |
|          |   |          | YEAR 1/2  |          |  |  |
|          |   |          | Cycle B   |          |  |  |



| <ul> <li>✓ Design</li> <li>✓ Design</li> <li>✓ To know that Sir Christopher<br/>Wren was an architect who<br/>designed buildings.</li> <li>✓ To use knowledge of<br/>construction and joining<br/>materials to select the most<br/>suitable to design a model<br/>house.</li> <li>✓ To know that a mock-up is used<br/>by designers and architects to</li> </ul>              | <ul> <li>✓ Design</li> <li>✓ [To know that a mock-up is used by designers to test how well a design will work.]</li> <li>✓ To use appropriate vocabulary when planning and designing a textile product.</li> <li>✓ Making</li> <li>✓ To know the purpose of a template and how to draw around it on a textile.</li> </ul>  |
|---|--|
| <ul> <li>test how well a design will work.</li> <li>Making</li> <li>To use knowledge of 3D shapes<br/>to build simple freestanding<br/>structures.</li> <li>To use knowledge of 2D shapes<br/>and simple nets to build free-<br/>standing structures using<br/>Polydron.</li> <li>To know how to use scissors to<br/>cut card and paper accurately<br/>and safely.</li> </ul> | <ul> <li>To know how to use pins to secure material and templates.</li> <li>To know how to use scissors to cut templates and fabric accurately and safely.</li> <li>Evaluating</li> <li>To use their knowledge of joining materials and aesthetic qualities to evaluate their product.</li> <li>To use their knowledge of different materials to evaluate which are best to print on.</li> </ul> |



|  | YEAR 3/4 Cycle A   |
|--|--|
|  | <ul> <li>To know how to use a knife safely to peel fruit and vegetables and to discard pips/ seeds.</li> <li>To know how to use a grater safely.</li> <li>To know how to use a measuring spoon to measure quantities.</li> <li>To know the steps to take to make sure that food is prepared hygienically.</li> </ul> |
| <ul> <li>templates to create a net.</li> <li>To know how to use a straight<br/>edge to mark lines for cutting.</li> <li>Evaluating</li> <li>To evaluate their model using<br/>knowledge of stability,<br/>effectiveness of construction<br/>and joining materials and<br/>finishing techniques.</li> </ul> |  |
| <ul> <li>To use knowledge of materials<br/>to explain how easy or difficult<br/>they are to cut.</li> <li>To use knowledge of joining<br/>materials to select the most</li> </ul>  | <ul> <li>✓ Technical Knowledge</li> <li>✓ To know what a textile is.</li> <li>✓ To know the purpose of a lining and which materials and ioining can be used</li> </ul>   |



| Construction | Elect |
|--------------|-------|
| Designing    | Desig |

- ✓ To use research and previous learning to inform designs for a free-standing structure.
- To know that Ludwig Mies Van Der Rohe was an architect and furniture designer who created simple, but stable frames for furniture.
- To use knowledge of structures, buttresses, joins and materials to design a freestanding replica of an iron age house.
- Apply DT knowledge to add labels and instructions to their work.

## Making

- To know how to create a mock-up to test a structure support.
- ✓ To use knowledge of structures, buttresses, joins and materials to create a

## Electrical Components Design

- ✓ To know how some key
   designs of engineers in design and technology have helped shape the world.
- To use scientific knowledge of circuits to design a motorised product including a labelled diagram and instructions.
- To know how safety features need to be considered in the design of electrical products.
- To know that advancements in technology influence design over time. Making
- ✓ To use scientific knowledge to make simple electrical systems.
- To use scientific knowledge of circuits to design a working model mining helmet

## Mechanical Comp

- DesigningTo know that William
- Armstrong was an eng who designed the mo crane.
- To be able to identify differences and simila
   Egyptian Shadufs and designs that use puller levers.
- To use research and h knowledge to inform for a Shaduf, including sketches and instructi Making
- To know how to adaption
   and a pulley based on weight.
- To know that varying position of the fulcrun how a lever lifts a load
- To know the difference between a lever and a and how they are use create movement.
- To know how levers a pulleys can be adapte weight.
   Evaluating

| ponents<br>gineer<br>odern-day<br>arities in<br>modern<br>eys and<br>historical<br>designs<br>g labelled<br>ions.<br>ot a lever<br>h load<br>the<br>m affects<br>d.<br>ce<br>a pulley<br>ed to |   | can affect the taste,<br>appearance, texture and<br>colour of bread.<br>To understand the need for<br>covering dough to maintain<br>hygiene during benching and<br>proofing.<br>To know how to effectively<br>disinfect surfaces.<br>To know how to knead and<br>why a floured surface is<br>required.<br>To know how to weigh dry<br>ingredients using scales.<br>To know how to use a<br>measuring jug.<br>To know how the bread recipe<br>can be altered by adding |
|--|---|---|
| ce<br>a pulley   | ~ | To know how the bread recipe  |

| <ul> <li>freestanding replica of an iron age house.</li> <li>To know when it is appropriate to use hidden joins in a structure.</li> <li>Y To know when it is appropriate to use scoring in a structure. Evaluating</li> <li>To use knowledge of supporting structures to evaluate their mock-ups.</li> <li>To use knowledge of properties of materials to evaluate their suitability for a buttress.</li> <li>To know how to evaluate if a design meets needs or requires altering.</li> <li>To use their knowledge of structure to evaluate how effective their replica is in supporting weight. Technical Knowledge</li> <li>To know how to create a hidden join.</li> <li>To know how to score using scissors.</li> </ul> | s<br>differences and similarities in Egyptian Shadufs and their own design.<br>To use their knowledge of pulleys, levers, wheel movement and fulcrum to evaluate how well their design lifts varying loads.<br>To know how to improve<br>efficiency of their product. Technical Knowledge<br>To know what a puleys and levers are used to lift, move and carry.<br>To know what a fulcrum is.<br>ss |
|---|---|
| YEAF  | R 3/4 Cycle B   |

| <u>xtiles</u>         |
|-----------------------|
|                       |
| signing               |
| know that Ozwald B    |
| British designer wh   |
| igns tailored clothin |
| -                     |
| use their knowledge   |
| ck stitch and running |
| annotate sketches to  |
| ferences in techniqu  |
| know how to apply     |
| owledge of techniqu   |
| sign brief.           |
| use knowledge of se   |
| hniques to create     |
| notated sketches for  |
|                       |
| sign brief.           |
| know what a mock      |
| d create one.]        |
| know how to creat     |
| ototype] and apply t  |
| ating prototypes for  |
| ats and gathers.      |
| -                     |
|                       |
|                       |

|           |   | <b>Construction</b>              |
|-----------|---|----------------------------------|
|           |   | Designing                        |
| Boateng   | ✓ | To use knowledge of              |
| ho mainly |   | reinforcing techniques to        |
| ng.       |   | annotate sketches for a frame    |
| ge of     |   | structure.                       |
| ng stitch | ✓ | To know what diagonal braces     |
| to record |   | and butt joints are and use this |
| ue.       |   | knowledge to create protypes.    |
| y         | ✓ | [To know how to apply            |
| ues to a  |   | knowledge of techniques to a     |
|           |   | design brief.]                   |
| sewing    |   | Making                           |
|           | ✓ | To use a saw to cut wood         |
| or a      |   | safely.                          |
|           | ✓ | To measure wood accurately.      |
| k up is   | ✓ | To know how to, and explain,     |
|           |   | how a frame can be made          |
| ite a     |   | stable and supported.            |
| this to   |   | Evaluating                       |
| or knife  | ✓ | [To use subject specific         |
|           |   | language to compare and          |
|           |   |                                  |
|           |   |                                  |

| <ul> <li>To use subject specific language to compare and contrast their design with their peers. Technical Knowledge</li> <li>To know that a shell structure has a solid outer layer which is flat or curved and it is hollow on the inside.</li> <li>To know where flaps can be drawn onto nets to join them to create a shell structure.</li> <li>To know how to use CAD to model and explain ideas.</li> <li>To know how to strengthen a structure using corrugating, laminating and ribbing.</li> </ul> |        |   | <ul> <li>Making</li> <li>To know how fabric can be cut in different ways to prevent fraying and to create different aesthetic results.</li> <li>To know how to create a prototype and apply these to hems.</li> <li>To apply mathematical knowledge of measurement ratios to create a template that is to scale.</li> <li>[To know how to use pins to join materials before stitching.] Evaluating</li> <li>To use knowledge of back stitch, catch stitch and running stitch to identify strengths and limitations of these as joining techniques.</li> <li>To use subject specific language to compare and contrast their design with their peers. Technical Knowledge</li> <li>To know how to thread a needle.</li> <li>To sew using back stitch, running stitch and catch stitch.</li> <li>To know that a hem should be hidden.</li> <li>To know different ways of folding material (e.g., knife pleat and gathers).</li> </ul> | <ul> <li>contrast their design with</li> <li>their peers.]<br/>Technical Knowledge</li> <li>To know how a frame can be<br/>supported and made stable.</li> <li>To know which materials are<br/>suitable for reinforcing corners<br/>of wood.</li> <li>To know how to strengthen a<br/>frame using gussets and<br/>diagonal braces.</li> </ul> |
|---|--------|---|--|---|
|   | YEAR 5 | /6 Cycle A  |  |   |
|   |        | Mechanical Components         Design         ✓       To know that James Dyson is a designer and engineer who designs household products.         ✓       To know how to use a survey to research intended users' wants and needs to inform the design process.         ✓       To know how exploded diagrams can demonstrate the separate parts of a design and how they fit together.         ✓       To know how prototypes can be used to test mechanical components in an initial design.         Making       ✓         ✓       To know that changing the length of rope on a fixed pulley affects |  |   |

| <ul> <li>the number of turns of the wheel needed to lift a load.</li> <li>To know how meshing gears at right angles can alter movement.</li> <li>To use knowledge of gears to create a functional product with mechanical components for an intended user.</li> <li>Evaluating</li> <li>To use knowledge of gears to analyse and evaluate mechanical components in everyday objects.</li> <li>To use their knowledge of gears to to evaluate their own and their peers' designs.</li> <li>Technical Knowledge</li> <li>To know that fixed pulleys lift a load using a wheel, axle and rope.</li> <li>To know the mechanical differences between fixed, moveable and compound pulleys.</li> <li>To know that a gear is a rotating part of a machine that creates movement.</li> <li>To know that gear ratio affects the rotational speed and direction of gears in a gear train.</li> <li>To know that caxial gears are gears on the same axle.</li> </ul> |
|---|
| YEAR 5/6 Cycle B  |
| Electrical Components         Designing <ul> <li>To know how to draw diagrams to scale.</li> <li>Evaluating</li> <li>To know that Tim Berners-Lee changed everyday life with the invention of the World Wide Web.</li> <li>To know that developments in D&amp;T have helped shape the world.</li> <li>To use knowledge of electrical systems to evaluate and improve the design and functionality of electrical circuits.</li> </ul> <li>Technical Knowledge</li> <li>To know how to use a computer control program to enable an electrical product to work automatically in response to changes in the environment.</li> <li>To apply knowledge of electrical systems to design a circuit within a product for a purpose and intended user.</li>   |

## ✓ Food and Nutrition

| $\checkmark$ | To know that food is       |
|--------------|----------------------------|
|              | grown, reared and          |
|              | caught in the UK,          |
|              | Europe and the wider       |
|              | world. To know that the    |
|              | seasons affect food        |
|              | availability, and this is  |
|              | called seasonality.        |
| $\checkmark$ | To know that Rachel        |
|              | Green is a farmer and      |
|              | chef focussed on           |
|              | seasonality.               |
| $\checkmark$ | To use knowledge of a      |
|              | healthy and varied diet    |
|              | to plan and evaluate       |
|              | meals for different        |
|              | lifestyles. To know that   |
|              | different varieties of the |
|              | same type of food can      |
|              | vary in terms of cost,     |

