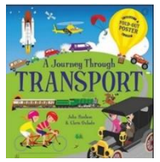
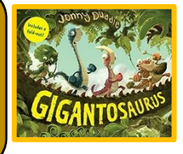
The Journey of Design & Technology- Reading Enhanced Curriculum



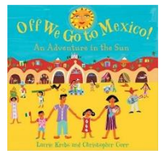
Year 1
Autumn 1
Mechanical Components

Year 1
Spring 2
Food & Nutrition

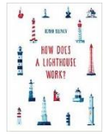


Year 2
Autumn Term
Construction

Year 2
Spring 2
Textiles
Food & Nutrition



Year 3
Autumn Term 2
Construction

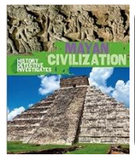


Year 3
Spring Term 1
Electrical Components

Year 3
Summer Term 1
Mechanical Components

Year 3
Summer Term 2
Food & Nutrition

Year 4
Autumn Term 1
Construction
Computer-Aided Design



Year 4
Summer Term 1
Textiles

Year 4
Summer Term 2
Construction

Year 5
Spring Term
Mechanical Components

Year 6
Spring Term
Electrical Components
Computer-Aided Modelling

Year 6
Summer Term 2
Food & Nutrition

KEY: Current Year D&T Unit
History Geography Art Science Reading Strategy

Curriculum Overview Year 1

Prior Year's Curriculum Content	Year 1 Curriculum Content	Subsequent Year's Curriculum Content
	CROSS-CURRICULAR LINKS: **Mechanisms (Autumn 2): Everyday Materials, Transport Through the Ages, Dogger** **Food & Nutrition (Spring 2): Animals Including Humans**	**CROSS-CURRICULAR LINKS:** **Food & Nutrition (Spring 2): Animals Including Humans (Y2)**
Food & Nutrition	**Food & Nutrition** ✓ To understand that food comes from plants and animals. ✓ To sort fruits and vegetables based on colour, texture and taste. ✓ To understand that everyone should eat at least five portions of fruit and vegetables every day. ✓ To understand what a healthy meal is. ✓ To understand that hands and utensils need to be washed before cooking. ✓ To use a knife to cut fruit and vegetables into smaller pieces. ✓ To understand how to hold fruit and vegetables so that they can be cut safely. ✓ To use a spoon to mix.	**Food & Nutrition** **Year 2** ✓ To state foods that come from plants and animals. ✓ To recognise foods relating to the Mexican culture. ✓ To sort foods based on where they have come from (farmed, grown elsewhere or caught). ✓ To suggest ways that at least five portions of fruit and vegetables can be eaten every day. ✓ To understand what a varied and healthy diet is, using the Eatwell Guide. ✓ To describe steps to take so that food is prepared hygienically. ✓ To use a knife to peel fruit and vegetables and to discard pips/ seeds. ✓ To understand how to use a grater safely. ✓ To use a spoon to measure quantities.
Vocabulary	**Vocabulary** ✓ cut ✓ chopping board ✓ fruit ✓ healthy ✓ mix ✓ prepare ✓ rough ✓ smooth ✓ sour ✓ sweet ✓ taste ✓ texture ✓ utensils ✓ vegetables	**Vocabulary** ✓ caught ✓ chop ✓ disinfect ✓ farmed ✓ farmer ✓ grater ✓ healthy ✓ measure ✓ measuring spoon ✓ peel ✓ portion ✓ skin ✓ varied diet
Mechanical Components	**Mechanical Components** **Designing** ✓ To talk about the purpose of a wheel. ✓ To talk about their own experience of vehicles with wheels. ✓ To talk about designs for vehicles to carry a toy. ✓ To make a drawing of a design for a four-wheel vehicle to carry a toy. **Making** ✓ To experiment with construction kits to make an object that moves. ✓ To attach wheels to a chassis using an axle with cotton reels and dowels. ✓ To attach wheels to a chassis using an axle with straws and paper wheels/ circles. **Evaluating** ✓ To suggest reasons why a wheel and axle wobbles based on hole position. ✓ To talk about why their vehicle moves. ✓ To say what is similar about their and another vehicle. **Technical Knowledge** ✓ To recognise the different between fixed and freely moving axles. ✓ To understand what a wheel, chassis and axle is.	**Mechanical Components** **Year 3** **Designing** ✓ To use research and historical knowledge to inform designs for a Shaduf. ✓ To use labelled sketches and instructions to plan a design for a Shaduf. ✓ To test different levers and pulleys for weight bearing. **Making** ✓ To make levers and pulleys that can lift different loads from a surface. ✓ To vary the position of the fulcrum to lift a load using a lever. ✓ To strengthen structures using previous learning. **Evaluating** ✓ To compare Egyptian Shaduf designs with their own. ✓ To contrast Egyptian Shadufs with modern designs that use pulleys and levers. ✓ To evaluate how well their design lifts varying loads. ✓ To suggest ways their Shaduf could be altered to improve efficiency with the support of their peers. **Technical Knowledge** ✓ To recognise the difference between a lever and a pulley. ✓ To understand how to adapt a lever and a pulley based on load weight. ✓ To understand how pulleys and levers create movement.

Vocabulary	Vocabulary	Vocabulary
	✓ axle ✓ cab ✓ chassis ✓ fixed ✓ free ✓ vehicle ✓ wheel	✓ beam ✓ fulcrum ✓ labelled sketch ✓ lever ✓ load ✓ pulley ✓ simple machine

KEY: Current Year D&T Unit
History Geography Art Science Reading Strategy

Curriculum Overview Year 2

Prior Year's Curriculum Content	Year 2 Curriculum Content	Subsequent Year's Curriculum Content
	CROSS-CURRICULAR LINKS: **Construction (Autumn): Sculpture, Great Fire of London, London (UK)** **Textiles (Spring 2): Printing, Mexico** **Food & Nutrition (Spring 2): Mexico**	
Food & Nutrition ✓ To understand that food comes from plants and animals. ✓ To sort fruits and vegetables based on colour, texture and taste. ✓ To understand that everyone should eat at least five portions of fruit and vegetables every day. ✓ To understand what a healthy meal is. ✓ To understand that hands and utensils need to be washed before cooking. ✓ To use a knife to cut fruit and vegetables into smaller pieces. ✓ To understand how to hold fruit and vegetables so that they can be cut safely. ✓ To use a spoon to mix.	**Food & Nutrition** **Year 2** ✓ To state foods that come from plants and animals. ✓ To recognise foods relating to the Mexican culture. ✓ To sort foods based on where they have come from (farmed, grown elsewhere or caught). ✓ To suggest ways that at least five portions of fruit and vegetables can be eaten every day. ✓ To understand what a varied and healthy diet is, using the Eatwell Guide. ✓ To describe steps to take so that food is prepared hygienically. ✓ To use a knife to peel fruit and vegetables and to discard pips/ seeds. ✓ To understand how to use a grater safely. ✓ To use a spoon to measure quantities.	**Food & Nutrition** **Year 3** ✓ To understand that the Ancient Egyptians developed fermentation. ✓ To state some foods that contain gluten and yeast. ✓ To discuss about the way in which food processing can affect the taste, appearance, texture and colour of bread. ✓ To understand the need for covering dough to maintain hygiene during benching and proofing. ✓ To effectively disinfect surfaces. ✓ To develop kneading techniques and understand why a floured surface is required. ✓ To weigh dry ingredients using scales. ✓ To use a measuring jug.
Vocabulary ✓ cut ✓ chopping board ✓ fruit ✓ healthy ✓ mix ✓ prepare ✓ rough ✓ smooth ✓ sour ✓ sweet ✓ taste ✓ texture ✓ utensils ✓ vegetables	**Vocabulary** ✓ caught ✓ chop ✓ disinfect ✓ farmed ✓ farmer ✓ grater ✓ healthy ✓ measure ✓ measuring spoon ✓ peel ✓ portion ✓ skin ✓ varied diet	**Vocabulary** ✓ baking ✓ benching ✓ dough ✓ fermentation ✓ gluten ✓ kneading ✓ leavening ✓ proofing ✓ yeast
Construction **EYFS**	**Construction** **Year 2** **Design** ✓ To talk about existing structures. ✓ To use pictures and words to plan and design a free-standing structure linked to London. ✓ To make simple mock-ups of structures. ✓ To say what they like and dislike about-construction materials. ✓ **Making** ✓ To experiment with building free-standing structures using Polydron. ✓ To use templates. ✓ To use scissors to cut card and paper accurately. ✓ To use a straight edge to mark lines for cutting. ✓ To select suitable equipment to join materials (glue, tape, staples). ✓ To layer materials as a finishing technique to make them more appealing for the intended user. **Evaluating** ✓ To learn about the designer Sir Christopher Wren	**Construction** **Year 3** **Designing** ✓ To use research and previous learning to inform designs for a free-standing structure. ✓ To use labelled sketches and instructions to plan a design for a functional free-standing structure linked to the Iron Age. ✓ To test simple mock-ups of structure supports (including buttresses) **Making** ✓ To build free-standing structures that are supported by a buttress. ✓ To use scissors to score construction material. ✓ To draw accurate cutting lines using a ruler. ✓ To select suitable joining materials that provide hidden joins (glue, double-sided tape). **Evaluating** ✓ To compare designs and support structures of chairs created by Ludwig Mies Van Der Rohe. ✓ To evaluate different ways of supporting a free-standing structure. ✓ To evaluate how well a design is functional.

	✓ To say what they like and dislike about free-standing structures, referring to stability. ✓ To recognise the intended user of a free-standing structure. ✓ To talk about what they have constructed and the techniques involved. ✓ To describe what they like about their own and partners' structure. ✓ To suggest one way the structure could have been changed by using a different construction material or joining technique. **Technical Knowledge** ✓ To know what a free-standing structure is. ✓ To talk about different construction materials. ✓ To describe how stable a structure is. ✓ To understand how a free-standing structure can be made more stable, stiffer and stronger.	✓ To talk about ways their free-standing structure is supported and can hold weight. ✓ To suggest ways a structure could be altered whilst still meeting the intended user's needs. **Technical Knowledge** ✓ To talk about the suitable properties of construction materials. ✓ To explain what a buttress is.
Vocabulary	**Vocabulary** ✓ architect ✓ construction ✓ free-standing structure ✓ joining materials ✓ mock-up ✓ net ✓ ruler ✓ scissors ✓ stable ✓ template	**Vocabulary** ✓ base ✓ buttress ✓ free-standing structure ✓ hidden join ✓ mock-up ✓ rigid ✓ score ✓ shelter ✓ weight
Textiles **EYFS**	**Textiles** **Year 2** **Design** ✓ To talk about existing textile designs and print patterns. ✓ To use pictures and words to plan and design a textile product. ✓ To use IT to plan and design a textile product. ✓ To make and use templates. **Making** ✓ To use pins as a way of securing material and templates. ✓ To use chalk to draw around a template. ✓ To use scissors to cut templates and material accurately. ✓ To use a straight edge to mark lines for cutting. ✓ To select suitable equipment to join different parts of materials (glue, sewing, staples, pins). **Evaluating** ✓ To say what they like and dislike about joining with sewing, gluing and pinning based on comfort and aesthetic choices. ✓ To evaluate different fabrics. **Technical Knowledge** ✓ To sew using overstitch. ✓ To understand the purpose of a template. ✓ To select a chosen fabric based on its properties. ✓ To apply finishing techniques of stencil printing and gluing.	**Textiles** **Year 4** **Designing** ✓ To gather information about a user's wants and needs. ✓ To create annotated sketches of sewing techniques for a textile creation. ✓ To generate prototypes of knife pleats, hems and gathers. ✓ To create a simple mock-up. **Making** ✓ To use pins to join materials before stitching. ✓ To use measurement ratios to create a template that is to scale. ✓ To experiment with and select different ways of gathering material as a finishing technique. **Evaluating** ✓ To give strengths and limitations of back stitch, catch stitch and running stitch as joining techniques. ✓ To compare and contrast ways of folding material (e.g. knife pleat and gathers) ✓ To compare and contrast their design with their peers. **Technical Knowledge** ✓ To sew using back stitch, running stitch and catch stitch. ✓ To understand that a hem should be hidden. ✓ To use folding of material (e.g. hems and pleats) as a finishing technique.
Vocabulary	**Vocabulary** ✓ designer ✓ fabric ✓ join ✓ lining ✓ overstitch ✓ pins	**Vocabulary** ✓ annotated sketches ✓ back stitch ✓ catch stitch ✓ fray ✓ gathering ✓ hem

	✓ template	✓ knife pleat ✓ running stitch ✓ seam

KEY: Current Year D&T Unit
History Geography Art Science Reading Strategy

Curriculum Overview Year 3

Prior Year's Curriculum Content

Food & Nutrition

Year 2
- ✓ To state foods that come from plants and animals.
- ✓ To recognise foods relating to the Mexican culture.
- ✓ To sort foods based on where they have come from (farmed, grown elsewhere or caught).
- ✓ To suggest ways that at least five portions of fruit and vegetables can be eaten every day.
- ✓ To understand what a varied and healthy diet is, using the Eatwell Guide.
- ✓ To describe steps to take so that food is prepared hygienically.
- ✓ To use a knife to peel fruit and vegetables and to discard pips/ seeds.
- ✓ To understand how to use a grater safely.
- ✓ To use a spoon to measure quantities.

Vocabulary
- ✓ caught
- ✓ chop
- ✓ disinfect
- ✓ farmed
- ✓ farmer
- ✓ grater
- ✓ healthy
- ✓ measure
- ✓ measuring spoon
- ✓ peel
- ✓ portion
- ✓ skin
- ✓ varied diet

Year 3 Curriculum Content

CROSS-CURRICULAR LINKS:
Construction (Autumn): Iron Age
Electrical Systems (Spring): Light, Lighthouses & the Coast,
Mechanisms (Summer): Ancient Egyptians, Forces & Magnets
Food & Nutrition (Summer): Ancient Egyptians

Food & Nutrition

Year 3
- ✓ To understand that the Ancient Egyptians developed fermentation.
- ✓ To state some foods that contain gluten and yeast.
- ✓ To discuss about the way in which food processing can affect the taste, appearance, texture and colour of bread.
- ✓ To understand the need for covering dough to maintain hygiene during benching and proofing.
- ✓ To effectively disinfect surfaces.
- ✓ To develop kneading techniques and understand why a floured surface is required.
- ✓ To weigh dry ingredients using scales.
- ✓ To use a measuring jug.

Vocabulary
- ✓ baking
- ✓ benching
- ✓ dough
- ✓ fermentation
- ✓ gluten
- ✓ kneading
- ✓ leavening
- ✓ proofing
- ✓ yeast

Subsequent Year's Curriculum Content

CROSS-CURRICULAR LINKS:
Electrical Systems (Spring): Electricity (Y4)
Mechanisms (Summer): Forces (Y5)

Food & Nutrition

Year 6
- ✓ To know that food is grown, reared and caught in the UK, Europe and the wider world.
- ✓ To recognise food products that are imported from South America.
- ✓ To understand seasonality.
- ✓ To understand that seasons affect food availability.
- ✓ To understand the difference between cage-reared and free-range eggs.
- ✓ To understand that different food and drink contain different substances (nutrients, water and fibre) that are needed for health.
- ✓ To use knowledge of cooking and nutrition to adapt recipes.
- ✓ To maintain a high level of hygiene when preparing food, including the use of different cloths for different surfaces to prevent cross-contamination.
- ✓ To use a knife to peel, chop, dice and slice fresh ingredients for a savoury dish.
- ✓ To demonstrate safety measures when using a heat source.
- ✓ To accurately scale a recipe up or down.
- ✓ To accurately measure ingredients using standard units of measurement.

Vocabulary
- ✓ cage-reared
- ✓ cross-contamination
- ✓ dice
- ✓ free-range
- ✓ imported/importation
- ✓ nutrient
- ✓ processed
- ✓ production
- ✓ reared
- ✓ seasonality
- ✓ slice
- ✓ sustainability

Construction

Year 2

Design

- ✓ To talk about existing structures.
- ✓ To use pictures and words to plan and design a free-standing structure linked to London.
- ✓ To make simple mock-ups of structures.
- ✓ To say what they like and dislike about construction materials.
- ✓

Making

- ✓ To experiment with building free-standing structures using Polydron.
- ✓ To use templates.
- ✓ To use scissors to cut card and paper accurately.
- ✓ To use a straight edge to mark lines for cutting.
- ✓ To select suitable equipment to join materials (glue, tape, staples).
- ✓ To layer materials as a finishing technique to make them more appealing for the intended user.

Evaluating

- ✓ To learn about the designer Sir Christopher Wren
- ✓ To say what they like and dislike about free-standing structures, referring to stability.
- ✓ To recognise the intended user of a free-standing structure.
- ✓ To talk about what they have constructed and the techniques involved.
- ✓ To describe what they like about their own and partners' structure.
- ✓ To suggest one way the structure could have been changed by using a different construction material or joining technique.

Technical Knowledge

- ✓ To know what a free-standing structure is.
- ✓ To talk about different construction materials.
- ✓ To describe how stable a structure is.
- ✓ To understand how a free-standing structure can be made more stable, stiffer and stronger.

Construction

Designing

- ✓ To use research and previous learning to inform designs for a free-standing structure.
- ✓ To use labelled sketches and instructions to plan a design for a functional free-standing structure linked to the Iron Age.
- ✓ To test simple mock-ups of structure supports (including buttresses)

Making

- ✓ To build free-standing structures that are supported by a buttress.
- ✓ To use scissors to score construction material.
- ✓ To draw accurate cutting lines using a ruler.
- ✓ To select suitable joining materials that provide hidden joins (glue, double-sided tape).

Evaluating

- ✓ To compare designs and support structures of chairs created by Ludwig Mies Van Der Rohe.
- ✓ To evaluate different ways of supporting a free-standing structure.
- ✓ To evaluate how well a design is functional.
- ✓ To talk about ways their free-standing structure is supported and can hold weight.
- ✓ To suggest ways a structure could be altered whilst still meeting the intended user's needs.

Technical Knowledge

- ✓ To talk about the suitable properties of construction materials.
- ✓ To explain what a buttress is.

Construction

Year 4

Designing

- ✓ To use evaluation of previous construction to design a shell-structure.
- ✓ To gather information about a user's wants and needs.

Making

- ✓ To experiment with the construction of nets and domed shell-structures.
- ✓ To understand that corrugating, laminating and ribbing can be used to strengthen shell-structures.
- ✓ To use scissors to score joining flaps.
- ✓ To draw joining flaps accurately so that they can't be seen on the finished product.
- ✓ To use computer-aided finishing techniques.

Evaluating

- ✓ To give strengths and limitations of existing packaging and domed shell-structures.
- ✓ To evaluate the positions of where to join a shell-structure.
- ✓ To evaluate how well a design protects the intended object/ user.
- ✓ To compare and contrast their design with their peers.

Technical Knowledge

- ✓ To deconstruct nets and domed shell-structures.
- ✓ To understand how to strengthen a structure using corrugation, ribbing and lamination.

Construction

Year 4

Designing

- ✓ To create annotated sketches of reinforcing techniques for a frame structure.
- ✓ To generate prototypes of diagonal braces, gussets and butt joints.

Making

- ✓ To use a saw to cut wood safely.
- ✓ To measure wood accurately.
- ✓ To select suitable materials for reinforcing corners of wood

Evaluating

- ✓ To explain ways their frame is supported and stable.
- ✓ To compare and contrast their design with their peers.

Technical Knowledge

- ✓ To understand how to strengthen a frame using gussets and diagonal braces.

Vocabulary

- ✓ architect
- ✓ construction
- ✓ free-standing structure
- ✓ joining materials
- ✓ mock-up
- ✓ net
- ✓ ruler
- ✓ scissors
- ✓ stable
- ✓ template

Vocabulary

- ✓ base
- ✓ buttress
- ✓ free-standing structure
- ✓ hidden join
- ✓ mock-up
- ✓ rigid
- ✓ score
- ✓ shelter
- ✓ weight

Vocabulary- Construction

- ✓ 3-D
- ✓ corrugating
- ✓ deconstruct
- ✓ dome structure
- ✓ flaps
- ✓ joining tabs
- ✓ laminating
- ✓ net
- ✓ reinforce
- ✓ ribbing
- ✓ scoring
- ✓ shell-structure

Vocabulary- CAD

- ✓ CAD
- ✓ copy
- ✓ dimensions
- ✓ gridlines
- ✓ locking
- ✓ paste
- ✓ software
- ✓ zoom
- ✓

Vocabulary- Construction

- ✓ annotated sketch
- ✓ bench hook
- ✓ butt joint
- ✓ diagonal brace
- ✓ frame
- ✓ gusset
- ✓ prototype

Electrical Components

EYFS

Electrical Components

Year 3

Design

Electrical Components & CAM

Year 6

Designing

	✓ To use research and historical knowledge to inform designs for a lighthouse circuit. ✓ To use labelled sketches and instructions to plan a design for a lighthouse circuit. ✓ To test different circuit components. **Making** ✓ To make different electrical systems. **Evaluating** ✓ To evaluate how some key designs of engineers in design and technology have helped shape the world. ✓ To suggest ways lighthouses could change in the future. ✓ To evaluate different designs of lighthouse and how they meet the intended design purpose. ✓ To talk about ways their lighthouse functions electronically. ✓ To suggest ways their lighthouse could be altered to improve efficiency. **Technical Knowledge** ✓ To understand that electrical systems have an input, process and output. ✓ To know that electrical circuits and components can be used to create functional products. ✓ To understand what components a circuit requires. ✓ To recognise designs that require electrical circuits to be functional. ✓ To understand how to construct a circuit.	✓ To use previous learning and historical context to inform designs for a functional product with an electrical component linked to WWII (e.g. air raid siren). ✓ To create detailing drawings and plans drawn to scale. **Making** ✓ To make different series circuits comprising of different numbers of cells, buzzers and bulbs. ✓ To apply scientific knowledge to alter a circuit for its functionality. ✓ To use a computer control program to enable an electrical product to work automatically in response to changes in the environment. **Evaluating** ✓ To understand developments in D&T and its impact on individuals and society. ✓ To evaluate different electrical components and circuits and explain fully how electrical input and output us affected. **Technical Knowledge** ✓ To know how more complex electrical circuits and components can be used to create functional products. ✓ To know how to program a computer to control products. ✓ To understand how circuit design affects output and functionality.	
Vocabulary	**Vocabulary** ✓ battery ✓ bulb ✓ circuit ✓ components ✓ electrical current ✓ flame resistant ✓ flaw ✓ light ✓ switch ✓ wire	**Vocabulary – Electrical Components** ✓ bulb ✓ buzzer ✓ cell ✓ circuit ✓ components ✓ drawn to scale ✓ functionality ✓ series circuit ✓ switch ✓ voltage ✓ wires	**Vocabulary –CAM** ✓ CAD ✓ coding ✓ input ✓ output ✓ sprite
Mechanical Components **Year 1** **Designing** ✓ To talk about the purpose of a wheel. ✓ To talk about their own experience of vehicles with wheels. ✓ To talk about designs for vehicles to carry a toy. ✓ To make a drawing of a design for a four-wheel vehicle to carry a toy. **Making** ✓ To experiment with construction kits to make an object that moves. ✓ To attach wheels to a chassis using an axle with cotton reels and dowels. ✓ To attach wheels to a chassis using an axle with straws and paper wheels/ circles. **Evaluating** ✓ To suggest reasons why a wheel and axle wobbles based on hole position. ✓ To talk about why their vehicle moves. ✓ To say what is similar about their and another vehicle. **Technical Knowledge** ✓ To recognise the different between fixed and freely moving axles. To understand what a wheel, chassis and axle is.	**Mechanical Components** **Year 3** **Designing** ✓ To use research and historical knowledge to inform designs for a Shaduf. ✓ To use labelled sketches and instructions to plan a design for a Shaduf. ✓ To test different levers and pulleys for weight bearing. **Making** ✓ To make levers and pulleys that can lift different loads from a surface. ✓ To vary the position of the fulcrum to lift a load using a lever. ✓ To strengthen structures using previous learning. **Evaluating** ✓ To compare Egyptian Shaduf designs with their own. ✓ To contrast Egyptian Shadufs with modern designs that use pulleys and levers. ✓ To evaluate how well their design lifts varying loads. ✓ To suggest ways their Shaduf could be altered to improve efficiency with the support of their peers. **Technical Knowledge** ✓ To recognise the difference between a lever and a pulley. ✓ To understand how to adapt a lever and a pulley based on load weight. ✓ To understand how pulleys and levers create movement.	**Mechanical Components** **Year 5** **Design** ✓ To use previous learning and scientific context to inform designs for a functional product with mechanical components. ✓ To collect data on a user's wants and needs via a survey or interview. ✓ To use exploded diagrams to demonstrate design ideas. ✓ To create prototypes to evaluate an initial design. **Making** ✓ To use construction kits with gears to mesh gears at right angles. ✓ To make mechanical systems that involve the correct ratio (in gears: teeth to spin; in pulleys: length of pulley to frequency of turn). **Evaluating** ✓ To analyse and evaluate current designs that use mechanical components relating to intended user and purpose. ✓ To evaluate their own and their peers' designs relating to efficiency and smoothness of movement at different points in the design process. **Technical Knowledge** ✓ To recognise the mechanical differences between fixed, moveable and compound pulleys. ✓ To understand how pulleys that are joined in different ways create movement	

		✓ To understand how gear systems that are joined in different ways create movement.
Vocabulary ✓ axle ✓ cab ✓ chassis ✓ fixed ✓ free ✓ vehicle ✓ wheel	**Vocabulary** ✓ beam ✓ fulcrum ✓ labelled sketch ✓ lever ✓ load ✓ pulley ✓ simple machine	**Vocabulary** ✓ coaxial gears ✓ compound pulley ✓ direction ✓ exploded diagram ✓ fixed pulley ✓ gear ✓ mechanism ✓ moveable pulley ✓ prototype ✓ ratio ✓ speed ✓ teeth ✓ turning force

KEY: Current Year D&T Unit
History Geography Art Science Reading Strategy

Curriculum Overview Year 4

Prior Year's Curriculum Content

Construction (Summer): Textiles (Y2)

Construction

Year 3

Designing
- ✓ To use research and previous learning to inform designs for a free-standing structure.
- ✓ To use labelled sketches and instructions to plan a design for a functional free-standing structure linked to the Iron Age.
- ✓ To test simple mock-ups of structure supports (including buttresses)

Making
- ✓ To build free-standing structures that are supported by a buttress.
- ✓ To use scissors to score construction material.
- ✓ To draw accurate cutting lines using a ruler.
- ✓ To select suitable joining materials that provide hidden joins (glue, double-sided tape).

Evaluating
- ✓ To compare designs and support structures of chairs created by Ludwig Mies Van Der Rohe.
- ✓ To evaluate different ways of supporting a free-standing structure.
- ✓ To evaluate how well a design is functional.
- ✓ To talk about ways their free-standing structure is supported and can hold weight.
- ✓ To suggest ways a structure could be altered whilst still meeting the intended user's needs.

Technical Knowledge
- ✓ To talk about the suitable properties of construction materials.
- ✓ To explain what a buttress is.

Vocabulary
- ✓ base
- ✓ buttress
- ✓ free-standing structure
- ✓ hidden join
- ✓ mock-up
- ✓ rigid
- ✓ score
- ✓ shelter
- ✓ weight

Year 4 Curriculum Content

CROSS-CURRICULAR LINKS:
Construction (Autumn): Vikings
Textiles (Summer): Mayans
Construction (Summer): Science

Construction & CAD

Designing
- ✓ To use evaluation of previous construction to design a shell-structure.
- ✓ To gather information about a user's wants and needs.

Making
- ✓ To experiment with the construction of nets and domed shell-structures.
- ✓ To understand that corrugating, laminating and ribbing can be used to strengthen shell-structures.
- ✓ To use scissors to score joining flaps.
- ✓ To draw joining flaps accurately so that they can't be seen on the finished product.
- ✓ To use computer-aided finishing techniques.

Evaluating
- ✓ To give strengths and limitations of existing packaging and domed shell-structures.
- ✓ To evaluate the positions of where to join a shell-structure.
- ✓ To evaluate how well a design protects the intended object/ user.
- ✓ To compare and contrast their design with their peers.

Technical Knowledge
- ✓ To deconstruct nets and domed shell-structures.
- ✓ To understand how to strengthen a structure using corrugation, ribbing and lamination.

Construction

Designing
- ✓ To create annotated sketches of reinforcing techniques for a frame structure.
- ✓ To generate prototypes of diagonal braces, gussets and butt joints.

Making
- ✓ To use a saw to cut wood safely.
- ✓ To measure wood accurately.
- ✓ To select suitable materials for reinforcing corners of wood

Evaluating
- ✓ To explain ways their frame is supported and stable.
- ✓ To compare and contrast their design with their peers.

Technical Knowledge
- ✓ To understand how to strengthen a frame using gussets and diagonal braces.

Vocabulary- Construction
- ✓ 3-D
- ✓ corrugating
- ✓ deconstruct
- ✓ dome structure
- ✓ flaps
- ✓ joining tabs
- ✓ laminating
- ✓ net
- ✓ reinforce
- ✓ ribbing
- ✓ scoring
- ✓ shell-structure

Vocabulary- CAD
- ✓ CAD
- ✓ copy
- ✓ dimensions
- ✓ gridlines
- ✓ locking
- ✓ paste
- ✓ software
- ✓ zoom
- ✓

Vocabulary- Construction
- ✓ annotated sketch
- ✓ bench hook
- ✓ butt joint
- ✓ diagonal brace
- ✓ frame
- ✓ gusset
- ✓ prototype

Subsequent Year's Curriculum Content

Construction & CAD

KS3 & KS4

Design
- ✓ To use CAD to create joining elements of conduction.
- ✓ To generate prototypes of finger joints.

Making
- ✓ To make products that incorporate different types of wood and joints.
- ✓ To use bench drills and electric sanders.

Evaluating
- ✓ To use testing as the basis of evaluation.
- ✓ To evaluate at different points in the design process, providing reasons for issues relating to efficiency and testing further to overcome these.

Technical Knowledge
- ✓ To understand how to join using the correct form of joint (butt joint, finger joint etc).

Vocabulary
- ✓ vertical
- ✓ horizontal
- ✓ CAD
- ✓ industry
- ✓ machines
- ✓ manufactured wood

Textiles	Textiles	Textiles
Year 2 **Design** ✓ To talk about existing textile designs and print patterns. ✓ To use pictures and words to plan and design a textile product. ✓ To use IT to plan and design a textile product. ✓ To make and use templates. **Making** ✓ To use pins as a way of securing material and templates. ✓ To use chalk to draw around a template. ✓ To use scissors to cut templates and material accurately. ✓ To use a straight edge to mark lines for cutting. ✓ To select suitable equipment to join different parts of materials (glue, sewing, staples, pins). **Evaluating** ✓ To say what they like and dislike about joining with sewing, gluing and pinning based on comfort and aesthetic choices. ✓ To evaluate different fabrics. **Technical Knowledge** ✓ To sew using overstitch. ✓ To understand the purpose of a template. ✓ To select a chosen fabric based on its properties. ✓ To apply finishing techniques of stencil printing and gluing.	**Year 4** **Designing** ✓ To gather information about a user's wants and needs. ✓ To create annotated sketches of sewing techniques for a textile creation. ✓ To generate prototypes of knife pleats, hems and gathers. ✓ To create a simple mock-up. **Making** ✓ To use pins to join materials before stitching. ✓ To use measurement ratios to create a template that is to scale. ✓ To experiment with and select different ways of gathering material as a finishing technique. **Evaluating** ✓ To give strengths and limitations of back stitch, catch stitch and running stitch as joining techniques. ✓ To compare and contrast ways of folding material (e.g. knife pleat and gathers) ✓ To compare and contrast their design with their peers. **Technical Knowledge** ✓ To sew using back stitch, running stitch and catch stitch. ✓ To understand that a hem should be hidden. ✓ To use folding of material (e.g. hems and pleats) as a finishing technique.	**KS3** **Designing** ✓ To gather information about a user's wants and needs. ✓ To create annotated sketches of sewing techniques for a textile creation. ✓ To generate prototypes of knife pleats, hems and gathers. **Making** ✓ To use pins to join materials before stitching. ✓ To use templates to create a range of textiles. ✓ To use measurement ratios to create a template that is to scale. ✓ To experiment with different ways of cutting fabric for aesthetic reasons and to prevent fraying. ✓ To experiment with and select different ways of gathering material as a finishing technique. **Evaluating** ✓ To compare clothing and accessories sewn in different ways. ✓ To evaluate a range of stitches and state which are fit for purpose. **Technical Knowledge** ✓ To understand how tie-dye can create colour and pattern. ✓ To understand the purpose of a drawstring. ✓ To use a sewing machine to join material. ✓ To apply knowledge of gathers to a drawstring. ✓ To use folding of material (e.g., hems and pleats) as a finishing technique.
Vocabulary ✓ designer ✓ fabric ✓ join ✓ lining ✓ overstitch ✓ pins ✓ template	**Vocabulary** ✓ annotated sketches ✓ back stitch ✓ catch stitch ✓ fray ✓ gathering ✓ hem ✓ knife pleat ✓ running stitch ✓ seam	**Vocabulary** ✓ templates ✓ batch production

KEY: Current Year D&T Unit
History Geography Art Science Reading Strategy

Curriculum Overview Year 5

Prior Year's Curriculum Content

CROSS-CURRICULAR LINKS:
Mechanisms (Spring): Forces (Y3)

Mechanical Components

Year 3
Designing
- ✓ To use research and historical knowledge to inform designs for a Shaduf.
- ✓ To use labelled sketches and instructions to plan a design for a Shaduf.
- ✓ To test different levers and pulleys for weight bearing.

Making
- ✓ To make levers and pulleys that can lift different loads from a surface.
- ✓ To vary the position of the fulcrum to lift a load using a lever.
- ✓ To strengthen structures using previous learning.

Evaluating
- ✓ To compare Egyptian Shaduf designs with their own.
- ✓ To contrast Egyptian Shadufs with modern designs that use pulleys and levers.
- ✓ To evaluate how well their design lifts varying loads.
- ✓ To suggest ways their Shaduf could be altered to improve efficiency with the support of their peers.

Technical Knowledge
- ✓ To recognise the difference between a lever and a pulley.
- ✓ To understand how to adapt a lever and a pulley based on load weight.

To understand how pulleys and levers create movement.

Vocabulary
- ✓ beam
- ✓ fulcrum
- ✓ labelled sketch
- ✓ lever
- ✓ load
- ✓ pulley
- ✓ simple machine

Year 5 Curriculum Content

CROSS-CURRICULAR LINKS:
Mechanisms (Spring): Earth & Space, Forces

Mechanical Components

Year 5
Design
- ✓ To use previous learning and scientific context to inform designs for a functional product with mechanical components.
- ✓ To collect data on a user's wants and needs via a survey or interview.
- ✓ To use exploded diagrams to demonstrate design ideas.
- ✓ To create prototypes to evaluate an initial design.

Making
- ✓ To use construction kits with gears to mesh gears at right angles.
- ✓ To make mechanical systems that involve the correct ratio (in gears: teeth to spin; in pulleys: length of pulley to frequency of turn).

Evaluating
- ✓ To analyse and evaluate current designs that use mechanical components relating to intended user and purpose.
- ✓ To evaluate their own and their peers' designs relating to efficiency and smoothness of movement at different points in the design process.

Technical Knowledge
- ✓ To recognise the mechanical differences between fixed, moveable and compound pulleys.
- ✓ To understand how pulleys that are joined in different ways create movement
- ✓ To understand how gear systems that are joined in different ways create movement.

Vocabulary
- ✓ coaxial gears
- ✓ compound pulley
- ✓ direction
- ✓ exploded diagram
- ✓ fixed pulley
- ✓ gear
- ✓ mechanism
- ✓ moveable pulley
- ✓ prototype
- ✓ ratio
- ✓ speed
- ✓ teeth
- ✓ turning force

Subsequent Year's Curriculum Content

Mechanical Components

KS3 & KS4
Design
- ✓ To use previous learning and scientific context to inform designs for a functional product that includes different mechanical components.
- ✓ To follow a design brief and use this to inform research on product design.
- ✓ To use exploded diagrams to demonstrate each movement of the mechanical component.

Making
- ✓ To make gear trains of different lengths that are used to create movement in different products.

Evaluating
- ✓ To use testing as the basis of evaluation.
- ✓ To evaluate at different points in the design process, providing reasons for issues relating to efficiency and testing further to overcome these.

Technical Knowledge
- ✓ To recognise that forces affect linkages.
- ✓ To understand the different motions that cams can make.

Vocabulary
- ✓ linear movement
- ✓ oscillating movement
- ✓ reciprocating movement
- ✓ rotary movement
- ✓ direction
- ✓ drive belt
- ✓ exploded diagram
- ✓ gear
- ✓ mechanism
- ✓ prototype
- ✓ pulley
- ✓ ratio
- ✓ speed
- ✓ teeth
- ✓ turning force

KEY: Current Year D&T Unit

History Geography Art Science Reading Strategy

Curriculum Overview Year 6

Prior Year's Curriculum Content

CROSS-CURRICULAR LINKS:

Electrical Systems (Spring): Electricity (Y4)

Food & Nutrition (Summer): History of the Fishing Industry (Y3), Seasons & Weather (Y1)

Food & Nutrition

Year 3

- ✓ To understand that the Ancient Egyptians developed fermentation.
- ✓ To state some foods that contain gluten and yeast.
- ✓ To discuss about the way in which food processing can affect the taste, appearance, texture and colour of bread.
- ✓ To understand the need for covering dough to maintain hygiene during benching and proofing.
- ✓ To effectively disinfect surfaces.
- ✓ To develop kneading techniques and understand why a floured surface is required.
- ✓ To weigh dry ingredients using scales.
- ✓ To use a measuring jug.

Vocabulary

- ✓ baking
- ✓ benching
- ✓ dough
- ✓ fermentation
- ✓ gluten
- ✓ kneading
- ✓ leavening
- ✓ proofing
- ✓ yeast

Electrical Components

Year 3

Design

- ✓ To use research and historical knowledge to inform designs for a mining helmet circuit.
- ✓ To use labelled sketches and instructions to plan a design for a mining helmet circuit.
- ✓ To test different circuit components

Making

- ✓ To make different electrical systems.

Evaluating

- ✓ To evaluate how some key designs of engineers in design and technology have helped shape the world.
- ✓ To suggest ways mining helmets could change in the future.
- ✓ To evaluate different designs of mining helmet and how they meet the intended design purpose.
- ✓ To talk about ways their mining helmet functions electronically.

Year 6 Curriculum Content

CROSS-CURRICULAR LINKS:

Electrical Systems (Spring): Electricity, WWII

Food & Nutrition (Summer): South America

Food & Nutrition

Year 6

- ✓ To know that food is grown, reared and caught in the UK, Europe and the wider world.
- ✓ To recognise food products that are imported from South America.
- ✓ To understand seasonality.
- ✓ To understand that seasons affect food availability.
- ✓ To understand the difference between cage-reared and free-range eggs.
- ✓ To understand that different food and drink contain different substances (nutrients, water and fibre) that are needed for health.
- ✓ To use knowledge of cooking and nutrition to adapt recipes.
- ✓ To maintain a high level of hygiene when preparing food, including the use of different cloths for different surfaces to prevent cross-contamination.
- ✓ To use a knife to peel, chop, dice and slice fresh ingredients for a savoury dish.
- ✓ To demonstrate safety measures when using a heat source.
- ✓ To accurately scale a recipe up or down.
- ✓ To accurately measure ingredients using standard units of measurement.

Vocabulary

- ✓ cage-reared
- ✓ cross-contamination
- ✓ dice
- ✓ free-range
- ✓ imported/importation
- ✓ nutrient
- ✓ processed
- ✓ production
- ✓ reared
- ✓ seasonality
- ✓ slice
- ✓ sustainability

Electrical Components

Year 6

Designing

- ✓ To use previous learning and historical context to inform designs for a functional product with an electrical component linked to WWII (e.g., air raid siren).
- ✓ To create detailing drawings and plans drawn to scale.

Making

- ✓ To make different series circuits comprising of different numbers of cells, buzzers and bulbs.
- ✓ To apply scientific knowledge to alter a circuit for its functionality.
- ✓ To use a computer control program to enable an electrical product to work automatically in response to changes in the environment.

Evaluating

- ✓ To understand developments in D&T and its impact on individuals and society.

Subsequent Year's Curriculum Content

Food & Nutrition

KS3 & KS4

- ✓ To use a range of knife skills based on the product.
- ✓ To understand food miles and seasonality.
- ✓ To conduct experiments with food products.
- ✓ To use vegetable peelers.
- ✓ To make a range of different bread products.
- ✓ To experiment with yeast and how it activates with temperature.
- ✓ To use meat as an ingredient.
- ✓ To create food products with different forms of protein.
- ✓ To understand why different chopping boards are needed to prevent cross-contamination.
- ✓ To look at fridge positioning for storing ingredients.

Vocabulary

- ✓ vegetable peeler
- ✓ activation
- ✓ temperature
- ✓ refrigeration
- ✓ meat products
- ✓ experimentation
- ✓ protein
- ✓ Eatwell plate
- ✓ cross-contamination

Electrical Components

KS3 & KS4

Designing

- ✓ To use previous learning and historical context to inform designs for a functional product with an electrical component linked audio.
- ✓ To use CAD to create deigns to scale.

Making

- ✓ To make circuit boards
- ✓ To use Circuit Wizard to test efficiency in a circuit.

Evaluating

- ✓ To use Circuit Wizard to adapt a circuit to improve efficiency and output.

Technical Knowledge

- ✓ To understand what soldering is
- ✓ To understand how circuit design affects output and functionality.
- ✓ To laser to cut the housing of a circuit.

<table>
<tr>
<td>✓ To suggest ways their mining helmet could be altered to improve efficiency.
Technical Knowledge
✓ To understand that electrical systems have an input, process and output.
✓ To know that electrical circuits and components can be used to create functional products.
✓ To understand what components a circuit requires.
✓ To recognise designs that require electrical circuits to be functional.
✓ To understand how to construct a circuit.</td>
<td colspan="2">✓ To evaluate different electrical components and circuits and explain fully how electrical input and output us affected.
Technical Knowledge
✓ To know how more complex electrical circuits and components can be used to create functional products.
✓ To know how to program a computer to control products.
✓ To understand how circuit design affects output and functionality.</td>
<td></td>
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<tr>
<td>Vocabulary
✓ battery
✓ bulb
✓ circuit
✓ components
✓ electrical current
✓ flame resistant
✓ flaw
✓ light
✓ switch
✓ wire</td>
<td>Vocabulary – Electrical Components
✓ bulb
✓ buzzer
✓ cell
✓ circuit
✓ components
✓ drawn to scale
✓ functionality
✓ series circuit
✓ switch
✓ voltage
✓ wires</td>
<td>Vocabulary –CAM
✓ CAD
✓ coding
✓ input
✓ output
✓ sprite</td>
<td>Vocabulary
✓ automation
✓ co-bots
✓ software
✓ soldering
✓ resister
✓ transistor
✓ audio amp
✓ capacitor
✓ circuit boards
✓ etch
✓ drill</td>
</tr>
</table>

The Journey of Design & Technology- Important People Appendix

Year 1
Autumn 1
Mechanical Components:
Karl Benz

Year 1
Spring 1
Food & Nutrition:
Jamie Oliver

Year 2
Autumn Term
Construction:
Christopher Wren

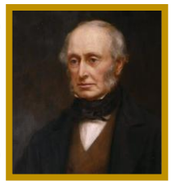
Year 2
Spring 2
Textiles:
Patrick Grant

Year 2
Spring 2
Food & Nutrition:
Enrique Olivera

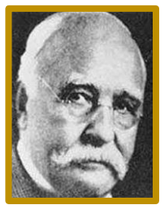
Year 3
Autumn Term
Construction:
Ludwig Mies Van der Rohe

Year 3
Spring Term
Electrical Components:
Robert Stevenson

Year 3
Summer Term
Mechanical Components:
William Armstrong



Year 3
Summer Term
Food & Nutrition:
Richard Smith



Year 4
Autumn Term
Construction & C.A.D:
Robert Gair

Year 4
Summer Term
Textiles:
Ozwald Boateng

Year 4
Summer Term
Construction:
LaMarcus Adna Thompson

Year 5
Spring Term
Mechanical Components:
James Dyson

Year 6
Spring Term
Electrical Components & C.A.M:
Sir Tim Berners-Lee

Year 6
Summer Term
Food & Nutrition:
Rachel Green