

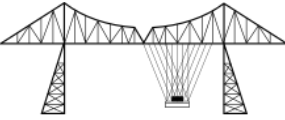




YEAR 5

**DESIGN & TECHNOLOGY
CURRICULUM**

Year 5 D&T - Broader Curriculum Aims and Objectives

Key Themes	Topics of Study	
<ul style="list-style-type: none"> Food Structures Mechanical systems 	<ul style="list-style-type: none"> What could be healthier? - Create a healthier burger. Structures - Bridges Cams - Automata Toy 	
Key D&T Knowledge and Understanding	Vocabulary	
<ul style="list-style-type: none"> Know that calories come from fats, proteins and carbohydrates. Know how to interpret a nutritional label to evaluate how healthy a burger is. Know what cross-contamination means and how to avoid it. Know that beef comes from cattle and how it is reared and processed. Know that there are different cooking processes and that burger patties can be cooked using baking, grilling or frying. Know how a cams mechanism creates movement. Know the different components within a cams mechanism and how they function. Understand how cams can be used to make a model move. Know that a cams profile causes a follower to rise, fall or remain static at different points depending on its shape. Know that frame structures are rigid support structures that use beams, columns and slabs to hold large forces of gravity and weight. Know different ways to reinforce structures including, factors that can be changed to increase strength, stability and stiffness of a bridge. Understand how triangles and arches can be used to reinforce bridges. 	automata, design brief, design criteria, exploded, diagram, designer, client, verbal, visual, cam, follower, follower base, follower topper, inner workings, mechanism, cross sectional diagram, beef, reared, processed, ethical, diet, ingredients, supermarket, farm, balanced, beam bridge, arch bridge, strength, technique, corrugation, lamination, stiff, rigid, truss bridge, factors, stiffness, stability, visual appeal, aesthetics, joint, mark out, hardwood, softwood, wood file/rasp, sand/glass paper, bench hook/vice, tenon/coping saw, assemble, reinforce, quality, accuracy	
	Quality Literature Links	Ground Breaking Products
		 <p style="text-align: center;">Georges Camille Imbault</p>  <p style="text-align: center;">TEES TRANSPORTER BRIDGE</p>

Year 5 D&T - Broader Curriculum Aims and Objectives

Progression of Skills / Disciplinary Knowledge

Designing	Making	Technical Knowledge	Evaluating and Analysing	Cooking and Nutrition
Understanding Contexts, Users and Purposes. Generating, developing, modelling and communicating ideas	Planning, Practical Skills and Techniques	Construction and Textiles	Own Ideas and Products Existing Products	Understand and apply the principles of nutrition and learn how to cook.
<ul style="list-style-type: none"> Used the internet and questionnaires for research and design ideas. Take a user's view into account when designing. Consider needs/wants of individuals/groups when designing and ensure product is fit for purpose. Create own design criteria. Produce logical, realistic plans and explain them to others. Use cross-sectional planning and annotated sketches. Make design decisions considering time and resources. Explain how parts of a product will work. Model and refine design ideas by making prototypes and using pattern pieces. 	<ul style="list-style-type: none"> Use selected tools/ equipment with a good level of precision. Produce suitable lists of tools, equipment/materials needed. Select appropriate materials fit for purpose; explain choices, considering functionality. Create and follow detailed step-by-step plans. Explain how a product will appeal to an audience. Mostly measure, mark out, cut and shape materials/ components accurately. Mostly assemble, join and combine materials/ components accurately. Mostly apply a range of finishing techniques accurately. Use techniques that involve a small number of steps. 	<ul style="list-style-type: none"> Select materials carefully, considering intended use of product and appearance. Explain how a product meets the design criteria. Measure accurately enough to ensure precision. Ensure a product is strong and fit for purpose. Begin to reinforce and strengthen a 3D structure. Refine a product after testing. Try new and different ideas. Begin to use cams, pulleys or gears to create movement. 	<ul style="list-style-type: none"> Evaluate the quality of a design while designing and making. Evaluate ideas finished product against specification, considering purpose and appearance. Test and evaluate final product. Evaluate and discuss existing products considering: how well they've been made, materials, whether they work, how they have been made and if they are fit for purpose. Evaluate how much products cost to make and how innovative they are. Research how sustainable materials are. Talk about some inventors/ designers/engineers/chefs/ manufacturers of ground-breaking products. 	<ul style="list-style-type: none"> Analyse the taste, texture, smell and appearance of a range of foods. Follow instructions. Make healthy eating choices from an understanding of a balanced diet. Know that a variety of different foods are used all over the world. Join and combine a range of ingredients and comment on their success. Measure and weigh ingredients appropriately. Consider and explain how a the finished product could be improved. Discuss how well the finished product meets the design criteria and the needs of the user.

PRIOR LEARNING LINKS - D&T

Y2: Healthy Wraps-different food groups and what a balanced diet consists of.

Y4 Alternative Biscuits-Learn new techniques needed for preparing and baking biscuit dough. Learn about the importance of prototype and make their own biscuit prototype, experimenting with different ingredients. Follow and adapt a recipe.



Year 5 Design & Technology

Unit of Learning: What could be healthier?

D&T School Theme: Food and Nutrition

FUTURE LEARNING LINKS - D&T

Y6 Come Dine With Me: Learn more about where our food comes from and the farm to fork process. Create three dishes as part of a small group using a range of different techniques but three key ingredients in each.

Teaching Sequence for this Unit.

What is in our food?

What ingredients go into a beef burger?

Where do these ingredients come from?

Do you think it is fair to eat meat? Why/Why not?

A FN TK

What could be a healthier option?

What foods can be added in abundance?

Which foods are not healthy?

Which foods won't compliment the other flavours of a beef burger?

A FN TK

How will I make my amended burger healthier?

What ways are there to check its nutritional value?

How will I rewrite my new recipe?

D FN TK

Can we prepare our working area and ingredients to make a group beef burger?

What jobs will we need to do and who will do what?

What would be an effective label design for healthier burger?

M D TK

How does it taste and how healthy did the burger end up?

What might you have done differently if you had worked alone?

E TK

Focus for Disciplinary Knowledge

Designing	Making	Technical Knowledge	Evaluating and Analysing	Food and Nutrition
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PRIOR LEARNING LINKS - D&T

Y3 Monuments: Learnt about the properties of materials that are important for structures. Use of 3D shapes from model and nets to create different features of a structure. Secured features together using tape/glue and strengthened and stabilised the structure through use of a base.



Year 5 Design & Technology

Unit of Learning: Let's Build a Bridge!

D&T School Theme: Structures

FUTURE LEARNING LINKS - D&T

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Teaching Sequence for this Unit.

What are beam and arch bridges?

How can beam structure be reinforced to improve their strength?

A TK

How could we investigate different bridge structures?

Can we develop designs for beam and arch bridges?
How much does each bridge design hold before it collapses?
What features of the bridge could we change to increase its strength and stability?

A D TK

What are truss bridges?

Can we identify them?
Can we create a truss bridge using triangles?
How are the triangles being used to reinforce the bridge?

A M TK

Can we use our understanding of bridge structures to create wooden truss bridges?

Why do materials matter?
What will we need to measure and mark out?
What skills will we need to safely saw and smooth the wood?

M TK

Can we assemble all our pieces to form a truss bridge?

Can we complete, reinforce and evaluate our truss bridge?
What are its points of weakness and how can we reinforce them?
What features do the most successful bridges have?

M E TK

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PRIOR LEARNING LINKS - D&T

- **Y3 Linkage Systems-Moving**

Monsters: Developed further understanding of how moving parts work to create a mechanism. Looked at linkage system and the components within it. Learnt more about product design criteria and selected the most materials and equipment.



Year 5 Design & Technology

Unit of Learning: *Can we make an automata toy?*

D&T School Theme: Mechanical systems

FUTURE LEARNING LINKS - D&T

- **Y6 Moving Buggy**-design and create the electrical and mechanical systems needed to make a moving buggy. Created a strong outer frame and fitted systems within it. Tested and evaluated.

Teaching Sequence for this Unit.

How does a simple cam mechanism work?

How could a cams mechanism be used to make a model move?
What examples of this can we see?

A TK

How can different shaped cams be used to produce different movements?

Can we label different shaped cams to show the motion path of the follower?
Can we create a simple cams mechanism to use in our product?

A M TK

Can we create a design for our own automata toy?

What would be an appropriate set of design criteria?
What will be the challenges of working in pairs?
How can we overcome them?

D TK

What materials will we require to make the frame?

Can we measure, mark and check the accuracy of the wood and card automata components?
How will the automata support template help to strengthen the frame and make its joints more stable?

M TK

What is an exploded-diagram and how will it help us to assemble our automata frame?

Why must my components be cut accurately?
Why should the joints of the frame be secured at right angles?

M TK

What housing and finishing touches will be added to the automata frame?

Is my product good quality? Is it neat, accurate and securely assembled?

D M E

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