

# Design Technology Long Term Plan

KS1: Curriculum Coverage Key

Structures	Mechanisms	Textiles	Cooking
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KS2: Curriculum Coverage Key

Electrical Systems	Mechanical Systems	Structures	Textiles	Cooking	Digital World
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## Year A

	Term 1+2	Term 3+4	Term 5+6
KS1	<p style="text-align: center;"><b>Smoothies</b></p> <p>Describe fruits and vegetables and explain how to identify fruits. Name a range of places that fruits and vegetables grow. Describe basic characteristics of fruit and vegetables. Prepare fruits and vegetables to make a smoothie.</p>	<p style="text-align: center;"><b>Puppets</b></p> <p>Join fabrics together using pins, staples or glue. Design a puppet and use a template. Join their two puppets' faces together as one. Decorate a puppet to match their design.</p>	<p style="text-align: center;"><b>Moving Story Book</b></p> <p>Identify whether a mechanism is a side-to-side slider or an up-and-down slider and determine what movement the mechanism will make. Clearly label drawings to show which parts of their design will move and in which direction. Make a picture, which meets the design criteria, with parts that move purposefully as planned. Evaluate the main strengths and weaknesses of their design and suggest alterations.</p>
LKS2	<p style="text-align: center;"><b>Pavilions</b></p> <p>Produce a range of free-standing frame structures of different shapes and sizes. Design a pavilion that is strong, stable and aesthetically pleasing. Select appropriate materials and construction techniques to create a stable, free-standing frame structure. Select appropriate materials and techniques to add cladding to their pavilion.</p>	<p style="text-align: center;"><b>Eating Seasonally</b></p> <p>Explain that fruits and vegetables grow in different countries based on their climates. Understand that seasonal fruits and vegetables grow in a given season. Understand that eating seasonal fruit and vegetables positively affects the environment. Design a tart recipe using seasonal ingredients.</p>	<p style="text-align: center;"><b>Wearable Technology</b></p> <p>Give a brief explanation of the digital revolution and/or remember key examples. Suggest a feature from the virtual micro:bit that is suitable for the product. Write a program that initiates a flashing LED panel, or another pattern, on the virtual micro:bit when a button is pressed. Identify errors, if testing is unsuccessful, by comparing their code to a correct example. Explain the basic functionality of their finished program. Suggest key features for a way to attach the product to the user, with some consideration for the overall theme and the user. Create annotated diagrams to help illustrate how their product is worn. Follow basic design requirements using computer-aided design, drawing at least one shape with a text box and bright colours, following a demonstration. Evaluate their design using a focus group.</p>
UKS2	<p style="text-align: center;"><b>Monitoring Devices</b></p> <p>Describe what is meant by monitoring devices and provide an example. Explain briefly the development of thermometers from thermoscopes to digital thermometers. Research a chosen animal's key information to develop a list of design criteria for an animal monitoring device. Write a program that monitors the ambient temperature and alerts someone when the temperature moves from a specified range. Identify errors (bugs) in the code and ways to fix (debug) them. State one or two facts about the history and development of plastic, including how it is now affecting planet Earth. Build a variety of brick models to invent Micro:bit case, housing and stand ideas, evaluating the success of their favourite model. Explain</p>	<p style="text-align: center;"><b>Bridges</b></p> <p>Identify stronger and weaker shapes. Recognise that supporting shapes can help increase the strength of a bridge, allowing it to hold more weight. Identify beam, arch and truss bridges and describe their differences. Use triangles to create simple truss bridges that support a load (weight). Cut beams to the correct size, using a cutting mat. Smooth down any rough cut edges with sandpaper. Follow each stage of the truss bridge creation as instructed by their teacher. Complete a bridge, with varying ranges of accuracy and finish, supported by the teacher. Identify some areas for improvement, reinforcing their bridges as necessary.</p>	<p style="text-align: center;"><b>Stuffed Toys</b></p> <p>Design a stuffed toy, considering the main component shapes of their toy. Create an appropriate template for their stuffed toy. Join two pieces of fabric using a blanket stitch. Neatly cut out their fabric. Use appliqué or decorative stitching to decorate the front of their stuffed toy. Use blanket stitch to assemble their stuffed toy, repairing when needed. Identify what worked well and areas for improvement.</p>

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<p>key pros and cons of virtual modelling vs physical modelling. Recall and describe the name and use of key tools used in Tinkercad (CAD) software.</p>		
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## Year B

	Term 1	Term 2	Term 3
KS1	<p style="text-align: center;"><b>Balanced Diet</b></p> <p>Name the main food groups and identify foods that belong to each group. Describe the taste, feel and smell of a given food. Think of three different wrap ideas, considering flavour combinations. Construct a wrap that meets the design brief and their plan.</p>	<p style="text-align: center;"><b>Baby Bears Chair</b></p> <p>Identify man-made and natural structures. Identify stable and unstable structural shapes. Contribute to discussions. Identify features that make a chair stable. Work independently to make a stable structure, following a demonstration. Explain how their ideas would be suitable for Baby Bear. Produce a model that supports a teddy, using the appropriate materials and construction techniques. Explain how they made their model strong, stiff and stable.</p>	<p style="text-align: center;"><b>Fairground Wheel</b></p> <p>Design and label a wheel. Consider the designs of others and make comments about their practicality or appeal. Consider the materials, shape, construction and mechanisms of their wheel. Label their designs. Build a stable structure with a rotating wheel. Test and adapt their designs as necessary. Follow a design plan to make a completed model of the wheel.</p>
LKS2	<p style="text-align: center;"><b>Egyptian Collars</b></p> <p>Demonstrate their ability to use cross-stitch as a decorative feature or to join two pieces of fabric together. Develop appliqué designs based on design criteria. Design, cut and shape their template for an usekh/wesekh collar, with increasing accuracy. Decorate their Egyptian collar using a variety of techniques such as appliqué, cross-stitch, beads, buttons and pinking. Measure and attach a ribbon with a running stitch. Recognise different types and qualities of fabrics. Explain the aesthetic and/or functional properties of some of their material choices.</p>	<p style="text-align: center;"><b>Sling Shot Cars</b></p> <p>Work independently to produce an accurate, functioning car chassis. Design a shape that is suitable for the project. Attempt to reduce air resistance through the design of the shape. Produce panels that will fit the chassis and can be assembled effectively using the tabs they have designed. Construct car bodies effectively. Conduct a trial accurately and draw conclusions and improvements from the results.</p>	<p style="text-align: center;"><b>Electric Posters</b></p> <p>Explain what 'information design' is and understand its impact. Research and choose a specific Ancient Roman topic on which to base their initial poster ideas. Complete design criteria based on a client's request. Roughly sketch four initial poster ideas. design criteria and peer feedback, developing a final design. Assemble an electric poster, including a functional simple circuit with a bulb, following a demonstration. Test that the simple circuit works by adding a battery. Evaluate their electric posters in a letter to a client.</p>
UKS2	<p style="text-align: center;"><b>Developing a Recipe</b></p> <p>Describe the process of beef production. Research a traditional recipe and make changes to it. Add nutritional value to a recipe by selecting ingredients. Prepare and cook a version of bolognese sauce.</p>	<p style="text-align: center;"><b>Steady Hand Game</b></p> <p>Explain simply what is meant by 'form' (the shape of a product) and 'function' (how a product works). State what they like or dislike about an existing children's toy and why. Learn about skills developed through play and apply this knowledge in a survey of one or more children's toys. Identify the components of a steady hand game. Design a steady hand game of their own according to their design criteria, using four different perspective drawings. Create a secure base for their game, with neat edges, that relates to their design. Make and test a functioning circuit and assemble it within a case.</p>	<p style="text-align: center;"><b>Automa Toys</b></p> <p>Mark, saw and cut out the components and supports of their toy with a varying degree of accuracy to the intended measurements. Attempt a partial assembly of their toys using an exploded-diagram. Develop a design idea with some descriptive notes. Explore different cam profiles and choose three for their follower toppers with an explanation of their choices. Create neat, decorated follower toppers with some accuracy. Measure and cut panels that fit with some inaccuracies to conceal the inner workings of the automata. Decorate and finish the automata to meet the design criteria and brief. Evaluate their finished product, making descriptive and reflective points on function and form.</p>

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