



Becoming a Design Technologist at Bonnygate Primary School



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	<u>A Nursery Bonnygate Design Technologist will:</u>	<u>A Reception Bonnygate Design Technologist will:</u>
Design	<ul style="list-style-type: none">• Look at current designs of mini beasts - mostly teacher led.• Look at current designs of bug hotel - mostly teacher-led.	<ul style="list-style-type: none">• Look at current designs of boat stands - mostly teacher-led.
Make	<ul style="list-style-type: none">• Make mini beasts with support from Teacher and supporting adults.• Make a bug hotel with support from Teacher and supporting adults.	<ul style="list-style-type: none">• Make a boat stand with support from Teacher and supporting adults.
Evaluate	<ul style="list-style-type: none">• Verbally talk about creations with support from Teacher and supporting adults.	<ul style="list-style-type: none">• Verbally talk about creations with support from Teacher and supporting adults.
Technical Knowledge	<ul style="list-style-type: none">• Vocabulary shared and explained by the Teacher.	<ul style="list-style-type: none">• Vocabulary shared and explained by the Teacher.



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A Year 1 Bonnygate Design Technologist will:

A Year 2 Bonnygate Design Technologist will:

	A Year 1 Bonnygate Design Technologist will:	A Year 2 Bonnygate Design Technologist will:
Design	<ul style="list-style-type: none"> ● Learning the importance of a clear design criteria including individual preferences and requirements in design ● Explaining how to adapt mechanisms to control movement ● Designing a vehicle that includes wheels and axel holders which will allow the wheels to move ● Create clearly labelled drawings which illustrate movement ● Looking at a recipe and design a product based on the recipe and design brief. 	<ul style="list-style-type: none"> ● Generating and communicating ideas using sketching and modelling. ● Learning about different types of structures, found in the natural world and in everyday objects ● Designing a dress.
Make	<ul style="list-style-type: none"> ● Making a stable structure ● Follow instructions to cut and assemble the support structure ● Make functioning models with axels which are assembled into a main supporting structure. ● Following a design to create moving models ● Adapting mechanisms ● Making a food product based on the design brief ● Learning where ingredients have come from and how to mix them together. 	<ul style="list-style-type: none"> ● Making a structure according to design criteria ● Creating joints and structures from paper/card and tape ● Experimenting with linkages adjusting the widths, lengths and thicknesses of card used ● Cutting and assembling components neatly ● Selecting materials according to their characteristics ● Following a design brief ● Selecting and cutting fabrics for sewing ● Decorating a dress using fabric glue or running stitch
Evaluate	<ul style="list-style-type: none"> ● Evaluating a product according to design criteria, testing whether the structure is strong and stable and altering it if it isn't ● Suggest points for improvement ● Testing a finished product, seeing whether it moves as planned and if not, explaining why and how it can be fixed ● Reviewing the success of a product by testing it with its intended audience ● Testing mechanisms, identify what stops wheels from turning, knowing that a wheel needs an axel in order to move. ● Tasting and evaluating different food combinations ● Describe appearance and smell ● Suggesting information to be included in packaging. 	<ul style="list-style-type: none"> ● Exploring the features of structures ● Comparing the stability of different shapes ● Testing the strength of own structures ● Identifying the weakest part of a structure ● Evaluating the strength, stiffness and stability of own structure ● Evaluating own designs against design criteria ● Using peer feedback to modify a final design ● Evaluating different designs ● Testing and adapting a design ● Troubleshooting scenarios posed by teacher ● Evaluating the quality of the stitching on others' work ● Discussing as a class, the success of their stitching against the success criteria ● Identifying aspects of their peers' work that they particularly like and why

Technical Knowledge

- Learning that leavers and sliders are mechanisms and can make things move
- Identifying whether a mechanism is a lever or a slider and determining what movement the mechanism will make
- Using vocabulary: up, down, left, right, vertical and horizontal to describe movement.
- Identifying what mechanisms make a design roll forward
- Learning that for a wheel to move it must be attached to an axel
- Learning that mechanisms are a collection of moving parts that work together in a machine
- Learning that there is an input and output in a mechanism
- Identifying mechanisms in everyday objects
- Describe the purpose of a structure
- Learning how to turn 2D nets into 3D structures
- Learning that shape of materials can be changed to improve the strength and stiffness of a structure
- Understanding that axels are sued in structures and mechanisms to make parts turn in a circle
- Developing awareness of different structures for different purposes.
- Understand the difference and similarities between the two food products

- Identifying natural and man-made structures
- Identifying when a structure is more or less stable than another
- Knowing that shapes and structures with wide, flat bases or legs are the most stable
- Understanding that the shape of a structure affects its strength
- Using the vocabulary: strength, stiffness and stability
- Knowing that materials can be manipulated to improve strength and stiffness
- Building a strong and stiff structure by folding paper
- Joining items using fabric glue or stitching Identifying benefits of these techniques
- Threading a needle
- Sewing running stitch, with evenly spaced, neat, even stitches to join fabric
- Neatly pinning and cutting fabric using a template



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A Year 3 Bonnygate Design Technologist will:

A Year 4 Bonnygate Design Technologist will:

Design

- Designing a castle with key features to appeal to a specific person/purpose
- Drawing and labelling a castle design using 2D shapes, labelling: -the 3D shapes that will create the features - materials need and colours
- Developing design criteria from a design brief
- Learning that different types of drawings are used in design to explain ideas clearly
- Designing and making a template and applying individual design criteria

- Designing a stable pavilion structure that is aesthetically pleasing and selecting materials to create a desired effect
- Building frame structures designed to support weight
- Drawing a net to create a structure from
- Choosing shapes that increase or decrease speed as a result of air resistance
- Personalising a design
- Designing a product within a given budget, drawing upon previous taste testing
- Writing design criteria for a product, articulating decisions made • Designing a personalised product

Make

- Constructing a range of 3D geometric shapes using nets
- Creating special features for individual designs
- Making facades from a range of recycled materials
- Selecting materials due to their functional and aesthetic characteristics
- Manipulating materials to create different effects by cutting, creasing, folding, weaving
- Following design criteria to create a cushion
- Selecting and cutting fabrics with ease using fabric scissors
- Sewing cross stitch to join fabric
- Decorating fabric using appliqué
- Completing design ideas with stuffing and sewing the edges

- Creating a range of different shaped frame structures
- Making a variety of free-standing frame structures of different shapes and sizes
- Selecting appropriate materials to build a strong structure and for the cladding
- Creating a design in accordance with a plan
- Learning to create different textural effects with materials
- Measuring, marking, cutting and assembling with increasing accuracy
- Making a model based on a chosen design
- Following a baking recipe
- Cooking safely, following basic hygiene rules
- Adapting a recipe
- Making and testing a paper template with accuracy and in keeping with the design criteria
- Measuring, marking and cutting fabric using a paper template
- Selecting a stitch style to join fabric, working neatly sewing small neat stitches
- Incorporating fastening to a design

Evaluate	<ul style="list-style-type: none"> • Evaluating own work and the work of others based on the aesthetic of the finished product and in comparison to the original design • Suggesting points for modification of the individual designs • Using the views of others to improve designs • Testing and modifying the outcome, suggesting improvements • Evaluating an end product and thinking of other ways in which to create similar items 	<ul style="list-style-type: none"> • Evaluating structures made by the class • Describing what characteristics of a design and construction made it the most effective • Considering effective and ineffective designs • Evaluating a recipe, considering: taste, smell, texture and appearance • Describing the impact of the budget on the selection of ingredients • Evaluating and comparing a range of products • Suggesting modifications • Evaluating the speed of a final product based on: the effect of shape on speed and the accuracy of workmanship on performance • Testing and evaluating an end product against the original design criteria • Deciding how many of the criteria should be met for the product to be considered successful • Suggesting modifications for improvement
Technical Knowledge	<ul style="list-style-type: none"> • Identifying features of a structure • Identifying suitable materials to be selected and used for a structure, considering weight, compression, tension • Extending the knowledge of wide and flat based objects are more stable • Understanding the terminology of strut, tie, span, beam • Understanding the difference between frame and shell structure • Threading needles with greater independence • Tying knots with greater independence • Sewing cross stitch and appliqué • Understanding the need to count the thread on a piece of even weave fabric in each direction to create uniform size and appearance • Understanding that fabrics can be layered for affect 	<ul style="list-style-type: none"> • Understanding the impact of the cost and importance of budgeting while planning ingredients for the product • Understanding the environmental impact on future product and cost of production • Learning that products change and evolve over time • Building on prior knowledge of net structures and broadening knowledge of frame structures • Learning that architects consider light, shadow and patterns when designing • Implementing frame and shell structure knowledge • Considering effective and ineffective designs • Understanding that there are different types of fastenings and what they are • Articulating the benefits and disadvantages of different fastening types



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A Year 5 Bonnygate Design Technologist will:

A Year 6 Bonnygate Design Technologist will:

Design

- Designing a stable structure that is able to support weight
- Creating frame structure with focus on triangulation
- Considering the proportions of individual components

- Designing a shelter featuring a variety of different structures, giving careful consideration to how the structures will be used, considering effective and ineffective designs
- Experimenting with a range of cams, creating a design for an automata toy based on a choice of cam to create a desired movement
- Understanding how linkages change the direction of a force
- Making things move at the same time
- Understanding and drawing cross-sectional diagrams to show the inner-workings of the automata
- Writing a recipe, explaining the key steps, method and ingredients
- Including facts and drawings from research undertaken
- Designing a puppet in accordance to specification linked to set of design criteria to fit a specific theme
- Annotating designs

Make

- Making a range of different shaped beam bridges
- Using triangles to create truss bridges that span a given distance and supports a load
- Building a wooden bridge structure Independently measuring and marking wood accurately
- Selecting appropriate tools and equipment for particular tasks
- Using the correct techniques to saws safely
- Identifying where a structure needs reinforcement and using card corners for support
- Explaining why selecting appropriating materials is an important part of the design process
- • Understanding basic wood functional properties

- Building a range of shelter apparatus structures drawing upon new and prior knowledge of structures
- Measuring, marking and cutting wood to create a range of structures
- Using a range of materials to reinforce and add decoration to structures
- Measuring, marking and checking the accuracy of the jelutong and dowel pieces required
- Measuring, marking and cutting components accurately using a ruler and scissors
- Assembling components accurately to make a stable frame
- Understanding that for the frame to function effectively the components must be cut accurately and the joints of the frame secured at right angles
- Selecting appropriate materials based on the materials being joined and the speed at which the glue needs to dry/set
- Following a recipe, including using the correct quantities of each ingredient
- Adapting a recipe based on research
- Working to a given timescale
- Working safely and hygienically with independence
- Marking and cutting fabric accurately, in accordance with a design
- Sewing a strong running stitch, making small, neat stitches and following the edge
- Tying strong knots
- Decorating a puppet -attaching objects using thread and adding a secure fastening

<p style="text-align: center;">Evaluate</p> <ul style="list-style-type: none"> • . Adapting and improving own bridge structure by identifying points of weakness and reinforcing them as necessary • Suggesting points for improvements for own bridges and those designed by others 	<ul style="list-style-type: none"> • Improving a design plan based on peer evaluation • Testing and adapting a design to improve it as it is developed • Identifying what makes a successful structure • Evaluating a recipe, considering: taste, smell, texture and origin of the food group • Taste testing and scoring final products • Suggesting and writing up points of improvements in productions • Evaluating health and safety in production to minimise cross contamination • Evaluating the work of others and receiving feedback on own work • Applying points of improvements • Describing changes they would make/do if they were to do the project again • Evaluating work continually as it is created
<p style="text-align: center;">Technical Knowledge</p> <ul style="list-style-type: none"> • Exploring how to create a strong beam Identifying arch and beam bridges and understanding the terms: compression and tension • Identifying stronger and weaker structures • Finding different ways to reinforce structures • Understanding how triangles can be used to reinforce bridges • Articulating the difference between beam, arch, truss and suspension bridges 	<ul style="list-style-type: none"> • Learning how to research a recipe by ingredient • Recording the relevant ingredients and equipment needed for a recipe • Understanding the combinations of food that will complement one another • Understanding where food comes from, describing the process of 'Farm to Fork' for a given ingredient • Using a bench hook to saw safely and effectively • Exploring cams, learning that different shaped cams produce different follower movements • Exploring types of motions and direction of a motion • Knowing that structures can be strengthened by manipulating materials and shapes • Identifying the shell structure in everyday life (cars, aeroplanes, tins, cans) • Understanding man made and natural structures • Learning different decorative stitches • Application and outcome of the individual technique • Sewing accurately with even regularity of stitches