Hemingbrough Community Primary School
Progression of Skills
Design Technology

Area: ***Design***

	EYFS	Year One	Year Two	Year Three	Year Four	Year Five	Year Six
Structures	Begin to think of their own ideas. Explain what they want to do. Begin to use pictures and words to plan.	Learning the importance of a clear design criteria • Including individual preferences and requirements in a design	• 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 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	Designing a stable pavilion structure that is aesthetically pleasing and selecting materials to create a desired effect • Building frame structures designed to support weight	• Designing a stable structure that is able to support weight • Creating frame structure with focus on	Designing a playground featuring a variety of different structures, giving careful consideration to how the structures will be used, considering effective and ineffective designs
Mechanisms		• Explaining how to adapt mechanisms, using bridges or guides to control the movement • Designing a moving story book for a given audience • Designing a vehicle that includes wheels,	• Creating a class design criteria for a moving monster • Designing a moving monster for a specific audience in accordance with a design criteria • Selecting a suitable linkage system to produce the desired motions	• Designing a toy which uses a pneumatic system • Developing design criteria from a design brief • Generating ideas using thumbnail sketches and exploded diagrams • Learning that different types of	• Designing a shape that reduces air resistance • 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 popup book which uses a mixture of structures and mechanisms • Naming each mechanism, input and output accurately • Storyboarding ideas for a book	• After 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

		axles and axle holders, which will allow the wheels to move • Creating clearly labelled drawings which illustrate movement	• Designing a wheel • Selecting appropriate materials based on their properties	drawings are used in design to explain ideas clearly			move at the same time
Electrical Systems		n/a	n/a	• Designing a game that works using static electricity, including the instructions for playing the game • Identifying a design criteria and a target audience	• Designing a torch, giving consideration to the target audience and creating both design and success criteria focusing on features of individual design ideas	• Designing an electronic greetings card with a simple electrical control circuit • Creating a labelled design showing positive and negative parts in relation to the LED and the battery	• Designing a steady hand game - identifying and naming the components required • Drawing a design from three different perspectives • Generating ideas through sketching and discussion • Modelling ideas through prototypes
Cooking and Food	Begin to think of their own ideas. Explain what they want to do. Begin to use pictures and words to plan.	Think of some ideas on their own. Use pictures and words to plan.	• Designing a healthy wrap based on a food combination which work well together	• Creating a healthy and nutritious recipe for a savoury tart using seasonal ingredients, considering the taste, texture, smell and appearance of the dish	• Designing a biscuit within a given budget, drawing upon previous taste testing	• Adapting a traditional recipe, understanding that the nutritional value of a recipe alters if you remove, substitute or add additional ingredients • Writing an amended method for a recipe to incorporate the	• Writing a recipe, explaining the key steps, method and ingredients • Including facts and drawings from research undertaken

						relevant changes to ingredients • Designing appealing packaging to reflect a recipe	
Textiles	Begin to think of their own ideas. Explain what they want to do. Begin to use pictures and words to plan.	• Using a template to create a design for a puppet	• Designing a pouch	• Designing and making a template from an existing cushion and applying individual design criteria	• Writing design criteria for a product, articulating decisions made • Designing a personalised Book sleeve	• Designing a stuffed toy considering the main component shapes required and creating an appropriate template • Considering proportions of individual components	• Designing a waistcoat in accordance to specification linked to set of design criteria to fit a specific theme • Annotating designs

Area: ***Make***

	EYFS	Year One	Year Two	Year Three	Year Four	Year Five	Year Six
Structures	Safely use and explore a variety of materials experimenting with design, texture, form and function.	• Making stable structures from card, tape and glue • Following instructions to cut and assemble the supporting structure of a windmill	• Making a structure according to design criteria • Creating joints and structures from paper/card and tape	• Constructing a range of 3D geometric shapes using nets • Creating special features for individual designs • Making facades from a range of recycled materials	• Creating a range of different shaped frame structures • Making a variety of free standing frame structures of different shapes and sizes • Selecting appropriate	• 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	• Building a range of play apparatus structures drawing upon new and prior knowledge of structures • Measuring, marking and cutting wood to

		• Making functioning turbines and axles which are assembled into a main supporting structure			materials to build a strong structure and for the cladding • Reinforcing corners to strengthen a structure • Creating a design in accordance with a plan • Learning to create different textural effects with materials	• 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	create a range of structures • Using a range of materials to reinforce and add decoration to structures
Mechanisms	Safely use and explore a variety of materials experimenting with design, texture, form and function.	• Following a design to create moving models that use levers and sliders • Adapting mechanisms	• Making linkages using card for levers and split pins for pivots • Experimenting with linkages adjusting the widths, lengths and thicknesses of card used • Cutting and assembling components neatly	• Creating a pneumatic system to create a desired motion • Building secure housing for a pneumatic system • Using syringes and balloons to create different types of pneumatic systems to make a functional and	• Measuring, marking, cutting and assembling with increasing accuracy • Making a model based on a chosen design	• Following a design brief to make a pop up book, neatly and with focus on accuracy • Making mechanisms and/ or structures using sliders, pivots and folds to produce movement • Using layers and spacers to hide the workings of	• 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

			• Selecting materials according to their characteristics • Following a design brief	appealing pneumatic toy • Selecting materials due to their functional and aesthetic characteristics • Manipulating materials to create different effects by cutting, creasing, folding, weaving		mechanical parts for an aesthetically pleasing result	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
Electrical Systems	n/a	n/a	n/a	• Making an electrostatic game, referring to the design criteria • Using a wider range of materials and equipment safely • Using electrostatic energy to move objects in isolation	• Making a torch with a working electrical circuit and switch • Using appropriate equipment to cut and attach materials • Assembling a torch according to	• Making a working circuit • Creating an electronics greeting card, referring to a design criteria • Mapping out where different components of the circuit will go	• Making electromagnetic motors and tweaking the motor to improve its function • Constructing a stable base for an electromagnetic game

				as well as in part of a system	the design and success criteria		• Accurately cutting, folding and assembling a net • Decorating the base of the game to a high quality finish • Making and testing a circuit • Incorporating a circuit into a base
Cooking and Food	Talk about where food comes from. Know the importance of good health and a healthy diet. Manage their own basic hygiene successfully.	• Chopping fruit and vegetables safely to make a smoothie • Identifying if a food is a fruit or a vegetable • Learning where and how fruits and vegetables grow	• Slicing food safely using the bridge or claw grip • Constructing a wrap that meets a design brief	• Knowing how to prepare themselves and a work space to cook safely in, learning the basic rules to avoid food contamination • Following the instructions within a recipe	• Following a baking recipe • Cooking safely, following basic hygiene rules • Adapting a recipe	• Cutting and preparing vegetables safely • Using equipment safely, including knives, hot pans and hobs • Knowing how to avoid cross contamination • Following a step by step method carefully to make a recipe	• 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
Textiles	Safely use and explore a variety of materials experimenting with design,	• Cutting fabric neatly with scissors	• Selecting and cutting fabrics for sewing • Decorating a pouch using fabric	• Following design criteria to create a cushion • Selecting and cutting fabrics	• Making and testing a paper template with accuracy and in	• Creating a 3D stuffed toy from a 2D design • Measuring, marking and	• Using template pinning panels onto fabric • Marking and cutting fabric

	texture, form and function.	• Using joining methods to decorate a puppet • Sequencing steps for construction	glue or running stitch	with ease using fabric scissors • Sewing cross stitch to join fabric • Decorating fabric using appliqué • Completing design ideas with stuffing and sewing the edges	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	cutting fabric accurately and independently • Creating strong and secure blanket stitches when joining fabric • Using applique to attach pieces of fabric decoration	accurately, in accordance with a design • Sewing a strong running stitch, making small, neat stitches and following the edge • Tying strong knots • Decorating a waistcoat - attaching objects using thread and adding a secure fastening

Area: ***Evaluation***

	EYFS	Year One	Year Two	Year Three	Year Four	Year Five	Year Six
Structures	Talk about what they have made.	• Evaluating a windmill according to the design criteria, testing whether the structure is strong and stable and altering it if it isn't	• Exploring the features of structures • Comparing the stability of different shapes	• Evaluating own work and the work of others based on the aesthetic of the finished product and in comparison to the original design	• Evaluating structures made by the class • Describing what characteristics of a design and construction made it the most effective	• Adapting and improving own bridge structure by identifying points of weakness and reinforcing them as necessary • Suggesting points for improvements for own bridges	Talk about what they have made.

		• Suggest points for improvements	• Testing the strength of own structures • Identifying the weakest part of a structure • Evaluating the strength, stiffness and stability of own structure	• Suggesting points for modification of the individual designs	• Considering effective and ineffective designs	and those designed by others	
Mechanisms	Show an interest in moving toys. Talk about what they have made.	• 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, identifying what stops wheels from turning, knowing • that a wheel needs an axle in order to move	• Evaluating own designs against design criteria • Using peer feedback to modify a final design • Evaluating different designs • Testing and adapting a design	• Using the views of others to improve designs • Testing and modifying the outcome, suggesting improvements	• Evaluating the speed of a final product based on: the effect of shape on speed and the accuracy of workmanship on performance	• Evaluating the work of others and receiving feedback on own work • Suggesting points for improvement	Show an interest in moving toys. Talk about what they have made.
Electrical Systems	n/a	n/a	n/a	• Learning to give constructive criticism on own	• Evaluating electrical products	• Evaluating a completed product against the original design sheet and	n/a

				work and the work of others • Testing the success of a product against the original design criteria and justifying opinions	• Testing and evaluating the success of a final product and taking inspiration from the work of peers	looking at modifications that could be made to improve the reliability or aesthetics of it or to incorporate another type of electronic device, eg: buzzer	
Cooking and Food	Talk about what they have made.	• Tasting and evaluating different food combinations • Describing appearance, smell and taste • Suggesting information to be included on packaging	• Describing the taste, texture and smell of fruit and vegetables • Taste testing food combinations and final products • Describing the information that should be included on a label • Evaluating which grip was most effective	• Establishing and using design criteria to help test and review dishes • Describing the benefits of seasonal fruits and vegetables and the impact on the environment • Suggesting points for improvement when making a seasonal tart	• 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	• Identifying the nutritional differences between different products and recipes • Identifying and describing healthy benefits of food groups	Talk about what they have made.
Textiles	Talk about what they have made.	• Reflecting on a finished product, explaining likes and dislikes	• Troubleshooting scenarios posed by teacher • Evaluating the quality of the	• Evaluating an end product and thinking of other ways in which to	• Testing and evaluating an end product against the original design criteria	• Testing and evaluating an end product and giving point for further improvements	Talk about what they have made.

			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	create similar items	• Deciding how many of the criteria should be met for the product to be considered successful • Suggesting modifications for improvement		

Area: ***Technical Knowledge***

	EYFS	Year One	Year Two	Year Three	Year Four	Year Five	Year Six
Structures		• Evaluating a windmill according to the design criteria, testing whether the structure is strong and stable and altering it if it isn't • Suggest points for improvements	• 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 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	• Evaluating structures made by the class • Describing what characteristics of a design and construction made it the most effective • Considering effective and ineffective designs	• 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	• Evaluating a windmill according to the design criteria, testing whether the structure is strong and stable and altering it if it isn't • Suggest points for improvements

			• Evaluating the strength, stiffness and stability of own structure				
Mechanisms		• 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, identifying what stops wheels from turning, knowing • that a wheel needs an axle in order to move	• Evaluating own designs against design criteria • Using peer feedback to modify a final design • Evaluating different designs • Testing and adapting a design	• Using the views of others to improve designs • Testing and modifying the outcome, suggesting improvements	• Evaluating the speed of a final product based on: the effect of shape on speed and the accuracy of workmanship on performance	• Evaluating the work of others and receiving feedback on own work • Suggesting 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, identifying what stops wheels from turning, knowing • that a wheel needs an axle in order to move
Electrical Systems		n/a	n/a	• Learning to give constructive criticism on own work and the work of others • Testing the success of a product against the original design	• Evaluating electrical products • Testing and evaluating the success of a final product and taking inspiration from the work of peers	• Evaluating a completed product against the original design sheet and looking at modifications that could be made to improve the reliability or aesthetics of it or to incorporate	n/a

				criteria and justifying opinions		another type of electronic device, eg: buzzer	
Cooking and Food		• Tasting and evaluating different food combinations • Describing appearance, smell and taste • Suggesting information to be included on packaging	• Describing the taste, texture and smell of fruit and vegetables • Taste testing food combinations and final products • Describing the information that should be included on a label • Evaluating which grip was most effective	• Establishing and using design criteria to help test and review dishes • Describing the benefits of seasonal fruits and vegetables and the impact on the environment • Suggesting points for improvement when making a seasonal tart	• 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	• Identifying the nutritional differences between different products and recipes • Identifying and describing healthy benefits of food groups	• Tasting and evaluating different food combinations • Describing appearance, smell and taste • Suggesting information to be included on packaging
Textiles		• Reflecting on a finished product, explaining likes and dislikes	• Troubleshooting scenarios posed by teacher • Evaluating the quality of the stitching on others' work • Discussing as a class, the success of their stitching	• Evaluating an end product and thinking of other ways in which to create similar items	• 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	• Testing and evaluating an end product and giving point for further improvements	• Reflecting on a finished product, explaining likes and dislikes

			against the success criteria • Identifying aspects of their peers' work that they particularly like and why		• Suggesting modifications for improvement		