HOLLINS GRUNDY PRIMARY SCHOOL

Happiness, Health and Respect for Confident, Creative Learners

Curriculum Intent Grid - Design & Technology

	MONTH BANDS
3 and 4 year olds	 Make imaginative and complex 'small worlds' with blocks and construction kits, such as a city with different buildings and a park. Explore different materials freely, in order to develop their ideas about how to use them and what to make. Develop their own ideas and then decide which materials to use to express them. Join different materials and explore different textures.
Reception	 Return to and build on their previous learning, refining ideas and developing their ability to represent them. Create collaboratively sharing ideas, resources and skills.
Early Learning Goals	 Safely use and explore a variety of materials, tools and techniques, experimenting with colour, design, texture, form and function; Share their creations, explaining the process they have used; Make use of props and materials when role playing characters in narratives and stories.

Unit	Design	Make	Technical Knowledge	Evaluate
Construct a house for the three little pigs (structures)	 Including individual preferences and requirements in a design. Design a house for the 3 little pigs 	Making stable structures from card, tape and glue	 Learning how to turn 2D nets into 3D structures To know that a structure is something that has been made and put together 	
Puppets- textiles	 Design a puppet and use a template. To know that drawing a design idea is useful to see how an idea will look. 	 Decorate a puppet to match their design Sequencing steps for construction. 	 Join fabrics together using pins, staples or glue. Cutting fabric neatly with scissors. Know that 'joining technique' means connecting two pieces of material together. To understand that different techniques for joining materials canbe used for different purposes. To understand that a template (or fabric pattern) is used to cut out the same shape multiple times. 	
Moving vehicle- Mechanisms	Design a moving vehicle that includes functioning wheels, axles and axle holders.	Make a moving vehicle with working wheels and axles	 Identify what mechanism makes a toy or vehicle roll forwards Know that in order for a wheel to move it must be attached to an axle Draw and label a diagram of an axle, wheel and axle holder Know some real life items which use axles apart from cars. 	 Explain what must be changed if there are any operational issues Test mechanisms, identifying what stops wheels from turning Fiix or adapt a design so that the wheel can move
ongoing	 Learn the importance of a clear design criteria. Design purposeful, functional, appealing products for themselves or other users based on design criteria ongoing 	 talking, drawing, templates, m Select from and use a range of practical tasks [for example, c Select from and use a wide ra 	d communicate their ideas through ock-ups. of tools and equipment to perform utting, shaping, joining and finishing] inge of materials and components, ils, according to their characteristics	 Evaluate their ideas and products against design criteria Reflecting on a finished product, explaining likes and dislikes. Identify problems with designs.

Sig Below	Below	Just At	Securely At	Above	Sig Above
Working within the curriculum below that of their year group	Working within the curriculum for their year group but unlikely to achieve end of year expectations			Working within the curriculum for their year group and likely to achieve greater depth	Working within the curriculum above that of their year group This will not be used in our assessments

Unit	Design	Make	Technical knowled	dge	Evaluate
Making healthy wraps- food	Think of four different wrap ideas, considering flavour combinations. Design a healthy wrap based on a food combination which works well together.	Construct a wrap that meets the design brief and their plan.	Slice food safely using the bridge or cla Describe the information that should be label. Name the main food groups and identify to each group. Describe the taste, texture and smell of To understand what makes a balanced Understand that we should eat a range from each food group Use the basic principles of a healthy an	y foods that belong a given food. diet. of different foods	Taste testing food combinations and final products.
Make a chair for baby bear- structures	Generate and communicate ideas using sketching and modelling.	Produce a model that supports a teddy, using the appropriate materials and construction techniques. Work independently to make a stable structure, following a demonstration Make a structure according to design criteria. Build a strong and stiff structure by folding paper. Build structures, exploring how they can be made stronger, stiffer and more	prepare dishes. Identify stable and unstable structural size of the little stable and unstable structural size of the little stable and unstable structures that make a chair stable structures of the little structures of structures natural world and in everyday objects. Create joints and structures from paper.	hapes. le s, found in the	Test the strength of their own structures. Evaluate the strength, stiffness and stability of their own structure. Explain how they made their model strong, stiff and stable Explain why there model is suitable for a purpose (baby bear's chair)
Make a ferris wheel- mechanisms	Design and label a ferris wheel. Consider the materials, shape, construction and mechanisms of their wheel.	stable. Build and test a stable structure with a rotating wheel. Follow a design plan to make a completed model of the wheel. Select relevant equipment to make a fairground wheel.	Selecting a suitable linkage system to p motions. Know features of a ferris wheel.	produce the desired	
ongoing	Consider the designs of others and make comments about their practicality or appeal. Follow a design brief.	Select from and use a wide range of construction materials, textiles and characteristics ongoing	of materials and components, including ingredients, according to their s and equipment to perform practical		Evaluate their product against a design criteria Test and adapt their designs as necessary. Evaluate different designs.

End of Key Stage Statements	Design purposeful, functional, appealing products for themselves and other users based on design criteria. Generate, develop, model and communicate their ideas through talking, drawing, templates, mock ups and, where appropriate information and communication technology.	select from and use a range of tools and equipment to perform practical tasks [for example, cutting, shaping, joining and finishing] select from and use a wide range of materials and components, including construction materials, textiles and ingredients, according to their characteristics.	build structures, exploring how they can be made stronger, stiffer and more stable explore and use mechanisms [for example, levers, sliders, wheels and axles], in their products.	explore and evaluate a range of existing products evaluate their ideas and products against design criteria.
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Unit	Design	Make	Technical knowledge	Evaluate
Eating Seasonally-	 Design a savoury tart using seasonal ingredients. To create a recipe that is healthy and nutritious using seasonal vegetables. 	 Following the instructions within a recipe. Make a healthy tart using seasonal vegetables. 	 Use cooking equipment safely Knowing how to prepare themselves and a workspace to cook safely in, learning the basic rules to avoid food contamination. Understand that fruits and vegetables grow in different countries based on their climates. Understand that 'seasonal' fruits and vegetables are those that grow in a given season and taste best then. Know that eating seasonal fruit and vegetables has a positive effect on the environment. To know that each fruit and vegetable gives us nutritional benefits because they contain vitamins, minerals and fibre. 	Establishing and using design criteria to help test and review dishes.
Mechanical systems - slingshots	 Design a shape that is suitable for the project. Personalising a design. communicate their ideas through annotated sketches, cross-sectional and exploded diagrams 	 Work independently to produce an accurate, functioning car chassis. Making a model based on a chosen design. 	 Produce panels that will fit the chassis and can be assembled effectively using the tabs they have designed. Construct car bodies effectively. Measuring, marking, cutting and assembling with increasing accuracy. To know key individuals and the development of automobiles. To create a timeline to explain how car designs have changed over time. 	 Conduct a trial accurately and draw conclusions and improvements from the results. Evaluating the speed of a final product based on: the effect of shape on speed and the accuracy of workmanship on performance.
Digital World - Electronic Charms	 Suggest a feature from the Micro:bit that is suitable for an eCharm. Suggest key features for a pouch, with some consideration for the overall theme and the user. 	 Write a program that initiates a flashing LED panel, or another pattern, on the Micro:bit when a button is pressed Use a template when cutting and assembling a pouch, with some support. Follow basic design requirements using computer-aided design, (CAD) drawing at least one shape with a text box and bright colours, following a demonstration. 	Give a brief explanation of the digital revolution and/or remember key examples. Explain the basic functionality of their finished program. To know what the 'Digital Revolution' is and features of some of the products that have evolved as a result.	Identify errors, if testing is unsuccessful, by comparing their code to a correct example.
Ongoing				 Suggest improvements to designs.

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Unit	Design	Make	Technical knowledge	Evaluate
Structures- castles	Design a castle with key features which satisfy a given purpose. Draw the design of my castle using 2D shapes and labelling	Construct my castle to meet the requirements of my brief	 Score or cut along lines on the net of a 2D shape Use glue to securely assemble geometric shapes. Utilise skills to build a complex structure from simple geometric shapes. To understand the importance of strength and stiffness i structures. 	Evaluate my castle and the work of others.
Electrical systems – torches	Design a torch which satisfies both the design and success criteria.	 Help to make a working switch Making a torch with a working electrical circuit and switch. Assembling a torch according to the design and success criteria. 	 Identify electrical products and explain why they are useful. Identify the features of a torch and how it works To learn about electrical items and how they work To know facts from the history and invention of the electric light bulb(s) - by Sir Joseph Swan and Thomas Edison 	Describe what makes a torch successful. Evaluate electrical products. Test my torch to evaluate its success
Textiles - fastenings	Write design criteria and design a sleeve that satisfies the criteria. Design a personalised book sleeve.	 Make and test template for their book sleeve. Assemble their case using chosen stitch. Make a book jacket that satisfies a chosen criteria 	 Measuring, marking and cutting fabric using a paper template. Selecting a stitch style to join fabric. Incorporating a fastening to a design 	Identify the features, benefits and disadvantages of a range of fastening
ongoing	To design a product to fit a set of specific user needs.		Investigate and analyse a range of existing products Create suitable designs that fit the succe criteria Evaluating own work and the work of oth finished product and in comparison to th Testing and evaluating an end product a Suggesting modifications for improvement	ers based on the aesthetic of the e original design. gainst the original design criteria.

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Unit	Design	Make	Technical knowledge	evaluate
Textiles- Stuffed toys	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. Measuring, marking and cutting fabric accurately and independently. 	
Mechanical systems- pop up books	 Story board ideas and produce a suitable plan for each page of their book. Designing a pop-up book which uses a mixture of structures and mechanisms. Design a book made up of a front cover and four pages and include a mixture of structures and mechanisms within it. 	 Produce the structure of the book. Assemble the components necessary for all their structures/mechanisms 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. 	 Hide the mechanical elements with more layers using spacers where needed. Use a range of mechanisms and structures to illustrate their story and make it interactive for the users. Naming each mechanism, input and output accurately. To understand how to use sliders, pivots and folds to create paper-based mechanisms. To understand that mechanisms can be used to change one kind of motion into another. 	
Digital World – monitoring devices	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. Build a variety of brick models to invent Micro:bit case, housing and stand ideas, evaluating the success of their favourite model. 	 Identify errors (bugs) in the code and ways to fix (debug) them. Recall and describe the name and use of key tools used in Tinkercad (CAD) software. To understand key developments in thermometer history. To know events or facts that took place over the last 100 years in the history of plastic and how this is changing our outlook on the future. 	Explain key pros and cons of virtual modelling vs physical modelling.
ongoing		To create a high- quality product suitable for a target user	 Explain why selecting appropriating materials is an important part of the design process Identify what worked volume improvement. Evaluating the work of feedback on own work Suggesting points for 	others and receiving

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Unit	Design	Make	Technical knowledge	Evaluate
Structures- playgrounds	Create different apparatus designs, applying the design criteria to their work. Design a playground with different structures considering how these will be used.	Make roughly three different structures from their plans using the materials available Complete their structures, improving the quality of their rough versions and applying some cladding to a few areas. Make a range of landscape features using a variety of materials which will enhance their apparatus.	 Measuring, marking and cutting materials to create a range of structures. Using a range of materials to reinforce and add decoration to structures. Identify what makes a successful structure. To know that structures can be strengthened by manipulating materials and shapes. To understand what a 'footprint plan' is. 	
Food – adapting a recipe	Adapt recipes for savoury dishes to produce my own recipe considering taste, texture, flavour. Include ingredients I have researched from farm to fork in my recipes.	Make savoury dishes using adapted recipes (quiche, vegetable bake)	 Know where and how a variety of ingredients are grown, reared, caught and processed. Cooking safely, following basic hygiene rules. Identify where ingredients in my recipes have originated from. 	Evaluate and compare my own and others savoury dishes.
Electrical systems- steady hand game	Design a steady hand game Identifying and labelling the components. Use four different perspective drawings in their design.	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. Decorating the base of the game to a high-quality finish	 Making and testing a circuit To know the difference between 'form' and 'function'. To understand the diagram perspectives 'top view', 'side view' and 'back'. 	 Analysing a selection of existing children's toys. Test their own and others game and suggest improvements.
Ongoing	Considering effective and ineffective designs.		Make suitable changes to their improve a design plan based or Test and adapt a design to imprese Evaluating and comparing a ran Evaluate my own and others wo	peer evaluation. ove it as it is developed. ge of products.

Step	b	W	S	S+
Total no. of	20%	60%	90%	95%
statements = 33				

No. of	0-8	9-19	20-31	32-34
statements	0 0	3 13	20 31	32 3 7
required				

		1			
	Use research and develop	Select from and use a	Investigate and analyse a	Apply their understanding of	Understand and apply the
	design criteria to inform	wide range of tools and	range of existing products	how to strengthen, stiffen	principles of a healthy and
End of Key Stage	the design of innovative,	equipment to perform	evaluate their ideas and	and reinforce more complex	varied diet
Statements	functional, appealing	practical tasks	products against their own	structures.	prepare and cook a variety
	products that are fit for	[for example, cutting,	design criteria and consider		of predominantly savoury
	purpose, aimed at	shaping, joining and	the views of others to	Understand and use	dishes using a range of
	particular	finishing], accurately	improve their work	mechanical systems in their	cooking techniques.
	individuals or groups.			products [for example, gears,	
		Select from and use a	Understand how key	pulleys, cams, levers and	Understand seasonality,
	Generate, develop, model	wider range of materials	events and individuals in	linkages].	and know where and how a
	and communicate their	and components, including construction	design and technology have		variety of ingredients are
	ideas through discussion,	materials, textiles and	helped shape the world	Understand and use	grown, reared, caught and processed.
	annotated sketches,	ingredients, according to		electrical systems in their	processed.
	cross-sectional and	their functional properties		products [for example, series	
	exploded diagrams,	and aesthetic qualities		circuits incorporating	
	prototypes, pattern			switches, bulbs, buzzers and	
	pieces and computer			motors].	
	aided design.			-	
	_			Apply their understanding of	
				computing to program,	
				monitor and control their	
				products.	