

# HOLLINS GRUNDY PRIMARY SCHOOL

Happiness, Health and Respect for Confident, Creative Learners

## Curriculum Intent Grid - Design & Technology

MONTH BANDS	
<b>3 and 4 year olds</b>	<ul style="list-style-type: none"><li>• Make imaginative and complex 'small worlds' with blocks and construction kits, such as a city with different buildings and a park.</li><li>• Explore different materials freely, in order to develop their ideas about how to use them and what to make.</li><li>• Develop their own ideas and then decide which materials to use to express them.</li><li>• Join different materials and explore different textures.</li></ul>
<b>Reception</b>	<ul style="list-style-type: none"><li>• Return to and build on their previous learning, refining ideas and developing their ability to represent them.</li><li>• Create collaboratively sharing ideas, resources and skills.</li></ul>
<b>Early Learning Goals</b>	<ul style="list-style-type: none"><li>• Safely use and explore a variety of materials, tools and techniques, experimenting with colour, design, texture, form and function;</li><li>• Share their creations, explaining the process they have used;</li><li>• Make use of props and materials when role playing characters in narratives and stories.</li></ul>

# Year 1

Unit	Design	Make	Technical Knowledge	Evaluate
Construct a house for the three little pigs (structures)	<ul style="list-style-type: none"> <li>Including individual preferences and requirements in a design.</li> <li>Design a house for the 3 little pigs</li> </ul>	<ul style="list-style-type: none"> <li>Making stable structures from card, tape and glue</li> </ul>	<ul style="list-style-type: none"> <li>Learning how to turn 2D nets into 3D structures</li> <li>To know that a structure is something that has been made and put together</li> </ul>	
Puppets-textiles	<ul style="list-style-type: none"> <li>Design a puppet and use a template.</li> <li>To know that drawing a design idea is useful to see how an idea will look.</li> </ul>	<ul style="list-style-type: none"> <li>Decorate a puppet to match their design</li> <li>Sequencing steps for construction.</li> </ul>	<ul style="list-style-type: none"> <li>Join fabrics together using pins, staples or glue.</li> <li>Cutting fabric neatly with scissors.</li> <li>Know that 'joining technique' means connecting two pieces of material together.</li> <li>To understand that different techniques for joining materials can be used for different purposes.</li> <li>To understand that a template (or fabric pattern) is used to cut out the same shape multiple times.</li> </ul>	
Moving vehicle-Mechanisms	<ul style="list-style-type: none"> <li>Design a moving vehicle that includes functioning wheels, axles and axle holders.</li> </ul>	<ul style="list-style-type: none"> <li>Make a moving vehicle with working wheels and axles</li> </ul>	<ul style="list-style-type: none"> <li>Identify what mechanism makes a toy or vehicle roll forwards</li> <li>Know that in order for a wheel to move it must be attached to an axle</li> <li>Draw and label a diagram of an axle, wheel and axle holder</li> <li>Know some real life items which use axles apart from cars.</li> </ul>	<ul style="list-style-type: none"> <li>Explain what must be changed if there are any operational issues</li> <li>Test mechanisms, identifying what stops wheels from turning</li> <li>Fix or adapt a design so that the wheel can move</li> </ul>
ongoing	<ul style="list-style-type: none"> <li>Learn the importance of a clear design criteria.</li> <li>Design purposeful, functional, appealing products for themselves or other users based on design criteria ongoing</li> </ul>	<ul style="list-style-type: none"> <li>Generate, develop, model and communicate their ideas through talking, drawing, templates, mock-ups.</li> <li>Select from and use a range of tools and equipment to perform practical tasks [for example, cutting, shaping, joining and finishing]</li> <li>Select from and use a wide range of materials and components, including construction materials, according to their characteristics</li> </ul>		<ul style="list-style-type: none"> <li>Evaluate their ideas and products against design criteria</li> <li>Reflecting on a finished product, explaining likes and dislikes.</li> <li>Identify problems with designs.</li> </ul>

Step	b	w	s	s+
Total no. of statements = 31	20%	60%	90%	95%
No. of statements required	<b>0-4</b>	<b>5-13</b>	<b>14-29</b>	<b>30-31</b>

## Year 2

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

<p>End of Key Stage Statements</p>	<p>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.</p>	<p>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.</p>	<p>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.</p>	<p>explore and evaluate a range of existing products evaluate their ideas and products against design criteria.</p>
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Step	b	w	s	s+
Total no. of statements = 40	20%	60%	90%	95%
No. of statements required	<b>0-10</b>	<b>11-25</b>	<b>26-37</b>	<b>38-39</b>

## Year 3

Unit	Design	Make	Technical knowledge	Evaluate
Eating Seasonally-	<ul style="list-style-type: none"> <li>Design a savoury tart using seasonal ingredients.</li> <li>To create a recipe that is healthy and nutritious using seasonal vegetables.</li> </ul>	<ul style="list-style-type: none"> <li>Following the instructions within a recipe.</li> <li>Make a healthy tart using seasonal vegetables.</li> </ul>	<ul style="list-style-type: none"> <li>Use cooking equipment safely</li> <li>Knowing how to prepare themselves and a workspace to cook safely in, learning the basic rules to avoid food contamination.</li> <li>Understand that fruits and vegetables grow in different countries based on their climates.</li> <li>Understand that 'seasonal' fruits and vegetables are those that grow in a given season and taste best then.</li> <li>Know that eating seasonal fruit and vegetables has a positive effect on the environment.</li> <li>To know that each fruit and vegetable gives us nutritional benefits because they contain vitamins, minerals and fibre.</li> </ul>	<ul style="list-style-type: none"> <li>Establishing and using design criteria to help test and review dishes.</li> </ul>
Mechanical systems - slingshots	<ul style="list-style-type: none"> <li>Design a shape that is suitable for the project.</li> <li>Personalising a design.</li> <li>communicate their ideas through annotated sketches, cross-sectional and exploded diagrams</li> </ul>	<ul style="list-style-type: none"> <li>Work independently to produce an accurate, functioning car chassis.</li> <li>Making a model based on a chosen design.</li> </ul>	<ul style="list-style-type: none"> <li>Produce panels that will fit the chassis and can be assembled effectively using the tabs they have designed.</li> <li>Construct car bodies effectively.</li> <li>Measuring, marking, cutting and assembling with increasing accuracy.</li> <li>To know key individuals and the development of automobiles.</li> <li>To create a timeline to explain how car designs have changed over time.</li> </ul>	<ul style="list-style-type: none"> <li>Conduct a trial accurately and draw conclusions and improvements from the results.</li> <li>Evaluating the speed of a final product based on: the effect of shape on speed and the accuracy of workmanship on performance.</li> </ul>
Digital World - Electronic Charms	<ul style="list-style-type: none"> <li>Suggest a feature from the Micro:bit that is suitable for an eCharm.</li> <li>Suggest key features for a pouch, with some consideration for the overall theme and the user.</li> </ul>	<ul style="list-style-type: none"> <li>Write a program that initiates a flashing LED panel, or another pattern, on the Micro:bit when a button is pressed</li> <li>Use a template when cutting and assembling a pouch, with some support.</li> <li>Follow basic design requirements using computer-aided design, (CAD) drawing at least one shape with a text box and bright colours, following a demonstration.</li> </ul>	<ul style="list-style-type: none"> <li>Give a brief explanation of the digital revolution and/or remember key examples.</li> <li>Explain the basic functionality of their finished program.</li> <li>To know what the 'Digital Revolution' is and features of some of the products that have evolved as a result.</li> </ul>	<ul style="list-style-type: none"> <li>Identify errors, if testing is unsuccessful, by comparing their code to a correct example.</li> </ul>
Ongoing				<ul style="list-style-type: none"> <li>Suggest improvements to designs.</li> </ul>

Step	b	w	s	s+
Total no. of statements = 29	20%	60%	90%	95%
No. of statements required	<b>0-9</b>	<b>10-20</b>	<b>21-30</b>	<b>31-32</b>

## Year 4

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	<ul style="list-style-type: none"> <li>Score or cut along lines on the net of a 2D shape</li> <li>Use glue to securely assemble geometric shapes.</li> <li>Utilise skills to build a complex structure from simple geometric shapes.</li> <li>To understand the importance of strength and stiffness in structures.</li> </ul>		Evaluate my castle and the work of others.
Electrical systems – torches	Design a torch which satisfies both the design and success criteria.	<ul style="list-style-type: none"> <li>Help to make a working switch</li> <li>Making a torch with a working electrical circuit and switch.</li> <li>Assembling a torch according to the design and success criteria.</li> <li></li> </ul>	<ul style="list-style-type: none"> <li>Identify electrical products and explain why they are useful.</li> <li>Identify the features of a torch and how it works</li> <li>To learn about electrical items and how they work</li> <li>To know facts from the history and invention of the electric light bulb(s) - by Sir Joseph Swan and Thomas Edison</li> </ul>		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.	<ul style="list-style-type: none"> <li>Make and test template for their book sleeve.</li> <li>Assemble their case using chosen stitch.</li> <li>Make a book jacket that satisfies a chosen criteria</li> </ul>	<ul style="list-style-type: none"> <li>Measuring, marking and cutting fabric using a paper template.</li> <li>Selecting a stitch style to join fabric.</li> <li>Incorporating a fastening to a design</li> </ul>		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 success criteria and their own design criteria  Evaluating own work and the work of others based on the aesthetic of the finished product and in comparison to the original design.  Testing and evaluating an end product against the original design criteria.  Suggesting modifications for improvement.	

Step	b	w	s	s+
Total no. of statements = 42	20%	60%	90%	95%
No. of statements required	<b>0-9</b>	<b>10-20</b>	<b>21-33</b>	<b>34-35</b>

# Year 5

Unit	Design	Make	Technical knowledge		evaluate
Textiles- Stuffed toys	<ul style="list-style-type: none"> <li>Design a stuffed toy, considering the main component shapes of their toy.</li> </ul>	<ul style="list-style-type: none"> <li>Create an appropriate template for their stuffed toy.</li> </ul>	<ul style="list-style-type: none"> <li>Join two pieces of fabric using a blanket stitch.</li> <li>Neatly cut out their fabric.</li> <li>Use appliqué or decorative stitching to decorate the front of their stuffed toy.</li> <li>Use blanket stitch to assemble their stuffed toy, repairing when needed.</li> <li>Measuring, marking and cutting fabric accurately and independently.</li> </ul>		
Mechanical systems- pop up books	<ul style="list-style-type: none"> <li>Story board ideas and produce a suitable plan for each page of their book.</li> <li>Designing a pop-up book which uses a mixture of structures and mechanisms.</li> <li>. Design a book made up of a front cover and four pages and include a mixture of structures and mechanisms within it.</li> </ul>	<ul style="list-style-type: none"> <li>Produce the structure of the book.</li> <li>Assemble the components necessary for all their structures/mechanisms</li> <li>Following a design brief to make a pop up book, neatly and with focus on accuracy.</li> <li>Making mechanisms and/or structures using sliders, pivots and folds to produce movement.</li> </ul>	<ul style="list-style-type: none"> <li>Hide the mechanical elements with more layers using spacers where needed.</li> <li>Use a range of mechanisms and structures to illustrate their story and make it interactive for the users.</li> <li>Naming each mechanism, input and output accurately.</li> <li>To understand how to use sliders, pivots and folds to create paper-based mechanisms.</li> <li>To understand that mechanisms can be used to change one kind of motion into another.</li> </ul>		
Digital World – monitoring devices	<ul style="list-style-type: none"> <li>Research a chosen animal's key information to develop a list of design criteria for an animal monitoring device.</li> </ul>	<ul style="list-style-type: none"> <li>Write a program that monitors the ambient temperature and alerts someone when the temperature moves from a specified range.</li> <li>Build a variety of brick models to invent Micro:bit case, housing and stand ideas, evaluating the success of their favourite model.</li> </ul>	<ul style="list-style-type: none"> <li>Identify errors (bugs) in the code and ways to fix (debug) them.</li> <li>Recall and describe the name and use of key tools used in Tinkercad (CAD) software.</li> <li>To understand key developments in thermometer history.</li> <li>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.</li> </ul>		Explain key pros and cons of virtual modelling vs physical modelling.
ongoing		<ul style="list-style-type: none"> <li>To create a high-quality product suitable for a target user</li> </ul>	<ul style="list-style-type: none"> <li>Explain why selecting appropriating materials is an important part of the design process</li> </ul>	<ul style="list-style-type: none"> <li>Identify what worked well and areas for improvement.</li> <li>Evaluating the work of others and receiving feedback on own work.</li> <li>Suggesting points for improvements</li> </ul>	

<b>Step</b>	<b>b</b>	<b>w</b>	<b>s</b>	<b>s+</b>
Total no. of statements = 41	20%	60%	90%	95%
No. of statements required	<b>0-6</b>	<b>7-19</b>	<b>20-30</b>	<b>31-32</b>



# Year 6

Unit	Design	Make	Technical knowledge		Evaluate
Structures- playgrounds	<ul style="list-style-type: none"> <li>Create different apparatus designs, applying the design criteria to their work.</li> <li>Design a playground with different structures considering how these will be used.</li> </ul>	<p>Make roughly three different structures from their plans using the materials available</p> <p>Complete their structures, improving the quality of their rough versions and applying some cladding to a few areas.</p> <p>Make a range of landscape features using a variety of materials which will enhance their apparatus.</p>	<ul style="list-style-type: none"> <li>Measuring, marking and cutting materials to create a range of structures.</li> <li>Using a range of materials to reinforce and add decoration to structures.</li> <li>Identify what makes a successful structure.</li> <li>To know that structures can be strengthened by manipulating materials and shapes.</li> <li>To understand what a 'footprint plan' is.</li> </ul>		
Food – adapting a recipe	<p>Adapt recipes for savoury dishes to produce my own recipe considering taste, texture, flavour.</p> <p>Include ingredients I have researched from farm to fork in my recipes.</p>	<ul style="list-style-type: none"> <li>Make savoury dishes using adapted recipes (quiche, vegetable bake)</li> </ul>	<ul style="list-style-type: none"> <li>Know where and how a variety of ingredients are grown, reared, caught and processed.</li> <li>Cooking safely, following basic hygiene rules.</li> <li>Identify where ingredients in my recipes have originated from.</li> </ul>		<ul style="list-style-type: none"> <li>Evaluate and compare my own and others savoury dishes.</li> </ul>
Electrical systems- steady hand game	<p>Design a steady hand game Identifying and labelling the components.</p> <p>Use four different perspective drawings in their design.</p>	<p>Create a secure base for their game, with neat edges, that relates to their design.</p> <p>Make and test a functioning circuit and assemble it within a case.</p> <p>Decorating the base of the game to a high-quality finish</p>	<ul style="list-style-type: none"> <li>Making and testing a circuit</li> <li>To know the difference between 'form' and 'function'.</li> <li>To understand the diagram perspectives 'top view', 'side view' and 'back'.</li> </ul>		<ul style="list-style-type: none"> <li>Analysing a selection of existing children's toys.</li> <li>Test their own and others game and suggest improvements.</li> </ul>
Ongoing	<ul style="list-style-type: none"> <li>Considering effective and ineffective designs.</li> </ul>			<ul style="list-style-type: none"> <li>Make suitable changes to their work after peer evaluation.</li> <li>improve a design plan based on peer evaluation.</li> <li>Test and adapt a design to improve it as it is developed.</li> <li>Evaluating and comparing a range of products.</li> <li>Evaluate my own and others work.</li> </ul>	

Total no. of statements = 33	20%	60%	90%	95%
No. of statements required	<b>0-8</b>	<b>9-19</b>	<b>20-31</b>	<b>32-34</b>

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