

Subject: DT	Assessment Y1/2	Design Technology
YEAR 1–: Constructing a windmill		
<p><b>KS1 Programmes of Study</b> Through a variety of creative and practical activities, pupils should be taught the knowledge, understanding and skills needed to engage in an iterative process of designing and making. They should work in a range of relevant contexts [for example, the home and school, gardens and playgrounds, the local community, industry and the wider environment].To use a range of materials creatively to design and make products</p> <p>When designing and making, pupils should be taught to:</p> <p><b>Design</b></p> <ul style="list-style-type: none"> <li>♣ design purposeful, functional, appealing products for themselves and other users based on design criteria</li> <li>♣ generate, develop, model and communicate their ideas through talking, drawing, templates, mock-ups and, where appropriate, information and communication technology</li> </ul> <p><b>Make</b></p> <ul style="list-style-type: none"> <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, textiles and ingredients, according to their characteristics</li> </ul> <p><b>Evaluate</b></p> <ul style="list-style-type: none"> <li>♣ explore and evaluate a range of existing products</li> <li>♣ evaluate their ideas and products against design criteria</li> </ul> <p><b>Technical knowledge</b></p> <ul style="list-style-type: none"> <li>♣ build structures, exploring how they can be made stronger, stiffer and more stable</li> <li>♣ explore and use mechanisms [for example, levers, sliders, wheels and axles], in their products.</li> </ul> <p><b>Cooking and nutrition</b> As part of their work with food, pupils should be taught how to cook and apply the principles of nutrition and healthy eating. Instilling a love of cooking in pupils will also open a door to one of the great expressions of human creativity. Learning how to cook is a crucial life skill that enables pupils to feed themselves and others affordably and well, now and in later life. Pupils should be taught to:</p> <ul style="list-style-type: none"> <li>♣ use the basic principles of a healthy and varied diet to prepare dishes</li> <li>♣ understand where food comes from.</li> </ul>	<p><b>Additional guidance</b></p> <p><b>Purpose of study</b> Design and technology is an inspiring, rigorous and practical subject. Using creativity and imagination, pupils design and make products that solve real and relevant problems within a variety of contexts, considering their own and others’ needs, wants and values. They acquire a broad range of subject knowledge and draw on disciplines such as mathematics, science, engineering, computing and art. Pupils learn how to take risks, becoming resourceful, innovative, enterprising and capable citizens. Through the evaluation of past and present design and technology, they develop a critical understanding of its impact on daily life and the wider world. High-quality design and technology education makes an essential contribution to the creativity, culture, wealth and well-being of the nation.</p> <p><b>Aims</b> The national curriculum for art and design aims to ensure that all pupils:</p> <ul style="list-style-type: none"> <li>♣ produce creative work, exploring their ideas and recording their experiences</li> <li>♣ become proficient in drawing, painting, sculpture and other art, craft and design techniques</li> <li>♣ evaluate and analyse creative works using the language of art, craft and design</li> <li>♣ know about great artists, craft makers and designers, and understand the historical and cultural development of their art forms.</li> </ul> <p><b>Attainment targets</b> By the end of each key stage, pupils are expected to know, apply and understand the matters, skills and processes specified in the relevant programme of study.</p>	

<p><b>Knowledge, skills and concepts</b></p> <p>In this unit, the children will:</p> <p><b>Skills</b></p> <ul style="list-style-type: none"> <li>• Learning the importance of a clear design criteria.</li> <li>• Including individual preferences and requirements in a design.</li> <li>• Making stable structures from card, tape and glue.</li> <li>• Learning how to turn 2D nets into 3D structures.</li> <li>• Following instructions to cut and assemble the supporting structure of a windmill.</li> <li>• Making functioning turbines and axles which are assembled into a main supporting structure</li> </ul> <p><b>Knowledge</b></p> <ul style="list-style-type: none"> <li>• To understand that the shape of materials can be changed to improve the strength and stiffness of structures.</li> <li>• To understand that cylinders are a strong type of structure (e.g. the main shape used for windmills and lighthouses).</li> <li>• To understand that axles are used in structures and mechanisms to make parts turn in a circle.</li> <li>• To begin to understand that different structures are used for different purposes.</li> <li>• To know that a structure is something that has been made and put together.</li> </ul> <p><b>Additional unit knowledge</b></p> <ul style="list-style-type: none"> <li>• To know that a client is the person I am designing for.</li> <li>• To know that design criteria is a list of points to ensure the product meets the clients needs and wants.</li> <li>• To know that a windmill harnesses the power of wind for a purpose like grinding grain, pumping water or generating electricity.</li> <li>• To know that windmill turbines use wind to turn and make the machines inside work.</li> <li>• To know that a windmill is a structure with sails that are moved by the wind.</li> <li>• To know the three main parts of a windmill are the turbine, axle and structure</li> </ul>	<p><b>Key Questions</b></p> <ul style="list-style-type: none"> <li>• What is a structure? (Something that has been made/constructed, for example, a building, bridge, chair or table)</li> <li>• What are structures for?</li> <li>• Can you identify some structures in the room?</li> <li>• What is a windmill? (A structure with sails that are moved by wind)</li> <li>• What are windmills for?</li> <li>• Who might live in a windmill?</li> <li>• What are the three main parts of a windmill?</li> </ul>
<p><b>Key Vocabulary</b></p> <p>Client • Design • Evaluation • Net • Stable • Strong • Test • Weak • Windmill</p>	
<p><b>Cultural Capital</b></p>	<p><b>Opportunities</b></p>
<p><b>Key Assessment Opportunity</b></p> <p>Application - Structures – application making a windmill that fits a design brief</p>	

<p><b>Assessment Task Week– 3/ 4</b></p> <p><b>The assessment comes in week 3/ 4</b>  <b>Assembling the windmill / testing and evaluating the windmill</b></p> <p><b>Pupils needing extra support: (WT)</b>  May benefit from working with a partner on the more practical elements of construction and may need reminding of what their next step is.</p> <p><b>Pupils working at greater depth:</b>  Should evaluate how accurate their design is in relation to their model.</p>	<p><b>Working towards expectations Y1</b>  <b>Progression Framework statement:</b></p> <ul style="list-style-type: none"> <li>• Describing the purpose of a given structure and including individual preferences and requirements within a design</li> <li>• Making a stable structure - following instructions to cut and assemble the supporting structure of the windmill. Knowing that the shape of materials can be changed to improve the strength and stiffness of structures and that cylinders are a strong type of structure</li> <li>• Cutting and assembling the turbine correctly, understanding that windmill turbines use wind to turn and make the machines inside work, knowing that axles are used in structures and mechanisms to make parts turn in a circle and testing that the turbine turns in the structure and altering the parts if it doesn't</li> <li>• Evaluating the windmill according to the design criteria, testing its strength and stability and reinforcing it if necessary. Testing that the turbine turns in the structure and altering the parts if it doesn't and testing that it turns freely in when blown on</li> </ul>	<p><b>NOTES on children</b></p>
	<p><b>Working towards expectations Y2</b>  <b>Progression Framework statement:</b></p> <ul style="list-style-type: none"> <li>• Describing the purpose of a given structure and including individual preferences and requirements within a design with increasing confidence</li> <li>• Exploring strength in different structures, learning that the shape of the structure affects its strength</li> <li>• Building a strong and stiff structure by folding paper and learning that there are different ways paper can be folded to improve it. Testing the strength of a structure - Knowing that the shape of materials can be changed to improve the strength and stiffness of structures and that cylinders are a strong type of structure</li> </ul>	

	<ul style="list-style-type: none"> <li>• Making a structure according to design criteria. Creating joints and structures from paper/card and tape</li> <li>• Cutting and assembling the turbine correctly, understanding that windmill turbines use wind to turn and make the machines inside work, knowing that axles are used in structures and mechanisms to make parts turn in a circle and testing that the turbine turns in the structure and altering the parts if it doesn't</li> <li>• Evaluating the windmill according to the design criteria, testing its strength and stability and reinforcing it if necessary. Testing that the turbine turns in the structure and altering the parts if it doesn't and testing that it turns freely in when blown on</li> </ul>	
	<p><b>Working at Expectations Y1</b>  <b>Progression Framework statement:</b></p> <ul style="list-style-type: none"> <li>• Identifying and articulating some features and a design that would appeal to the character within a given story</li> <li>• Making stable structures from card, tape and glue which will eventually support the turbine</li> <li>• Articulating historical and contemporary uses of windmills and cutting and assembling components with accuracy</li> <li>• Making functioning turbines and axles which are assembled into the main supporting structure. Identifying what is good about the structure and what could be done better</li> </ul>	
	<p><b>Working at Expectations Y2</b>  <b>Progression Framework statement:</b></p> <ul style="list-style-type: none"> <li>• Identifying and articulating key features and a design that would appeal to the character within a given story</li> <li>• Explaining the definition of strength. Identifying the strongest and weakest shaped and part of a structure.</li> </ul>	

	<ul style="list-style-type: none"> <li>• Working independently to use the materials as demonstrated to begin to make a stable structure. Explaining how their ideas would be suitable for the given brief</li> <li>• Making stable structures from card, tape and glue which will eventually support the turbine</li> <li>• Articulating historical and contemporary uses of windmills and cutting and assembling components with accuracy</li> <li>• Producing a model that satisfies the given brief, using the appropriate materials and construction techniques and explaining how they made it strong, stiff and stable</li> </ul>	
	<p><b>Working at greater depth Y1</b>  <b>Progression Framework statement:</b></p> <ul style="list-style-type: none"> <li>• Identifying a greater range of features that would appeal to the character within a given story, which may go beyond basic aesthetic considerations, such as colour, and focus on functional aspects, such as doors and windows. Extending the structure to include a roof</li> <li>• Cutting and sticking with accuracy to create a strong and stable structure. Successfully securing a separate structure for the roof of the windmill</li> <li>• Explaining the function of windmills in different times and situations. Creating more sophisticated products through greater attention to accuracy and precision during the making process</li> <li>• "Creating more sophisticated products through greater attention to accuracy and precision during the making process. Evaluating the outcome by referencing the 'Success and Design Criteria'</li> </ul>	
	<p><b>Working at greater depth Y2</b>  <b>Progression Framework statement:</b></p> <ul style="list-style-type: none"> <li>• Ability to explore a wider range of structural shapes and interpret the results of the tip-test. Accurately identifying the Key information, making more</li> </ul>	

	<p>detailed observations/records and drawing accurate conclusions independently</p> <ul style="list-style-type: none"> <li>• Identifying a greater range of features that would appeal to the character within a given story, which may go beyond basic aesthetic considerations, such as colour, and focus on functional aspects, such as doors and windows. Extending the structure to include a roof</li> <li>• Accurately distinguishing between strength and stability. Making accurate, functional structures and testing them independently. Articulating why cylindrical structures are stronger than those with corners</li> <li>• Explaining the function of windmills in different times and situations. Working independently to produce a more demanding design and working with a wider range of materials and construction methods. Using more complicated joining techniques and producing neat results. Articulating why their designs will be suitable for the given brief and identifying how it could be made even better</li> <li>• Producing a model that satisfies the given brief, made using a range of materials and construction techniques to produce a more demanding design. Explaining how they made it strong, stiff and stable and how to improve it</li> </ul>	
<p><b>Assessment notes / evaluation – include SEN / PP next step learning and areas that need more focus</b></p>		

Year 1	Working below expectations	Working within Expected Standard	Working above expected
<b>Target</b>	<b>14 – 20% (no more than 2 children)</b>	<b>80 %- 86%</b>	<b>20%</b>
<b>Term 1</b>			
<b>Term 2</b>			
<b>Term 3</b>			

Year 2	Working below expectations	Working within Expected Standard	Working above expected
<b>Target</b>	<b>14 – 20% (no more than 2 children)</b>	<b>80 %- 86%</b>	<b>20%</b>
<b>Term 1</b>			
<b>Term 2</b>			
<b>Term 3</b>			