Woodley Primary School
Together we care, inspire and achieve

# Woodley Primary School – Knowledge Organiser

| Design & Technology Focus: | Structures | Year 6 | Summer |
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| Key Vocabulary | |
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| **Spelling** | **Definition** |
| Modelling | The process of making a 3-D representation of a structure or product |
| Compression | The application of pressure to squeeze an object |
| Strut | A part of a structure under compression |
| Tension | A force pulling on a material or structure |
| Tie | A part of a structure under tension |
| Diagonal | A straight line that goes from one corner to another inside a shape |
| Horizontal | A line that is parallel to the ground |
| Vertical | A line that is at right angles to the ground |
| Triangulation | The use of triangular shapes to strengthen a structure |
| Frame structure | A structure made from thin components e.g. tent frame |

| What I will know at the end of the unit | |
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| Objectives & Key Skills for the unit: | **Designing**<br>Carry out research using books, films and web-based resources.<br>Develop a simple design specification to guide the development of their ideas and products, taking account of resource constraints<br>Generate, develop and model innovative ideas, through discussion, prototypes and annotated sketches.<br>**Making**<br>Formulate a clear plan, including a step-by-step list of what needs to be done and lists of resources to be used.<br>Competently select from and use appropriate tools to accurately measure, mark out, cut, shape and join construction materials to make frameworks.<br>Use finishing and decorative techniques suitable for the product they are designing and making.<br>**Evaluate**<br>Investigate and evaluate a range of existing frame structures.<br>Critically evaluate their products against their design specification, intended user and purpose, identifying strengths and areas for development.<br>**Technical knowledge and understanding**<br>Understand how to strengthen, stiffen and reinforce 3-D frameworks. |
| Facts: | How to follow a design to make a frame structure.<br>How to measure, mark out and cut wood accurately.<br>How to use a saw and bench hook safely.<br>How to use card triangles to make and strengthen joints.<br>How to use a glue gun safely to join lengths of wood.<br>The shape of a frame can affect its strength |

| Prior Knowledge<br>What I should already know … | |
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| EYFS: | Uses various construction materials.<br>Uses simple tools and techniques competently and appropriately.<br>Selects appropriate resources and adapts work where necessary.<br>Selects tools and techniques needed to shape, assemble and join materials they are using. |
| Year 1: | **Designing**<br>Generate ideas based on simple design criteria and their own experiences, explaining what they could make.<br>Develop, model and communicate their ideas through talking, mock-ups and drawings.<br>**Making**<br>Plan by suggesting what to do next.<br>Select and use tools, skills and techniques, explaining their choices.<br>Select new and reclaimed materials and construction kits to build their structures.<br>Use simple finishing techniques suitable for the structure they are creating.<br>**Evaluating**<br>Explore a range of existing freestanding structures in the school and local environment e.g. everyday products and buildings.<br>Evaluate their product by discussing how well it works in relation to the purpose, the user and whether it meets the original design criteria.<br>**Technical knowledge and understanding**<br>Know how to make freestanding structures stronger, stiffer and more stable.<br>Know and use technical vocabulary relevant to the project. |

| Possible Experiences |
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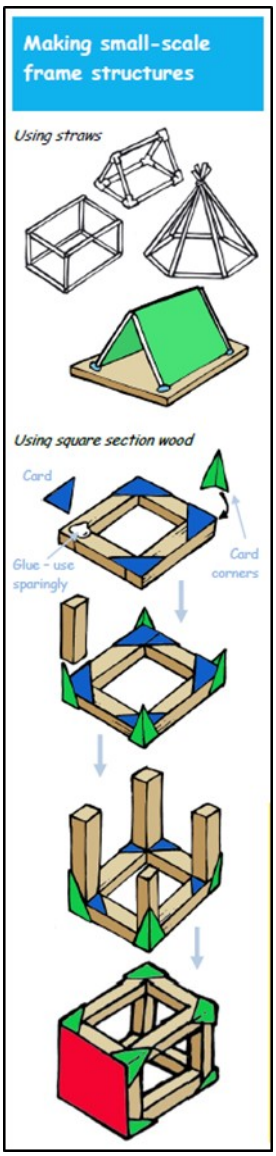
| (Any visits, experiments, guest speakers, curriculum days, home / school projects etc.) |

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| Year 3: | **<u>Designing</u>**<br>Generate realistic ideas and design criteria collaboratively through discussion, focusing on the needs of the user and purpose of the product.<br>Develop ideas through the analysis of existing products and use annotated sketches and prototypes to model and communicate ideas.<br>**<u>Making</u>**<br>Order the main stages of making.<br>Select and use appropriate tools to measure, mark out, cut, score, shape and assemble with some accuracy.<br>Explain their choice of materials according to functional properties and aesthetic qualities.<br>Use finishing techniques suitable for the product they are creating.<br>**<u>Evaluating</u>**<br>Investigate and evaluate a range of existing shell structures including the materials, components and techniques that have been used.<br>Test and evaluate their own products against design criteria and the intended user and purpose.<br>**<u>Technical knowledge and understanding</u>**<br>Develop and use knowledge of how to construct strong, stiff shell structures.<br>Develop and use knowledge of nets of cubes and cuboids and, where appropriate, more complex 3D shapes.<br>Know and use technical vocabulary relevant to the project. |