



Knowledge Organiser	Subject: Design and Technology	Topic: Stable Structures	Year: 2
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<u>Key Knowledge</u> <u>Technical knowledge I have already learnt about structures</u> Why is Home Structure Important? The structure is important because it helps keep us safe. It makes sure that the walls don't fall down and that the roof doesn't cave in when it rains. Imagine if you built a tower out of blocks. If the blocks are stacked nicely, the tower will stand tall. But if they are wobbly, it might fall over. This is similar to how our homes need to be built sturdy so they can last. Parts of a Home Structure Walls are like the sides of a box that keep the inside safe. They help keep out the wind and rain. The roof is like a lid on a container. It protects us from the weather, like rain and sunshine. The foundation is what the house stands on. It's like the bottom of a sponge that helps hold everything up. Doors let us go in and out, and windows let light in and keep the rain out. What Materials are Suitable? Materials are the things we use to build. Some materials are better for building stable structures than others. Wood: Strong and can be used to make frames and floors. Bricks: Heavy and very strong, great for building stable walls. Plastic: Light and can be used for small models or toys, but not always strong enough for big buildings.	<u>Key Learning</u> What is a Stable Structure? A stable structure is like a strong tower you might build with blocks. When you build a tower, you want it to be tall but also not fall over easily. If you make the bottom of the tower wide and strong, it will be more stable. Example A stool is a stable structure because it has four legs that help it keep balance. When you sit on it, the legs work together to hold your weight, so the stool doesn't tip over. Why is Stability Important? Stability is important because it helps things stay safe. Imagine if you were playing with Lego bricks. If you build a tall building with just a few bricks at the bottom, it might fall down. But if you use more bricks at the bottom, or make it wider, it will be less likely to fall. Parts of Stable Structures Base: The base is the part at the bottom. It needs to be wide and strong. Example: Look at a table; it has a wide base with four legs. Shape: The shape also helps make something stable. Triangles are very stable shapes! Example: Think of a tent. The triangles in the tent help it stay up even when it's windy. What Materials Are Suitable? Different structures need different materials to be strong and stable. Materials are the things that we use to build with, like wood, metal, plastic, and bricks. Examples of Suitable Materials Wood: It's strong and can be used for furniture or the frame of a house. It's light, which helps when building tall structures. Bricks: These are heavy and strong, making them great for building walls that need to hold up roofs. Plastic: This is often used for toys and containers. It can be made into many shapes and is very durable (which means it lasts a long time!). Metal: Steel and other metal materials are very strong and are often used in towers and bridges because they can hold a lot of weight. 	<u>Disciplinary Skills</u> • Generate ideas through brainstorming and identify a purpose for their product. • Draw up a specification for their design. • Select appropriate materials, tools and techniques. • Use skills in using different tools and equipment safely and accurately. • Evaluate a product against the original design specification. <table border="1" style="width: 100%; margin-top: 10px;"> <tr> <th colspan="3" style="text-align: center;">Key Concepts</th></tr> <tr> <td style="vertical-align: top; width: 33%;"> Design- 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. </td><td style="vertical-align: top; width: 33%;"> Make- 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. </td><td style="vertical-align: top; width: 33%;"> Evaluate – Explore and evaluate a range of existing products. Evaluate their ideas and products against design criteria. </td></tr> </table>	Key Concepts			Design- 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.	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Key Vocabulary	
Garage	A building for housing a motor vehicle or vehicles.
Structure	The arrangement of and relations between the parts or elements of something complex.
Foundation	The lowest load-bearing part of a building, typically below ground level
Suitability	The quality of being right or appropriate for a particular person, purpose, or situation.
Malleability	The quality of something that can be shaped into something else without breaking.
Modify	To change something in order to improve or fix it.
Join	A place or line where two or more things are connected or fastened together.
Construct	Build or make (something, typically a building, road, or machine).
Mark out	To measure and mark where a piece of material needs to be cut or shaped.



Linking Thinking Across Our Learning Journey						
Early Years	Year One	Year Two	Year Three	Year Four	Year Five	Year Six
Once upon a time- Building structures	Playgrounds – Structures	Stable structures - Structures	ROH Stage design – Structures	Light up signs- Constructing and Designing	Bridges- Structures	African instruments/ Fairgrounds- Constructing