

PENTECOST TERM 2
DESIGN AND TECHNOLOGY – Year 3 - Medium Term Planning – STRUCTURE
Design and build a greenhouse

<u>LESSON 1</u>	<u>LESSON 2</u>	<u>LESSON 3</u>
EVALUATE LEARNING INTENTION: To know that a greenhouse is a structure where plants can grow in a warm, protected environment. DISCIPLINARY KNOWLEDGE: - Begin to understand by whom, when and where products were designed. - Learn about some inventors, designers, engineers, chefs, manufacturers of ground-breaking products. AIM: Build and apply a repertoire of knowledge understanding and skills in order to design and make high quality products for a wide range of users.	STRUCTURES / MATERIALS LEARNING INTENTION: To know that adding diagonal struts adds strength and stability to butt joints. DISCIPLINARY KNOWLEDGE: Join materials. AIM: Develop the creative, technical, and practical expertise to perform everyday tasks confidently and to participate successfully in an increasingly technological world.	STRUCTURES / MATERIALS LEARNING INTENTION: To know that materials such as plastic and glass are suitable for making a greenhouse. DISCIPLINARY KNOWLEDGE: AIM: Build and apply a repertoire of knowledge understanding and skills in order to design and make high quality products for a wide range of users.
Key Vocabulary: framework , protection, warm, light, structure , strong	Key Vocabulary: joined, strengthen, structures, struts , diagonal , 3-D, rigid, components, supported, stable , butt joint , triangular	Key Vocabulary: transparent , translucent , opaque, materials , waterproof , strong , investigate, justify, collect, data,

Recap & retrieval	Recap & retrieval Greenhouses usually have a frame structure.	Recap & retrieval - Greenhouses usually have a frame structure. - For extra strength, butt joints can be sandwiched between two triangular corners.
Key Knowledge: Child: - A greenhouse is a building where plants can grow in a warm and protected environment. - Greenhouses let light in through transparent or translucent walls and roofs. - Greenhouses usually have a frame structure. Teacher: - Frameworks need to be strong but lightweight. - Greenhouses protect plants from bad weather but they also allow sunlight to reach plant leaves. - Sunlight also warms the air inside the greenhouse. - This trapped air provides warmth for the plants, which helps them to grow. - Greenhouses usually have windows or vents that open to stop the air inside from getting too hot.	Key Knowledge: Child: - Basic butt joints can be weak. - For extra strength, butt joints can be sandwiched between two triangular corners. - Diagonal struts create triangular shapes within a frame structure. - Adding diagonal struts adds strength and stability. Teacher: - Shell structures are hollow, 3-D structures with a thin outer covering, such as a box. - Frame structures are made from thin, rigid components, such as a tent frame. - The rigid frame gives the structure shape and support. - A triangular corner can be glued over a joint to hold two pieces of wood at right angles to each other and reinforce the joint. - Wood can be joined in various ways using glue, nails or staples.	Key Knowledge: Child: - Greenhouses let light in through transparent or translucent walls and roofs. - The coverings must be transparent or translucent, strong, and waterproof. Teacher: - Greenhouse frames need to be strong and lightweight. - Wood, metal and PVC plastic are often used. - Plastic and glass are common coverings.

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<u>LESSON 4</u>	<u>LESSON 5</u>	<u>LESSON 6</u>
DESIGN LEARNING INTENTION: To know that a design needs to meet specific criteria for a usable product. DISCIPLINARY KNOWLEDGE: • Show design meets a range of requirements. • Follow a given design criteria. • AIM: Build and apply a repertoire of knowledge understanding and skills in order to design and make high quality products for a wide range of users.	STRUCTURES / MATERIALS MAKE LEARNING INTENTION: To know that design ideas need to be followed and amended when making a product. DISCIPLINARY KNOWLEDGE: • Begin to make strong structures. • Work through plan in order. • Begin to assemble, join and combine materials and components with some accuracy. AIM: Build and apply a repertoire of knowledge understanding and skills in order to design and make high quality products for a wide range of users.	EVALUATE LEARNING INTENTION: To know that finished products can be compared with design criteria and can be improved. DISCIPLINARY KNOWLEDGE: • Use design criteria to evaluate finished product. • Say what they would change to make design better. AIM: Critique, evaluate and test their ideas and products and the work of others.
Key Vocabulary: design, diagram, label, discuss, ideas, structure, secure, materials	Key Vocabulary: Join, framework, secure, build, test, structure, materials	Key Vocabulary: evaluate, strengths, weaknesses, improve, feedback, observe, record
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Key Knowledge: Child: - Design criteria are the exact goals a project must achieve to be successful. Teacher: - These criteria might include the product's use, appearance, cost and target user.	Key Knowledge: Child: - Wood can be joined using glue, nails, staples, or a combination of these. - Safety rules must be followed to prevent injury from sharp blades. Teacher: - Specific tools can be used for cutting, such as hacksaws. - These rules include using a bench hook to keep the wood still, using a junior hacksaw with a pistol grip and working under adult supervision.	Key Knowledge: Child: - Asking questions can help others to evaluate their products. - To know that reflection is a key part of the design process. - Design criteria is used to evaluate a product Teacher: - Discussions with peers can help discover improvements.
Assessment Cumulative quiz. Retrieval practice.		