

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: <ul style="list-style-type: none"> 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: <ul style="list-style-type: none"> 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 <ul style="list-style-type: none"> Greenhouses usually have a frame structure. 	Recap & retrieval <ul style="list-style-type: none"> Greenhouses usually have a frame structure. For extra strength, butt joints can be sandwiched between two triangular corners.
Key Knowledge: Child: <ul style="list-style-type: none"> 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: <ul style="list-style-type: none"> 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: <ul style="list-style-type: none"> 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: <ul style="list-style-type: none"> 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: <ul style="list-style-type: none"> Greenhouses let light in through transparent or translucent walls and roofs. The coverings must be transparent or translucent, strong, and waterproof. Teacher: <ul style="list-style-type: none"> 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: <ul style="list-style-type: none"> • 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: <ul style="list-style-type: none"> • 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: <ul style="list-style-type: none"> • 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

<p>Recap & retrieval</p> <ul style="list-style-type: none"> Greenhouses usually have a frame structure. For extra strength, butt joints can be sandwiched between two triangular corners. The coverings must be transparent or translucent, strong, and waterproof. 	<p>Recap & retrieval</p> <ul style="list-style-type: none"> Greenhouses usually have a frame structure. For extra strength, butt joints can be sandwiched between two triangular corners. The coverings must be transparent or translucent, strong, and waterproof. Design criteria are the exact goals a project must achieve to be successful. 	<p>Recap & retrieval</p> <ul style="list-style-type: none"> Greenhouses usually have a frame structure. For extra strength, butt joints can be sandwiched between two triangular corners. The coverings must be transparent or translucent, strong, and waterproof. Design criteria are the exact goals a project must achieve to be successful. Wood can be joined using glue, nails, staples, or a combination of these.
<p>Key Knowledge:</p> <p>Child:</p> <ul style="list-style-type: none"> Design criteria are the exact goals a project must achieve to be successful. <p>Teacher:</p> <ul style="list-style-type: none"> These criteria might include the product's use, appearance, cost and target user. 	<p>Key Knowledge:</p> <p>Child:</p> <ul style="list-style-type: none"> Wood can be joined using glue, nails, staples, or a combination of these. Safety rules must be followed to prevent injury from sharp blades. <p>Teacher:</p> <ul style="list-style-type: none"> 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. 	<p>Key Knowledge:</p> <p>Child:</p> <ul style="list-style-type: none"> 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 <p>Teacher:</p> <ul style="list-style-type: none"> Discussions with peers can help discover improvements.
<p>Assessment</p> <p>Cumulative quiz. Retrieval practice.</p>		