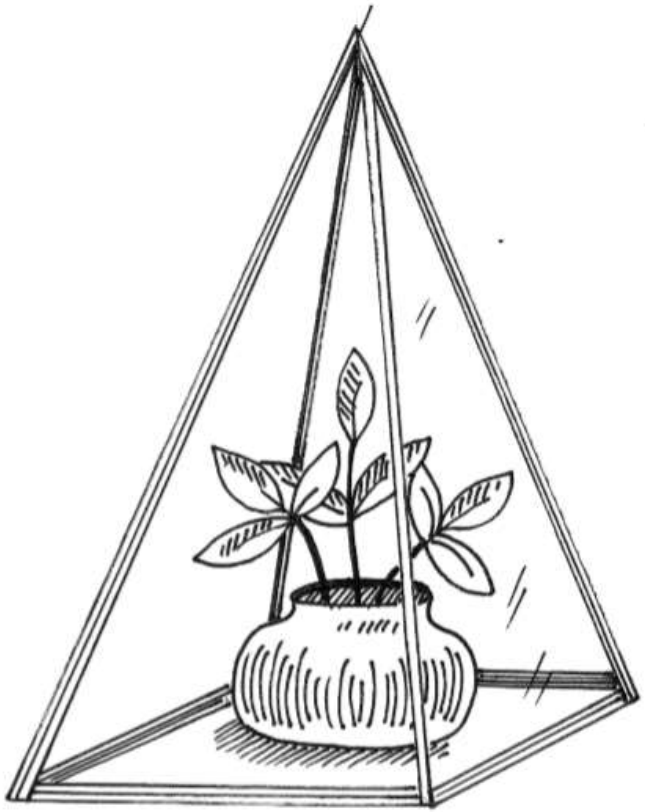
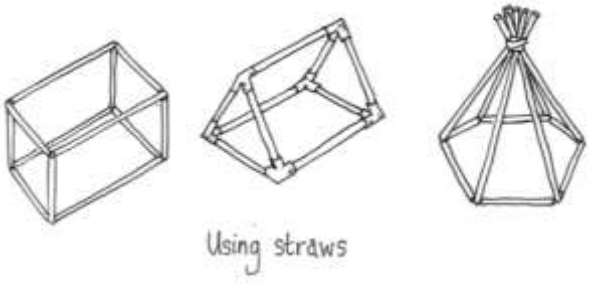
KS2 Prototypes- Greenhouses

Key Vocabulary	
Model	A representation of a real object.
User	The person using the end product.
Aesthetics	What something looks like
Purpose	The reason why something is made and how this changes depending on who it is created for
Strong	A structure that can support itself
Sturdy	Strongly and solidly built
Airtight	Not allowing air to escape or pass through

Research	
Purpose	The purpose of greenhouses are: - To shield crops from too much cold or heat and to protect them from pests such as slugs. - A greenhouse makes it possible to grow certain types of crops year round such as fruits, vegetables and flowers.
How they work	Greenhouses work by sunlight shining into the greenhouse and warming the plants and air inside.  At night time, it's colder outside, but the greenhouse stays warm because the glass walls of the greenhouse trap the Sun's heat.
Key Research Questions	How does **design affect the effectiveness** of a greenhouse ? Do greenhouses need to be **airtight**? How **effective** are mini greenhouses compared to full scale ones?

The Project	
Introduction	This project builds on your previous learning on how to make models by now using design to build geometric shapes, creating more complex prototypes
Purpose for Project	To design a model of a greenhouse that can be used to help grow herbs ready for the summer when children at Gamlingay Village Primary will be cooking



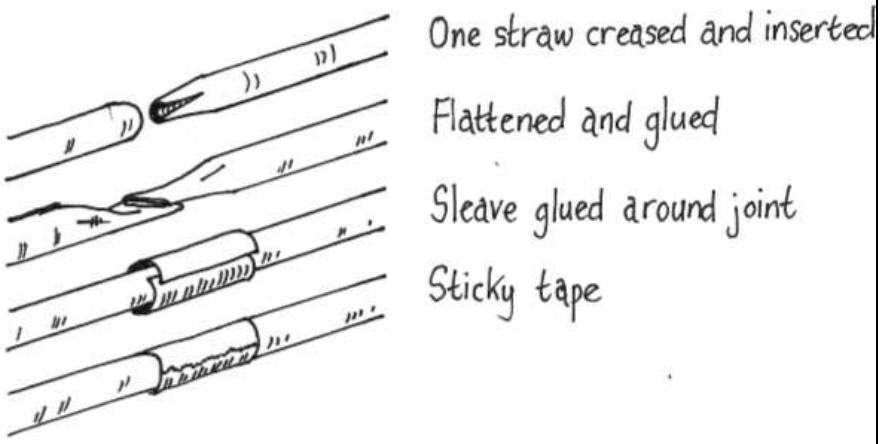
Design	
Geometric designers	The type of shape you will be designing for your greenhouses are *geometric shapes.* This is where the same 2D shape is repeated over and over again. Famous designers include Buckminster Fuller and Sir Nicholas Grimshaw, designers of the Eden Project in Cornwall.  Buckminster Fuller  Sir Nicholas Grimshaw
Geometric Design	Using your learning on how to draw 3D shapes and cross sectional drawing, design geometric greenhouses. Start by considering what shape you would wish to repeat in your design and begin there, slowly adding to this using a pencil and ruler to create a 3D shape. As you will be using art straws, include in your design *where* there will be joins, either in the corners with masking tape or where more than two straws will meet. 

Make

Joining Art Sraws

Not all straws you use will be the same size, you will need to measure and cut (usually in half) some straws to help make the base (if it is a pyramid) or to alter the height of the green house (if it is a cuboid).

Through testing, decide on which method you prefer in joining art straws together.



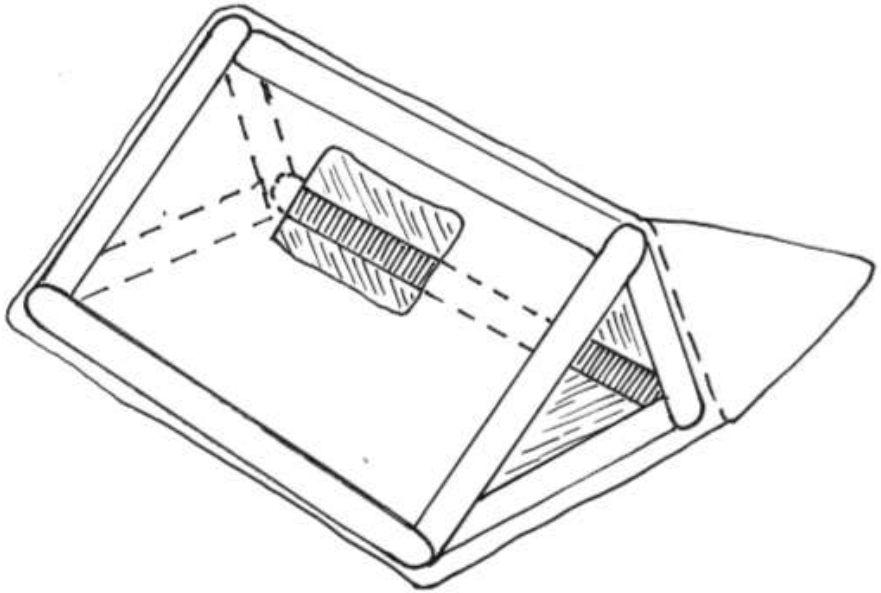
Attaching the Plastic sheet

To retain heat to ensure a successful green house, clear plastic sheet will be attached.

To attach either cut plastic into strips the same size as the green house but larger (a seam allowance).

Use cellotape to stick them down from the inside.

Alternatively use a hole punch to make the holes and fix with string or cable ties.



Evaluate

You will learn how to

Think critically about your project against the design criteria

Ask a peer to give their reflection of the successes of your project, outlining one area to work on

Reflect on the problems you encountered and how you over came them

Suggest how you could extend this project further if you were to do it again.