The background is a light blue sky with white clouds. In the top right, hands are shown using a red-handled utility knife to cut a piece of cardboard. In the bottom left, a hand holds a pair of red-handled scissors. In the top left, a green and white diamond-shaped kite is flying on a string with a green leafy tail. In the bottom right, a yellow and white diamond-shaped kite is flying on a string with a yellow leafy tail. A large, light yellow diamond shape is centered in the sky, containing the title text.

# Making the Shape and Structure of the Kite

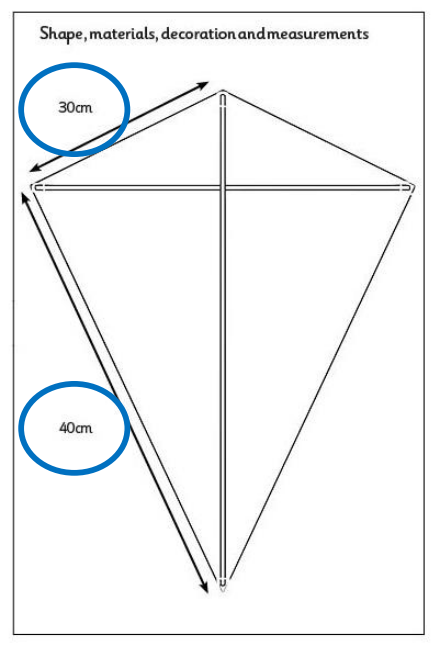
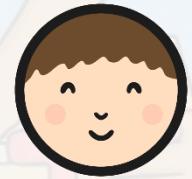
# Aim

- I can accurately measure and cut the shape of the body of the kite and join it to the frame structure.
- I can make a strong and stiff frame structure to support the kite.

# Success Criteria

- I can use a ruler/ tape measure to mark out the measurements of my design.
- I can accurately cut the shape of my design out.
- I can design the structure for my kite.
- I can use more complex tools and equipment such as hacksaws and bench hooks to make the structure for my kite.
- I can select appropriate methods of joining to add strength to the structure of the kite.
- I can stiffen the body and frame of the kite.

# Measuring, Marking and Cutting



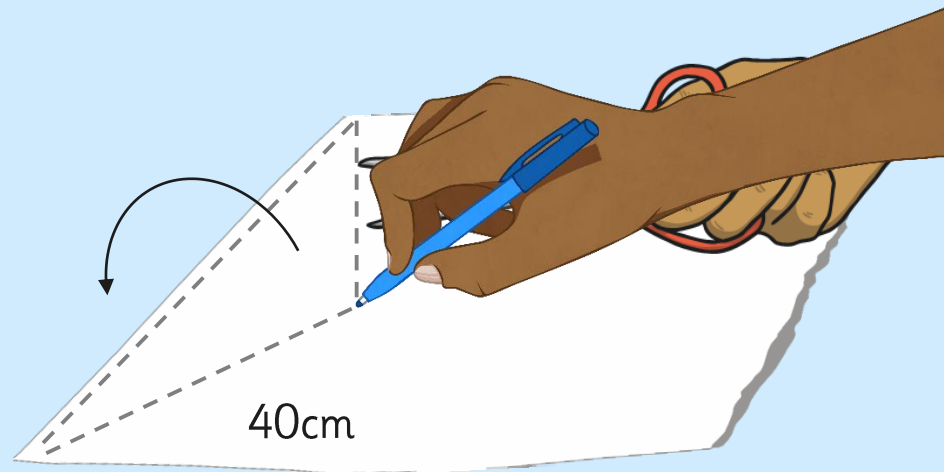
Use a large white bin liner for the covering material.

Fold the covering material in half.

Follow the measurements on your design to mark the shape.

Join the marks to create the shape.

Carefully cut along the lines making sure you don't cut the folded section.





# Materials and Their Properties



What do these materials have in common?

The frame structure of the kite (the spars) needs to be strong to withstand the forces of the wind and support the covering used for the body of the kite but it also needs to be light so that it doesn't weigh the kite down.

The balance of strength and weight must be considered in every flying thing from a kite to a large aeroplane.



Photo courtesy of Wicker Paradise and Horia Varlan (@flickr.com) - granted under creative commons licence - attribution

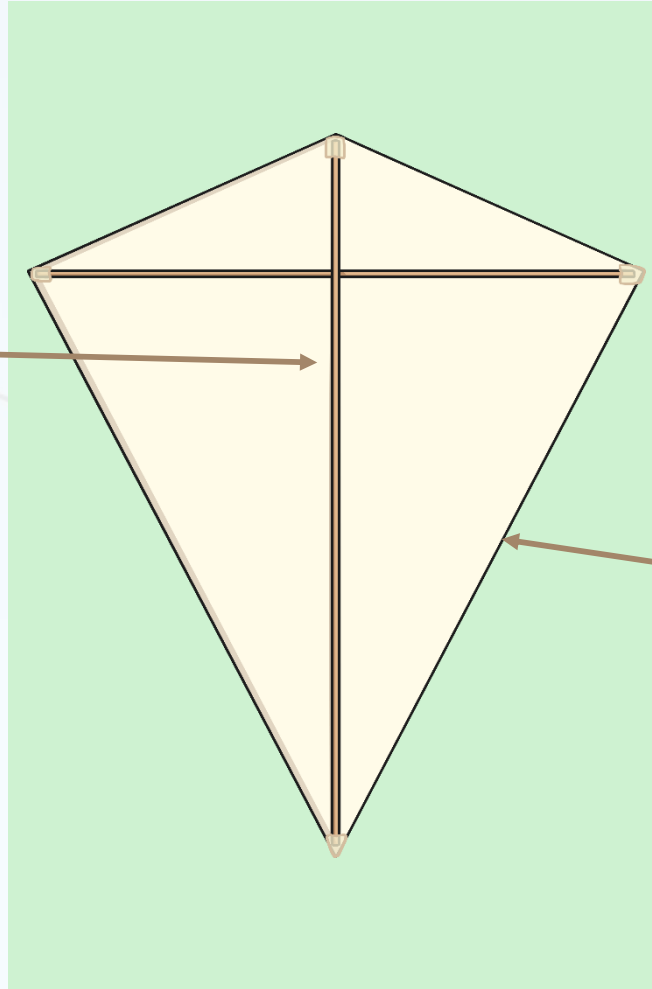
# Materials and Their Properties



The kite frame will stiffen the kite.

The main stiffening will only need adding to the central area of the kite because if it were added to the whole area it would make it too heavy to fly.

This creates the wind-receiving plane.



The basic shape of the stiffening frame is the same whatever the shape of your kite surface.

When using a second stiffening structure, to strengthen the edges of the kite, it is better to use thinner, less rigid materials such as art straws or masking tape.

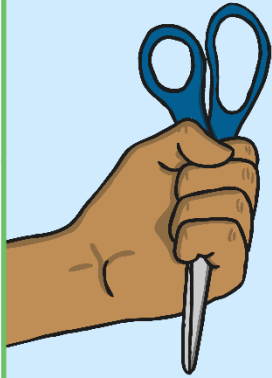
# Cutting Safety

Always walk slowly when carrying scissors around.



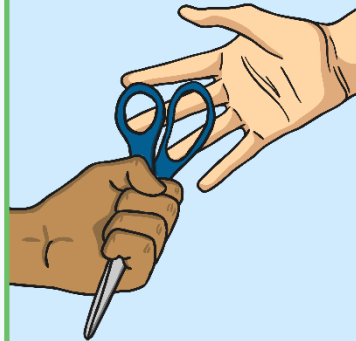
1

Hold the blade down when walking with scissors.



2

Pass scissors handle first to your friends.



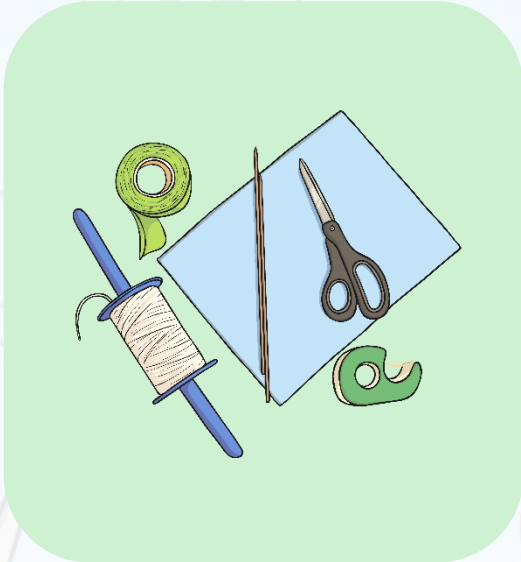
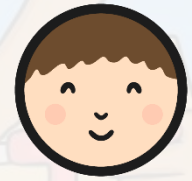
3

Sit down to do your cutting.

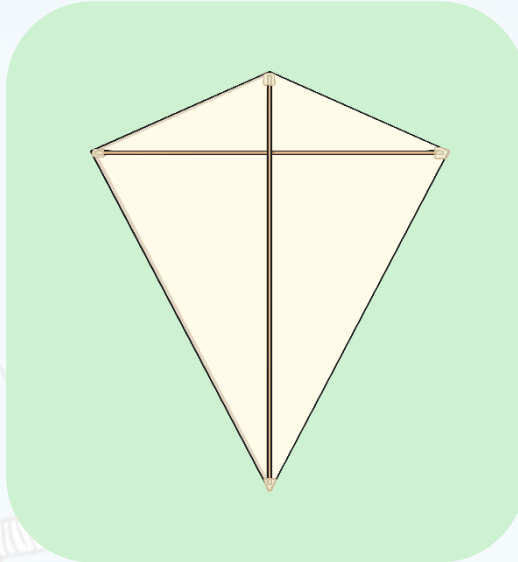


4

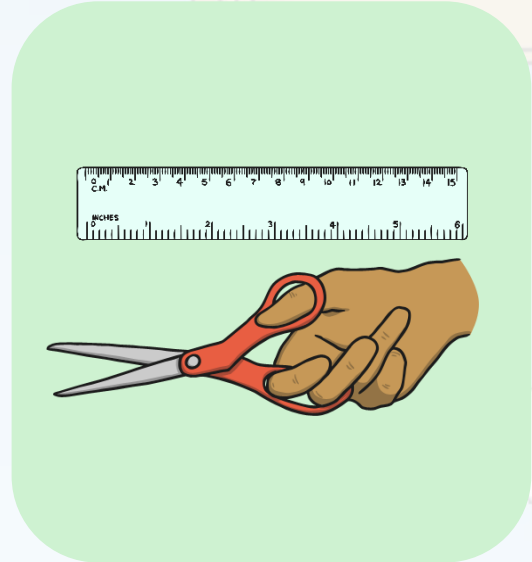
# Making the Frame Structure



Choose your materials.



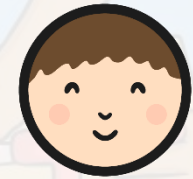
Decide where you want your spars and stiffening materials to go.



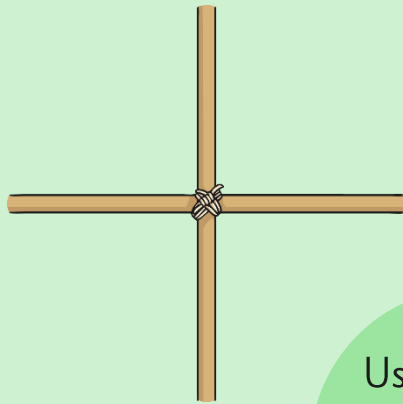
Measure and cut the materials to size.



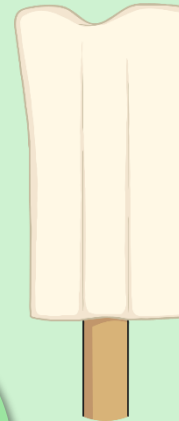
# Joining the Structure



Wrap string around the spars and knot.

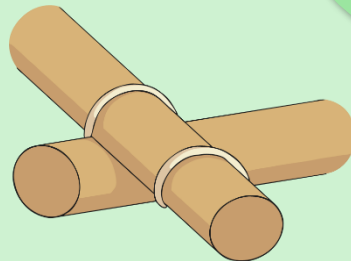


Masking tape the dowel onto the sail.



Use some of these methods to join your structure.

Wrap elastic bands around the spars.



Slot the dowel into the plastic tubing to join it together. You can cut and bend the tubing.





# Aim



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