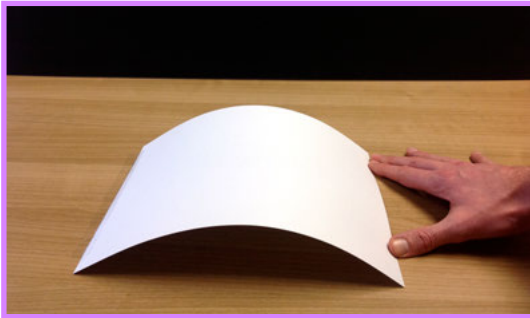
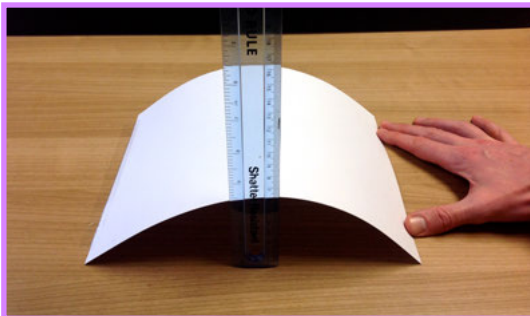


Name: \_\_\_\_\_

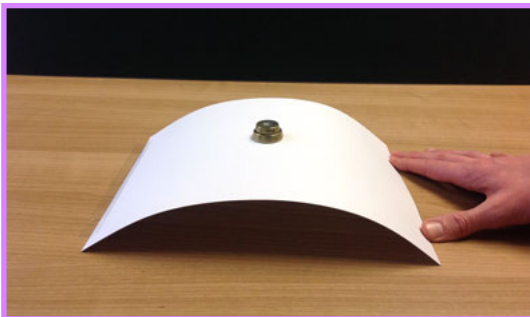
Date: \_\_\_\_\_



Stick one end of a piece of thin card to your desk with a piece of sticky tape. Gently push the other end of the card so that it bends up to form an arch. Measure both sides of the arch to ensure they are of equal height. How much weight can the arch support before it bends or creases, causing the weights to fall or slide off the top of the arch? Record your findings on the table below.



Arch height (cm)	Maximum load (g)



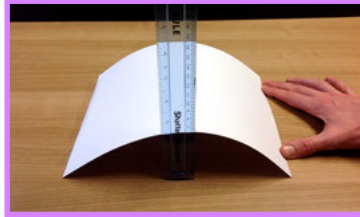
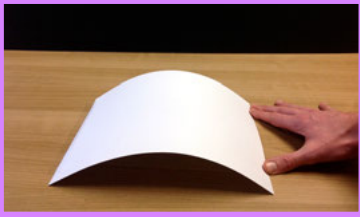
Which arch height supported the most weight? \_\_\_\_\_

Which arch height supported the least weight? \_\_\_\_\_

Can you think of some ways to make an unsupported arch like this stronger? Describe them below:

Name: \_\_\_\_\_

Date: \_\_\_\_\_



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Results:

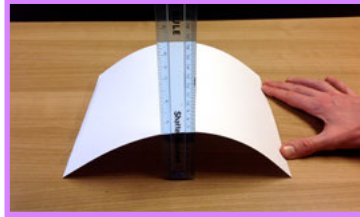
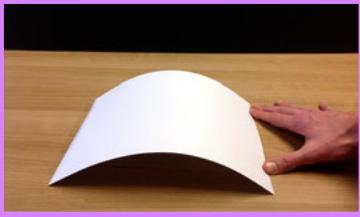
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Results:



Make a 50cm gap using two piles of books. Can you make an arch bridge using card and sticky tape that can span the 50cm gap? You may use more than one arch. Your bridge must have a smooth deck which a toy car can roll across. Draw your design below, labelling the dimensions of the arch/arches:

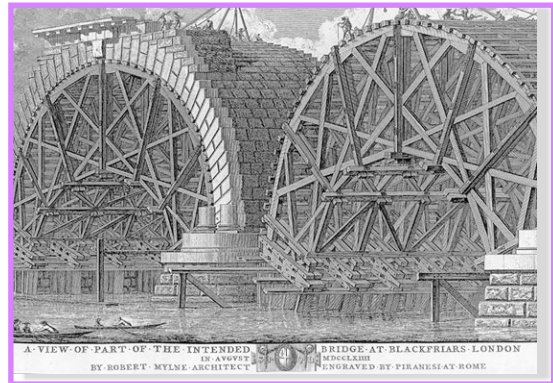
Can you make an arch bridge using the traditional method of building on top of an arch frame?

### How to make an arch frame:

1. Make a gap by placing two bricks around 15-20cm apart.
2. Bend a piece of card between the two bricks so it forms an arch. Experiment with changing the distance of the bricks until you are happy you have a strong arch shape.
3. You could stuff a ball of crumpled-up newspaper underneath your arch frame to make it stronger and hold its shape.

### Build a bridge!

Use clay, play dough or plasticine to build an arch bridge over your arch frame. Alternatively, cut pieces of polystyrene or sponge into 'stone blocks' and stick them together over the arch frame.



Will your arch bridge remain standing when you remove the arch frame?  
How much weight can it support before it breaks?

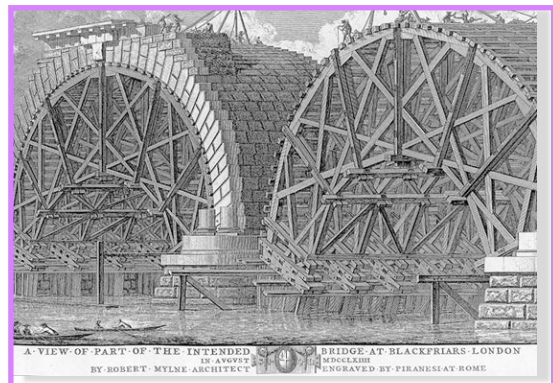
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