Which bridge is stronger?

Teacher guide

What this is about

This activity uses a spreadsheet to record some results. The children test different bridges and use their results to draw a graph. The children use IT here to 'sort information and present their findings'. They learn too about structures and balanced forces.

As shown below, you can extend that idea and use the graph to predict whether a bridge will get stronger if you use more paper to make it. Here they would be using IT to 'explore a real situation'.

Starting points

Discuss the huge loads that bridges carry. Why did London bridge fall down? Which bridge design might be best?

How could we make our bridges stronger? If we used more material the bridge would be stronger, but can we say how strong a bridge will be without actually making it?

You will need

A spreadsheet, tape, scissors, weights, 'piers' and soft card.

What to do

Use a piece of card to build a bridge to span a 15 cm gap. Here are some bridge design idea

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Test the bridge with weights to see how much it can take.

Record your results in a spreadsheet as show

Bridge design	
Bridge	How many weights it took
Cylinder	2
Square	4
Hat shape	3
Triangle	3

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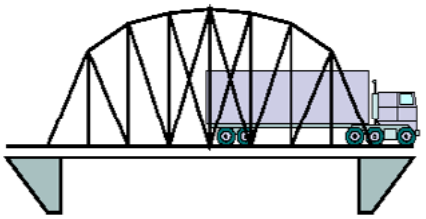

Extra

To extend the work you could make the same bridge using two, three, four and five pieces of card. Make these bridges and test them with

How many sheets to make a strong bridge?		
heets of pape	No of weights taken	
1		
2		
3		
4		
5		
6	Do not make	
7	Do not make	

weight

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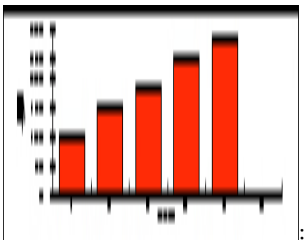
If you use more material, does the bridge get stronger? Highlight your results and draw a bar chart. Yours might look like thi



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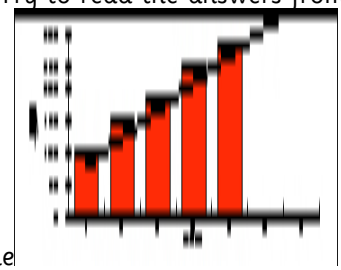
How many weights would a bridge with six pieces of card take? Draw a line through the tops of your bars in the chart. Try to read the answers from the



graph. For example

Write a letter to a Martian with some advice about building bridges.

Questions to ask

Draw a bar graph. Which bridge design seems best? Is it a bit better, or a lot better than the others?