

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

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





Can you cut, fold, roll and stick sheets of card or paper to make beams with cross-sections like those shown below? Each beam must be the same length and made using the same type of card or paper. Rest each beam between two raised surfaces so it spans a gap. How much weight can be placed at the centre of each beam before it gives way? Describe and/or draw your method for testing the beams, then record your findings.

Beam cross-sections:



Method:

Blank space for writing the testing method.

Beam shape	Maximum load (g)
	
	
	
	
	
	

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

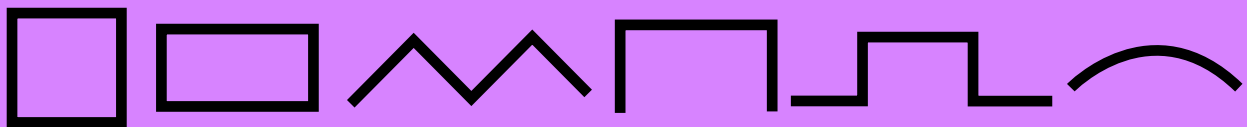
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Can you cut, fold, roll and stick sheets of card or paper to make beams with cross-sections like those shown below? Each beam must be the same length and made using the same type of card or paper.







Make two of each beam. Place a flat deck made of card on top, like a bridge.  
When spanning a gap between two raised surfaces, how much weight can be placed at the centre of each bridge before it gives way? Describe and/or draw your method for testing the beams, then record your findings.

Beam cross-sections:



Method:

Blank space for writing the testing method.

Beam shape	Maximum load (g)
	
	
	
	
	
	

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

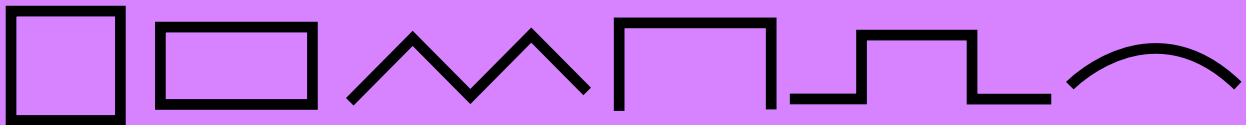
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Can you cut, fold, roll and stick sheets of card or paper to make beams with cross-sections like those shown below? Each beam must be the same length and made using the same type of card or paper.

Make two of each beam. Place a flat deck made of card on top, like a bridge.  
When spanning a gap between two raised surfaces, how much weight can be placed at the centre of each bridge before it gives way? Describe and/or draw your method for testing the beams, then record your findings.

Beam cross-sections:



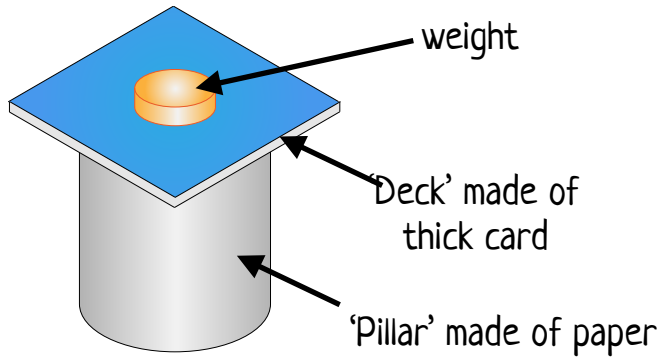
Method:

Beam shape	Maximum load (g)
	
	
	
	
	
	

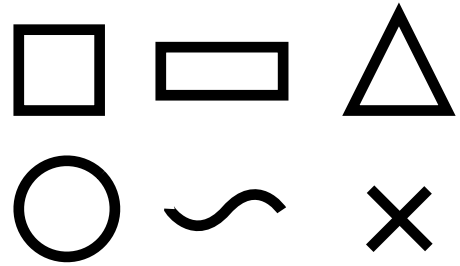
Make two sections of bridge using the strongest beams. Can you make a long model bridge with a card pillar supporting the two sections in the middle?




Can you cut, fold, roll and stick sheets of paper to make pillars with cross-sections like those shown below? Each pillar must be the same height and made using the same type of paper.  
Test the strength of each pillar as shown in the diagram below.



Pillar cross-sections:



How much weight can each pillar take before it collapses?  
What happens if you place weights above one edge of the pillar?

Pillar shape	Maximum load {centre} (g)	Maximum load {edge} (g)
		
		
		
		
		
		

What happened? Which pillar was best? Which was worst? Why?

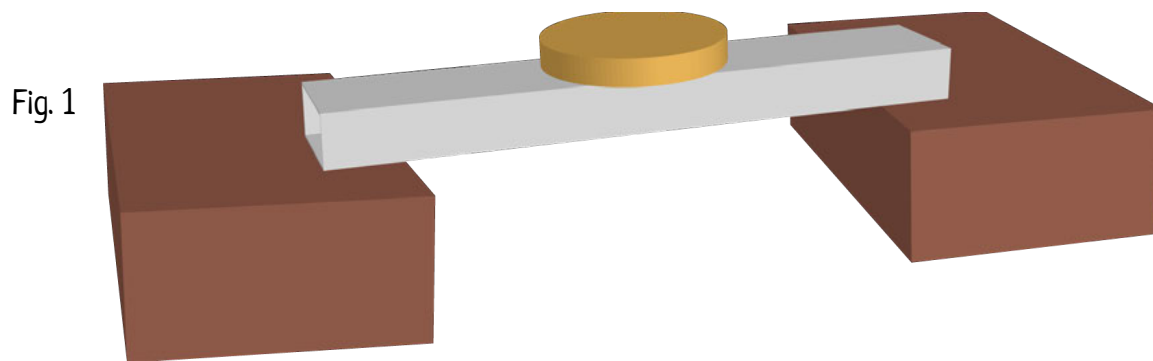


Fig. 1

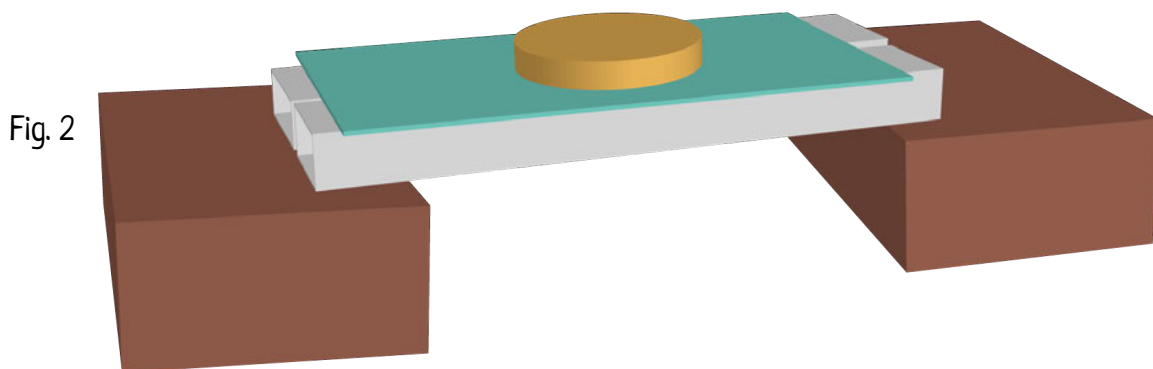


Fig. 2

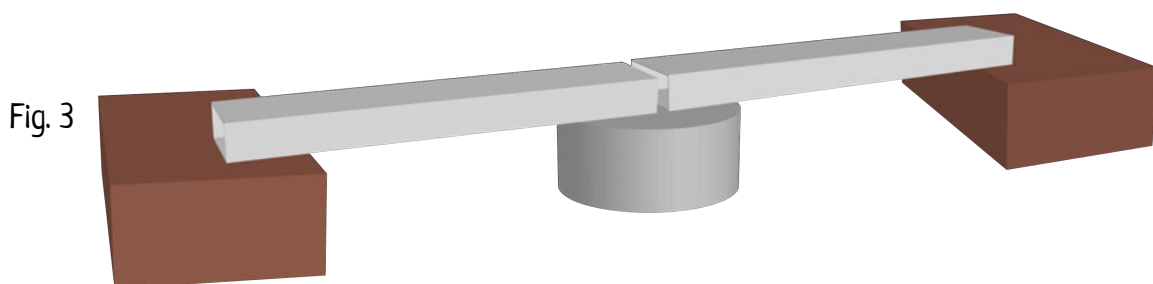


Fig. 3

## Figure 1

An illustration of the activity described on Worksheet 1A. Children should decide for themselves how to make their methods and testing 'fair', e.g. how long to make their card beams, how much of either end of the beam should rest on the raised areas and how much weight to add at a time to the beam.

## Figure 2

An illustration of the activity, differentiated on Worksheets 1B and 1C. Children should make two of each type of beam and make a deck for their bridge, in line with the simple bridge designs described in the slides for this lesson.

## Figure 3

An illustration of the extension activity described at the bottom of Worksheet 1C. Children should design a simple model bridge with card pillars to support two or more beams, making a longer bridge. If time, they could decide how to test and improve their simple design.