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Paper bridge
Engineering challenge – Leader's notes

Aims and Objectives
To experiment with loads on a beam bridge to understand what makes them strong and what makes them fail.

Context
Understanding how bridges fail is an important part of learning how to make them stronger.

Guidance on running the challenge
- You should have a kit list and instruction sheet for the challenge. Ensure that each team has the equipment suggested and a copy of the instruction sheet.
- The challenge is to make the strongest bridge using only sticky tape and paper.
- Testing the bridge requires a gap of 40cms between two tables, chairs, or even stacks of books. The bridge must not be attached to these abutments/banks, so the books will not be damaged.
- You can use any kinds of masses or weight to test the bridge – from mars bars (as these make a good prize too!), to bars of soap, to standard masses. As long as each bridge is tested in the same way, it doesn't matter.
- An important part of the process is working out 'why' the bridge fails, not just that it has.
- Further information on this challenge, and a step-by-step solution can be found here:

http://www.rochesterbridgetrust.org.uk/wp-content/uploads/2014/07/RBTEducationKit-Session4.pdf

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Paper bridge Engineering challenge – kit list

Get ready for your engineering challenge by assembling your equipment from this list.

For the challenge:

- Instruction sheet
- Ruler
- 1 metre of sticky tape*
- 6 sheets of A4 paper
- Scissors

- *You may also wish to have some extra paper and pens/pencils to help you plan your design.*

For testing:

- 2 chairs, tables or stacks of books/boxes, 40cm apart
- Mars bars or exercise books, or similar, as loads for the bridge
- A further 3 sheets of A4 paper for modifications to the bridge, if you wish to, after testing

You do not have to worry if you don't have the exact items listed here. Part of being an engineer means sometimes having to be creative about the materials that we use. If you need to replace something with an alternative then please do so. Just do your best! This is the first part of your challenge!

** This does not have to be precise and you may find it more convenient to use dispensers of pre-cut tape strips.*