



HANDS-ON EXPERIMENTS

BRIDGES

The ExpeditionSevern team have seen a lot of bridges on their journey but did you realise there are different types of bridges? Early bridges were usually made from stone and so the designs were simple - like Beam and Arch bridges.

Modern bridges are generally made from metal struts and cables that are very strong. They are particularly hard to stretch so designs like Truss and Suspension bridges take advantage of this strength by putting the bridge under tension - like a stretched elastic band.

Using these designs, a material only needs to be resistant to stretching - so in this experiment you're going to be able to make a bridge from just paper.



The Experiment

What you'll need: Access to a computer, a stack of A4 paper, sticky tape, scissors

1 Look online for examples of bridge structures. What different designs are there? What do you see in common between them?

2 You'll be making a bridge from paper so try to work out which bridge design will work best with your material.

3 As a test, roll a few sheets of paper as tightly as you can, using a thin pencil or piece of dowel can help this.

4 Rolling paper look this can form strong struts - this is what your bridge will be made from,

5 Agree a design in your team and then get building!

6 Test your bridge by adding weight to it. You can put masses on the bridge or try hanging a loading platform underneath the bridge.

Further Investigation

- Try creating a few different designs of bridge and comparing them, or have a competition across the class.
- Are Beam bridges or Suspension bridges better?
- How much weight do you think a paper bridge could support? Do some research and find out what the best record is!

VIDEOS FOR THIS RESOURCE AT:

INTRODUCTION:



Clickable Link:

<https://youtu.be/eoNm69NT9bM>

CONCLUSION:



Clickable Link:

<https://youtu.be/CodLier35XE>

