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Build a Da Vinci bridge

Channel your inner engineer and build a bridge that stands up without any supports.

What you need

- 12 pencils (we used 4 yellow ones and 8 red ones)
- 32 rubber bands
- A helper

MASTER INVENTOR

As well as the bridge, Da Vinci also invented the parachute, helicopter and armoured car.

Test your bridge by loading it with books.

How does it work?

The Da Vinci bridge was designed by the famous artist and inventor Leonardo da Vinci around 1480. He wanted to create a bridge that could be transported easily and assembled quickly without using any tools. The strength of the bridge lies in its design. The interlocking pencils make

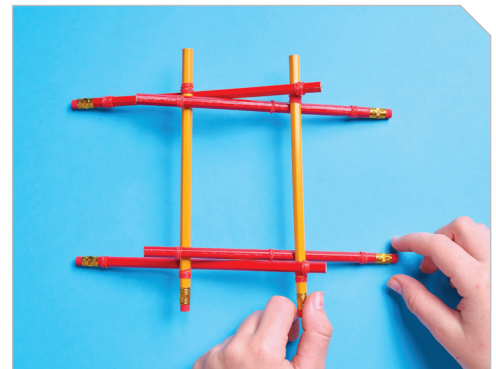
a structure that gets stronger as you load weights onto it. The overall design is based on an arch, which is very strong because it spreads out the load evenly, ensuring stability. This video gives more detailed instructions on building a Da Vinci bridge: tinyurl.com/SN-Davinci



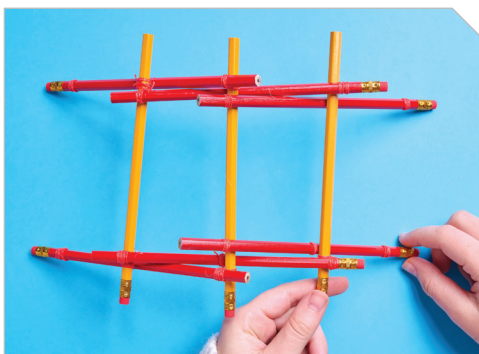
1 Wrap a rubber band around each end of four yellow pencils. Then, wrap three rubber bands around each of the remaining eight (red) pencils – one at either end and one in the middle.



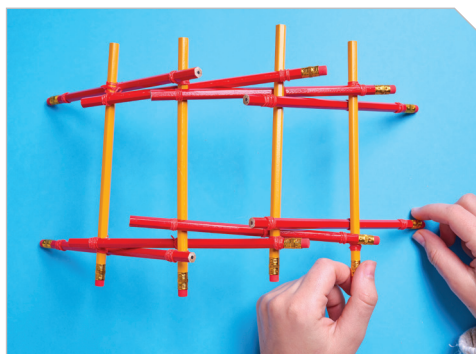
2 Take two yellow pencils and lay the first one on a flat surface. Then, lean a red pencil on each end (touching the elastic band). Now, place the second yellow pencil on top of the red pencils.



3 Lift the first pencil up, and very carefully slide two more red pencils through the gap between the yellow pencils. This step is quite fiddly, so you may need ask someone to help you with it.



4 Slide another yellow pencil under the two red pencils on the right-hand side. Lift it up and feed two more red pencils into the gap.



5 Repeat steps 3 and 4, so you have a bridge with four pencils going across the middle, as shown in the picture above.



6 Load up your Da Vinci bridge and see how much weight it can hold. Send pictures of your bridge to hello@science-nature.co.uk