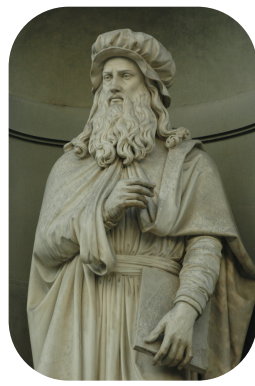


Da Vinci Bridge

Leonardo da Vinci (1452-1519) was a scientist, artist, mathematician, engineer, theorist, and architect of the Renaissance. He has created some of the most famous works of art but also contributed enormously to the world of STEM.

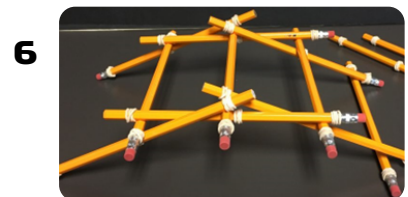
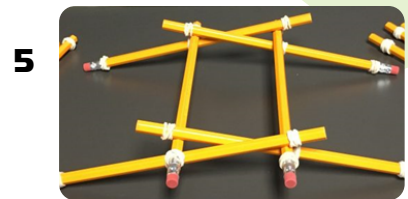
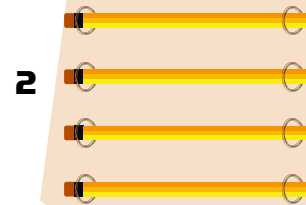
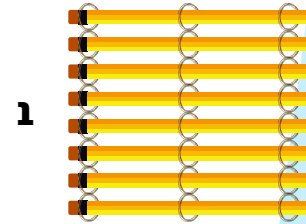


Materials:

- 12 Pencils
- 32 Small Rubber Bands
- Steady Work Surface

Procedure:

1. On 8 of your pencils, you will need 3 rubber bands – one on both ends of the pencil and one in the middle. These will be pencils "A".
2. On the other 4 pencils, you will need 3 rubber bands – one on both ends of the pencil. These will be pencils "B".
3. Place 2 pencils (A) in front of you, parallel to each other facing left to right. Then place one pencil (B) on top of the 2 pencils. Make sure it is in the center and pointing up and down.
4. Place another pencil (B) under the right ends of the two pencils (A).
5. Carefully place 2 more pencils (A) under the right vertical pencil and over the left vertical pencil.
6. Repeat steps 4 and 5 until you have used all of your pencils.
7. Try stacking object in the center of your bridge! How much can it hold?

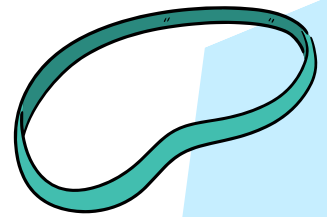


Da Vinci Bridge

WHAT'S HAPPENING?

Since this bridge has no supports pushing it up, it has to rely on itself. When gravity – the force that pulls things down to Earth – is trying to pull the bridge down, it causes friction – a type of sliding force (like rubbing your hands together) – to occur between the pencils.

Pencils are very smooth, so we add the rubber bands to increase the friction even more. This kept the pencils in place while we were building. The design of this bridge is meant to be taken apart, transported, and rebuilt. It could also be made using easily found materials like tree branches.



DID YOU KNOW?

An **engineer** is someone who invents, designs, and maintains machines and structures. If you liked exploring this activity, maybe engineering is for you!