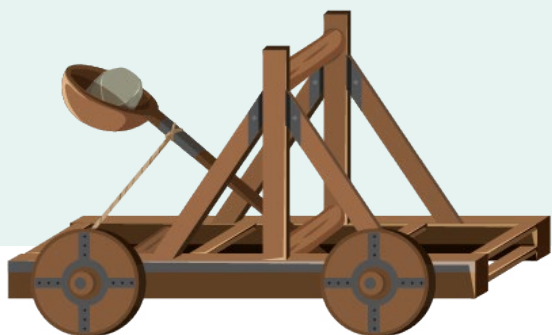


Castle Science

CATAPULT CONUNDRUM

Let's lay siege to a castle! You're going to build two catapults, investigate how far you can fling a projectile, and take on the **Catapult Challenge** to make your own high-flying catapult design!



CATAPULT 1.

You will need:

- 3 wooden clothes pegs (with springs)
- Glue
- Plastic bottle top
- Lollipop stick
- A4 sheet of cardboard
- A projectile to fire out of your catapult, for example, a cotton ball, plasticine, or scrunched up paper



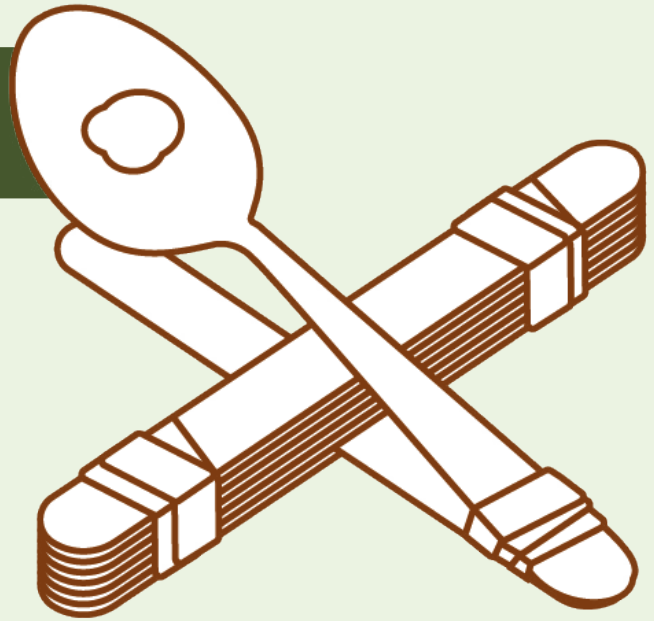
Make sure there are no objects, animals or people in the path of your catapult!

1. Glue the pegs, one on top of the other to the A4 sheet of cardboard.
2. Glue the flat side of the plastic bottle top to one end of your wooden lollipop stick. This will create a cup for your projectile to sit in.
3. Glue the lollipop stick to the top of the peg with the plastic bottle top facing upwards.
4. Once your catapult is dry, it's ready for action. Put your projectile in the plastic lid, pull down on the stick and fire!

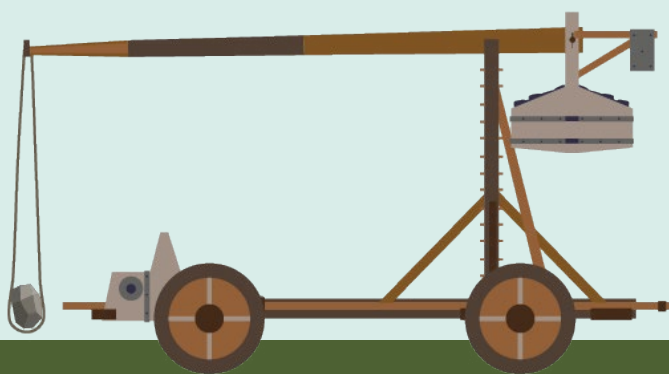
CATAPULT 2.

You will need:

- 8 wooden lollipop sticks
- 3 elastic bands
- A plastic spoon
- A projectile to fire out of your catapult, for example, a cotton ball, plasticine, or scrunched up paper



1. Stack 7 lollipop sticks on top of each other and line them up to make a neat bunch.
2. Tightly wrap an elastic band around one end of the stack of lollipop sticks.
3. Slide the remaining lollipop stick between the first and second lollipop sticks in the stack. Slide it to the middle.
4. Tightly wrap an elastic band around the other end of the lollipop stick stack.
5. Line up the handle of the plastic spoon with one end of the sticking out lollipop stick. Wrap an elastic band tightly around them to attach them together.
6. Your catapult is ready for action! Put your projectile in the spoon, pull it down and fire!



Make sure there are no objects, animals or people in the path of your catapult!

Did you know?

A trebuchet is a type of catapult that uses a counter-weight to send projectiles flying huge distances.

PROJECTILE PROGRESS

Design ideas to test your catapult building skills.

Catapult 1: Try gluing more pegs to the base.

Catapult 2: Try sliding the lollipop stick to different positions.

Does your projectile travel further or not as far?

Catapult 1: Try changing the length of the lollipop stick.

Catapult 2: Try a longer or shorter plastic spoon.

Does this change how far your projectile travels?

Find different materials to use as projectiles in your catapults.

Which material travels the furthest?

Does the weight or size of the material make a difference?

Build a wall for your catapults to knock down.

How could you change your catapult designs to do this?

What kind of projectile might work best?

Place an object for your projectiles to fly over or land onto.

How could you change your catapult designs to achieve this?

CATAPULT CHALLENGE!

Now you have built 2 different catapults, it's time to put your engineering skills to the test and create your own catapult design!

Can you build a catapult which flings even further?

Which parts of each catapult worked best?

Could you combine these parts into a new design?

Did a longer or shorter catapult arm send the projectile further?

Which type of projectile material worked best?

Will you need a design that's stronger to support it?

To help you, think about the questions below.

Once you're happy with your design, why not get creative and decorate your catapult?



HISTORIC
ENVIRONMENT
SCOTLAND

ÀRAINNEACHD
EACHDRAIDHEIL
ALBA

GLASGOW
**SCIENCE
CENTRE!**