

Rubber Band Cannons



The Science:

Wow! You've been on a long journey and nothing sounds better than some food! Time to turn on your foraging equipment so you can get much-needed supplies. For this activity, we will be making rubber band cannons! Our rubber band cannons are simple devices that use energy to launch an object towards a target.

Much like a rubber band cannon, *H. pylori* has a similar device that uses energy to transfer bacterial factors (object) into stomach cells (target). This device is called the type 4 secretion system (T4SS). The transfer of bacterial factors (such as proteins, DNA, or LPS) into cells leads to cell injury, causing the release of nutrients into the environment that are important for *H. pylori* survival.

What you'll need:

1. A pringles can
2. An empty plastic bottle
3. Rubber bands
4. Tape
5. Scissors
6. Pencils
7. Various projectiles (scrunched up ball of tin foil)

Building your Rubber band cannon:

Video:

Watch from 1:26min – 3:39min

<https://www.youtube.com/watch?v=oq145AHJPw0>

STEP 1

Cut the bottom off of your crisp tin.



STEP 2

Cut two slits each about 1 inch deep marked here in black pen. Repeat this on the opposite side.



STEP 3

Attach an elastic band onto the slits you have just created on either side.



STEP 4

Tape around the edge of your crisp tin to secure the elastic bands in place and to make the top of the tin stronger.



STEP 5

Take your plastic bottle and poke a hole in your bottle like shown. Repeat this on the opposite side.



STEP 6

Take a pencil and push it through the two holes you have created.



STEP 7

Put your bottle in the opposite end of the crisp tin and pull the elastic bands over the pencil to secure it.



STEP 8

Your cannon is ready! Scrunch up your tin foil into a ball and put it in the open end of your cannon, pull back the bottle and let go to fire!



STEP 9

Set up a target such as a stack of cups or a bowl to aim for.

Challenge someone at home to a competition. Who can fire the furthest? Who can hit the most targets?



Being Safe:

Take care when firing objects from the cannon. We recommend using rolled up bits of tin foil as they are unlikely to cause any damage to objects, they hit. Do not aim projectiles at each other.

References:

https://www.rigb.org/docs/rubberbandcannons_infosheet_0.pdf

<https://thornsca.org.uk/wp-content/uploads/2020/05/Make-your-own-elastic-cannon.pdf>