

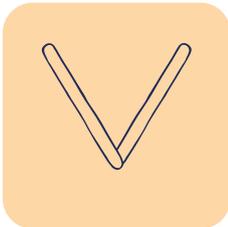
Energy can't be created or destroyed, but it can be transformed!

Design and construct a small car to explore how energy is transformed from one form to another.

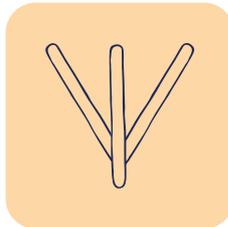
You'll need:

- 4 x popsicle sticks
- 1 x plastic straw
- Tape, scissors, hot glue
- 1 x rubber band
- 4 x bottle caps or similar
- Ruler or measuring tape
- 2 x wooden skewers
- for wheels

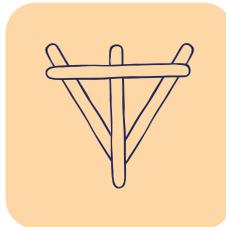
Step 1: Build the car frame



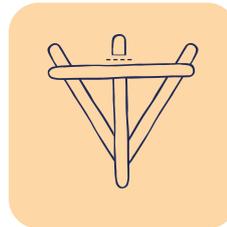
- Glue together two popsicle sticks in a "V" shape



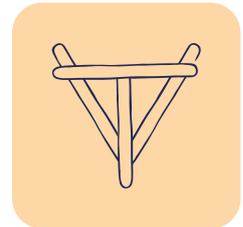
- Glue a third popsicle stick down the middle of the "V", so it sticks out 2cm from the bottom of the "V"



- Glue a final popsicle stick horizontally near the top of the "V" so it crosses all three sticks

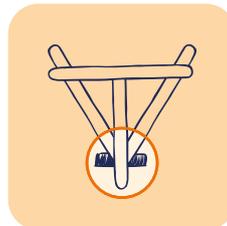


- Cut off the end of the middle stick

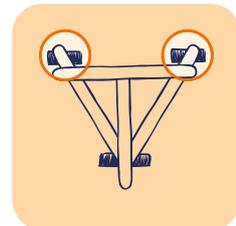


- Let the glue set before continuing

Step 2: Attach the axles

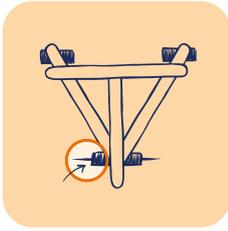


- Cut a 5cm piece of straw and glue it to the bottom of the "V", where the two sides join

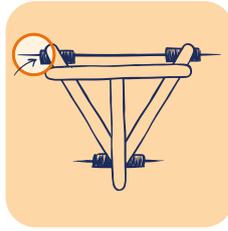


- Cut two 2.5 cm pieces of straw, and attach one to each side at the top of the "V"

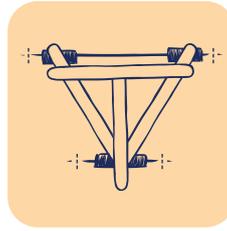
Step 3: Attach the wheels



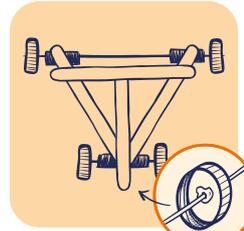
- Thread a skewer through the straw at the bottom of the "V"



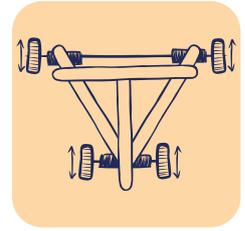
- Thread another skewer through both straws at the top of the "V"



- Cut the skewers to remove extra length, leaving enough to attach your wheels

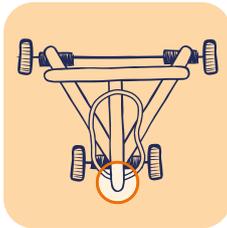


- Attach your wheels to each side of the skewers by poking the skewer through the middle and/or hot gluing them to the skewer

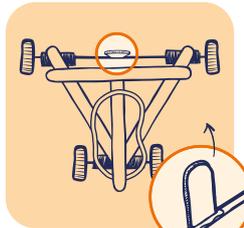


- Test that the wheels can roll before continuing

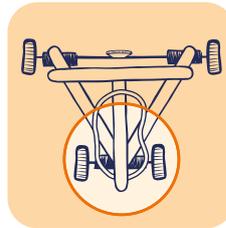
Step 4: Make the rubber band engine



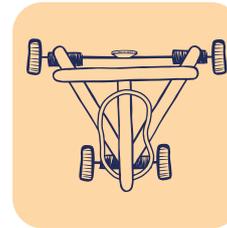
- Using hot glue, attach one end of the rubber band to the bottom of the "V", around the popsicle stick that's sticking out



- Cut a 1.5–2cm piece of popsicle stick and attach it to the middle of the skewer at the top of the "V"

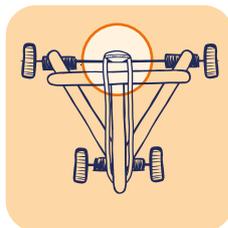


- The bottom of the "V" is now the front of your car

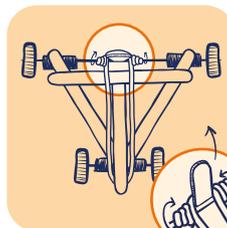


- Let the glue set before continuing

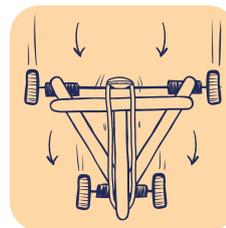
Step 5: Ready to roll!



- Stretch the rubber band to the back of the car and place it around the small piece of popsicle stick



- Wind the rubber band around the axle by pushing the popsicle stick piece backwards



- When you're ready, place the car on a flat surface and release!

Measure how far each car travels with a ruler

Rōpū name	Distance travelled (cm)	Observations

What energy transformations are happening?

Fill in the blanks with the right form of energy.

Sound energy

Kinetic energy

Elastic potential energy

Thermal energy

Stretched rubber band:



Released car:

+

+

What factors made your car go further or faster?