

ACTIVITY

A CAR RUN ON AIR!

Build a balloon-powered rocket car to race across the floor.

WHAT YOU NEED

- A piece of strong card - A5 size (approx. 15cm X 21cm)
- Styrofoam trays (1 large or several small)
- Ruler
- Drawing compass
- Marker pen
- Balloon
- Sticky tape
- Scissors
- 1 flexi-straw
- 2 regular straws
- 2 thin doweling rods (approx. 2cm longer than the straws)
- Bluetac



WHAT TO DO

1. Draw four circles 7.5 cm in diameter on the flat surface of the Styrofoam tray and cut them out. Make a small hole in the centre of each circle. These are your 4 wheels.
2. Inflate the balloon a few times to stretch it. Slip the end of the balloon over the end of the flexi-straw (nearest its bend).
3. Secure the end of the balloon to the straw with tape and seal it tight so that the balloon can be inflated by blowing through the straw.
4. Tape the straw lengthways along the middle of the A5 piece of card.
5. Flip the A5 piece of card upside down and place the 2 regular straws across the card 5 cm from each end. Stick them down.
6. Push doweling rods through these 2 straws. The rods should stick out the ends of the straws. Push the wheels onto the end of each doweling rod. Secure the wheels to the rod with Bluetac.
Flip the car back over. Blow through the flexi-straw to inflate the balloon. When the balloon is full, pinch the straw to hold in the air.

7. READY TO RACE!

Set the car on a smooth surface (wheels on the ground) and release the straw.

How far did your car travel? Will it win a race against the others in your group?

Can you do anything to make the design better?

WHY?

The rocket car is propelled along the floor by escaping air. The air travels backwards out of the straw, which causes the car to move in the opposite direction. You can think of it like swimming - when you swim you push water backwards with your arms but you move forward. This phenomenon is called Newton's 3rd law of motion. Scientists use the same idea to launch rockets into space. Gas and fire explode downwards out the end of the rocket, causing it to take off in the opposite direction - up into space.