Wonder Project

Rocket Challenge

Mission Brief 7: Create

It's time to create a rocket prototype!

To make a supercharged rocket design, you'll need to think about Newton's laws, and aerodynamics.

Newton's laws:

To recap, the laws you've learned so far are:

Newton's first law

An object will remain at rest (not moving) or keep moving forever at the same speed and in a straight line unless there is another force acting on it

Newton's second law

Force = mass x acceleration

Aerodynamics:

The study of how air moves around an object.
A rocket's aerodynamics affects its forces of flight.

When it comes to creating an aerodynamic prototype, there are four things to keep in mind:

1. Rocket body

Rockets should have a streamlined body because:

Make sure your base bottle is in good condition with no lumps, bumps or holes and think about how to keep it smooth and curved.

2. Nosecone

A nosecone helps with flight by:

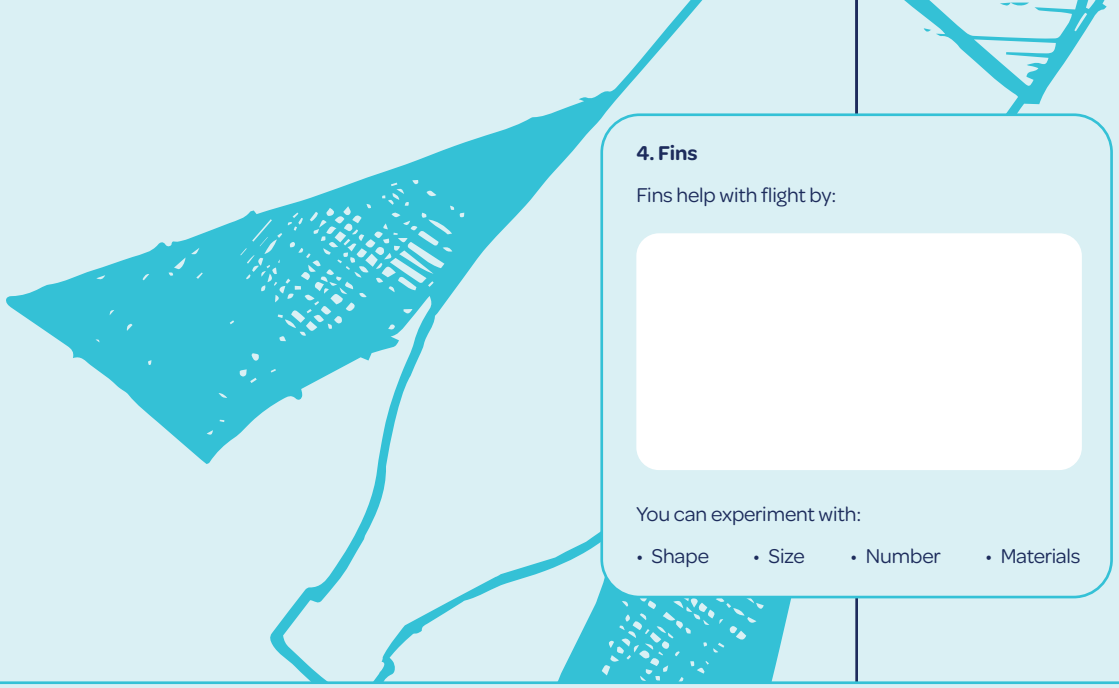
You can make a nosecone using another soda bottle. Simply cut off the top half of another bottle and place it on the bottom of your base bottle. This will become the top of your rocket.

Did you know you don't need to attach your nosecone? During lift-off, the air pressure will hold the nosecone in place. This is really helpful if you need to change your rocket's design to improve its flight.

3. Weight distribution

Rockets are more stable when:

Could you put something into the cap of your nosecone to add more weight?



4. Fins

Fins help with flight by:

You can experiment with:

- Shape
- Size
- Number
- Materials

Create a fin template

Using what you've learned about aerodynamics and Newton's laws, draw or describe a fin template for your rocket.

See if you can use your new knowledge to improve your fin design from Mission Brief 6.

Ok space crew! You can now create your first rocket prototype.

Karawhiua!