

Create a rocket prototype using Newton's laws and aerodynamics.

Newton's laws

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.

Tip: don't attach your nosecone. During lift-off, the air pressure will hold it in place.

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 and think about how to keep it smooth and curved.

2. Nosecone

A nosecone helps with flight by:

Make a nosecone by cutting off the top half of another soda bottle. Then, place it on the bottom of your base bottle. This will become the top of your rocket.

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

Draw or describe a fin template for your rocket.

See if you can use your new knowledge on Newton's laws and aerodynamics to improve your fin design from Mission Brief 6.



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

Karawhiua!