Wonder Project

Rocket Challenge

Mission Brief 4: First test flights

Explore variables to learn the best way to send your rocket sky-high.

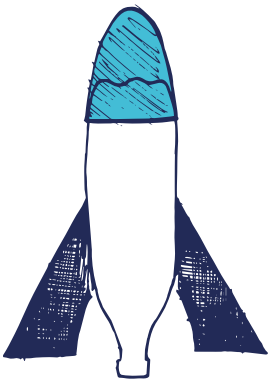
Testing variables: Water level!

You're going to test how different water levels impact your rocket's flight.

Remember: Variables are things that change or can be changed.

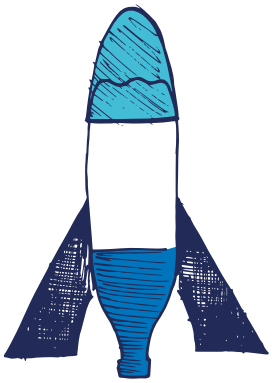
Water level

No water



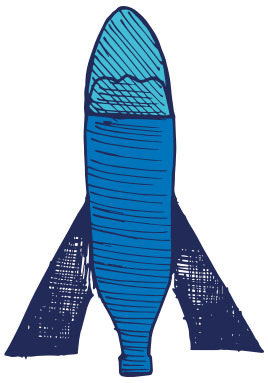
Not enough thrust

'Goldilocks' effect



Just right!

Too much water



Too heavy

Mission measurement

Measure the water level before each launch to get accurate results from your test flights.

What's the best unit of measurement to use? *(circle one)* psi / g / ml

What tool will you use to measure the water level?

Ask: How will the water level impact our rocket's flight?

Our conjecture:

We think our rocket will fly best when the water level is:

Amount **unit**

We think this because:

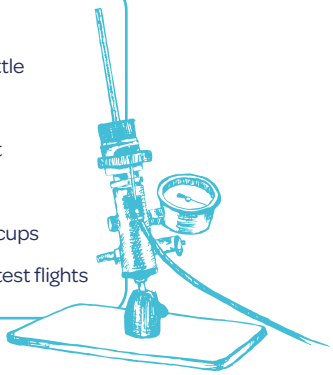
All systems are go!

For your first test flights, you'll be launching a plain bottle.

Ready for lift-off?

What you'll need:

- Rocket – empty 1.5 litre soda bottle
- Rocket launcher
- Bike pump – a foot pump is best
- Hi-vis vests and safety glasses
- Bucket of water and measuring cups
- Phone or tablet for filming your test flights



Measurements key	
psi	Pound-force per square inch
ml	Millilitres

Record your data

Test flight number	**Water level** (ml)	**Air pressure** (psi)	**Launch rating** (1–5)
Example	*10ml*	*60 psi*	★★★☆☆
1		60 psi	☆☆☆☆☆
2		60 psi	☆☆☆☆☆
3		60 psi	☆☆☆☆☆
4		60 psi	☆☆☆☆☆
5		60 psi	☆☆☆☆☆

Analysis:

Our rockets flew best when the **water level** was:

Conjecture comparison

Does this result match your conjecture? Why/why not?