Rocket Challenge
Newton's third law of motion

Video transcript
Hi again! It's me, Athul, and today we're going to be looking at Newton's third and last law of motion. It's also the most popular law.
Title card: Law 3: Reaction
Are you ready? Here it is: For every action, there is always an opposite and equal reaction. We're talking action and reaction.
This means that for every force there is a reaction force that's equal in size, but opposite in direction. Whenever an object pushes another object, it gets pushed back in the opposite direction equally as hard. Need some examples? Me too!
When you skateboard and push backwards, the opposite reaction is to drive the skateboard forward.
When you walk, you push the street and the reaction force moves you forward.
When you bounce a ball, the ground applies a reaction force and the ball bounces back.
So how does it relate to rockets? Have you noticed what happens if you let the air out of a balloon? The air goes one way, and the balloon shoots off in the opposite direction, like this…
So, I filled my balloon with fuel – air. When I let it go, the air inside had to come rushing out. This created the equal and opposite reaction force and pushed the balloon forward.

Rockets work in the same way. Exhaust gases are ejected from the engine at high speed and this accelerates the rocket forward – the equal and opposite reaction.
Got it? Good. Now it's your turn to have a go with a balloon and see who can get theirs to go the farthest!