



**Year Group:** Year 5 and 6

**Length:** 31 mins

**Starting Positions:** Sit in your own space

### Learning Intention:

To ...

- Understand that unsupported objects fall towards the Earth because of the force of gravity acting between the Earth and the falling object
- Identify the effects of air resistance, water resistance and friction, that act between moving surfaces

### Synopsis:

- You're a new X Force recruit, travelling to the moon to be trained by Zeb, an X Force agent.
- Your Mum, the X Force boss, orders you to investigate a mysterious box on the Moon's surface.
- On the way back to Earth, the space ship crashes and the box falls down a ravine.
- You parachute after Zeb but when you land, he and the box are missing.
- You meet Crixi, a Galactic Alliance agent, who warns the box is dangerous.
- With Crixi you use rafts to cross a lake to a mysterious island with a fortress.
- You're caught by Troy McStroy, your Mum's enemy, and learn the box is an anti-gravity machine.
- Troy's holding your Mum and Zeb inside a chamber and plans to test anti-gravity on them.
- Crixi helps you, your Mum and Zeb escape with the box.
- Using bikes, you use friction to get the box off the island, but Troy is catching up.
- You and the box are saved by the X Force and Galactic Alliance, and Troy is arrested.

### Characters

- Mum
- Zeb
- Crixi
- Troy McStroy

### Locations:

- **Spaceship** – there is less gravity in space than on Earth, making people and objects float
- **Moon** – astronauts must wear heavy suits to stop them floating away
- **Ravine** – a parachute is used to counter air resistance and get to the bottom of the ravine
- **Lake** – canoes are better at countering water resistance than flat rafts
- **Fortress** – in the story, anti-gravity is a force that destroys gravity, making everything float
- **Hill** – bikes use brakes to get up and down hills more easily

## Glossary:

- **Force** – something that causes a change in the motion of an object
- **Gravity** – a force of attraction between two masses
- **Gravity field** – a type of force field surrounding a body of mass
- **Air Resistance** – a force caused by air that slows an object moving through air
- **Water Resistance** – a force caused by water that slows an object moving through water
- **Friction** – the resistance one surface or object meets when moving over another
- **Surface Area** – the total area of the surface of a three-dimensional object

## Discussion:

### Story & Factual

- What is the motto of the X Force?
- What does arm wrestling show you about forces?
- Why did you start floating in space?
- How did you slow your fall when you jumped into the ravine?
- Why was the canoe faster in the water than the raft made of corrugated iron?
- What effect would the anti-gravity machine have on people and planet Earth?
- What's the name of the force that affected speed when you were cycling?

### PSHE & Philosophical

- When competing in sport, is it more important to win or to take part?
- If you could go to the Moon, what would you do there?
- As Head of the X Force, your Mum gave you orders. Why was it important to obey them?
- Looking after the box was your responsibility. What does being responsible mean?
- You and Crixix worked as a team. What does good teamwork involve?
- Troy wanted revenge on your Mum. Can you think of healthy ways to deal with angry feelings?
- Can science be used in ways that might harm people? Can you think of examples?
- If you're learning new skills, why is training important?

## Resources:

- **Literacy Resources** – 5 creative writing ideas
- **Photo Storyboard** – order the images from the story (or use them for other things – e.g. writing)
- **Quick Quiz** – re-cap key facts
- **Or try some recount, report or creative writing ideas of your own!**