


An astronaut in a white spacesuit is floating in space, with the Earth's blue and white clouds visible in the background. The astronaut is pointing towards the right.

# GRAVITY

I'm sure you've heard of gravity before. We know that when an astronaut goes up to space they float because there is no gravity. But what IS gravity?

Gravity is a **FORCE** that **pulls** all objects to the center of the Earth.



 This ball has been tossed into the air. What is going to happen? Will it float into the sky and never come back? Not unless we're in space! Gravity will act upon the ball. Gravity will pull it back to the center of the Earth which is why it will come back to the ground.

# GRAVITY in our LIVES

## Let's Watch!



# GRAVITY in our LIVES

We see gravity work every day. For instance, if you have a ball at the top of a hill, gravity will act upon the ball and cause it to be pulled down and it will roll down the hill. This can happen when a pencil is teetering on the edge of a desk as well. We see gravity work in nearly every sport. When a game of soccer is played, a player will use force to move the ball. They might kick it into the air (this would be a pushing force). Gravity acts upon the ball and pulls the ball back toward the ground. This is why the ball doesn't just continue flying through the air forever.



Name another sport that gravity plays a part in.  
Explain how gravity is involved in the game.

Is gravity a push or pull force?

# GRAVITY EXPERIMENT

This experiment will look at weight and shape to see if they make a difference to gravitational pull.

## Your mission is:

- To stand on a chair (with adult permission) and drop each object from the same height. You may want an adult to do the dropping so you get maximum height!
- Before you start, estimate which item you think will drop the fastest and the slowest
- Record all times from the moment you drop the object to the moment it hits the ground. Record to the millisecond.
- With the two pieces of tin foil, one you will drop with the tin foil flat, the other you will roll into a ball and then drop. Do you think they will drop at the same speed? Explain before you try!

## You Will Need

- 2 pieces of tin foil that are the same size
- 3 random objects of your choice (that can be dropped from a distance)
- Timer
- Someone to run the timer
- A chair

# GRAVITY EXPERIMENT

Label your objects. Guess which will be fastest, slowest and in the middle.

Object 1

Object 2

Object 3

## ACTUAL TIMES

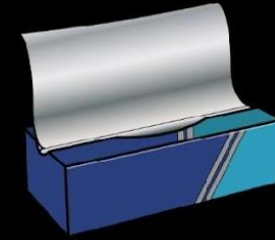
Tin Foil Square

Tin Foil Ball

Object 1

Object 2

Object 3



Tin Foil

**Guess**

Will both pieces of tin foil drop at the same speed? Explain your thinking.

**Actual**

What happened?

# GRAVITY EXPERIMENT

The tin foil ball and scrap weighed the same but were different shapes. Discuss if shape makes a difference to gravitational pull.

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For your 3 objects, were your guesses correct? Think about the weight of your objects. Does heaviness make a difference to gravity? Explain.

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