

Learning about  
Energy and Forces  
in 6<sup>th</sup> Class  
Ballinspittle NS

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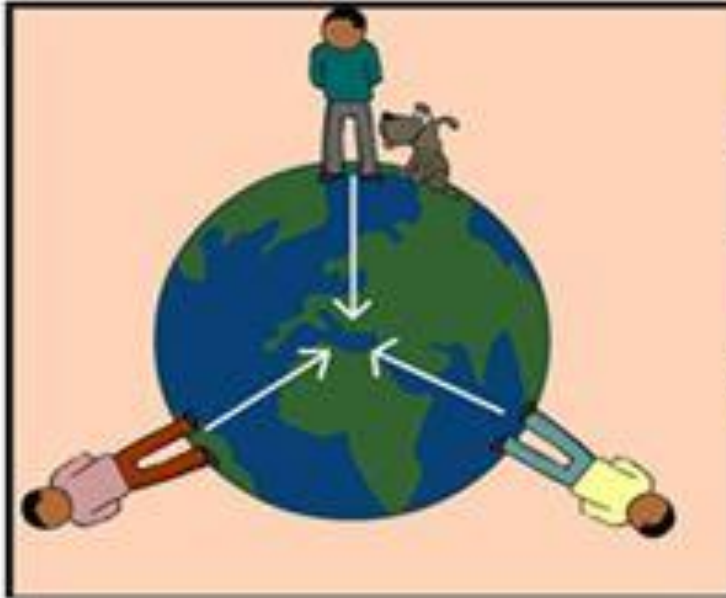
We used STEM



# Science-Investigating Energy & Forces

- What exactly is this thing called “Gravity”?
- Light and Heavy Bottle Drop experiment (Gailileo)
- Crumpled paper v flat paper experiment
- Learning about Air Resistance
- Used ICT to see Video of Felix (Red Bull)
- Investigating which material makes a better parachute-paper, plastic, silk, material
- Making our own parachutes-Engineering
- Parachute competition – recording results
- What we discovered

# Gravity



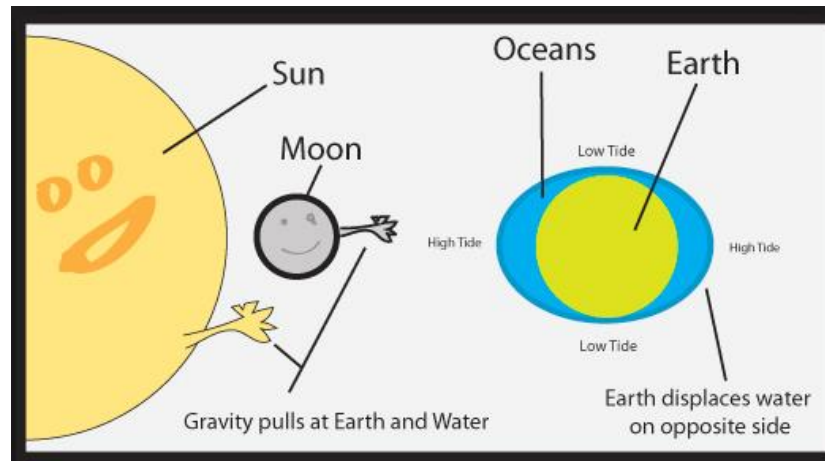
Gravity is the force that pulls things towards the centre of the earth.

Today we are learning about 'gravity'. Gravity is a force that pulls things towards the centre of the earth

# Exploring Gravity

Why do things fall down when you throw them or drop them? The answer is gravity: an invisible force that pulls objects toward each other. Earth's gravity is what keeps you on the ground and what makes things fall.

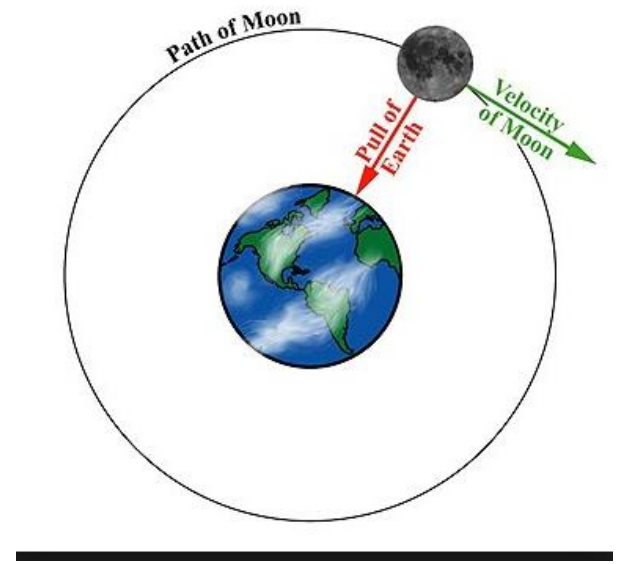
Gravity is what holds the planets in orbit around the sun and what keeps the moon in orbit around Earth. The gravitational pull of the moon pulls the seas towards it, causing the ocean tides.



# Gravity is important

Gravity is very important to us. We could not live on Earth without it. The sun's gravity keeps Earth in orbit around it, keeping us at a comfortable distance to enjoy the sun's light and warmth. It holds down our atmosphere and the air we need to breathe. Gravity is what holds our world together.

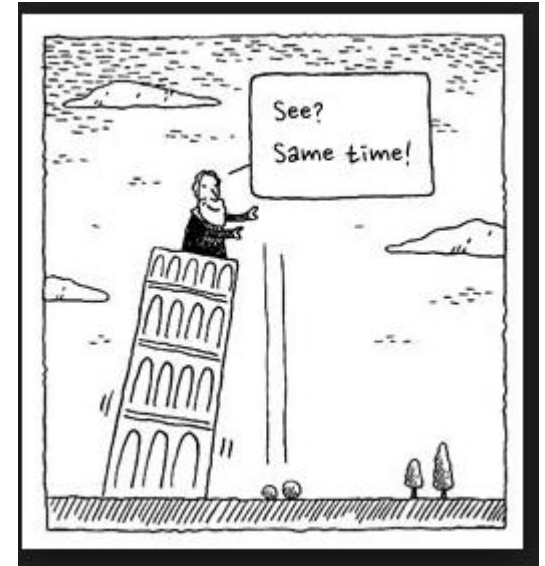
The gravitational force exerted on the earth keeps the earth in its orbit.



# What did Galileo have to say about Gravity?

In 1589, Galileo Galilei came up with the idea of dropping two balls of from the Leaning Tower of Pisa

Galileo showed that if you drop objects that are the same shape from a height they hit the ground at the same time, **even if one object is heavier than the other.**



You can repeat the experiment with a feather and a tennis ball. What do you notice? The tennis ball should hit the ground first. **Why?** The force of gravity acting on the ball and the feather is the same, but the feather experiences more **air resistance.**

# Gravity in Space

Yes there still is gravity in space even if it's very little – microgravity.

Astronauts float as they are being pulled towards the earth's centre.





# Light v Heavy Bottle Drop

We investigated what would happen if you drop a light and heavy bottle to the ground at the same time from the same height.

Lots of us predicted that the heavy object would reach the ground first.

# Bottle Drop Results

They both reach the ground at the same time.

we concluded after our experiment that gravity is the same for all weights.

# Crumpled v Flat Paper Drop



Which do you think will hit the ground first?

# Results -paper drop

We discovered the flat paper was slower to reach the ground .It's area is larger so this means it will experience more AIR RESISTANCE.

# What is this air resistance we keep mentioning?

[Air resistance](#) is the force air pushes against a moving object. As an object moves, air resistance slows it down. The faster the object's motion, the greater the air resistance exerted against it. Think of yourself on a bicycle going down a hill with the wind blowing in your face. You are experiencing air resistance here.



# We used technology to learn about World Record Breakers?

- Red Bull Drop.- Felix Baumgartner
- World Record Breaker.
- We watched

<https://www.youtube.com/watch?v=FHtvDA0W34I>

# We discovered the following information from using our school ipads.

The picture that proves Felix Baumgartner always dreamed of reaching for the skies

This is the picture proving that even from the age of five, Felix Baumgartner, the world's first supersonic skydiver, dreamed of reaching for the skies.



In his comment on his five-year old drawing, Felix also wrote: 'I had a dream...and this was it!!!!' Photo: REX FEATURES

# We investigated which material makes a better parachute

- A good parachute will take longer to drop keeping your parachuter safe and not breaking every bone in his or her body.
- We made our own parachutes using paper, silk, light material and plastic



# What we figured out worked best

- Large canopy is good trapping air inside.
- Hole in centre of canopy helped it drop straight
- The more air resistance we could give it the better so we made the parachute larger.
- We found when we measured the strings to be the same length the parachute worked better.

# Class Question Time

## What did we learn?

- What is gravity.
- Do people float in space because there is no gravity?
- Why is gravity important to us?
- What did Galileo demonstrate?
- What is air resistance?
- Who broke the world record free fall jump with parachute?