"It's a thing" - Abraham Lincoln, 2004

GRAVITY

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GRAVITY

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WHAT IS GRAVITY?

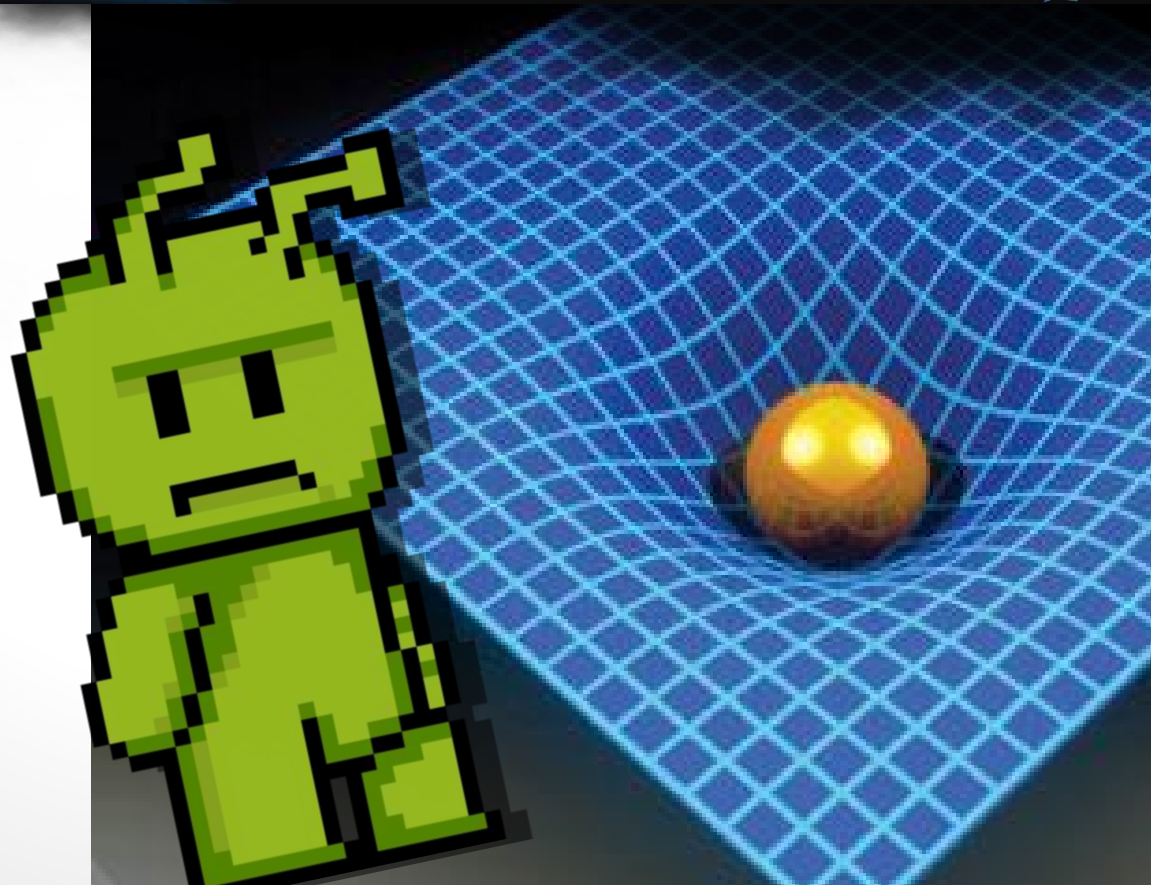
Gravity is the force that attracts a body toward the center of the earth, or toward any other physical body having mass.

Simply stated, the force of attraction between all masses in the universe!

GRAVITY

HOW DO YOU VISUALIZE GRAVITY?

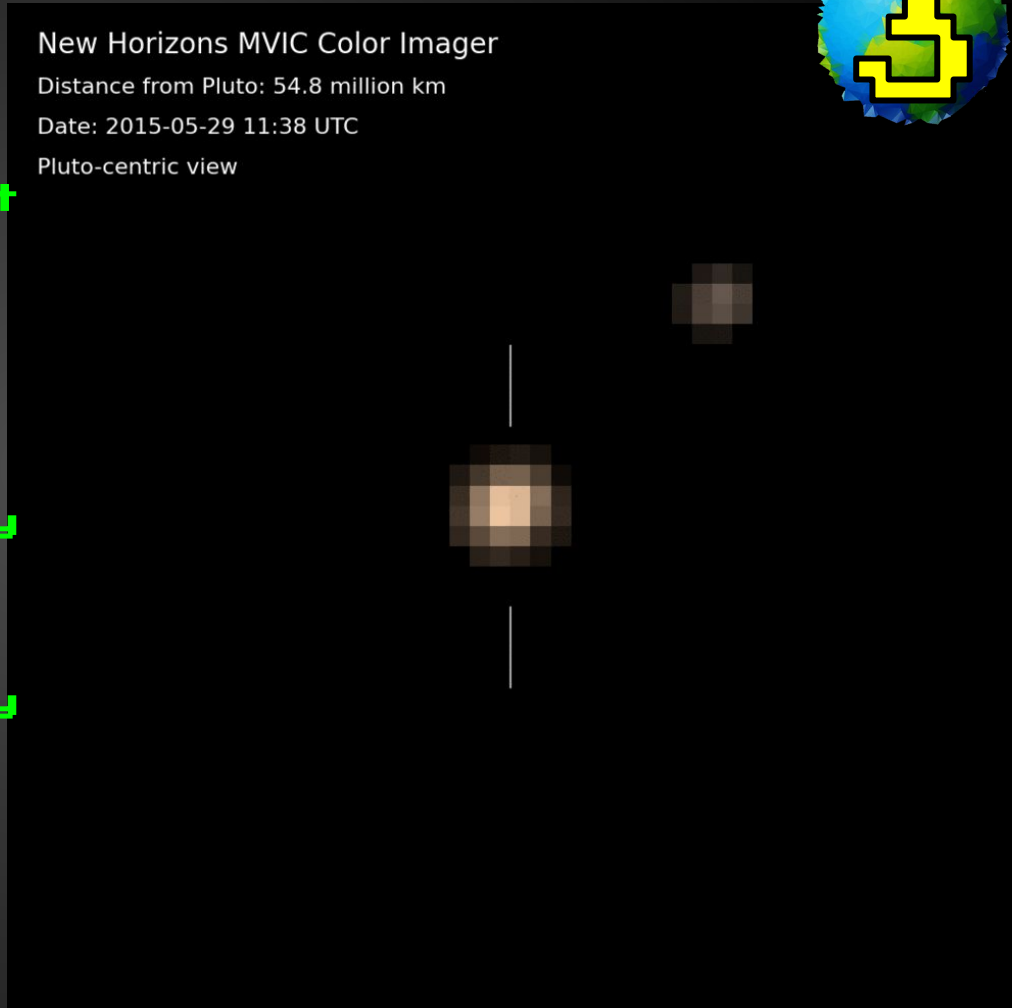
It is simple to visualise gravity as a sheet with a ball on to of it as you get closer to the ball the slope increases and as the slope increases so does gravity.



Orbits

So if gravity is constantly tugging on everything why isn't it sucked into the earth?

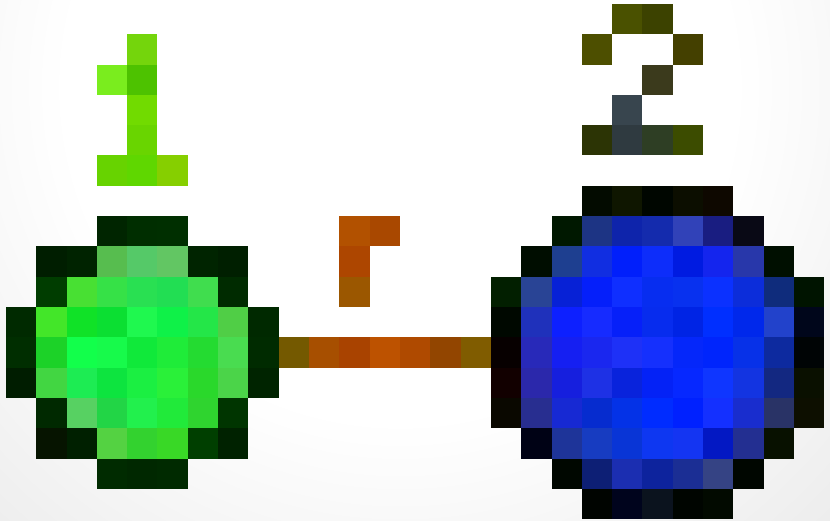
The velocity of objects means that they can zip buy a planet because they are traveling faster than gravity can tug of they aren't traveling fast enough and get sucked in.
Orbits are special because they combine both traits in a happy balance.
They are fast enough to avoid getting sucked in but they cannot truly escape the gravity of the planet and are quickly sucked back in missing the object they orbit.
This happens again and again until it forms a steady motion around the mass known as an orbit.



Gravity is registered as a dependent?

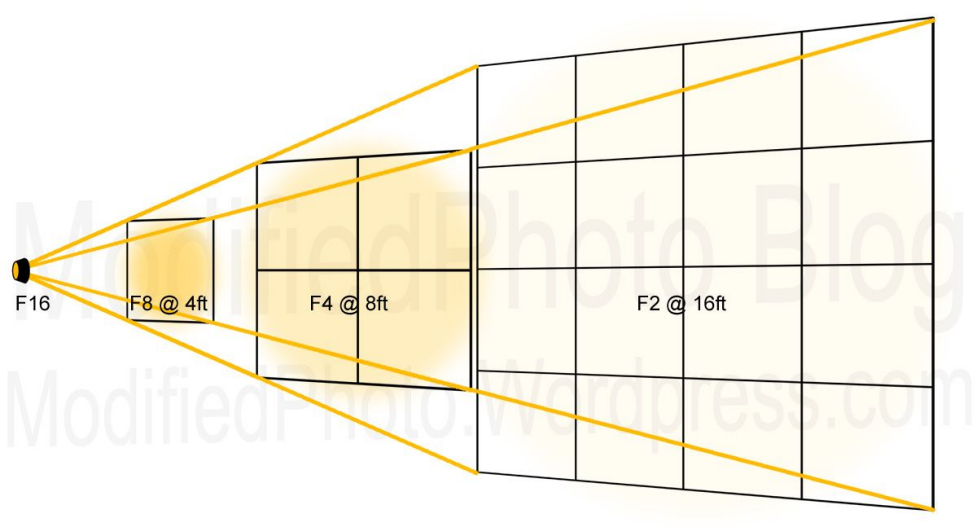
Gravity depends on three factors:

1: the mass of object one
2: the mass of object two
3: the distance between both masses

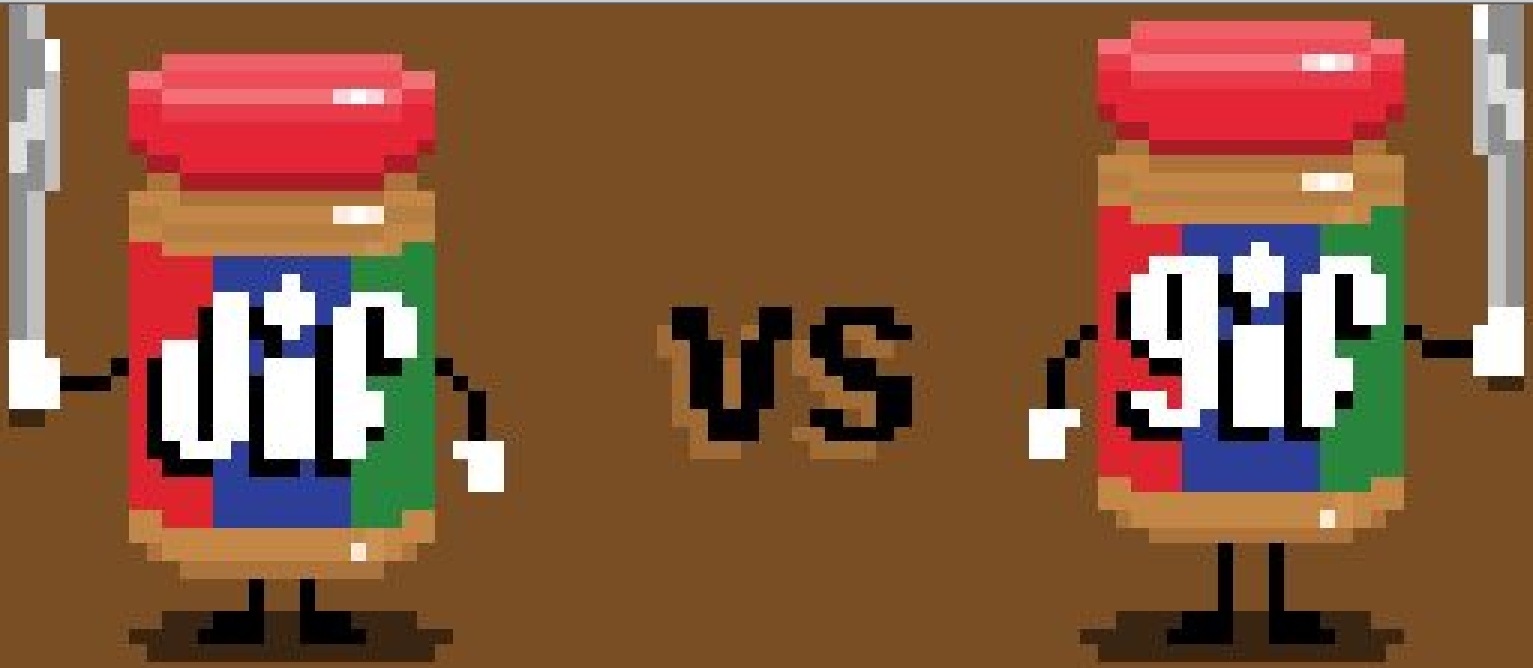


The inverse square law!!!

The inverse square law states that every time you double the distance between two objects the gravitational force decreases by a factor of x4



My name is Jif. My evil brother Gif has decided to take over the universe, I need your help to use the amazing power of gravity to defeat him!



Here are the tools you will need to use to defeat him!!!

E = KE + PE

E = ½mv2 - GMm/R = 0

Ans. vesc = √ 2GM/R

G = 6.67×10-11 Nm2/kg2

Fg=GMm/r^2

PEg=-GMm/r

Remember PEg is negative

Me=5.97x10^24kg

Re=6.37x10^6m

Fc=mv^2/r

L=mr^2w=mvr

V=2(pi)r/t

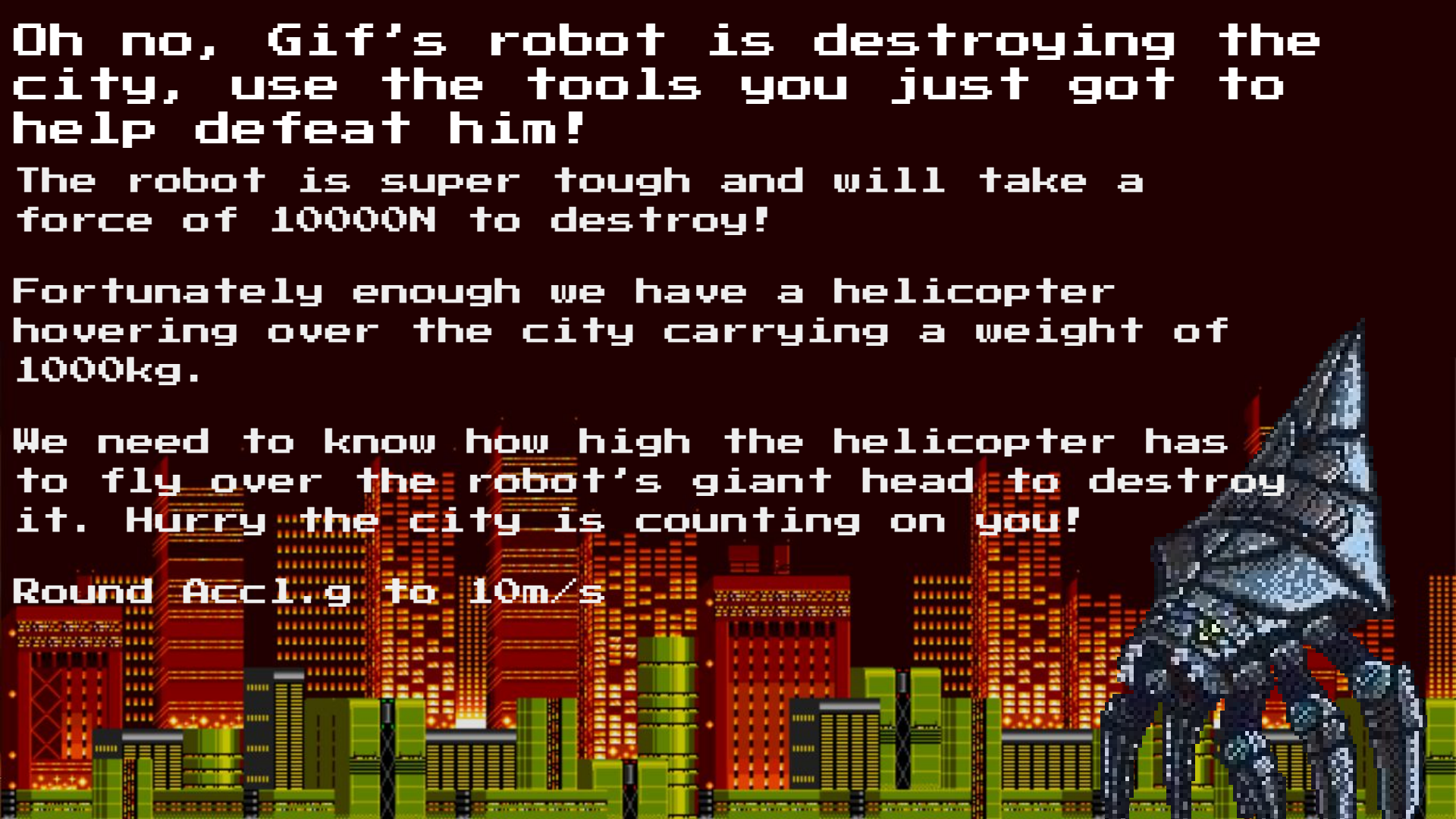
Oh no, Gif's robot is destroying the city, use the tools you just got to help defeat him!

The robot is super tough and will take a force of 10000N to destroy!

Fortunately enough we have a helicopter hovering over the city carrying a weight of 1000kg.

We need to know how high the helicopter has to fly over the robot's giant head to destroy it. Hurry the city is counting on you!

Round Accl.g to 10m/s



Congratulations the robot has been destroyed and the city has been saved!!

You figured out we needed the helicopter to fly ____m over th robot to destroy it

Bomb-voyage

Remember the mass of pictopia is 5.97x10^24 kg and it has a radius of 6.37x10^6m & G = 6.67 ×10-11 Nm2/kg2

Gif has set a bomb powerful enough to destroy the world!!!

The bomb weighs 10 kg and loves pancakes how fast do we need to launch it for it to reach escape velocity and leave before it explodes?!

Wow you really did it!!!

You pulled it together, prevented a disaster and got

11.2 km/s & some cake yay!!!

Oh no it's a knlf3?

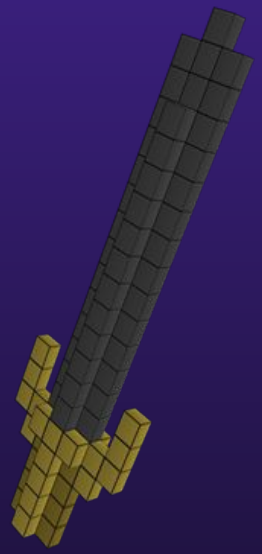
He came out of nowhere and attacked you you jump into the air to evade him but he jumps twice as high as you! It is essential to know the force of gravity compared to yours. How different is it?

A. twice as strong

B. twice as weak

C. four times as weak

d. ?



Oh no their was no way of knowing!!! ahhhhhhhhh!

Oh, you are fine he tripped on a flying banana and fell but you still haven't memorized your past tense verbs have you you naughty foreign language student you!

Remember it is the distance to the center of the mass not the ground.

Follower Acquired: Isaac Newton!

Isaac Newton was the one who invented gravity in the first place.

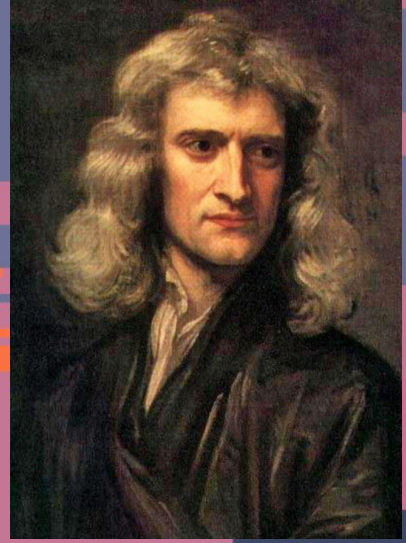
summary

Isaac Newton

Eratosthenes

Copernicus

Isaac Newton

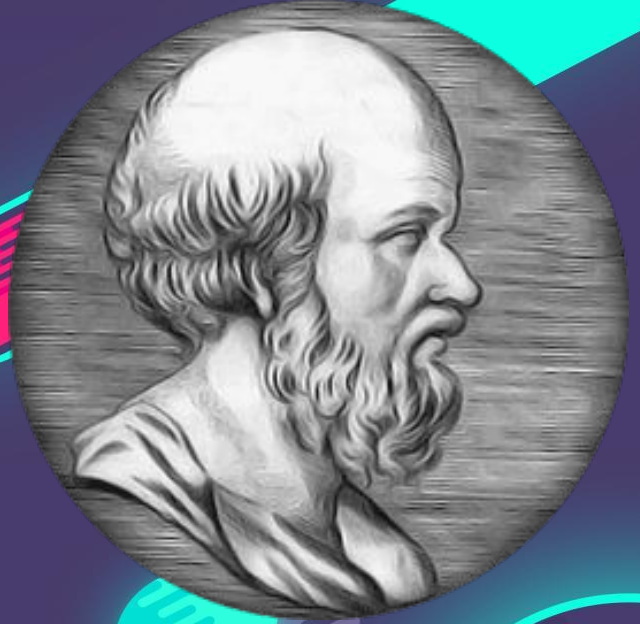


Born on January 4, 1643, in Woolsthorpe, England, Isaac Newton was an established physicist and mathematician, and is credited as one of the great minds of the 17th century Scientific Revolution. With discoveries in optics, motion and mathematics, Newton developed the principles of modern physics

Invented The three laws of motion

- The law of universal gravitation
- And was one of the physicists to write up a set of rules now called calculus

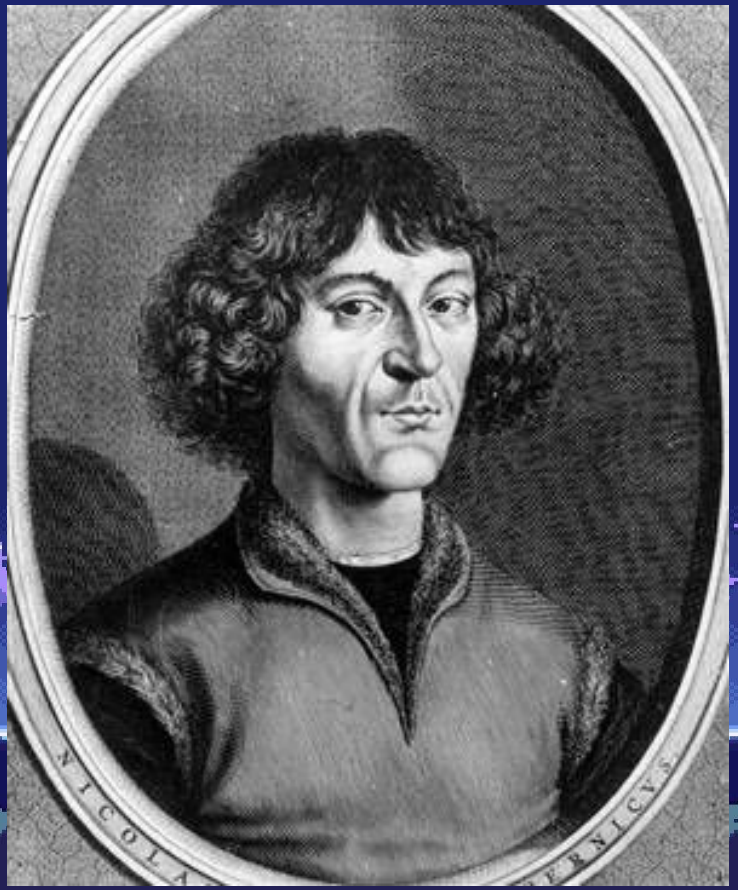
Eratosthenes



the first person to calculate the circumference of the Earth, which he did by applying a measuring system using stadia, a standard unit of measure during that time period. His calculation was remarkably accurate. He was also the first to calculate the tilt of the Earth's axis (again with remarkable accuracy). Additionally, he may have accurately calculated the distance from the Earth to the Sun and invented the leap day.[4] He created the first map of the world, incorporating parallels and meridians based on the available geographic knowledge of his era.

Copernicus

The publication of Copernicus' model in his book De revolutionibus orbium coelestium (On the Revolutions of the Celestial Spheres), just before his death in 1543, was a major event in the history of science, triggering the Copernican Revolution and making an important contribution to the Scientific Revolution.




The End