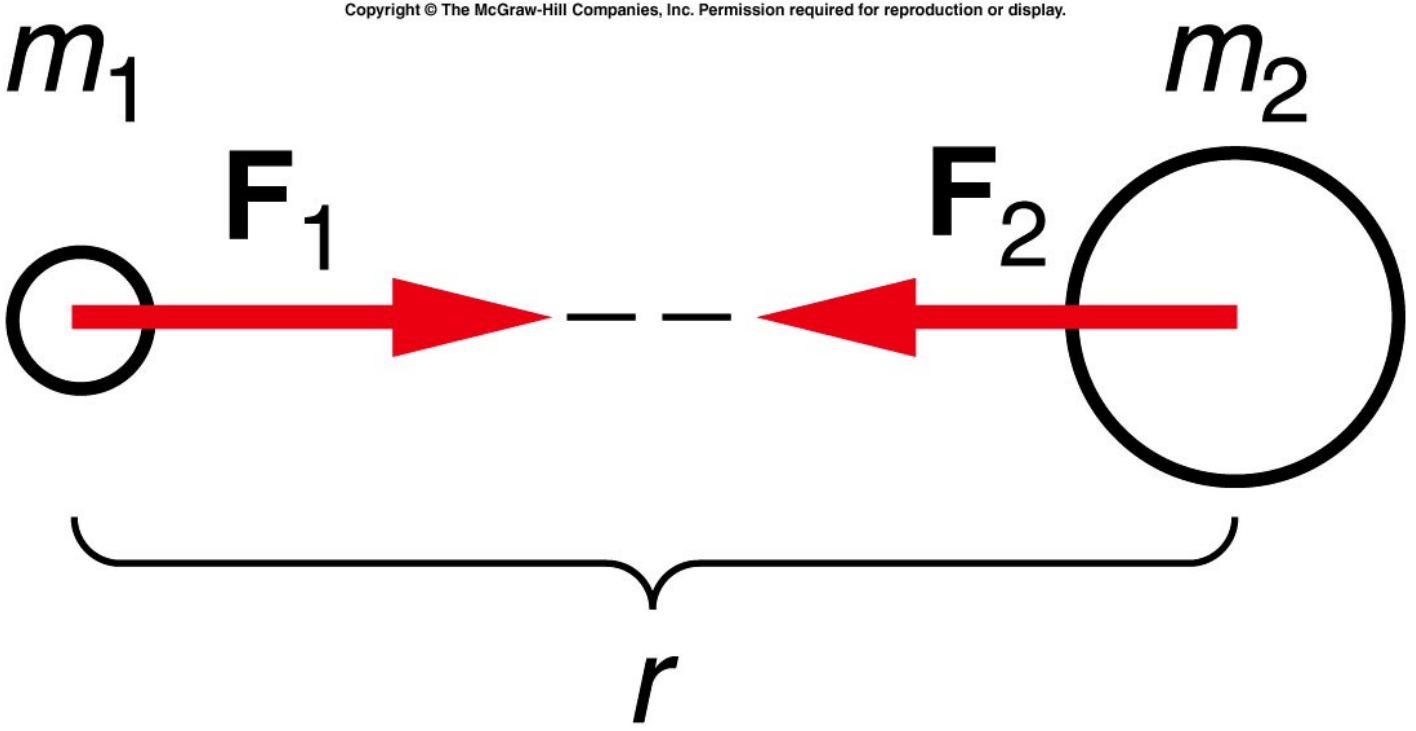
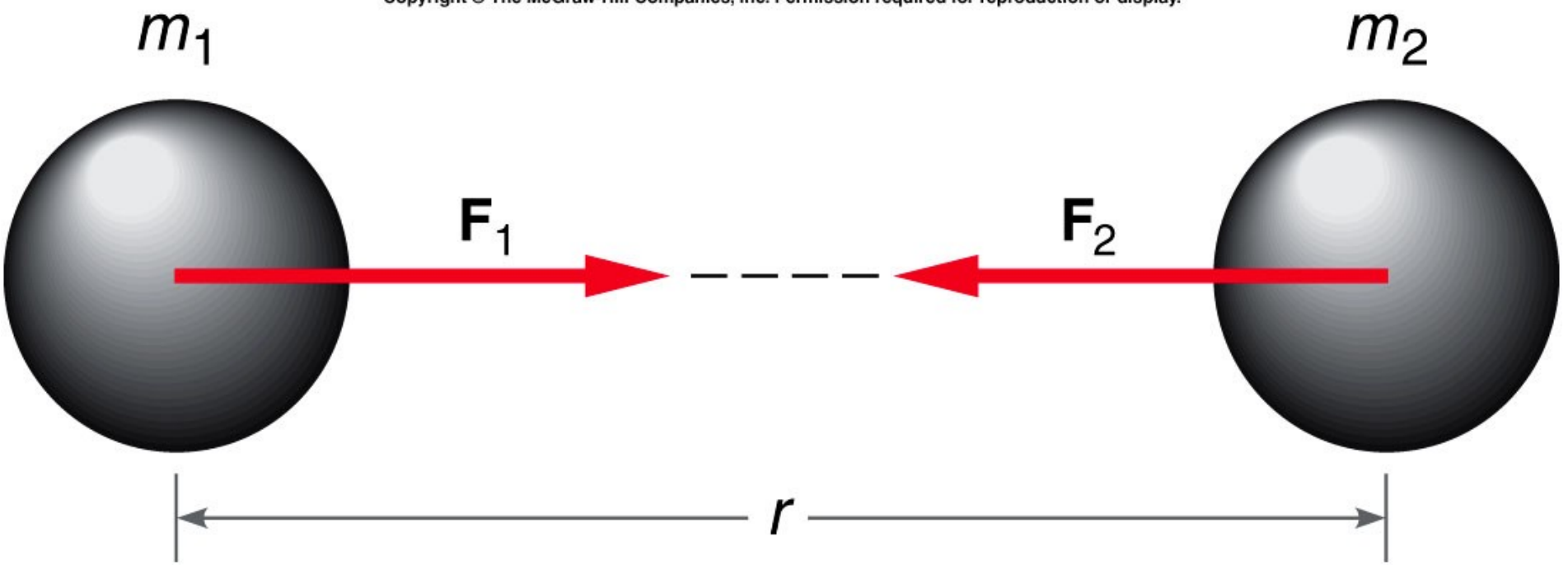
Newton unified weight, motion on earth and motion in the heaven With his universal law of gravitation.



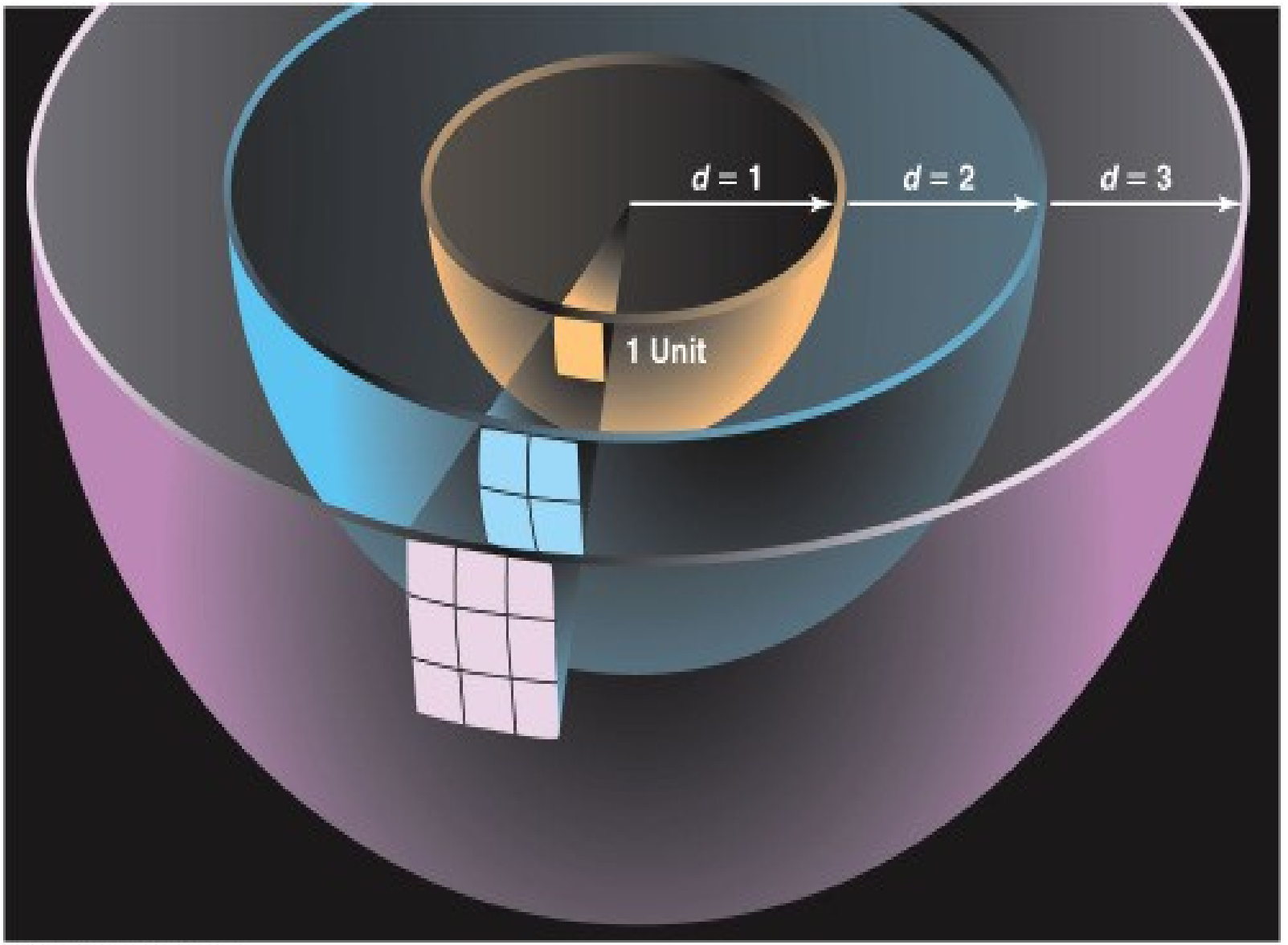
$$F = G \frac{m_1 m_2}{r^2}$$



The force is the same but the acceleration depends on the mass.
The Sun pulls on Earth and the Earth on the Sun.
The force is the same.
Consequence: the Earth moves but the Sun wobble just a little bit.
The wobble can be measured for Jupiter.

http://www.cfa.harvard.edu/afoe/orbits/rhoCrB-orbit-java.html

Gravity is an inverse square law

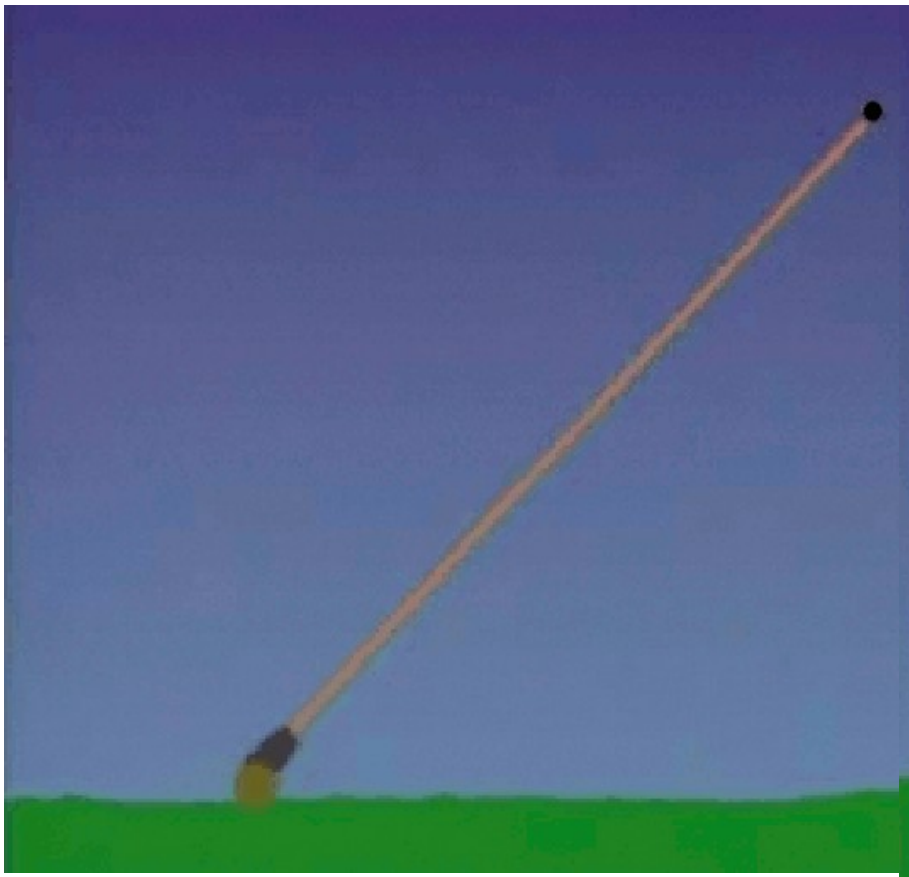


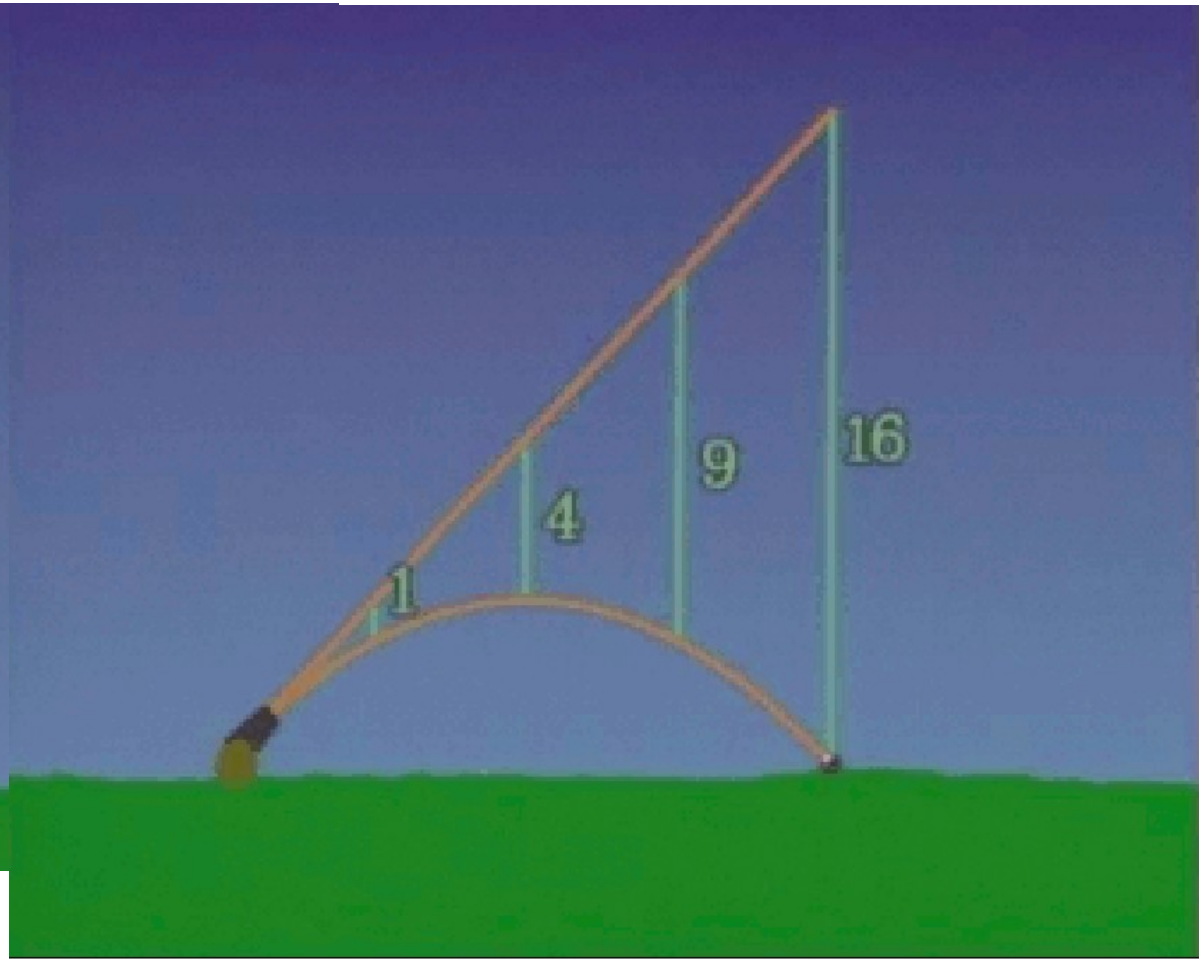
The moon is at a distance 60 radius so the gravity from earth is divided by 60x60

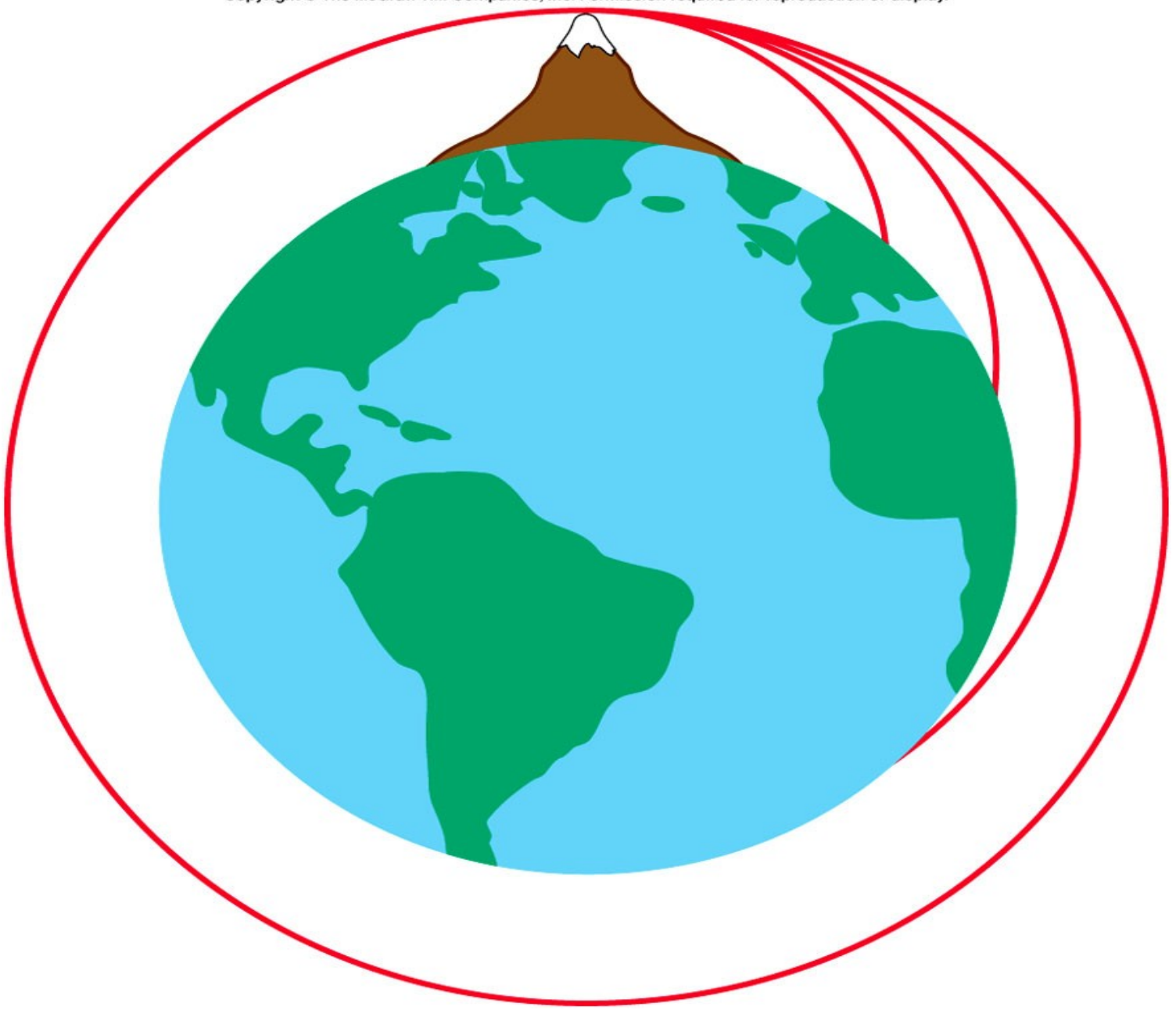
The gravity depends on the distance between the center of the planet
And the object experiencing the force.
So if the Sun is squeezed to the size of the campus to be a black hole what do you
Think would happen to the Earth? (we keep the same distance and the
Same orbital speed).

Newton invents calculus and understands that:

- projectile motion is explained by the 2 first laws.
An object has a constant horizontal speed but accelerates downward at the same time.
How to shoot a monkey







http://www.upscale.utoronto.ca/GeneralInterest/Harrison/Flash/ClassMechanics/TwoBallsGravity/TwoBallsGravity.html

http://www.upscale.utoronto.ca/GeneralInterest/Harrison/Flash/ClassMechanics/MonkeyHunter/MonkeyHunter.html

See run exploration too.

He also understand that gravity explains the motion of the Moon around the Earth Or the planets around the Sun.

http://highered.mcgraw-hill.com/sites/dl/free/0072482621/59233/5_3.htm

http://www.stmary.ws/highschool/physics/home/animations3/forces/NewtonsMountain.html

The poet Alexander Pope, who lived at the same time as Newton, wrote

Nature and Nature's laws lay hid in night;
God said, 'Let Newton be!' and all was light.

But a English humorist added: It did not last; the devil howling
"Ho!
Let Einstein be!" restored the status quo.

To explain the orbital motion, Newton combines inertia and 2nd law.
But Einstein with his general relativity says the force of gravity does not exist.
It's is a virtual force like the centrifugal force. Space is curved.