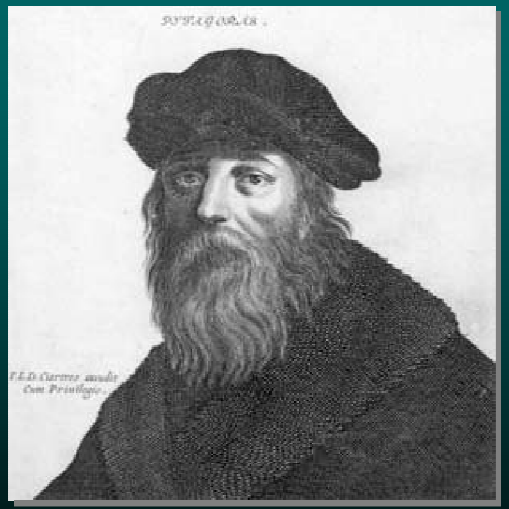
“All physical things the stars and the universe, are mathematically related.”

Πυθαγορας

Pythagoras



The Life of Pythagoras

- Born on the Greek island of Samos in about 580 B.C.E.
- One of the greatest mathematicians and philosophers of all time.
- Many of our first important philosophical and mathematical concepts were first expressed by Pythagoras.
- Founder of religious movement called Pythagoreanism

Pythagorean Claims

1. The soul is an eternal, self-moving number which passes from body to body.
2. The universe was created and is guided by a divine plan consisting of numbers and numerical relations, superior to matter and independent of it.
3. The study of numbers and numerical relationships (mathematics), and of sounds and harmonic relationships (music) leads to personal perfection.

Experimental Mathematics

- Undertook practical experiments concerning relationship between mathematics and music.
- Experimented with different string lengths, examining mathematical relationship between resultant notes when plucked and the lengths.
- Led to determination of musical scales as we know.
- First time physical law had been mathematically expressed.
- Began the science of mathematical physics.

The World as a Sphere

- Conceptualized the world as a sphere even though he had limited scientific basis at that time with which to back up his belief.
- View so powerful that it inspired later Greek scholars, including Aristotle, to see and ultimately find physical and mathematical evidence to reinforce thoery of world as orb.

Pythagoras and His School

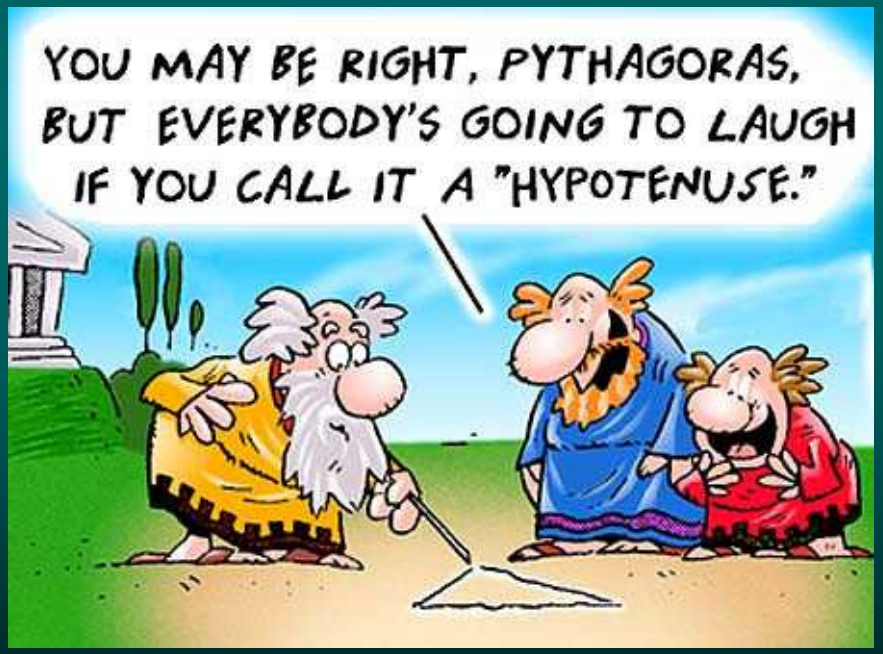
- Founded his school at Croton in Italy
- Objective was to further explore the relationship between the physical world and mathematics
- Experiments of the Pythagoreans led to numerous discoveries

Discoveries

- “The sum of a triangle's angles is the equal to two right angles [180*]”
- “The sum of the interior angles in a polygon of n sides is equal to 2n-4 right angles”
- Most important discovery was that of irrational numbers.

Pythagora's Theorem

- "The square of the hypotenuse on a right-angled triangle is equal to the sum of the squares on the other two sides"



Pythagoras's Theorem