

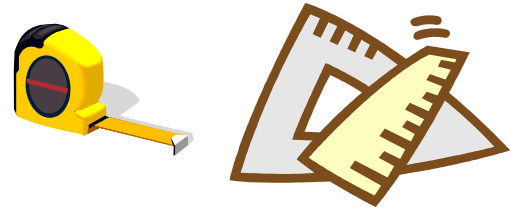
Who measured the Moon

Ans: Aristarchus in about 240BC.

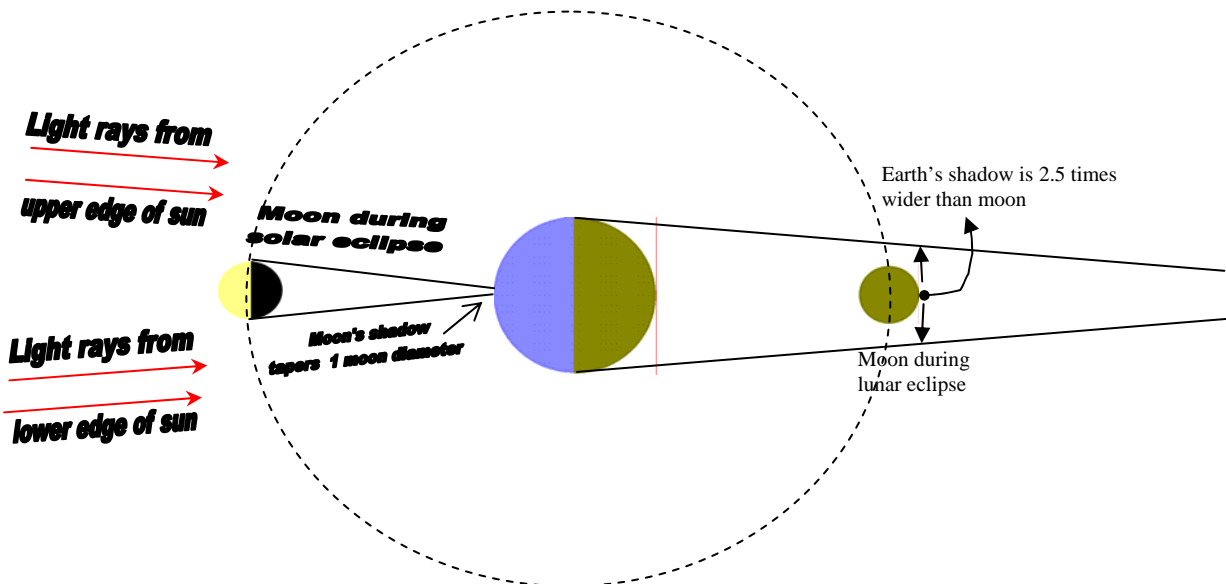


What tools did he use?

Ans: Mathematics/logical reasoning



How did he do it?



Aristarchus found that the Earth's shadow out at the moon was 2.5 times the moon's diameter. As you can see there is a taper to the shadow because of the huge size of the sun. Viewing the shadow the moon casts on the Earth during a solar eclipse Aristarchus sees that the sun's rays cause a taper of one moon diameter. Thus the moon's diameter is 3.5 times smaller than the Earth's diameter (2.5 for the tapered shadow plus 1 moon diameter for the amount of taper from the Earth's diameter – $2.5 + 1 = 3.5$.) The Earth's diameter as measured by Eratosthenes is approximately 12740km.

$$\text{Moon's diameter is } \frac{1}{3.5} \times 12740\text{km} = 3640\text{km}$$

For a dime you can easily measure the distance from the Earth to the moon. Stay tuned for the next installment in measuring the universe.