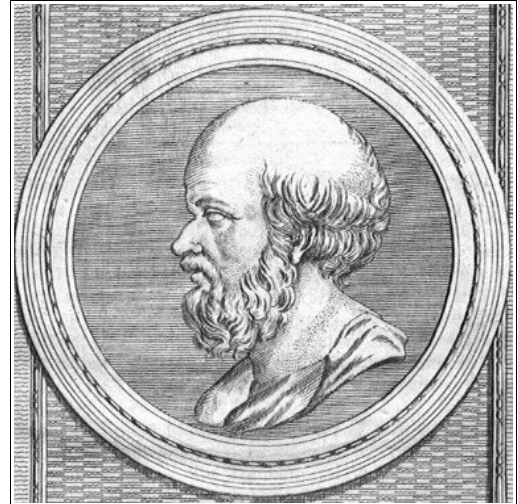# Eratosthenes (276-194 BCE)

Eratosthenes was born in Cyrene (modern-day Libya). He was to become the third chief librarian of the Great Library of Alexandria, the centre of science and learning in the ancient world.

It seems that he was not regarded by his contemporaries as a top rank mathematician. Perhaps, but even so most of us would like to have achievements like his to our name!

Eratosthenes interests were very broad. He wrote about the philosophy of Plato, music and ethics. He also produced literary works about the theatre.
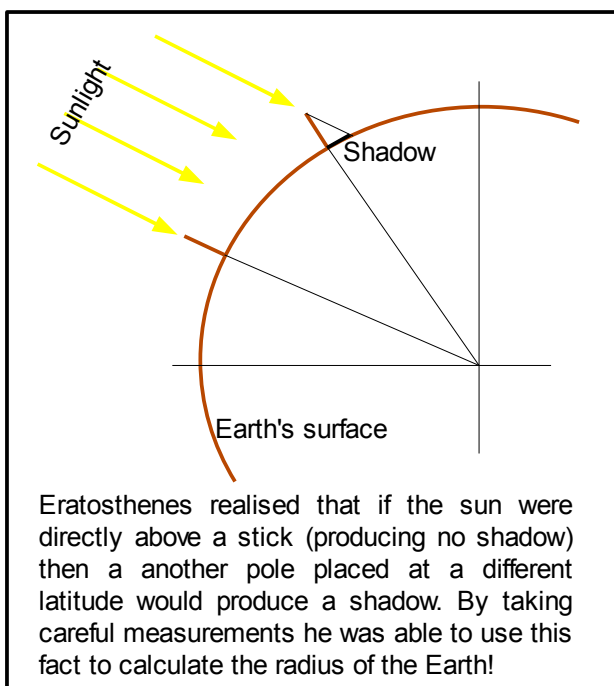
We do not have all of his writings so that some of our knowledge comes from what others said about him or from quotations found in other authors.

Eratosthenes is most famous today for two things (1) his 'sieve' for finding prime numbers, and (2) his calculation of the Earth's circumference.

The sieve. Write down the numbers you want to investigate in a table. Remove 1 since it is not a prime. The first prime is 2. Remove all the multiples of 2 (shown in green). The next number is 3. Remove all its remaining multiples (shown in blue). The next number is 5. Remove all its remaining multiples (red). There are no more multiples to remove so the remaining numbers are the primes.

Eratosthenes realised that if the sun were directly above a stick (producing no shadow) then a another pole placed at a different latitude would produce a shadow. By taking careful measurements he was able to use this fact to calculate the radius of the Earth!

Eratosthenes calculated the Earth's circumference to be 250,000 stadia. Estimates for the value of the stadia vary between 157.2 and 166.7 m. Whichever value you take He was within 5% of the true value.