



Archimedes

(287 BC - 212 BC)

*"Give me a lever
long enough and a
fulcrum on which to
place it, and I shall
move the world."
- Archimedes*

- Archimedes was a Greek scientist, inventor, astronomer, and mathematician. He was born in the town of Syracuse in Sicily.
- Archimedes is also well known for being the first person to understand statics, which is a part of applied mathematics. It has to do with loads that do not move, for example in buildings or bridges. He also understood and wrote about what happens when things float in liquids, which is called buoyancy.
- Archimedes' principle: the weight of water displaced by an object equals the amount of buoyancy it gets. It has practical uses. It can be used to measure the density of an object, and hence whether or not it is made of gold.
- The story of the golden crown does not appear in the surviving works of Archimedes. Archimedes may have got a solution known in hydrostatics as Archimedes' principle, which he describes in his treatise *On Floating Bodies*. This principle states that a body immersed in a fluid experiences a buoyant force equal to the weight of the fluid it displaces. Using this principle, it would have been possible to compare the density of the golden crown to that of solid gold by balancing the crown on a scale with a gold reference sample, then immersing the apparatus in water. The difference in density between the two samples would cause the scale to tip accordingly.
- Archimedes is also famous as an inventor because he made new tools and machines. For example, he made a machine to lift water that could be used by farmers to bring water to their crops. This is called Archimedes' screw.
- Archimedes probably also invented a machine to measure distance, an odometer. A cart was built with wheels that turned four hundred times in one mile. A pin on the wheel would hit a 400-tooth gear, so it turned once for every mile. This gear would then make a small stone fall into a cup. At the end of a journey one could count the number of stones in the cup to find the distance.
- Archimedes also made a system which one person could pull a large ship with just one rope. This was called the compound pulley. This is an important machine even today, as it helps people in everyday life, although the versions we now use are much more complicated. They still work by the same principle, though.