

## Archimedes' Principle

Archimedes' principle is a scientific law that explains why objects sink or float. It is used in shipbuilding, air and water travel, and as a safety and measuring tool.

## Buoyancy & Archimedes

Jamie enjoyed swimming in the pool on hot summer days. She liked to toss her pool toys in and swim down to the bottom to get them. Jamie noticed that some of the toys would sink to the bottom of the pool, while others floated on the top. She also noticed that when her dad dropped into the pool with a raft, some water would rise up and spill out over the sides.

When Jamie asked Dad why these things happened, he explained that they both had something to do with **buoyancy**, or the ability of an object to float in water or air, and a man named Archimedes. Jamie and her dad decided to look on the Internet to find out more about this Archimedes fellow.

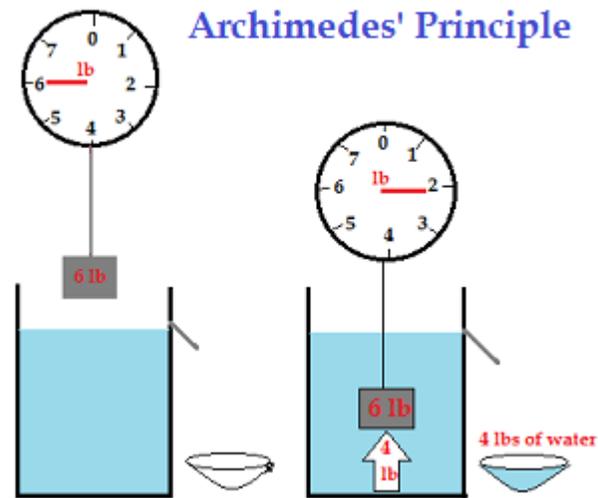
## Archimedes' Principle

Jamie and her dad discovered that Archimedes was a mathematician and an inventor from ancient Greece. One night as he was getting into the tub, he noticed that the further down he sank, the higher the water would rise and the more bathwater spilled out. This led him to develop a scientific law called **Archimedes' principle**, which states that *the buoyant force on a submerged object is equal to the weight of the fluid that is displaced by the object.*



*Archimedes*

Dad explained that submerged meant underwater, and that displaced meant pushed aside. When an object is dropped into water, some of that water is displaced. At the same time, buoyancy is pushing up on the object, which changes its weight. If the weight of the object is heavier than the amount of water it displaces, the object will sink. If the amount of water displaced is equal to the weight of the object, it will float.



*An object will sink if it weighs more than the water it displaces.*

## Importance of the Principle

Jamie wanted to know why Archimedes' principle was so important. She found out that it's used in shipbuilding to ensure that ships will float. Ships are usually made of metal and have a hollow hull, which allows the water to be displaced evenly. The ship will sink down into the water only until the weight of the water it displaces is equal to the weight of the ship.