

Buoyancy

The resultant force on a submerged body

Buoyancy is defined as the tendency of a body to float or rise when submerged in a fluid. The resultant force acting on a submerged body by the fluid is called the *buoyant force* and can be expressed as

$$F = v \cdot \rho \cdot g$$

where

F = buoyant force (N)

V = body volume (m³)

ρ = density of fluid (kg/m³)

g = [acceleration of gravity](#) (= 9.81 m/s²)

The buoyant force acts upwards.

Archimedes' principle indicates that :

Three cases can be experimented by the diver (or any object or vehicle)



How the diver does modify his buoyancy force?

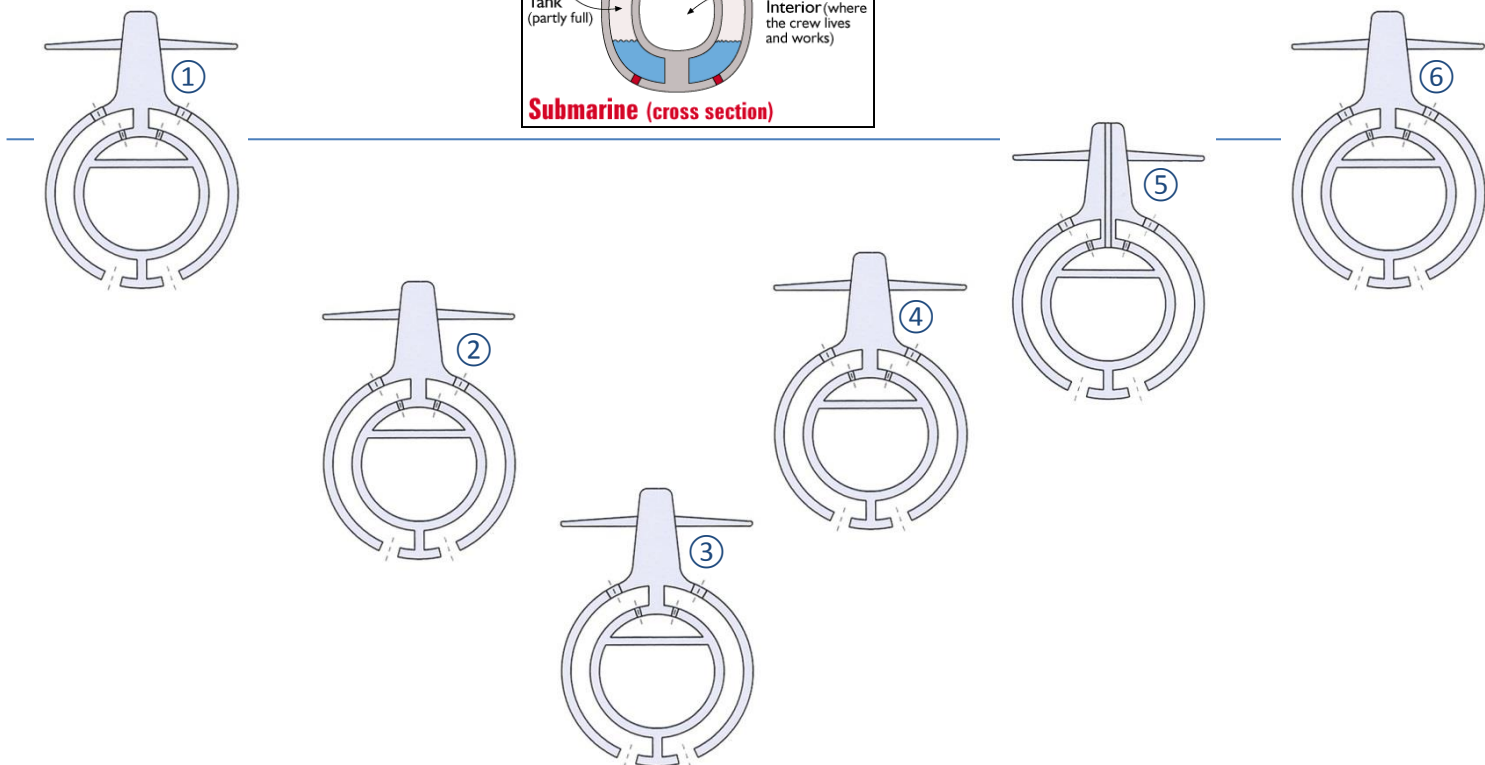
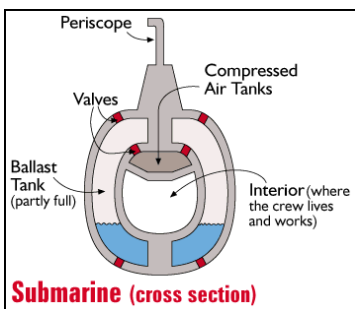
How is the ROV controlled?



Archimedes' Principle – Buoyancy force
BUOYANCY

What about the submarine? A sub has ballast tanks that can be filled with or

Let's see how it works.



For each position shown, indicate clearly which valves are open or closed, and, by arrows, what are the air and water movements in and out the ballast tanks

Explain what happens at each stage in the table below

1	
2	
3	
4	
5	
6	