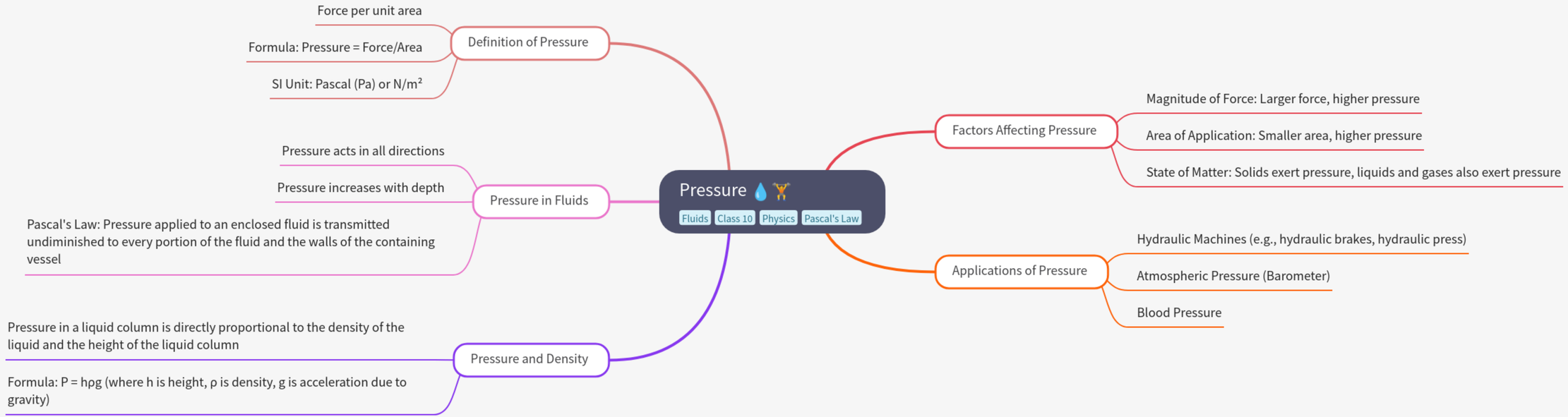
Pressure 💧🏋️
Fluids
Class 10
Physics
Pascal's Law
Definition of Pressure
Force per unit area
Formula: Pressure = Force/Area
SI Unit: Pascal (Pa) or N/m²
Pressure in Fluids
Pressure acts in all directions
Pressure increases with depth
Pascal's Law: Pressure applied to an enclosed fluid is transmitted undiminished to every portion of the fluid and the walls of the containing vessel
Pressure and Density
Pressure in a liquid column is directly proportional to the density of the liquid and the height of the liquid column
Formula: P = hρg (where h is height, ρ is density, g is acceleration due to gravity)
Factors Affecting Pressure
Magnitude of Force: Larger force, higher pressure
Area of Application: Smaller area, higher pressure
State of Matter: Solids exert pressure, liquids and gases also exert pressure
Applications of Pressure
Hydraulic Machines (e.g., hydraulic brakes, hydraulic press)
Atmospheric Pressure (Barometer)
Blood Pressure