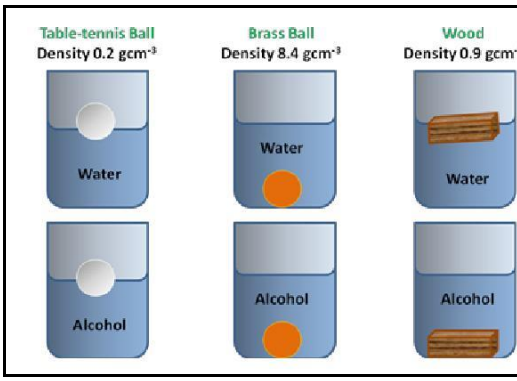
Floatation for Solids and Liquids

Science – Junior Cert

Quick Notes

Floatation for Solids and Liquids

Flotation for Solids and Liquids



Relating Flotation to Density

- Place different substances of know densities in **water (1 gcm^{-3})** and then in **alcohol (0.8 gcm^{-3})**

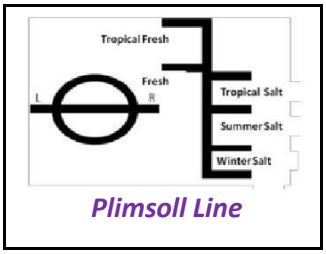
Results:

- A **table tennis** ball (**density 0.2 gcm^{-3}**) will float on water and on alcohol
- A piece of **wood (density 0.9 gcm^{-3})** will **float on water** but **sink in alcohol**
- A **brass ball (density 8.4 gcm^{-3})** will **sink in both**

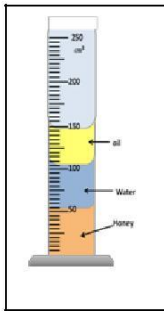
Conclusions

- A substance will
  - **float if it is less dense than the liquid**
  - **sink if it is more dense than the liquid**

  Important for ships because fresh water is less dense than sea water so a ship leaves the sea and goes into a river it will sink deeper into the water.
  The Plimsoll line, drawn on the ship's side, gives the levels it will sink to in different waters when fully loaded.
- **Ice floats because it is less dense than water**



Plimsoll Line



Liquids behave in a similar way provided they are **immiscible** (do not mix) see diagram on right.

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