

Upthrust and water displacement answers?

- ① The force that water pushes floating objects up with.
- ② Water equal to the weight of the object is displaced.
- ③ The water level will rise. The water displaced has equal volume to the object.
- ④ We know 2 kg of water will be displaced by a 2kg object.

$$\text{Density} = \frac{\text{Mass}}{\text{Volume}} \quad \text{rearrange this formula to find volume}$$

$$\text{Volume} = \frac{\text{Mass}}{\text{Density}} = \frac{2 \text{ kg}}{997 \text{ kg/m}^3} = 0.002 \text{ m}^3$$

- ⑤ Seabed, because that is where the greatest weight of water is above.

- ⑥ An object will float if its weight can be supported by displacing water without being fully submerged.

An object floats if its density is less than that of water.

$$\text{Volume of weight} = 0.5 \times 0.2 \times 0.3 = 0.03 \text{ m}^3$$

It requires the displacement of 0.002 m^3 to float which is less than the volume of the weight and so it floats.