

Changing Units, Changing Perspectives Answer Key

1. $1.2 \text{ g/cm}^3 \times 1000 = 1200 \text{ kg/m}^3$
2. Convert mass: $3.5 \text{ kg} = 3500 \text{ g}$
 $D = 3500/500 = 7.0 \text{ g/cm}^3$
3. $2.7 \text{ g/cm}^3 \times 1000 = 2700 \text{ kg/m}^3$
4. $1.0 \text{ L} = 1000 \text{ mL}$
 $D = 900/1000 = 0.9 \text{ g/mL}$
5.
 - $0.8 \text{ g/cm}^3 = 800 \text{ kg/m}^3$
 - $1 \text{ cm}^3 = 1 \text{ mL} \rightarrow 0.8 \text{ g/mL} = 800 \text{ g/L}$
6. $1.225 \text{ kg/m}^3 = 0.001225 \text{ g/cm}^3$
(Move decimal 3 places left for $\text{kg} \rightarrow \text{g}$, then divide by 1000 for $\text{m}^3 \rightarrow \text{cm}^3$)
7. $D = \frac{2000 \text{ g}}{0.002 \text{ m}^3} = 1,000,000 \text{ g/m}^3 = 1000 \text{ kg/m}^3$
8. $5500 \text{ kg/m}^3 = 5.5 \text{ g/cm}^3$
9. $13.6 \text{ g/cm}^3 = 13,600 \text{ kg/m}^3$
10. Water's density = 1000 kg/m^3 .
Substance = $800 \text{ kg/m}^3 \rightarrow$ **Less dense**, so it floats.