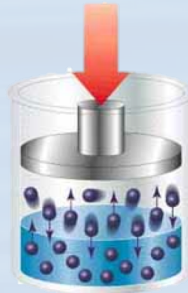
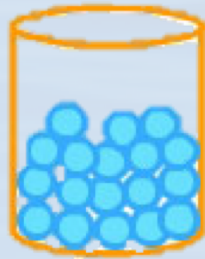
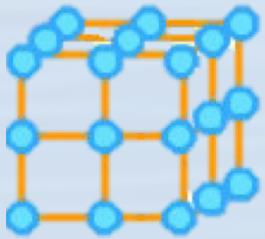


# Physics Recap

# Metabolic $O_2$ Consumption



# Physics Recap

## Metabolic Oxygen Consumption

- What is the metabolic consumption of oxygen of these 12 divers at 35m<sup>3</sup>, What volume of O<sub>2</sub> will they use after 12 days?

$$0.5 \text{ litres per Min} \times 60 \text{ mins} \times 24 \text{ hrs} = 720 \text{ litres per day}$$

so

$$12 \text{ divers} \times 720 \text{ litres per day} \times 12 \text{ days} \div 1000 \text{ (to convert to m}^3\text{)}$$

$$= 103.68 \text{ m}^3 \text{ of O}_2$$

# Physics Recap Metabolic Oxygen Consumption

- Two divers are working at 95 msw, breathing from a 16 x 50 litre quad at a pressure of 170 Bar. If the quad will be changed over at 50 bar, how long will it last them?

$$\text{Pressure differential} = 170_{\text{b(g)}} - 50_{\text{b(g)}} = \mathbf{120_{\text{bar}}}$$

$$\text{Available gas in quad} = \frac{120_{\text{bar}} \times 16_{\text{cylinders}} \times 50_{\text{Litres}}}{1000} = \mathbf{96_{\text{m}^3}}$$

$$\text{Hrly consumption} = \frac{10.5_{\text{b(a)}} \times 35_{\text{L/M}} \times 60_{\text{min}} \times 2_{\text{pax}}}{1000} = \mathbf{44.1_{\text{m}^3}}$$

$$\text{Gas duration} = \frac{96_{\text{m}^3}}{44.1_{\text{m}^3}} = 2.17_{\text{hrs}} = \mathbf{2_{\text{hrs}} \ 10_{\text{min}}}$$