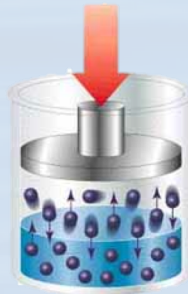
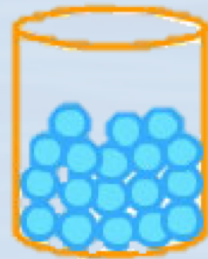
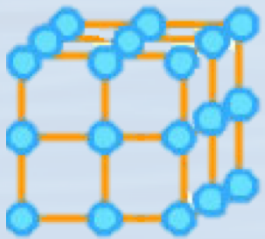


Physics Recap

Calculating a Partial Pressure



Physics Recap

Calculating a Partial Pressure

To Establishing a Partial Pressure use $\% \times AP \div 100$ (Daltons Law)

- A diver at a depth of 78 msw breathes a 6/94 heliox mix. What is the ppO₂?

Absolute Pressure at 78 msw = **8.8 bar(a)** Humans are always involved... so Pressure will always be **absolute**

Therefore Partial Pressure = $6\% \times 8.8\text{b(a)} \div 100 =$ **0.528 bar(a)**

Very often we express pp in millibars.

To find the mbar multiply the bar by 1000

= $0.528 \text{ bar(a)} \times 1000 =$ **528 mbar**

Physics Recap

Calculating a Partial Pressure

To Establishing a Partial Pressure use $\% \times AP \div 100$ (Daltons Law)

- A diver at a depth of 300 fsw and breathing a 5/94 heliox mix. What is the ppO₂?

$$\begin{aligned} \text{Absolute Pressure} &= \text{Depth} + 1 \text{ ata} \div 33 \\ &= 300 + 1 \text{ ata} \div 33 = \mathbf{10.09 \text{ ata}} \end{aligned}$$

$$\text{Decimalise the \%} = 5\% \div 100 = 0.05$$

$$\text{Therefore Partial Pressure} = 10.09 \times 0.05 = \mathbf{0.505 \text{ AT}}$$

Physics Recap

Calculating a Partial Pressure

- What is the ppO_2 in air at 97ft ?

$$97\text{ft} +. 1\text{ATA} \div 33\text{ft} = 3.939 \text{ ATA}$$

$$3.939 \times 21\% \div 100 \quad (\text{alternatively just use } 3.939 \times 0.21)$$

$$= \mathbf{0.827 \text{ ATA}}$$

Physics Recap

Calculating a Partial Pressure

- A chamber is at 90 msw and has a pO₂ of 400 mbar. If the chamber is vented to 35 msw what will be the % O₂ and pO₂?

O₂ remains the same ie 4.0% pO₂

$$\% \times AP \div 100$$

$$4.0\% \times 4.5_{b(a)} \div 100$$

$$= \mathbf{0.180} \text{ bar(a)}$$