

# Visualisation of diffusion in a liquid

Diffusion is the movement of a substance from an area of high concentration, to an area of low concentration. They will keep moving until there is an equilibrium.



Lanna

## My 3D model of diffusion across the alveoli into blood capillary

My model represents an alveoli with the pinker bit being the inside of the alveoli and the more red bit being the capillary blood vessel running past. The marbles act as unwanted gases such as CO<sub>2</sub> and nitrogen. These gases cannot pass through the small holes that only the oxygen molecules can pass through these are shown as the smaller metal balls. There are also red blood cells shown on the picture which some are oxygenated (red) and some are deoxygenate (blue).

Wilkie



### 3D Model of Diffusion

Diffusion is the net movement of particles from a region of high concentration to a region of low concentration. This is due to a concentration gradient. Diffusion happens in liquids and gases because their particles move from place to place, whereas in solids, the particles are fixed. Diffusion is an important process for living things. Examples of diffusion in our everyday lives include, perfume, the smell coming from lunch or dinner, sugar in tea, and multiple other examples. During breathing, diffusion of gases depends on having a large surface area, a short distance and a diffusion gradient.

Hannah



### My Diffusion Model Game



Ryan

Diffusion is the net movement of randomly moving particles from an area of high concentration to an area of low concentration. This happens in liquid and gas environments between permeable membranes which contain tiny pores so only particles of certain sizes can pass through. The wall in this model represents the each one-cell thick blood capillary and alveolus interface, with tiny holes in, that only certain-sized marbles can fit through. The orange marbles represent oxygen diffusing from the alveolus into the blood and the black marbles represent carbon dioxide diffusing from the blood into the alveolus. The bigger marbles represent large particles and organisms like dust and bacteria, which should not get into the blood.

#### The aim:

The aim is to get all the oxygen into the blood, all the carbon dioxide into the alveolus, without any larger particles getting into the blood, via a big hole cut into the blood vessel. This is difficult to achieve, showing that a damaged blood vessel or alveolus will easily allow unwanted particles to enter. In real life, as particles pass through the holes, they immediately would be transported to the cells with the blood, and to the lungs from the alveolus, maintaining the concentration gradient.