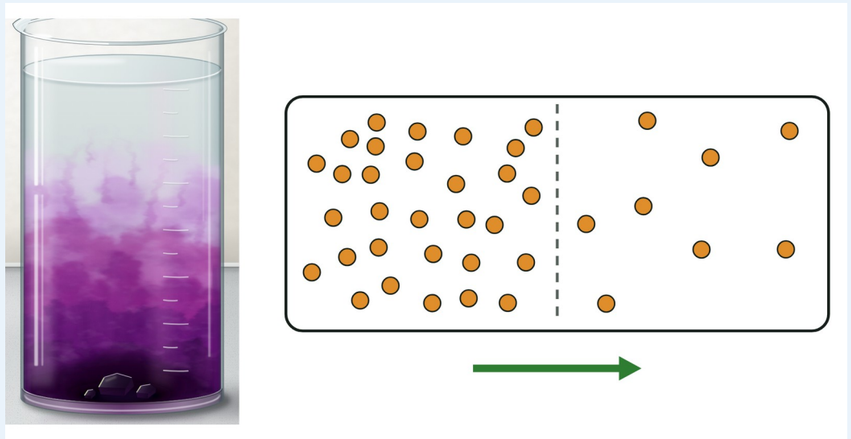
B1 L8 Alternative worksheet: Diffusion

Name: _____ Class: _____

Key facts

- **Diffusion** is the net movement of particles from an area of higher concentration to an area of lower concentration.
- **Concentration** is the amount of a substance in a given volume.
- Particles move at **random**, all the time. Diffusion needs **no energy** from respiration.
- Diffusion happens in **gases** and in **solutions**.
- When the particles are evenly spread, they **keep moving**, but there is no net movement.
- **Oxygen** diffuses from the blood into body cells. **Carbon dioxide** diffuses out of body cells into the blood.
- **Urea** is a waste product. It diffuses from cells into the blood plasma. The **kidneys** remove it.
- Diffusion is **faster** with a bigger difference in concentration, a higher temperature, a larger surface area and a shorter distance (a thinner membrane). The opposite of each makes it **slower**.



A real beaker (left) and a particle diagram (right).

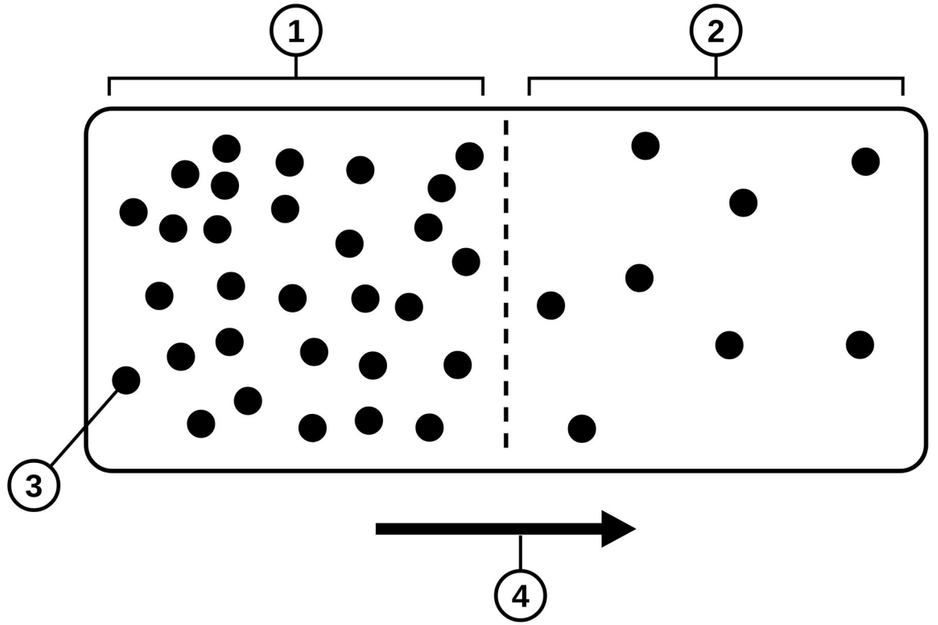
Real particles are far too small to see. The dots are a model.

A. Label the diagram

Help: online screens 2 and 3 [4]

Write a word from the box next to each number.

higher concentration	**lower concentration**
particle	**net movement**



1 _____ **3** _____

2 _____ **4** _____

Tip: look at where the dots are crowded.

B1 L8 Alternative worksheet: Diffusion

Name: _____ Class: _____

B. Match up

Help: online screens 1, 3 and 6 [5]

Draw a line from each word to what it means.

diffusion	in any direction, with no pattern
concentration	the organs that remove urea from the blood
urea	the net movement of particles from an area of higher concentration to an area of lower concentration
kidneys	a waste product that diffuses from cells into the blood plasma
random	the amount of a substance in a given volume

C. Fill in the gaps

Help: online screens 4, 6 and 9 [5]

Use the words in the box. Use each word once.

oxygen **carbon dioxide** **urea** **faster** **moving**

1. _____ diffuses from the blood into body cells.
2. _____ diffuses out of body cells into the blood.
3. _____ is a waste product that the kidneys remove.
4. When particles are evenly spread, they keep _____.
5. Diffusion is _____ at a higher temperature.

D. True or false?

Help: online screens 1, 2, 3, 4 and 9 [6]

Write true or false after each sentence.

1. Diffusion can happen in a gas. _____
2. Diffusion needs energy from respiration. _____
3. Particles all move in the same direction. _____
4. You can see one particle of the purple dye in water. _____
5. A bigger difference in concentration makes diffusion faster. _____
6. When particles are evenly spread, they stop moving. _____

E. Faster or slower?

Help: online screen 9 [6]

Does each change make diffusion faster or slower? Tick (✓) one box in each row.

Change	Faster	Slower
1. a warmer temperature		
2. a colder temperature		
3. a bigger difference in concentration		
4. a larger surface area		
5. a thicker membrane		
6. a smaller difference in concentration		