B1 L8 Mandatory worksheet: Diffusion

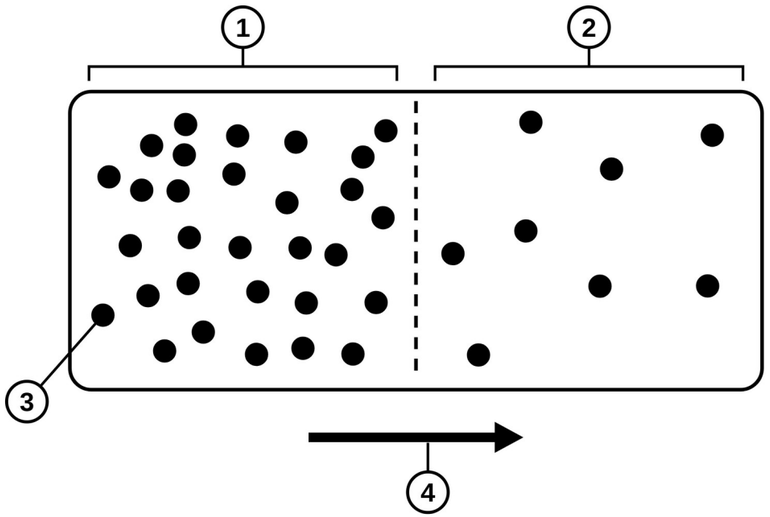
Name: _____ Class: _____

A. Label the particle diagram

Help: online screens 2 and 3 [5]

The diagram shows particles in a liquid. The dashed line splits the liquid into two areas.

(a) Write what each number on the diagram shows. [4]



1 _____ **3** _____

2 _____ **4** _____

(b) What does the dashed line show? Tick (✓) one box. [1]

- ☐ a wall that stops the particles
- ☐ the edge between two areas, not a barrier
- ☐ the place where the particles stop moving

B. Complete the sentences

Help: online screens 1, 3 and 7 [6]

Use words from the box. Each word can be used once. Two words are not needed.

net	**higher**	**lower**	**random**
gases	**energy**	**osmosis**	**water**

1. Diffusion is the _____ movement of particles from an area of _____ concentration to an area of _____ concentration. [3]

2. Particles in a liquid or a gas move at _____. [1]

3. Diffusion happens in solutions and in _____. [1]

4. Diffusion does not need _____ from respiration. [1]

C. Into or out of the blood?

Help: online screen 6 [6]

Does each substance move into the blood or out of the blood? Tick (✓) one box in each row.

Substance and place	Into the blood	Out of the blood
1. oxygen, in the lungs		
2. oxygen, next to a respiring muscle cell		
3. carbon dioxide, in the lungs		
4. carbon dioxide, next to a respiring muscle cell		
5. urea, next to a liver cell		
6. urea, in the kidneys		

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D. Short answers

Help: online screens 2, 3, 6, 9 and 10 [8]

1. What is meant by net movement? [1]

_____

2. Give the meaning of concentration gradient. [1]

_____

3. Give one way the real beaker of purple water is different from a particle diagram. [1]

_____

4. Name the organ that removes urea from the blood. [1]

_____

5. Diffusion is faster at a higher temperature. Give the reason. [2]

_____

_____

6. A dye moves 14 mm through jelly in 40 minutes. Calculate the rate of diffusion. Use: rate = distance ÷ time [2]

_____ mm per minute

E. The steepest gradient

Help: online screens 7 and 9 [4]

Oxygen diffuses from the blood into four body cells, A to D. The table shows the oxygen concentration in the blood and in each cell (in units).

(a) Complete the table. [2]

Cell	Oxygen in the blood	Oxygen in the cell	Difference
A	100	80	20
B	100	40	
C	100	10	
D	100	60	40

(b) Oxygen diffuses fastest into one cell. Which cell? Give a reason. [2]

_____

_____

F. Explain

Help: online screen 3 [3]

Explain why there is a net movement of particles from an area of higher concentration to an area of lower concentration, even though the particles move at random. [3]

_____

_____

_____

_____