1 Many substances can move through cell surface membranes between the cytoplasm of animal cells and the extracellular environment.

(a) A student made a drawing to summarise the movement of substances across the cell surface membranes of mammalian red blood cells.

Fig. 1.1 shows the drawing made by the student:

- Each arrow indicates the movement of a substance through the membrane.
- The number of each of the 4 shapes represents the relative concentrations of each substance in the cytoplasm and in the blood plasma.

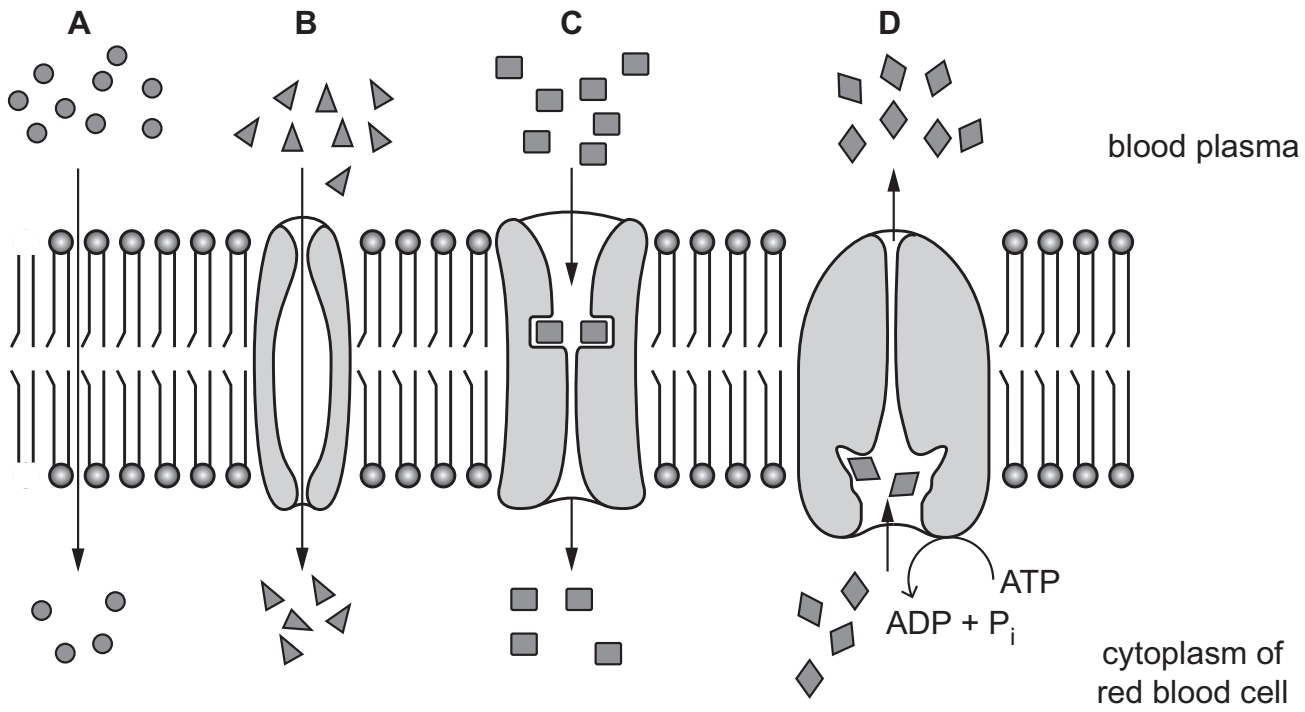

Fig. 1.1

The student carried out research and made a list of some of the substances found in red blood cells as shown in Fig. 1.2.

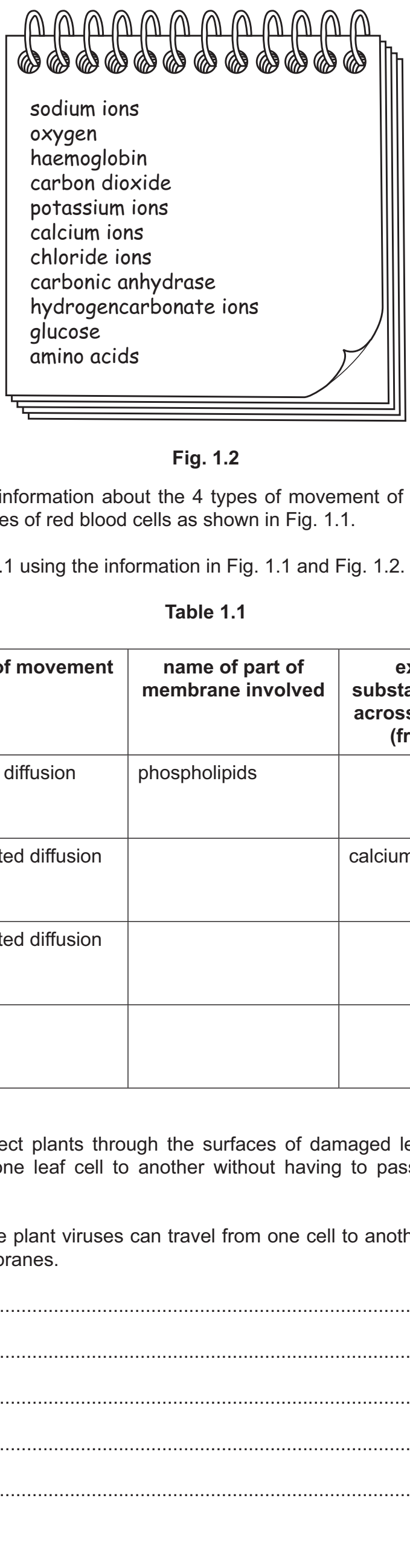

Fig. 1.2

Table 1.1 shows information about the 4 types of movement of substances across the cell surface membranes of red blood cells as shown in Fig. 1.1.

Complete Table 1.1 using the information in Fig. 1.1 and Fig. 1.2.

Table 1.1

letter from Fig. 1.1	type of movement	name of part of membrane involved	example of a substance that moves across the membrane (from Fig. 1.2)
A	simple diffusion	phospholipids	
B	facilitated diffusion		calcium ions
C	facilitated diffusion		
D			

[5]

(b) Some viruses infect plants through the surfaces of damaged leaves. These plant viruses can travel from one leaf cell to another without having to pass through any cell surface membranes.

Explain how some plant viruses can travel from one cell to another without passing through cell surface membranes.

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[Total: 7]