

1 Fig. 1.1 shows the movement of particles through an epithelial cell in the small intestine.

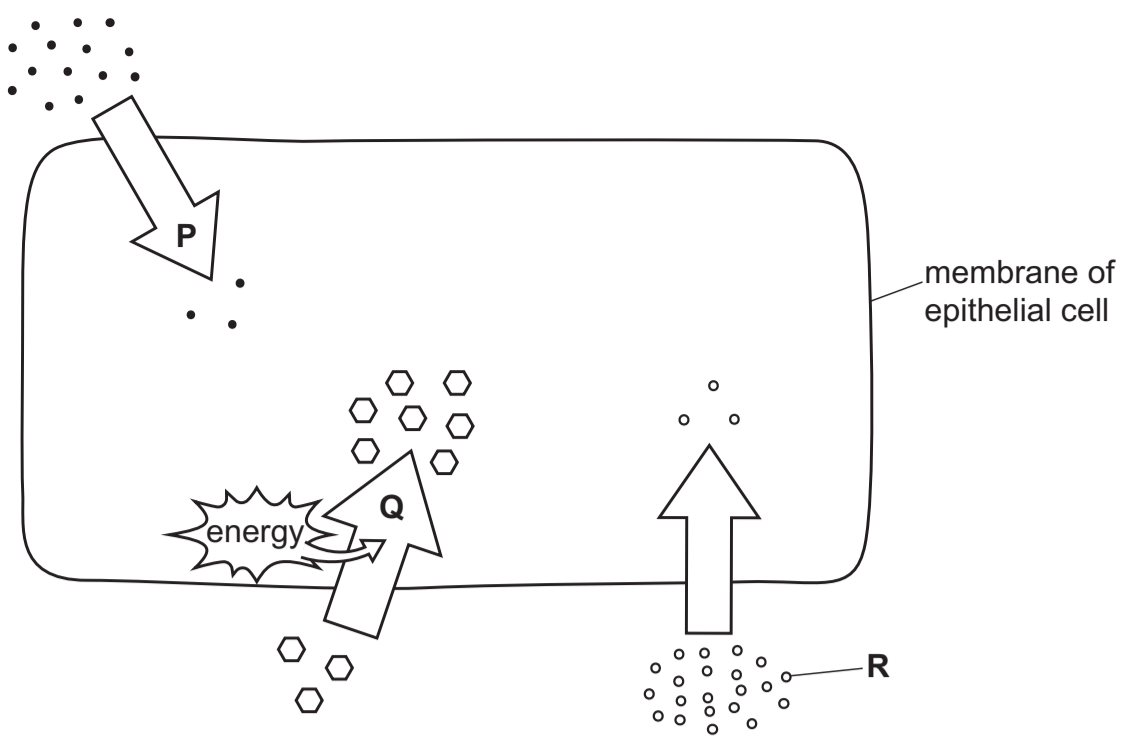


Fig. 1.1

(a) In Fig. 1.1, arrow **P** represents the diffusion of oxygen molecules.

(i) Describe what is meant by the term diffusion.

.....

 [2]

(ii) State the type of energy needed for diffusion.

..... [1]

(b) Carbon dioxide molecules also move by diffusion.

(i) State the name of the process in human cells that produces carbon dioxide.

..... [1]

(ii) On Fig. 1.1, draw an arrow to show the direction of diffusion of carbon dioxide molecules. [1]

(c) In Fig. 1.1, arrow **Q** represents another type of particle movement.

Identify the type of particle movement represented by arrow **Q**.

Explain your answer.

type of movement

explanation

.....
 [3]

(d) In Fig. 1.1, particle **R** moves from the lumen of the small intestine into the epithelial cell.

Suggest why particle **R cannot** be starch.

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 [2]

(e) Fig. 1.2 is a photomicrograph of red onion cells.

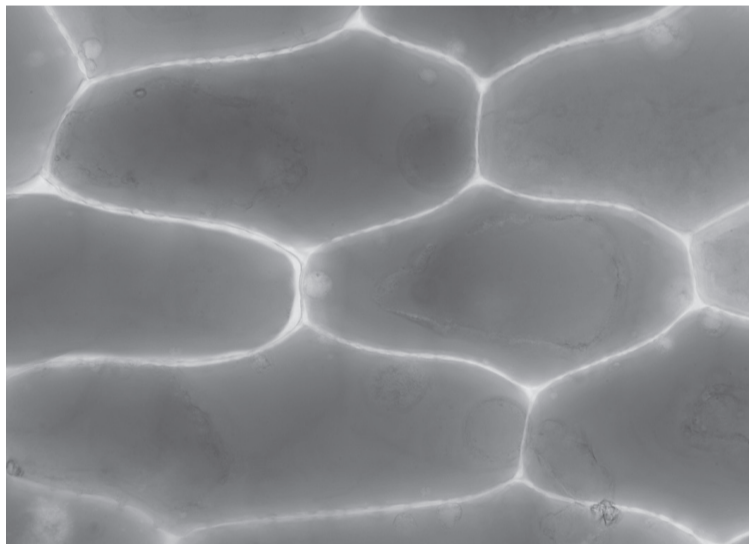


Fig. 1.2

Fig. 1.3 is a photomicrograph of the same red onion cells after being immersed in a salt solution.

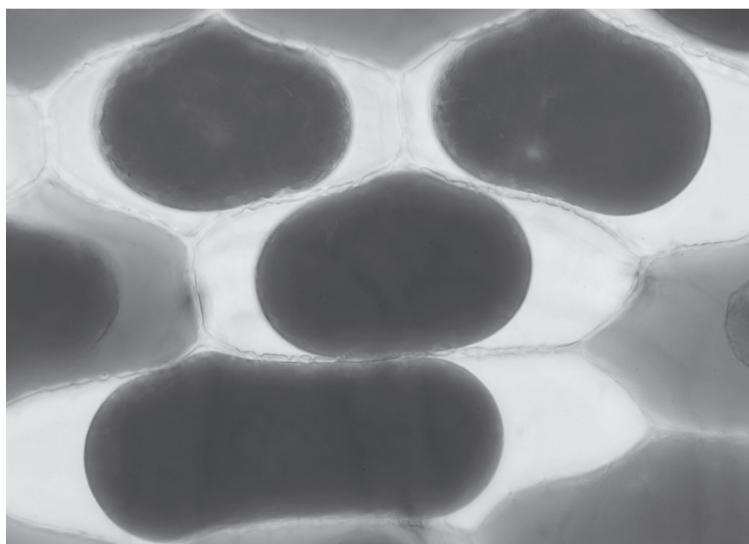


Fig. 1.3

Using Fig. 1.2 and Fig. 1.3, describe **and** explain the difference in appearance of the cells before and after immersion in salt solution.

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 [6]