

Photosynthesis

4. The light energy for photosynthesis is captured by

- A water
- B hydrogen
- C chlorophyll
- D oxygen.

5. Photosynthesis is a two stage process.

Stage 1 — Light reactions

Stage 2 — Carbon fixation

(a) The table below shows some statements about photosynthesis.

Complete the table to show which stage each statement refers to by placing a tick (✓) in the Stage 1 or Stage 2 box.

The first two statements have been completed for you.

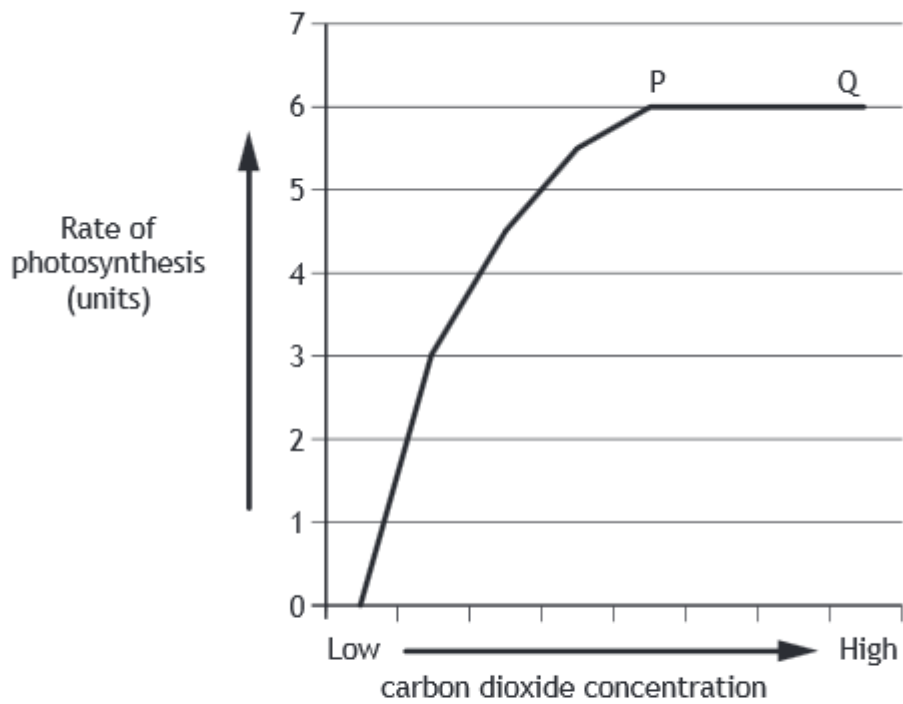
2

<i>Statement</i>	<i>Stage 1</i>	<i>Stage 2</i>
Carbon dioxide required		✓
Light energy required	✓	
Water required		
Sugar produced		
ATP + Hydrogen required		
Oxygen produced		

(b) Explain why high temperatures (above 50°C) would prevent the photosynthesis reactions from taking place.

2

(c) The graph below shows how the rate of photosynthesis is affected by the concentration of carbon dioxide.



State two environmental factors which could limit the rate of photosynthesis between points P and Q.

1

1 _____

2 _____

4. Photosynthesis is a two stage process used by green plants to produce food.

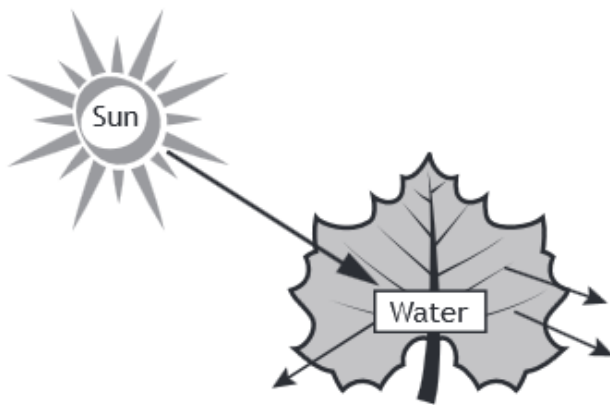
(a) The diagram below represents a summary of the first stage of photosynthesis.

Complete the diagram by filling in the three boxes, selecting terms from the list in the box below.

3

ATP	carbon dioxide	carbon fixation	
sugar	hydrogen	oxygen	light reactions

Name of the first stage



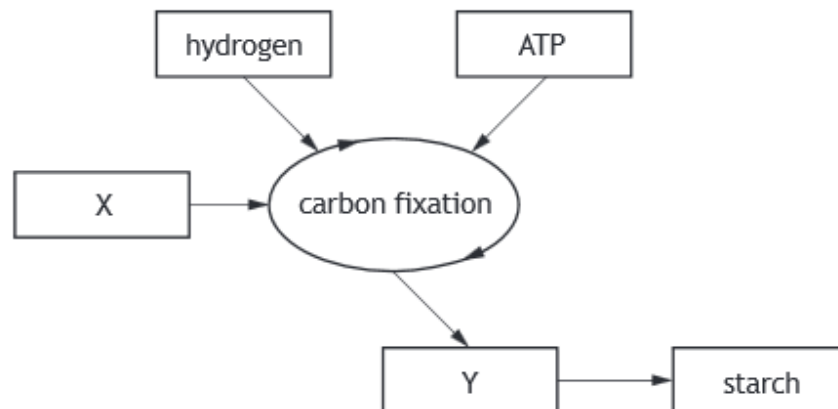
Two products used in second stage.
1. _____
2. _____

Diffuses out of the leaf

(b) Describe the second stage of photosynthesis.

2

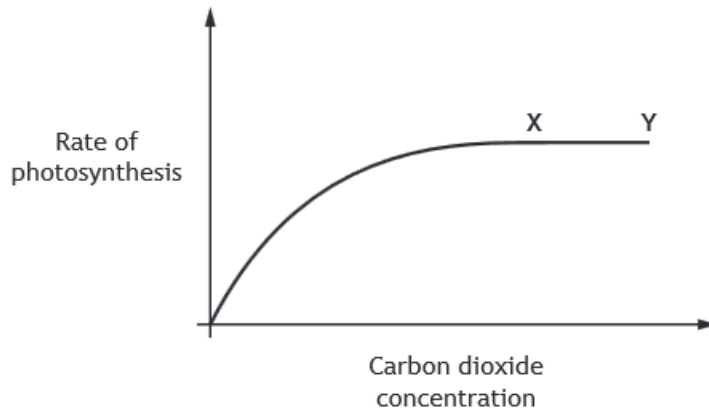
6. The diagram below shows the carbon fixation stage of photosynthesis.



Which row in the table below identifies X and Y?

	X	Y
A	Sugar	Oxygen
B	Water	Carbon dioxide
C	Carbon dioxide	Sugar
D	Water	Oxygen

4. The graph shows the effect of increasing carbon dioxide concentration on the rate of photosynthesis.



Two factors which could be limiting the rate of photosynthesis between points X and Y on the graph are

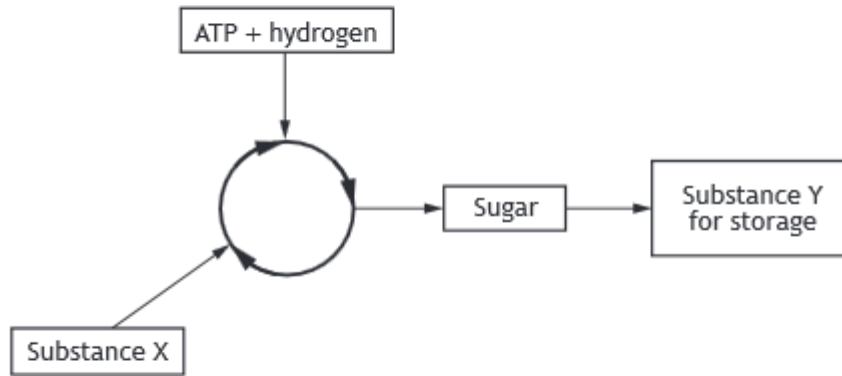
- A starch concentration and light intensity
 - B temperature and light intensity
 - C temperature and carbon dioxide concentration
 - D sugar concentration and carbon dioxide concentration.
5. Which row in the table describes a process in plants which requires sugar and a substance into which sugar is converted?

	<i>Process</i>	<i>Substance</i>
A	Photosynthesis	Cellulose
B	Respiration	Starch
C	Photosynthesis	Protein
D	Respiration	ATP

- (c) State one factor, other than temperature, which can limit the rate of photosynthesis.

1

- (d) The diagram represents the second stage of photosynthesis.



Name substances X and Y.

2

X _____

Y _____