

Photosynthesis Questions

1. Write a balanced equation to summarise the process of photosynthesis.
2. Explain the part played by NADP⁺ in photosynthesis.
3. Name the process that takes place in plants in which this energy is converted to a usable form.
4. Name the gas used in photosynthesis.
5. Name the gas produced during photosynthesis.
6. Suggest **one** way in which the rate of photosynthesis of plants in a greenhouse could be increased.
7. Light energy trapped by chlorophyll is used to split water. List **three** products that result when water is split.
8. Carbon dioxide is essential for photosynthesis. Where does it enter the leaf?
9. From your knowledge of photosynthesis suggest a way to increase the yield of plants such as lettuces in a greenhouse.
10. What is the primary role of chlorophyll in photosynthesis?
11. Write an equation to summarize photosynthesis.
12. Why is the dark stage of photosynthesis given the alternative name of the light-independent stage?
13. Name a gas that is essential for the dark stage of photosynthesis.
14. Two products of the light stage of photosynthesis are vital for the dark stage. Name each of them.
15. Name the structures in plant cells in which photosynthesis takes place.
16. In addition to carbon dioxide another small molecule is needed for photosynthesis. Name this other molecule.
17. What happens to water molecules when they reach the sites of photosynthesis?
18. State a precise role for each of the following in photosynthesis: (i) Carbon dioxide, (ii) Water.
19. Name the process that converts the principal source of energy into chemical energy in plants.
20. True or False : During photosynthesis oxygen is produced.
21. From what substance is oxygen produced?
22. In which stage of photosynthesis is oxygen produced?

23. 3. Give **two** possible fates of oxygen following its production.
24. In photosynthesis water (H_2O) is split into three products.
 1. Name these **three** products.
 2. State what happens to each of these products.
25. In what main part of a plant does most photosynthesis take place?
26. What do the letters ATP stand for?
27. Energised electrons play a central role in ATP formation during photosynthesis. What is an energised electron?
28. ATP is an abbreviation. What does it stand for?
29. In which of the stages of photosynthesis does ATP form?
30. In which stage of photosynthesis does carbon dioxide provide carbon for carbohydrate formation?
31. For what is ATP an abbreviation?
32. What is the role of ATP in cells?
33. Name the energy source for photosynthesis.
34. Where in a cell does photosynthesis take place?
35. Write a balanced equation for photosynthesis.
36. What is the main source of light for photosynthesis?
37. During photosynthesis water molecules are split into three products.
 1. Name each of these products.
 2. Describe what happens to each of the products.
38. What is the relationship between the rate of photosynthesis and **either** the light intensity **or** the carbon dioxide concentration.
39. Most Irish tomatoes are grown in greenhouses. State **two** ways a commercial producer could increase her/his crop yield of tomatoes.
40. The cells in the palisade layer contain many organelles that carry out photosynthesis. Suggest why the cells here contain more of these organelles than the cells in the spongy mesophyll.
41. Where in a plant cell does photosynthesis take place?
42. Give the alternative name of the first stage of photosynthesis.
43. During the first stage of photosynthesis energised electrons enter two pathways. Where do the energised electrons come from?
44. In the second stage of photosynthesis compounds of the general formula $\text{C}_x(\text{H}_2\text{O})_y$ are formed. What name is given to this group of compounds?

45. From which simple compound does the plant obtain the H used to make compounds of general formula $C_x(H_2O)_y$?
46. Name the simple compound that supplies the necessary energy for the second stage reactions in photosynthesis.
47. For which purpose did you use an aquatic plant such as pondweed rather than a terrestrial plant when investigating the rate of photosynthesis?
48. What is meant by the term *photosynthesis*?
49. A gas from the air is needed for photosynthesis. Name this gas.
50. Name the part of a plant cell in which photosynthesis takes place.
51. Write a balanced equation for photosynthesis.
52. Plants contain the green pigment chlorophyll. What is the role of chlorophyll in photosynthesis?
53. Name any **two** environmental factors affecting photosynthesis that could be investigated using *Elodea* in water.
54. How would you measure the rate of photosynthesis using the apparatus containing *Elodea* and water?
55. In your investigation on the rate of photosynthesis, the variable was either light intensity or CO₂ concentration.

I indicate clearly which factor you choose to address and answer the following questions:

1. Suggest a suitable plant for such an investigation.
2. How was the rate of photosynthesis measured?
3. Name a factor that must be kept constant during this investigation.
4. Explain how you would keep constant the factor referred to in 3.
5. Why is it necessary to keep that factor constant?