# Photosynthesis

A-Level Biology · Vocabulary in context

| Word | Example |
|---|---|
| **photosynthesis** /ˌfəʊtəʊˈsɪnθəsɪs/ | Plants make sugar by **photosynthesis**. |
| **chloroplast** /ˈklɔːrəʊplæst/ | A **chloroplast** carries out photosynthesis. |
| **thylakoid** /ˈθaɪləkɔɪd/ | Each **thylakoid** is a flat sac inside the chloroplast where light is absorbed. |
| **grana** /ˈgrɑːnə/ | **Grana** are stacks of thylakoids, like piles of coins. |
| **stroma** /ˈstrəʊmə/ | The **stroma** is the fluid in the chloroplast where the Calvin cycle happens. |
| **light-dependent stage** /laɪt dɪˈpendənt steɪdʒ/ | In the **light-dependent stage**, light energy makes ATP and splits water. ATP |
| **reduce** /rɪˈdjuːs/ | NAD is **reduced** when it picks up hydrogen. NAD |
| **light-independent stage** /laɪt ˌɪndɪˈpendənt steɪdʒ/ | The **light-independent stage** uses ATP to turn carbon dioxide into sugar. ATP |
| **Calvin cycle** /ˈkælvɪn ˈsaɪkl/ | In the **Calvin cycle**, carbon dioxide is turned into sugar in the stroma. |
| **carbon dioxide** /ˈkɑːbən daɪˈɒksaɪd/ | We breathe out **carbon dioxide**. |
| **pigment** /ˈpɪgmənt/ | Chlorophyll is a green **pigment**. |
| **chlorophyll** /ˌklɔːrəʊˈfɪl/ | **Chlorophyll** makes leaves green. |
| **carotene** /ˈkærəʊtiːn/ | **Carotene** is an orange pigment that helps absorb light. |



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| **xanthophyll** /ˈzænθəfɪl/ | **Xanthophyll** is a yellow pigment in leaves. |
| **absorption spectrum** /əbˈsɔːpʃn ˈspektrəm/ | An **absorption spectrum** has dark lines. |
| **action spectrum** /ˈækʃn ˈspektrəm/ | The **action spectrum** shows that red and blue light give the fastest photosynthesis. |
| **chromatography** /krəʊməˈtɒgrəfi/ | **Chromatography** separates the dyes in ink. |
| **Rf value** /ˌɑːˈref ˈvæljuː/ | The **Rf value** is the distance the spot moves divided by the distance the solvent moves. |
| **photophosphorylation** /ˌfəʊtəʊˌfɒsfɔːrɪˈleɪʃn/ | In **photophosphorylation**, light energy is used to make ATP.<br>ATP |
| **cyclic photophosphorylation** /ˈsaɪklɪk ˌfəʊtəʊˌfɒsfɔːrɪˈleɪʃn/ | **Cyclic photophosphorylation** makes ATP but no reduced NADP.<br>ATP NADP |
| **photosystem** /ˌfəʊtəʊˈsɪstəm/ | A **photosystem** is a group of pigments that catch light energy. |
| **photoactivation** /ˌfəʊtəʊˌæktɪˈveɪʃn/ | In **photoactivation**, light gives an electron extra energy so it leaves the chlorophyll. |
| **electron** /ɪˈlektrɒn/ | An **electron** has a negative charge. |
| **non-cyclic photophosphorylation** /nɒn ˈsaɪklɪk ˌfəʊtəʊˌfɒsfɔːrɪˈleɪʃn/ | **Non-cyclic photophosphorylation** makes ATP, reduced NADP and oxygen.<br>ATP、 NADP |
| **oxygen-evolving complex** /ˈɒksɪdʒn ɪˈvɒlvɪŋ ˈkɒmpleks/ | The **oxygen-evolving complex** splits water and releases oxygen. |



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| **photolysis** /fəʊˈtɒləsɪs/ | In **photolysis**, light splits water into hydrogen ions, electrons and oxygen. |
| **oxygen** /ˈɒksɪdʒn/ | Your cells need **oxygen** to release energy. |
| **electron transport chain** /ɪˈlektrɒn ˈtrænspɔːt tʃeɪn/ | The **electron transport chain** passes electrons along proteins in the inner membrane. |
| **proton** /ˈprəʊtɒn/ | A **proton** has a positive charge. |
| **ATP synthase** /ˌeɪ tiː ˈpiː ˈsɪnθeɪs/ | **ATP synthase** makes ATP as hydrogen ions flow through it. |
| **chemiosmosis** /ˌkemɪəzˈməʊsɪs/ | In **chemiosmosis**, hydrogen ions flow back through the membrane and drive ATP synthase. |
| **fixation** /fɪkˈseɪʃn/ | The **fixation** of carbon dioxide turns it into a sugar. |
| **enzyme** /ˈenzaɪm/ | The **enzyme** speeds up the reaction. |
| **regenerate** /riːˈdʒenəreɪt/ | The Calvin cycle must **regenerate** RuBP so it can keep going. |
| **amino acid** /əˈmiːnəʊ ˈæsɪd/ | Glycine is the simplest **amino acid**. |
| **carbohydrate** /ˌkɑːbəʊˈhaɪdreɪt/ | Glucose is a simple **carbohydrate** used in respiration. |
| **lipid** /ˈlɪpɪd/ | Fats and oils are **lipids**, and they do not mix with water. |
| **limiting factor** /ˈlɪmɪtɪŋ ˈfæktə/ | On a dark day, light is the **limiting factor** for photosynthesis. |
| **light intensity** /laɪt ɪnˈtensɪti/ | Photosynthesis is faster at a higher **light intensity**. |



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| **concentration** /ˌkɒnsən'treɪʃn/ | The **concentration** of the acid is 2 mol/dm$^3$. 2 mol/dm$^3$ |
| **temperature** /'temprɪtʃə/ | The thermometer shows the water's **temperature**. |
| **indicator** /'ɪndɪkeɪtə/ | The **indicator** changes colour at the end point. |
| **wavelength** /'weɪvleŋθ/ | The **wavelength** is the distance from one crest to the next. |
| **aquatic plant** /ə'kwætɪk plænt/ | Pondweed is an **aquatic plant**: it grows under water. |



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