

Photosynthesis Myths

Eight things many people believe about plants, and what the evidence actually shows.

× MYTH Plants get their food from the soil.

1

✓ FACT Plants make their own food, glucose, by photosynthesis. Soil supplies water and mineral ions such as nitrate; 'plant food' fertiliser is minerals, not food.

× MYTH Most of a plant's mass comes from the soil.

2

✓ FACT Van Helmont's willow gained about 74 kg while its soil lost about 57 g. Most new mass is built from carbon dioxide taken from the air, plus water.

× MYTH The oxygen plants give out comes from carbon dioxide.

3

✓ FACT It comes from water. Tracer experiments in 1941 showed the oxygen released is split from water; the oxygen atoms in CO_2 end up in the sugar.

× MYTH Plants photosynthesise and animals respire.

4

✓ FACT Plants respire too, in every living cell, day and night. In bright light they photosynthesise faster than they respire, which hides it.

× MYTH Plants breathe in carbon dioxide and breathe out oxygen.

5

✓ FACT Plants do not breathe. Gases diffuse in and out through the stomata; photosynthesis uses carbon dioxide while respiration uses oxygen.

× MYTH Leaves are green because chlorophyll absorbs green light.

6

✓ FACT The reverse: chlorophyll absorbs mostly red and blue light and reflects much of the green, which is the light that reaches your eyes.

× MYTH Only leaves can photosynthesise.

7

✓ FACT Any green part with chloroplasts can, including young stems. Algae and cyanobacteria with no leaves at all make about half of Earth's oxygen, in the ocean.

× MYTH The Amazon rainforest makes 20% of the world's oxygen.

8

✓ FACT Estimates are nearer 6–9%, and the forest's plants and decomposers use almost all of it again, so its net effect on the air is close to zero.

💡 Follow the atoms

To test a claim about plants, ask where each atom comes from and goes to, and what happens at night. Most myths fail one of these checks.

NEXT IN THE SERIES

9. *Photosynthesis Quiz: 10 Questions with Answers*