

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 CO₂ 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