

LESSON PLAN

Photosynthesis in the Garden

Grade band: 3-5 · Estimated time: 45 minutes

A publication of Global One Urban Farming · Kansas City, MO

Learning objective

Students model how plants convert sunlight, water, and carbon dioxide into food and oxygen, and identify evidence of this process in a real garden.

Standards alignment

- NGSS 5-LS1-1: Plants get materials they need for growth chiefly from air and water
- NGSS 5-PS3-1: Energy in animals' food was once energy from the sun

Materials

- Fresh spinach or lettuce leaves
- Clear jar of water
- Sunny window or lamp
- Chart paper
- The photosynthesis equation printed as a poster: $6\text{CO}_2 + 6\text{H}_2\text{O} + \text{light} \rightarrow \text{C}_6\text{H}_{12}\text{O}_6 + 6\text{O}_2$

Lesson sequence

- Submerge a fresh leaf in a jar of water and place in strong sunlight for 30 minutes.
- Students observe tiny bubbles forming on the leaf surface. Ask: what gas is that? (oxygen)
- Introduce the equation. Have students act out the ingredients — one group is CO_2 , one is water, one is sunlight, one is the leaf.
- Walk out to a real garden bed. Ask students to point to where each ingredient comes from.
- Return to the classroom and write an exit ticket: 'A plant is a factory that turns ____ into ____.'

Extension & assessment

Assess with the exit ticket. Extend by covering half of a garden leaf with foil for three days and comparing color — the covered half yellows because it can no longer photosynthesize.