

Activity 2. Exploring history of the development of photosynthesis knowledge

Activity 2. 1. Writing activity

- Use the Internet or library resources to research the experiments conducted by one of these scientists related to photosynthesis:

Jan van Helmont (1643)

After careful measurements of a plant's water intake and mass increase, van Helmont concludes that trees gain most of their mass from water.

Joseph Priestly (1771)

Using a bell jar, a candle, and a plant, Priestly finds that the plant releases a substance that keeps the candle burning – a substance that we know is oxygen.

Jan Ingenhousz (1779)

Ingenhousz finds that aquatic plants produce oxygen bubbles in the light but not in the dark. He concludes that plants need sunlight to produce oxygen.

Julius Robert Mayer (1845)

Mayer proposes that plants convert light energy into chemical energy

Samuel Ruben and Martin Kamen (1941)

Ruben and Kamen use isotopes to determine that the oxygen liberated in photosynthesis comes from water.

Melvin Calvin (1948)

Calvin traces the chemical path that carbon follows to form glucose. These light-independent reactions are known as the Calvin cycle.

Rudolph Marcus (1992)

Marcus wins the Nobel prize in chemistry for describing the process by which electrons are transferred from one molecule to another in the electron transport chain.

Based on your investigation, write a summary (e.g. in the form of a poster) describing how the scientist contributed to the modern understanding of photosynthesis.

Activity 2. 2. Compiling a flowchart

According to the historical sequence, groups introduce the ideas (~5 min.) that contributed to the development of photosynthesis-related knowledge.