

PLANTS & PHOTOSYNTHESIS

TEXT MARKING DETECTIVE

AND PHOTOSYNTHESIS

organisms that need food in order to survive. Unlike who must consume other things, plants are known as they make their own food source through a process called photosynthesis. Photosynthesis is made up of the words photo, meaning light, and synthesis meaning putting together. Through this process, plants use sunlight and carbon dioxide to produce glucose and oxygen. This process is vital for humans and other animals without it, the earth and its inhabitants would not be able to survive.

Joseph Priestley began the study of photosynthesis in 1774. He placed a mint sprig inside a closed container. He then placed a mouse in the container and observed that the mint produced a gas, which was oxygen. Dutch scientist Jan Ingenhousz expanded on Priestley's experiment by exposing plants to light. He discovered that plants and photosynthesis require three things: sunlight, carbon dioxide, and water. Chlorophyll, a green compound or chemical, is found in the chloroplasts which are small structures located in the cells of plants. Sunlight provides energy and is absorbed by chlorophyll. Leaves also have small openings called stomata that absorb carbon dioxide from the air. Water is taken up by the roots of a plant and travels through the veins of a plant called xylem. There are three main pigments that give plants their color: chlorophyll a (blue-green), chlorophyll b (yellow-green), and carotenoids (yellow, orange, and red).

CASE FILE

Cross off the images you use as an answer. What remains will solve the case!

SUSPECTS				
LOCATION				
EVIDENCE				

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4 What 'photo'...

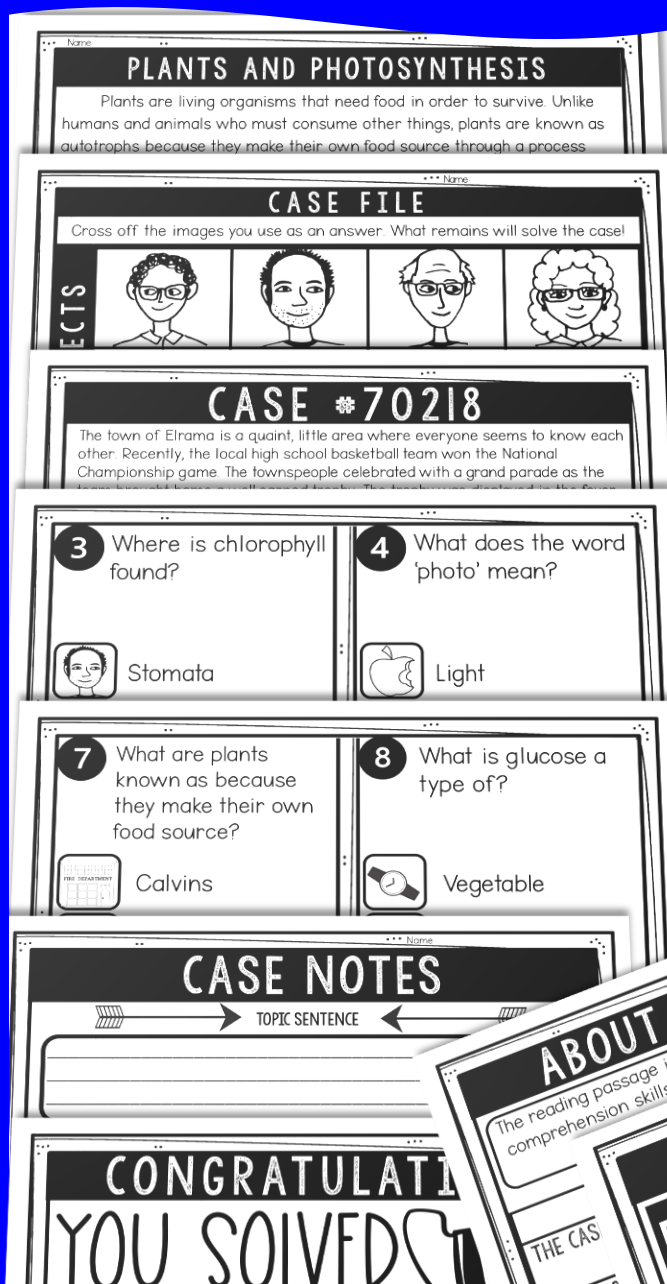
Light
Dark
Together
Apart

6 ... are red and pigments common found in red algae

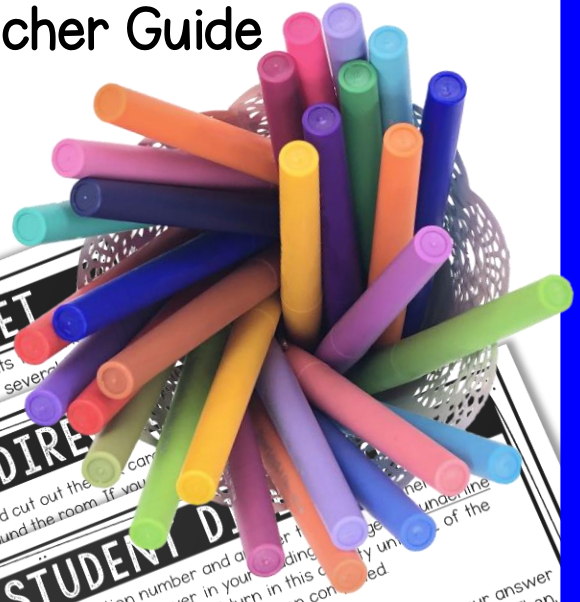
Carotenoids

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WHAT'S INCLUDED?

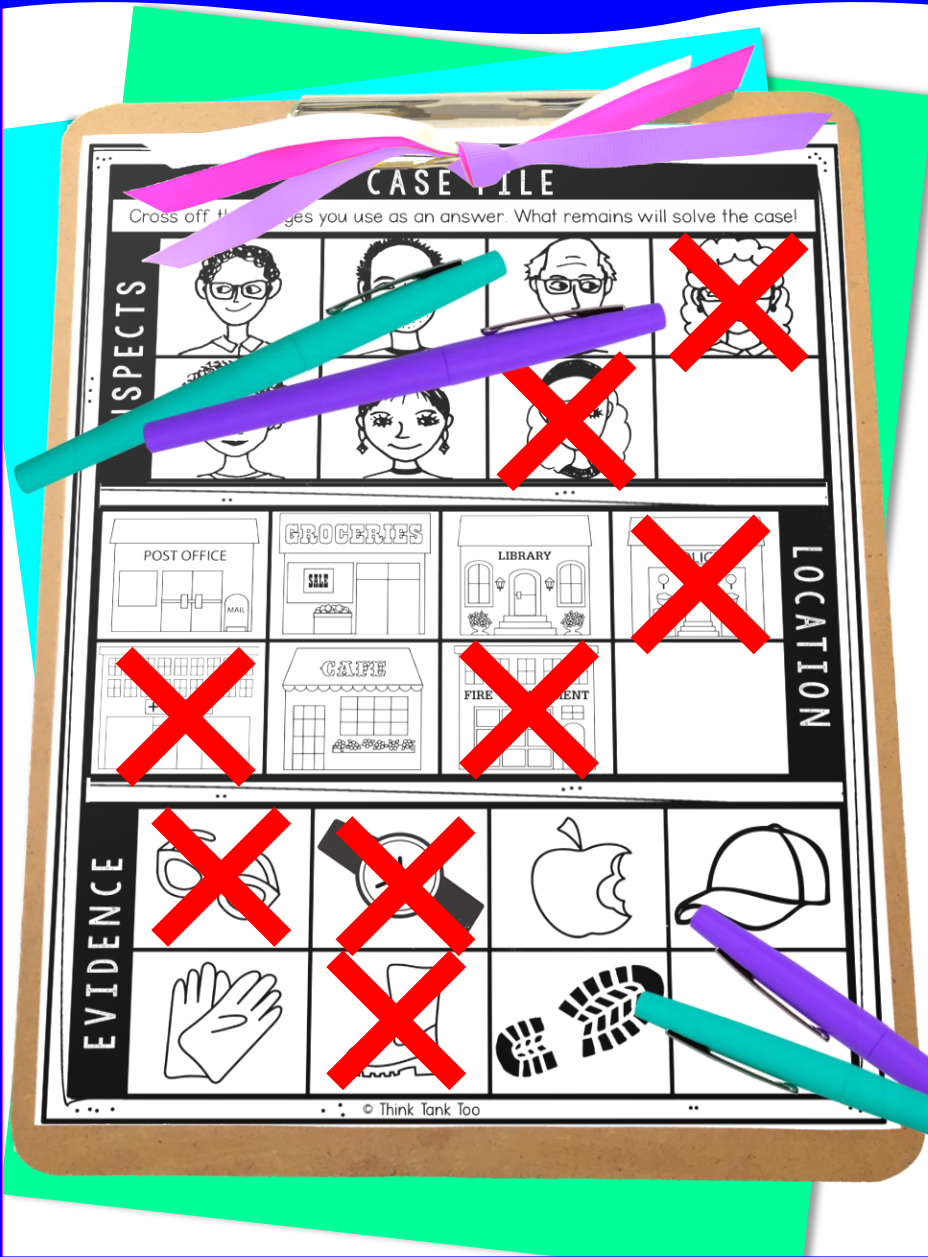


- ✓ Case File Dossier
- ✓ 16 Questions
- ✓ Graphic Organizer
- ✓ Reading Passage
- ✓ Completion Certificate
- ✓ Student Recording Sheet
- ✓ Student Directions
- ✓ Teacher Answer Key
- ✓ Teacher Guide



CASE DOSSIER





As students answer each question, they will eliminate suspects, locations, and evidence.



18 QUESTIONS





CONGRATULATIONS YOU SOLVED THE CASE!
DETECTIVE NAME: _____

8 What is glucose a type of?





-  Vegetable
-  Wheat
-  Flour
-  Sugar

10 LDR stands for Light Dependent _____



11 What is a green compound or chemical?

-  Chlorophyll
-  Electrolytes
-  Stigma
-  Pistils

12 _____ main step





-  4
-  6
-  8
-  12

13 What is the monotropia uniflora also known as?

-  Corpse
- 



14 _____ green them yellow

15 What are the tiny holes in leaves called?

-  ATP
-  Stamina
-  Stomata
-  Xylem









16 The Calvin Cycle _____ main step

17 Sugar is broken down into energy by the _____

-  Pistils
-  Mitochondria

18 _____

CASE FILE
Cross off the images you use as an answer. What remains will solve the case!

SUSPECTS

GROCERIES **LIBRARY** **POLICE**

TEXT MARKING

After answering each question, students will find evidence in the text to support their answer.

PLANTS AND PHOTOSYNTHESIS

Plants are living organisms that need food in order to survive. Unlike humans and animals who must consume other things, plants are known as autotrophs because they make their own food source through a process called photosynthesis. Photosynthesis is made up of two words photo, meaning light, and synthesis meaning putting together. Through this process, energy is taken from sunlight to convert water and carbon dioxide into glucose. This process is vital for humans and other living organisms. Without it, the earth and its inhabitants would not be able to survive.

In 1771, Joseph Priestley began the study of photosynthesis by burning a candle in a closed container. He then placed a mint sprig inside the container and observed that the mint produced a gas, which was later named oxygen. Dutch scientist Jan Ingenhousz expanded on the research of Priestley by exposing plants to light.

Plants and photosynthesis require three things: sunlight, water, and carbon dioxide. Sunlight provides energy and is absorbed through chlorophyll, a green compound or chemical. Chlorophyll is found inside chloroplasts which are small structures located in the cells of leaves and can only be seen through a microscope. Leaves also have tiny holes called stomata that absorb carbon dioxide from the air. Finally, water is absorbed from the soil through the plant's roots. The absorbed water is carried through the veins in the leaves called xylem.

Plants have three types of pigments that give them color and trap light waves. Chlorophyll traps blue and red light, producing a green pigment. Carotenoids absorb bluish-green light making them yellow, orange, or red. Phycobilins are red and blue pigments common in algae or cyanobacteria.

When chlorophyll absorbs energy from the sun, that energy is then used to combine water and carbon dioxide into oxygen and glucose. Glucose,

