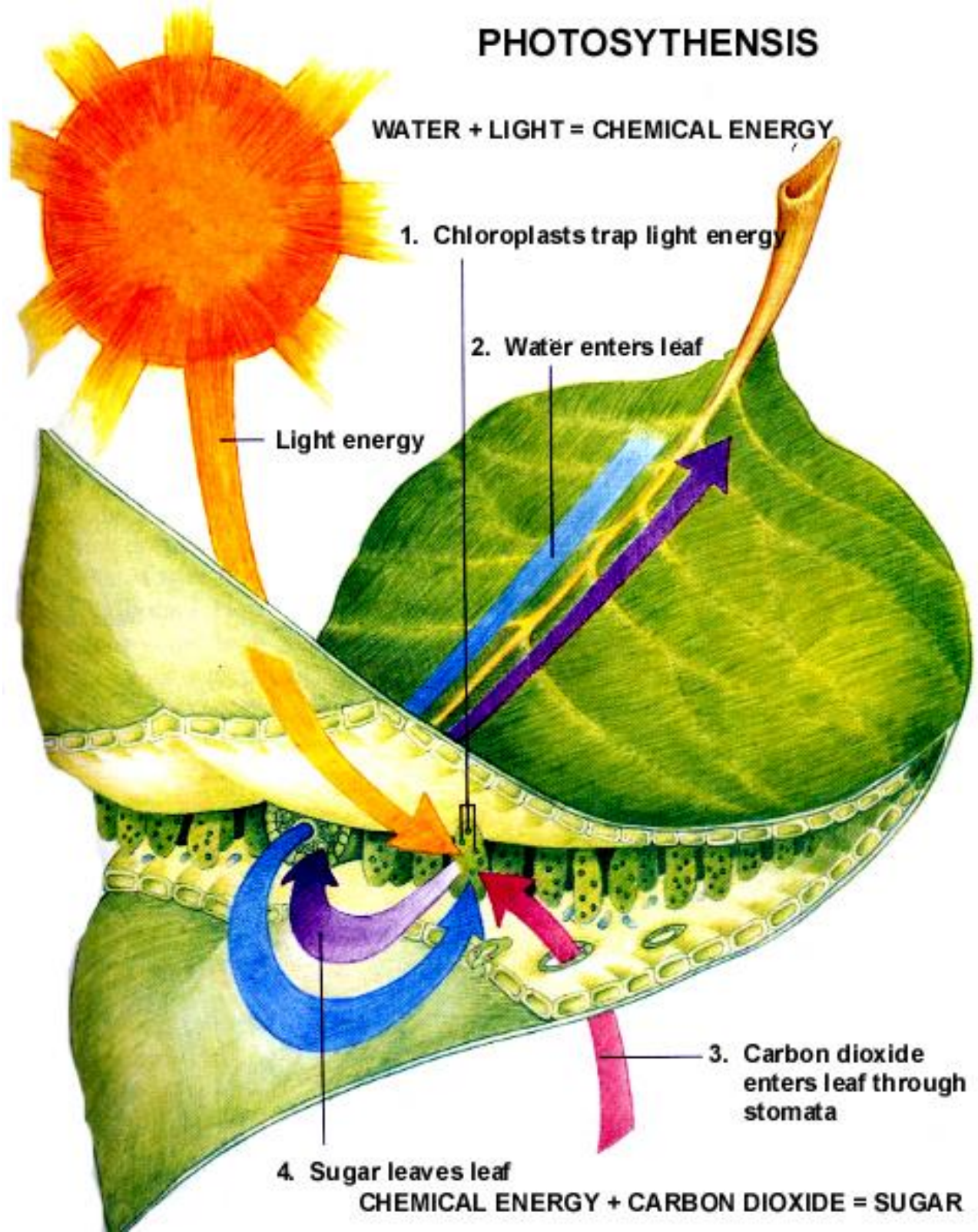


# Photosynthesis

Name: \_\_\_\_\_ Date: \_\_\_\_\_ Div: \_\_\_\_\_

**Directions:** Read the Sections answer the questions about Photosynthesis.

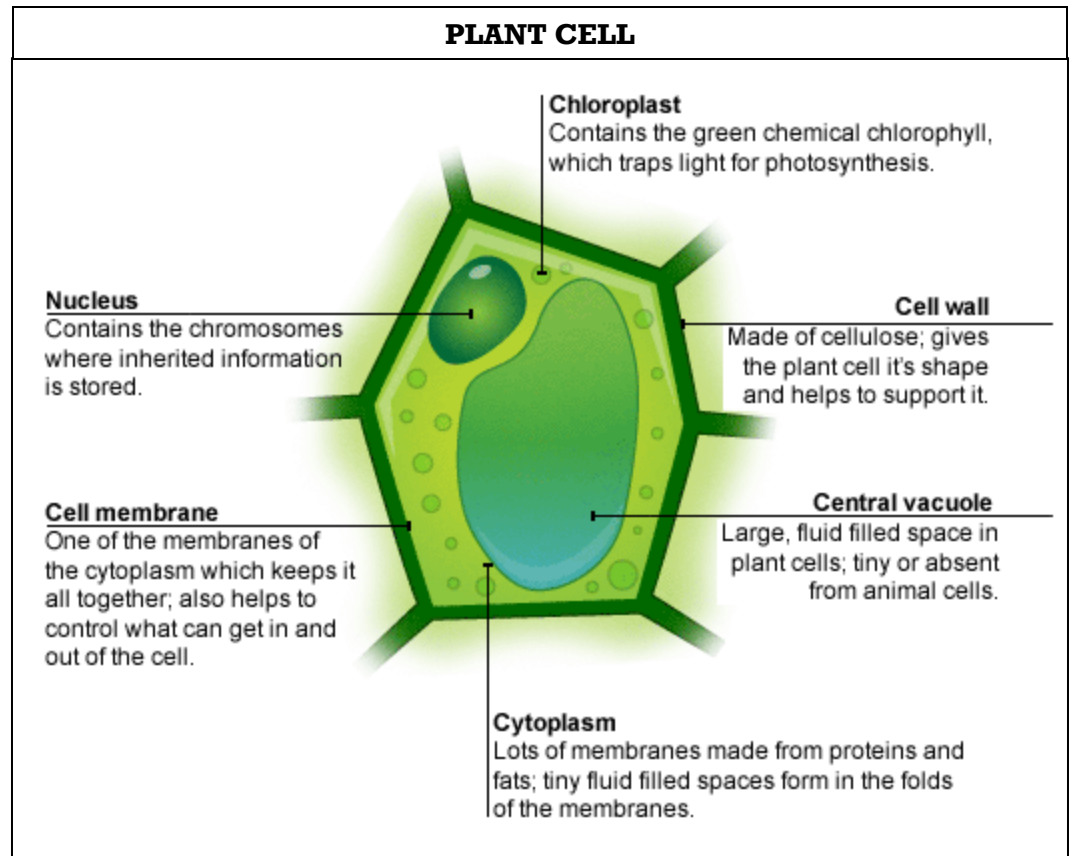


## STEP 1: Chloroplasts trap light energy

Photosynthesis is a process in which Plants use sunlight energy to make glucose (sugar). In Latin, “photo” means “Light” and “synthesis” means “to make”. So, photosynthesis means “To make with light”.

Photosynthesis occurs in the green leaves of plants in a tiny organelle called the **chloroplast**. The main function of the chloroplast is to produce food (glucose) during photosynthesis.

Chloroplasts contain the green pigment, **chlorophyll**. Chlorophyll absorbs most of the colors of light and reflects only green light. This is why leaves appear green, because green light is reflected into our eyes.



1. What is photosynthesis?
2. What does Photosynthesis mean in Latin?
3. Where does photosynthesis occur?
4. What is the main function of the chloroplast?
5. What is the pigment found in the chloroplasts called?
6. Why do most leaves appear green?

## Step 2 and 3: Inputs and Outputs

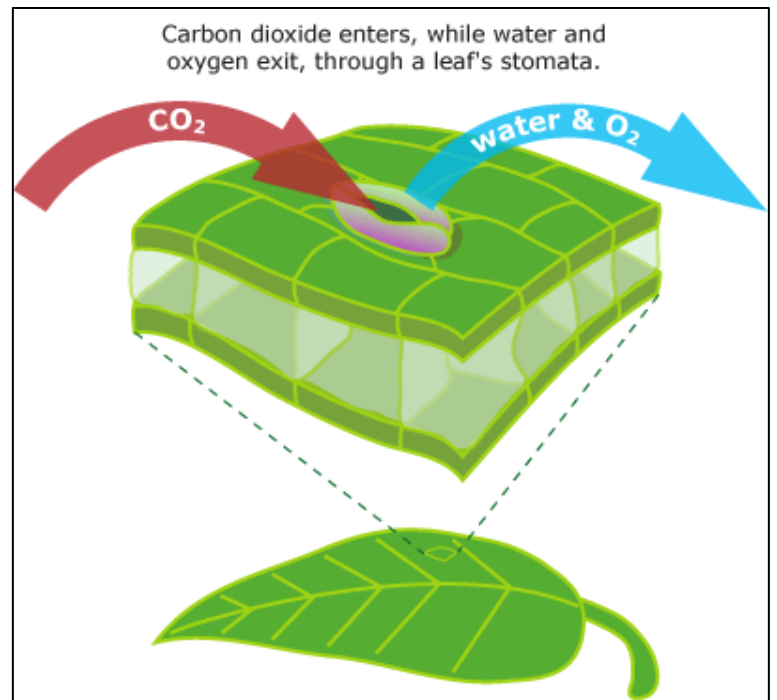
Plants absorb Water ( $H_2O$ ) through their roots; transport it up their stems, and into their leaves. Carbon Dioxide ( $CO_2$ ) is taken in through small openings in the leaves called stomata.

Much of the carbon dioxide comes from living organisms that exhale it, but some also comes from factory smokestacks and car fumes.

During Photosynthesis, plants use the energy from Sunlight to transform Carbon Dioxide ( $CO_2$ ) from the air and water ( $H_2O$ ) from the ground into glucose (sugar) and oxygen.

The sugar is used by the plant for energy while the oxygen ( $O_2$ ) is created as a waste product and is released (excreted) into the air for us to breath.

The formula for photosynthesis is:



7. Where does the Water ( $H_2O$ ) come from?

8. Where does  $CO_2$  enter the Plant?

9. Where does the Carbon dioxide ( $CO_2$ ) come from?

10. What three things need to go into the plant for photosynthesis (Inputs)?



11. What two things are produced during photosynthesis (Outputs)?

12. What is the formula for photosynthesis?

#### Step 4: SUGAR = Energy

Plants are called PRODUCERS because they PRODUCE their own food. The glucose made by plants is used by the plant for energy and growth. Plant energy is also used by CONSUMERS. We (and all other animals) also use this glucose by eating plants.

The oxygen produced by plants is released into the air for us to breath. Photosynthesis is essential for all life on earth, because it provides food and oxygen.



PLANTS ARE PRODUCERS.  
YOU WILL FIND PLANTS  
IN EVERY ECOSYSTEM.

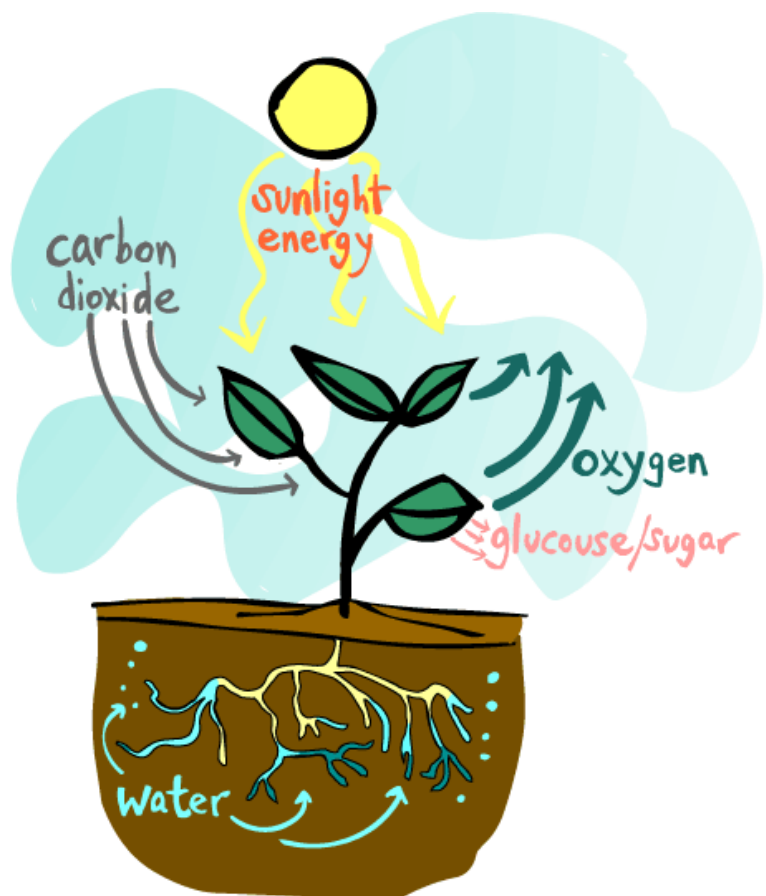
1. Why are plants called Producers?

2. What is the glucose used for?

3. What is the oxygen used for?

4. Use this Diagram of Photosynthesis to make your own diagram of photosynthesis:

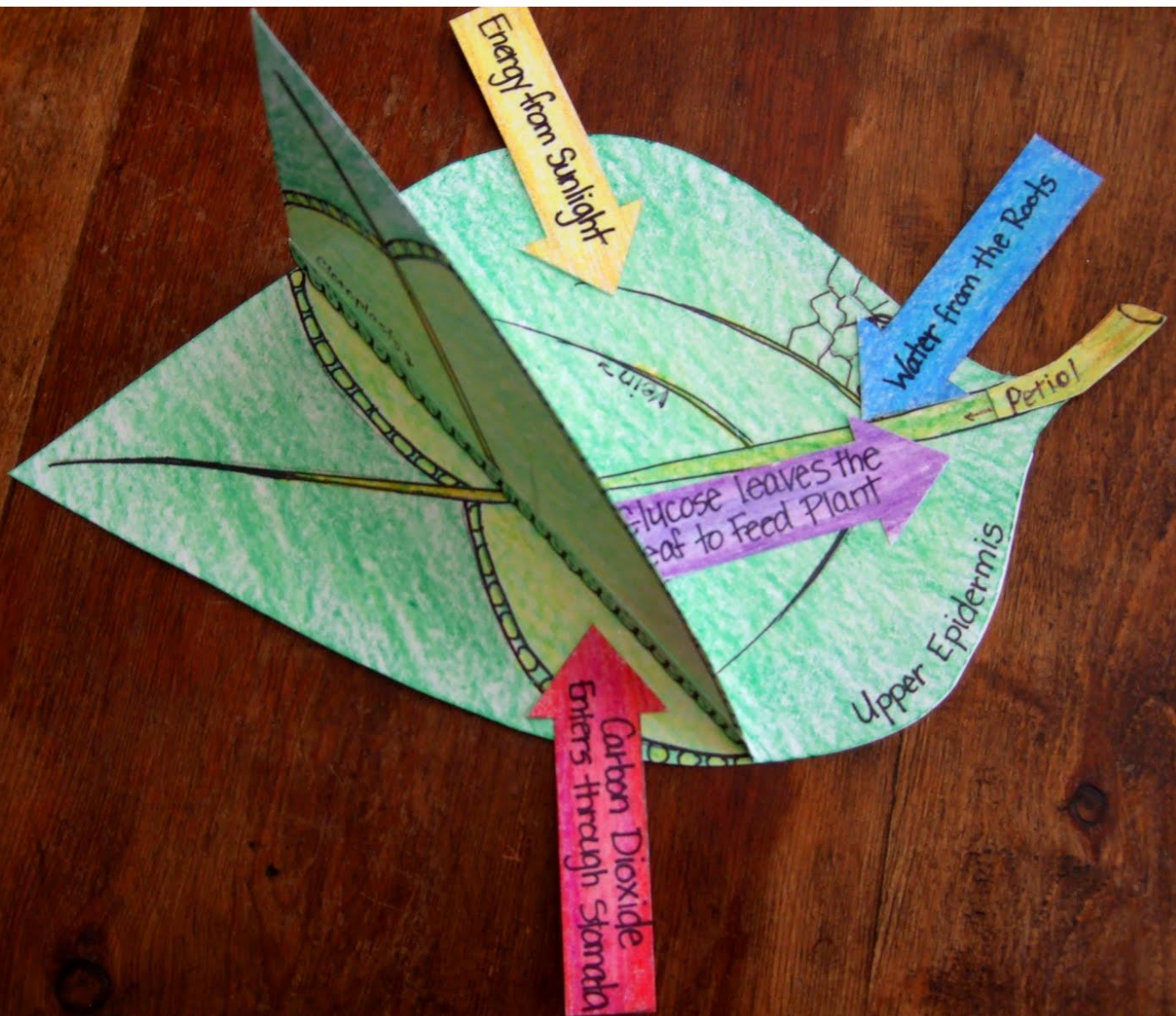
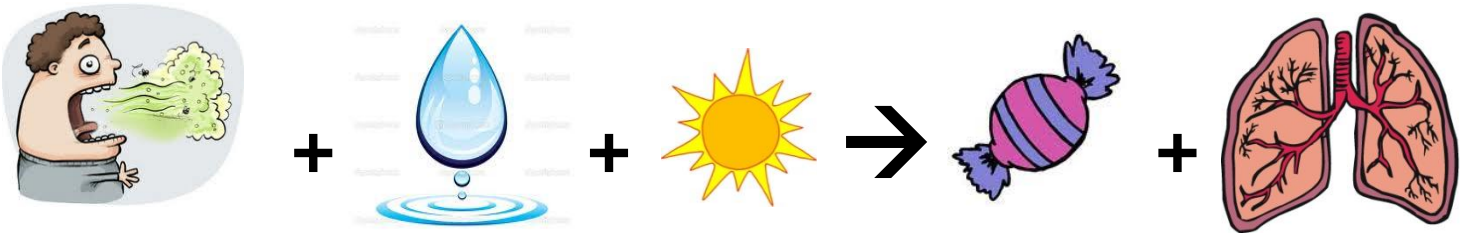
**Include these Terms:** Photosynthesis, Sunlight Energy, Oxygen, Carbon Dioxide, Chlorophyll, Glucose/Sugar, Water



# Photosynthesis Poster

## Examples

**Equation:** Carbon Dioxide + Water + Sunlight → Glucose (Sugar) + Oxygen



# Photosynthesis Poster Rubric

You will create a poster illustrating key components of photosynthesis. The poster must include **all** of the following:

**Name:** \_\_\_\_\_ **Date** \_\_\_\_\_ **Div:** \_\_\_\_\_

<i>Information needed on poster</i>	<i>Check it off once completed</i>	<i>Possible Points</i>	<i>Your points</i>
Poster includes an illustration of a <b>Plant</b>		<b>10 pts</b>	
Energy from Sunlight		<b>10 pts.</b>	
Water From Roots (H <sub>2</sub> O)		<b>10 pts.</b>	
Carbon Dioxide (CO <sub>2</sub> ) enters through the Stomata in the leaves		<b>10 pts.</b>	
Plant Cells containing Chloroplasts		<b>10 pts.</b>	
Oxygen (O <sub>2</sub> ) exits the plant through the Stomata in the leaves		<b>10 pts.</b>	
Glucose leaves the leaf to feed the plant		<b>10 pts.</b>	
Write the equation for photosynthesis		<b>10 pts.</b>	
Poster has a title, is colored, and shows effort.		<b>10 pts.</b>	
Name, date and division on poster		<b>10 pts.</b>	
		<b>Total Points: Up to 100 pts (A+)</b>	

**DATE DUE:** \_\_\_\_\_



# Photosynthesis



Chlorophyll absorbs green wave lengths from the sun, making plants look green.

Light energy

Carbon dioxide

CO<sub>2</sub> enters through the stomata, an opening in the leaf's epidermis and cuticle.

Water, CO<sub>2</sub> and Sunlight combine in the leaf to make sugar.

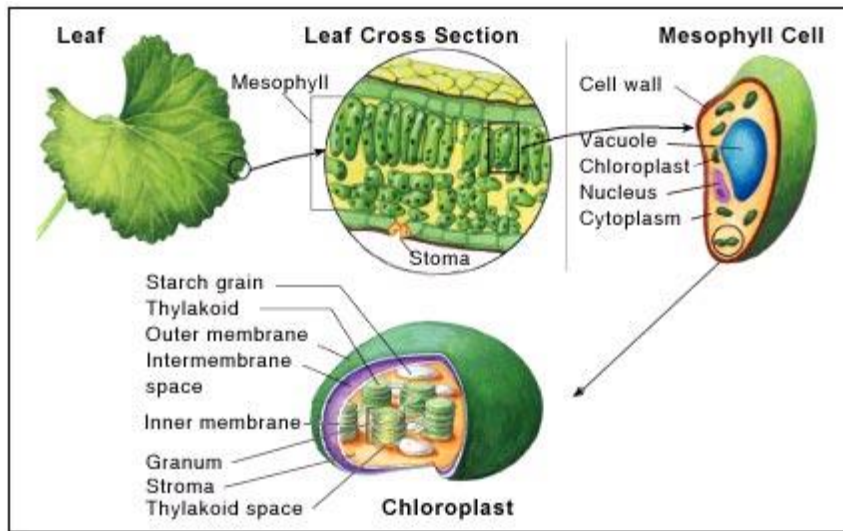
Oxygen

Oxygen and water vapor exit the leaf through the stomata. Water loss from leaves is called transpiration.

Water

Excess sugar is stored as starch (food) in the roots

Water is absorbed through the roots and carried through the stem to the rest of the plant. A plant's roots replace water lost during transpiration



# Photosynthesis

