How Plants Work

Fill in the blanks as you watch the Powerpoint slide show & listen to your kumu!

Plants are the basis of all life
- Able to turn materials most organisms cannot use into something they need
- Through a process called ________________, plants can convert *carbon dioxide* (_______) and ___________ (H₂O) with the help of the sun and turn it into *sugar* (_____________) and _______________ (O₂)
- PRETTY AMAZING!

How is it done?
- Plants use ______________ to capture energy from ________________
- Like ______________ on your roof to make _______________
- ___________ the leaf there are beads of green organs called ____________
- The chloroplasts are able to _______________ and uses it to fuel the “magical” stage of photosynthesis

Making Food
- After _______________ from the sun, the plant can now start _______________
  - This process of making sugar from _______________ was discovered by an American biochemist named _______________
  - He found that there was a cycle happening in the plant where it took _______________ _______________ to start a cycle of reactions that _______________
  - He realized this is the ___________ the plant uses to _______________
  - His discovery was later named the _______________

Steps of Photosynthesis
At Night There’s No Sun!

- At night when the sun is gone, the plant is ____________________
- So now the plant needs to _______________ something (________________) for energy
- The plant ______________ the sugar it made during the day to use ______________ when it needs a snack!

Photosynthetic Equation:

____________ + ______________ → ______________________________ + ________

Problem – this doesn’t show the magic of photosynthesis. It gives the ingredients but doesn’t explain how it’s done.

Section Review:

1. What things does the plant need to start photosynthesis?

2. After photosynthesis, what does the plant make?

3. How does this process known as photosynthesis affect other organisms including humans?

4. What is the Calvin Cycle?

5. Why do plants need chloroplasts?

6. Describe the different steps of photosynthesis and how the plant uses the end products.
How Plants Work

Teacher’s Notes for Photosynthesis & Careers Powerpoint
(Goes with students’ Cloze notes handout)

Plants are the basis of all life:
• Able to turn materials most organisms cannot use into something they need.
• Through a process called photosynthesis, plants can convert carbon dioxide (CO₂) and water (H₂O) with the help of the sun and turn it into sugar (C₆H₁₂O₆) and oxygen gas (O₂).
• PRETTY AMAZING!

How is it done?
• Plants use leaves to capture energy from sunlight
  o like solar panels on your roof to make hot water)
• Inside the leaf there are beads of green organs called chloroplasts
  o chloroplasts are able to capture the sun’s energy and uses it to fuel the “magical” stage of photosynthesis

Making Food
• After collecting energy from the sun, the plant can now start making sugars
• This process of making sugar from water and carbon dioxide was discovered by an American biochemist named Melvin Calvin.
• He found that there was a cycle happening in the plant where it took the energy from the sun to start a cycle of reactions that resulted with sugar.
• He realized this is the food the plant uses to stay alive.
• His discovery was later named the Calvin Cycle.

Steps of photosynthesis

Capture energy from sunlight → fuel Calvin Cycle → makes sugars → Uses sugar for food or reinforcement (bark and stems)
At Night there is No Sun!

- At night when the sun is gone, the plant still needs energy.
- The plant needs to metabolize something (break a molecule) for energy.
- The plant stores the sugar it made during the day to use later at night when it needs a snack!

**Photosynthetic Equation:**

$$6 \text{CO}_2 + 6 \text{H}_2\text{O} \rightarrow \text{C}_6\text{H}_{12}\text{O}_6 + 6 \text{O}_2$$

*Problem – this doesn’t show the magic of photosynthesis. It gives the ingredients but doesn’t explain how it’s done.*