Printables for *Living Sunlight* for Grades 3-5

Printable 1-6 are a series of six diagrams that are designed for teachers to use to review the content of *Living Sunlight*. Printables 1a-6a are worksheets for students to complete. Each worksheet is based on the related Printable 1-6. The remaining printables are worksheets that review various concepts and topics covered in Living Sunlight.

Printable 1. We are Sunlight Energy

Printable 1 reviews the flow of energy from the sun through plants to animals. This is the most basic view of the content of *Living Sunlight*.

Printable 2. The Two Gifts

Printable 2 reviews the idea of the two "gifts" that plants give to animals—food (captured sunlight energy) and oxygen.

Printable 3. Photosynthesis

Printable 3 reviews the basics of photosynthesis.

Printable 4. Respiration

Printable 4 reviews the basics of respiration.

Printable 5. The Carbon Cycle

Printable 5 reviews the carbon cycle

Printable 6. Photosynthesis and Respiration

Printable 6 reviews both photosynthesis and respiration. On the one hand, it is more complicated and difficult to follow than Printables 3 and 4 which address those subjects separately. On the other hand, Printable 6 makes the links between the two processes clearer.

Printable 7. The Steps of Photosynthesis

An alternate version of photosynthesis (Printable 3 and 3a) using the illustrations of the steps that appear in Living Sunlight. This worksheet is a bit more difficult than the comparable Printable 3a. It asks students to write sentences to describe what is happening in the pictures.

Printable 8. Crossword

A crossword puzzle based on *Living Sunlight* vocabulary.

Printable 9-10. Living Breathing Plants

A review of the ideas of Living Sunlight with fill-in-the-blanks and true-false questions.

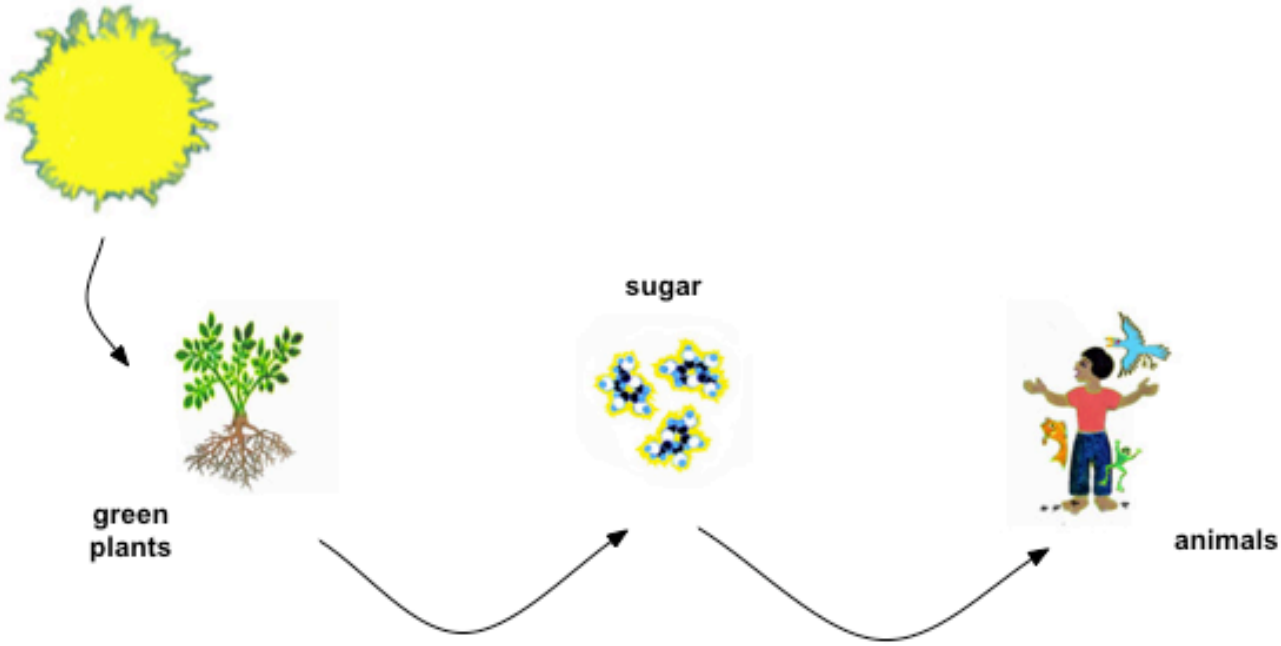
Printable 11. Recipe for Plant Food

Fill-in-the-blank questions and a "cookbook" exercise about the basic ideas of *Living Sunlight*.

Posted September 24, 2009

We Are Sunlight Energy

How does sunlight energy move through living things? How does it get used? To find out, follow the steps in the illustration below.



1. The sunlight energy shines on green plants.

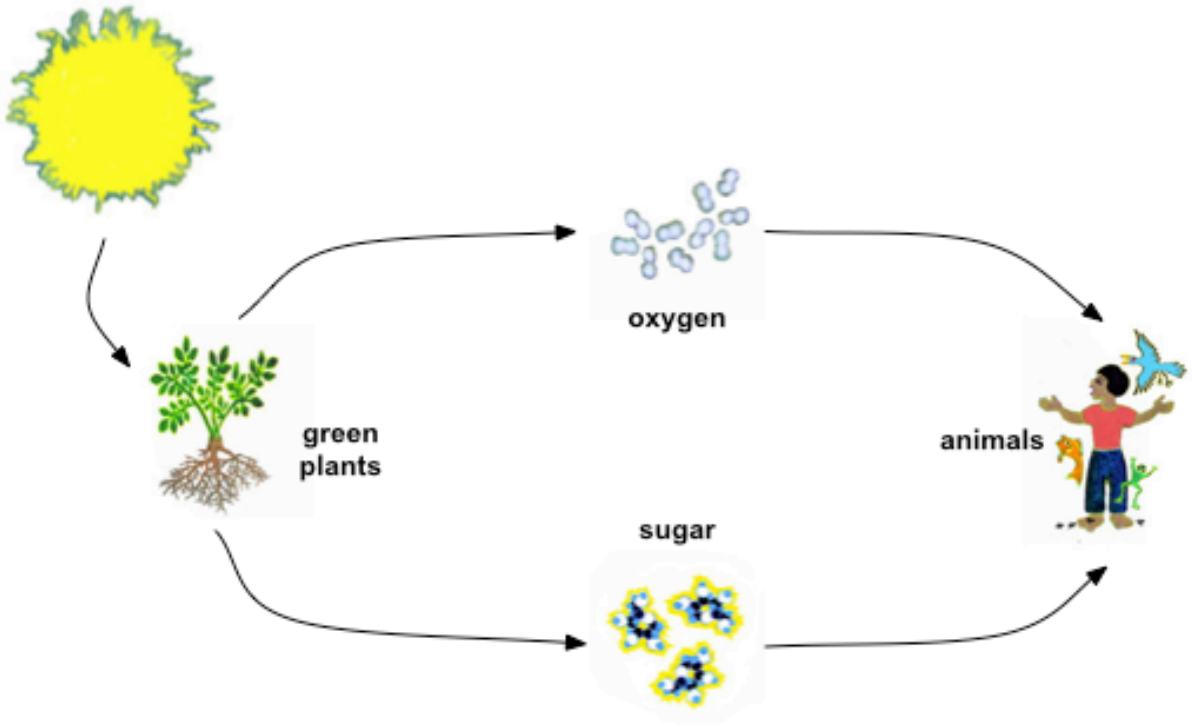
2. The green plants use the sunlight energy (plus water from the ground and carbon dioxide from the air) to make sugar.

3. Animals eat the plants.

4. Animals "burn" the sugar from green plants to get the energy they need to live.

The Two Gifts

Green plants give us two gifts. We need both to stay alive.
To learn about those gifts, follow the arrows in the illustration below.



1. The sun shines on green plants.

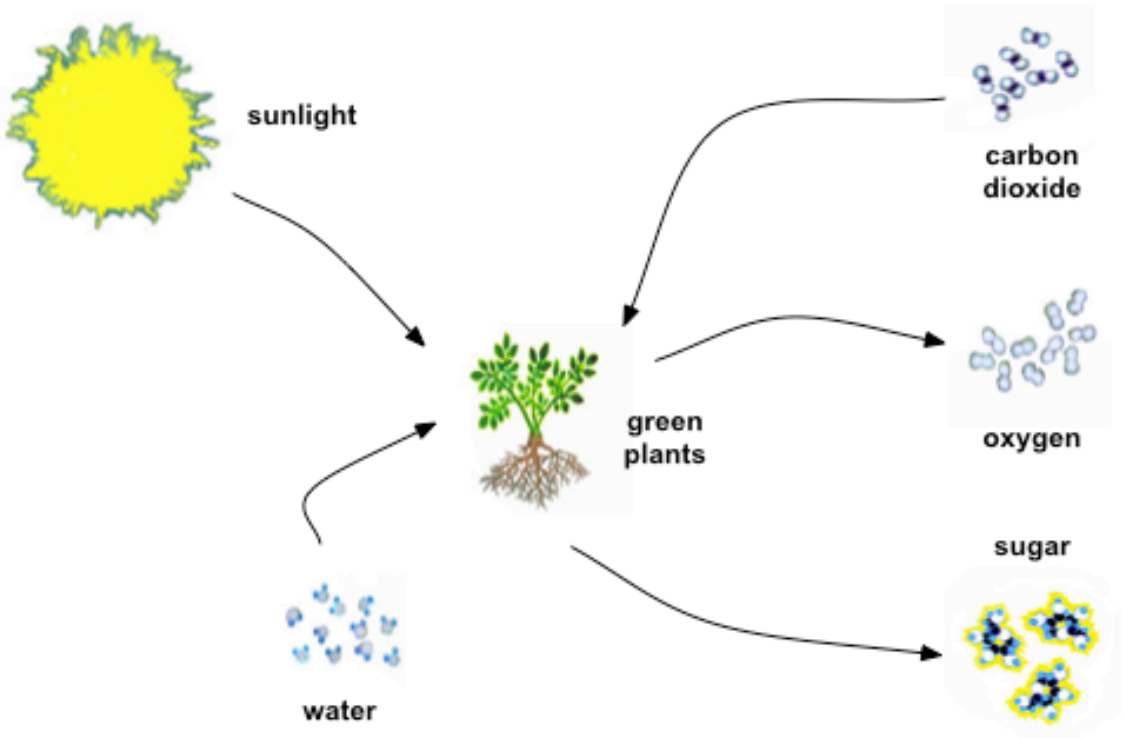
2. The green plants use the sunlight energy (plus water from the ground and carbon dioxide from the air) to make sugar and to release oxygen.

3. Animals eat the plants and breathe in the oxygen.

4. Animals use the oxygen to "burn" the sugar to get the energy they need to live.

Photosynthesis

Only green plants can capture energy from the sun to make their food in a process called photosynthesis. Follow the arrows in the illustration below to learn the steps of photosynthesis.



1. The sun shines on green plants.

2. The green plants suck up water from the ground.

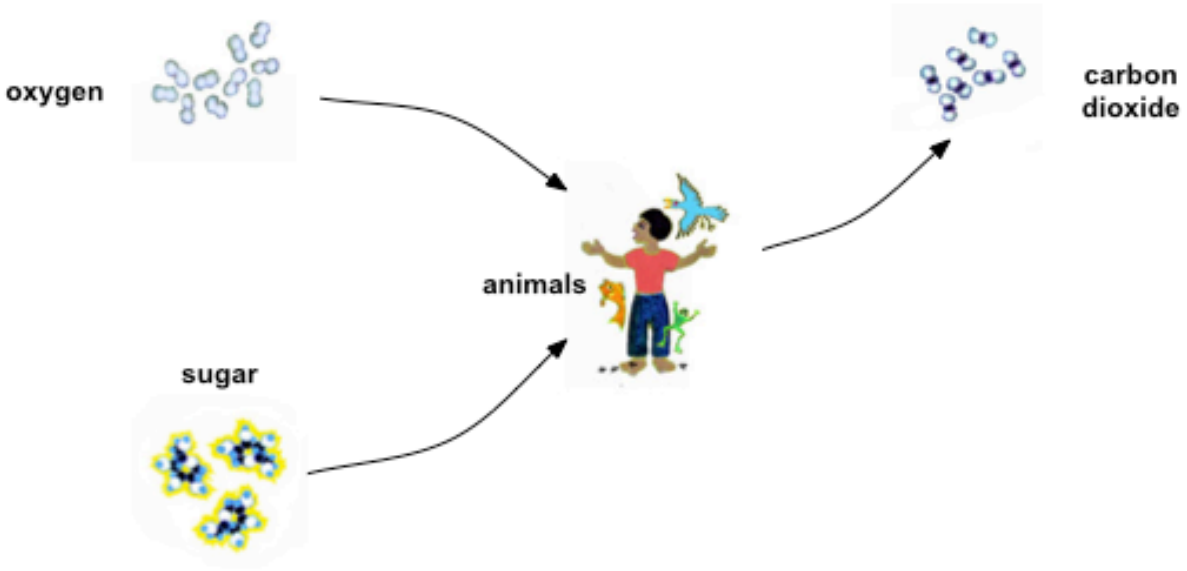
3. The green plants pull carbon dioxide from the air.

4. The green plants use the sunlight energy, the water and the carbon dioxide to make sugar.

5. As they use the sunlight energy, the green plants release oxygen to the air.

Respiration

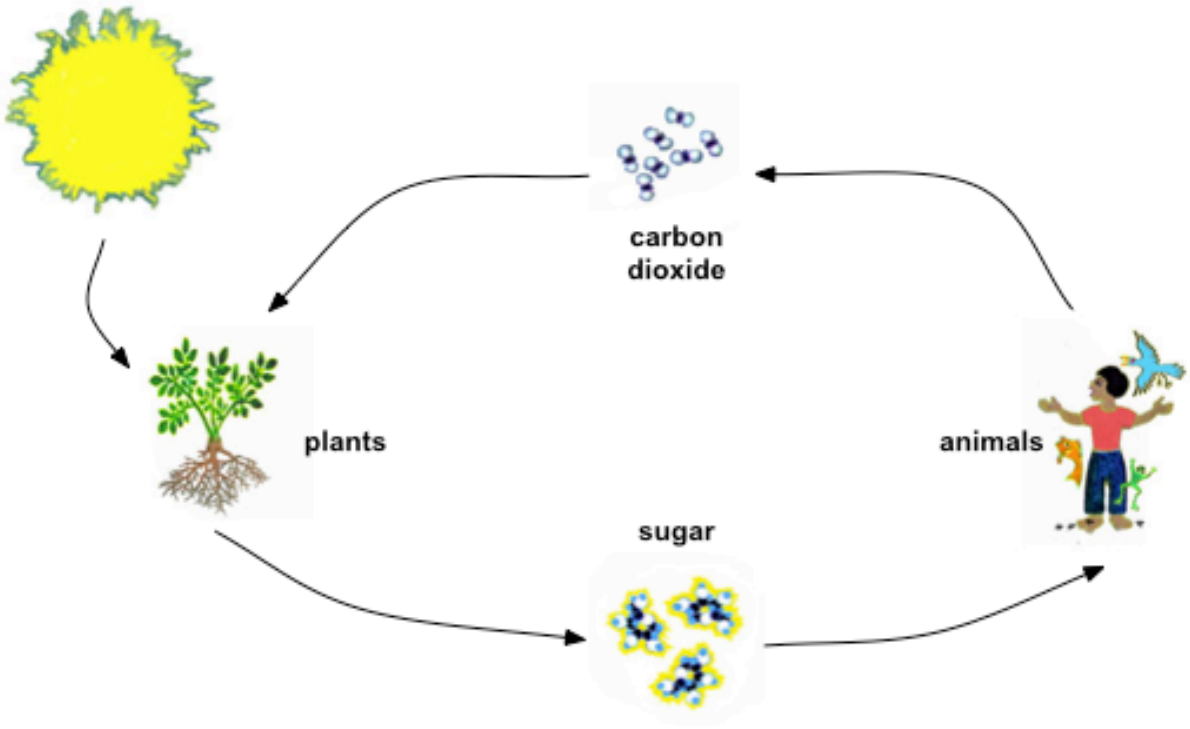
Animals breathe in oxygen and breathe out carbon dioxide. This is part of a process called respiration. Follow the arrows in the illustration below to learn all of the steps.



1. Animals eat plants to get the sunlight energy stored in plants as sugar.
2. Animals breathe in oxygen.
3. Animals use the oxygen to "burn" the sugar to get the energy they need to live.
4. Animals breathe out carbon dioxide.

The Carbon Cycle

How does carbon cycle through living things?
To find out, follow the steps in the illustration below.



1. The sun shines on green plants. (The carbon is in the air.)

2. The green plants breathe carbon dioxide from the air.

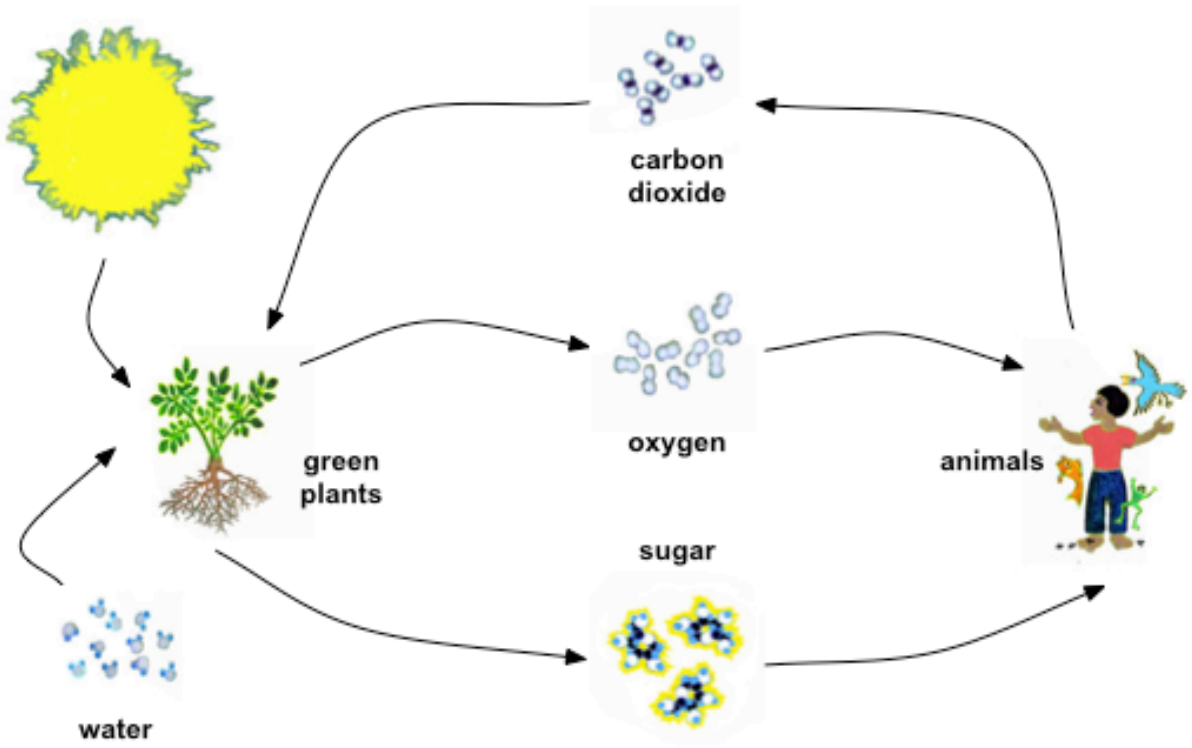
3. The green plants use the carbon dioxide (plus sunlight energy and water) to make sugar. (Now the carbon is in the sugar.)

4. Animals eat the plants, "burn" the sugar they got from the plants, and breathe out carbon dioxide. (Now the carbon is back in the air.)

(A shorthand way to describe what happens in photosynthesis:
carbon is transformed from gas to mass.)

Photosynthesis and Respiration

Plants give animals sugar and oxygen. Animals return carbon to the plants. Follow the arrows in the illustration below to learn all of the steps.



1. The sun shines on green plants.
2. The green plants suck up water from the ground.
3. The green plants pull carbon dioxide from the air.
4. The green plants use the sunlight energy, the water, and the carbon dioxide to make sugar.
5. As they use the sunlight energy, the green plants release oxygen to the air.
6. Animals eat the plants.
7. Animals breathe in oxygen.
8. Animals use the oxygen to "burn" the sugar to get the energy they need to live.
9. Animals breathe out carbon dioxide.

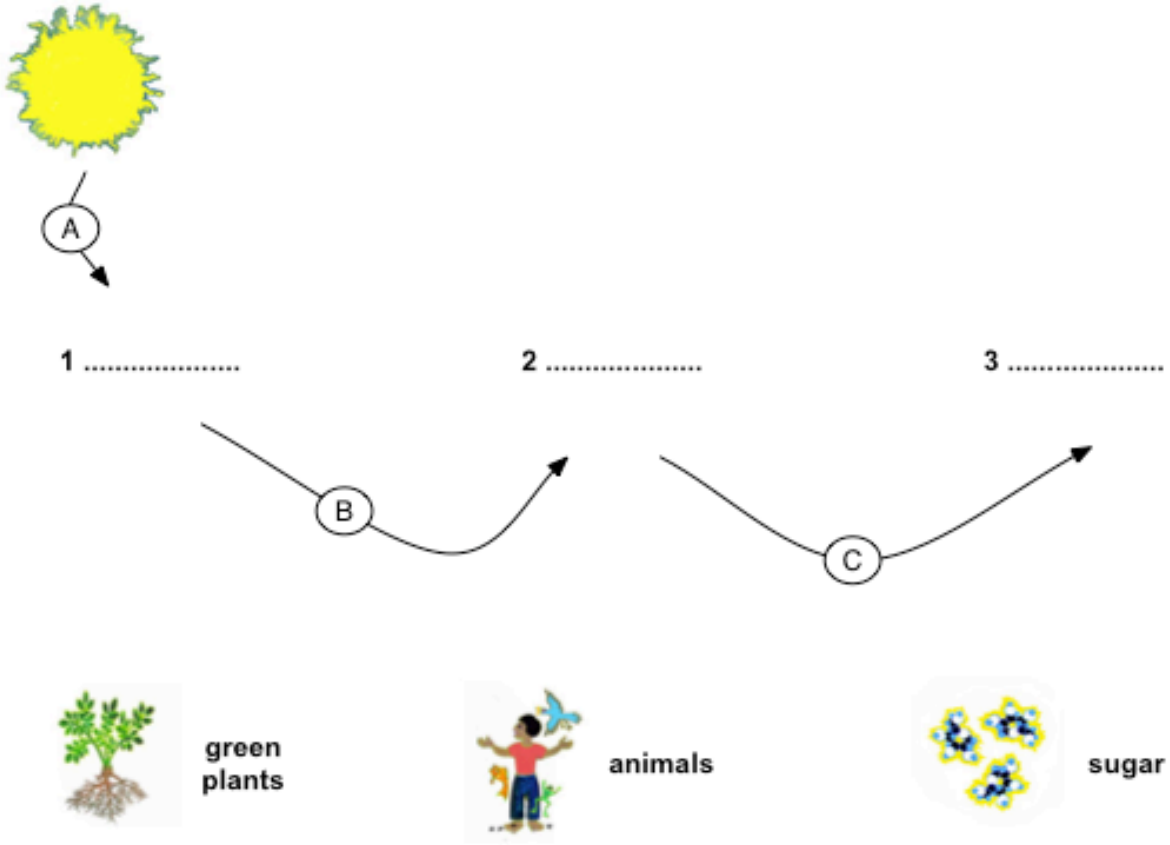
We Are Sunlight Energy

How does sunlight energy move through living things?
Answer the questions to fill in the blanks.

1. What are the only things that catch sunlight energy and change it to life?

2. What does #1 make that lets them store some of the sunlight energy?

3. What eat #1 to get the sunlight energy #1 have stored?



Complete each sentence to tell what each arrow shows is happening.

A. The ..... get the energy they need to live from .....

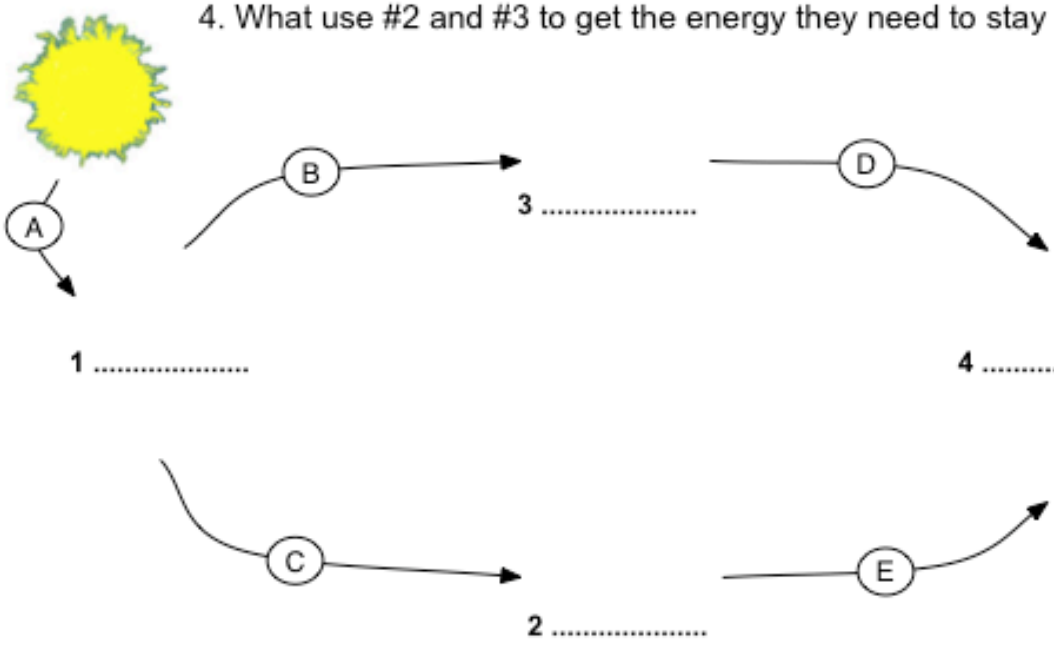
B. The ..... use the sunlight energy to make .....

C. The ..... get their energy from the sugar energy stored in .....

The Two Gifts

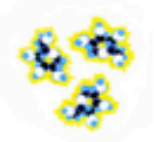
What are the two gifts that all animals get from green plants?
Answer the questions to fill in the blanks.

1. What are the only things that catch sunlight energy and change it to life?
2. What do #1 make that lets them store some of the sunlight energy?
3. What do #1 release to the air as they capture sunlight energy?
4. What use #2 and #3 to get the energy they need to stay alive?



green plants

animals



sugar

oxygen

Complete each sentence to tell what each arrow shows is happening.

A. The ..... get the energy they need to live from .....

B and C. The ..... use sunlight energy to make .....

and, as they do, they release ..... into the air.

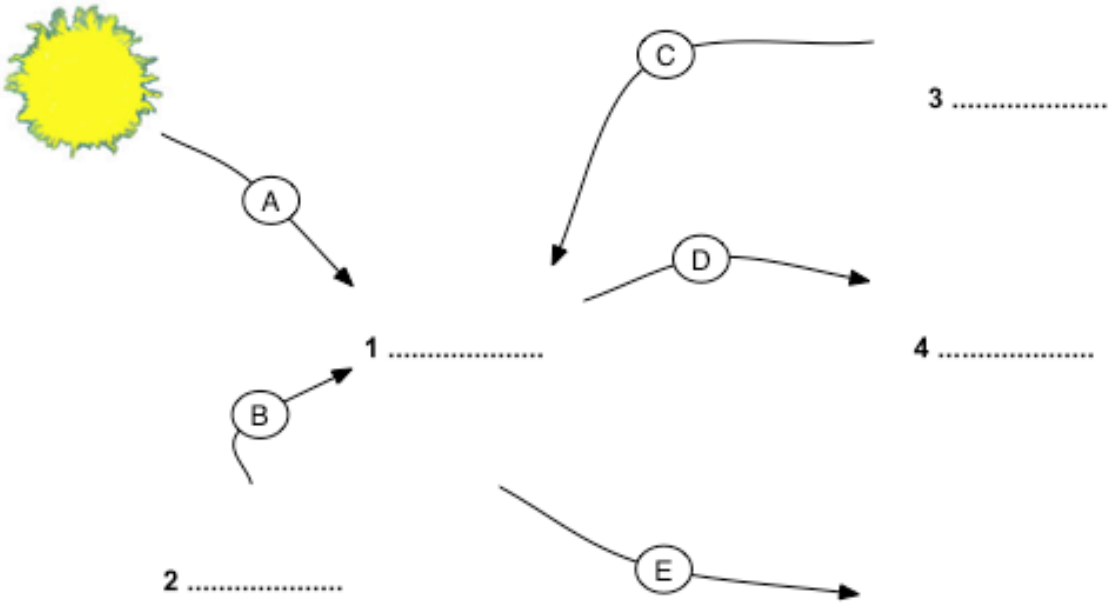
C and D. The ..... breathe ..... from the air and use it to

"burn" the ..... they get from their food.

Photosynthesis

All living things depend on a process called photosynthesis.
Answer the questions to fill in the blanks.

1. What are the only things that catch sunlight energy and change it to life?
2. What do #1 suck up from the ground?
3. What's in the air that #1 need to make #5?
4. As part of photosynthesis, what does #1 release into the air?
5. What does #1 make that lets them store some of the sunlight energy?



Complete each sentence to tell what each arrow shows is happening.

A. ..... capture energy from the sun.

B. They suck up ..... from the ground.

C. They breathe in ..... from the air.

D. They release ..... into the air.

E. They capture the sunlight energy in .....

Respiration

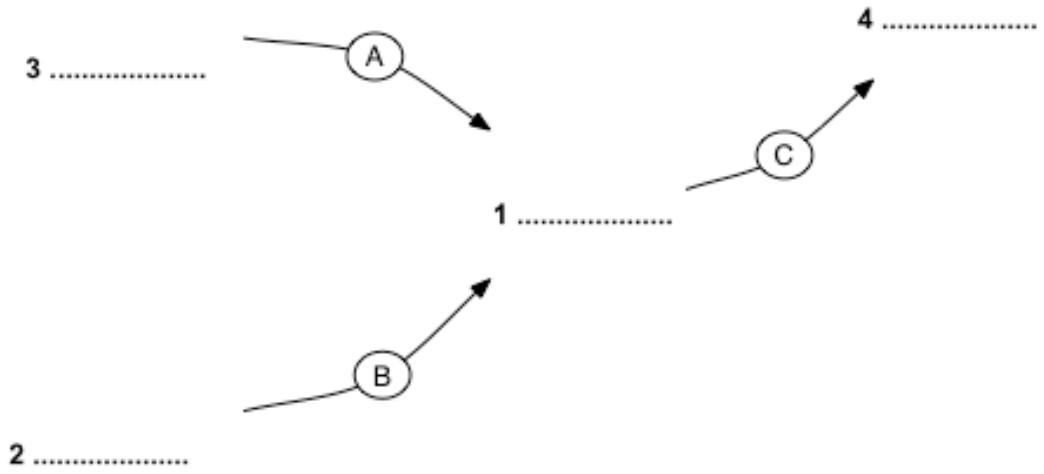
What is respiration?
Answer the questions to fill in the blanks.

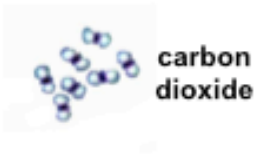
1. What eat green plants to get the sunlight energy the plants have stored.

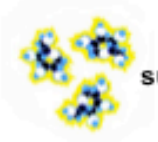
2. What do green plants make to store the energy from the sun?

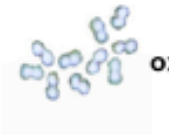
3. What do #1 use to "burn" the sugar-energy they need to live.

4. What do #1 breathe out, after they burn the sugar-energy?




carbon dioxide


sugar


oxygen


animals

Complete each sentence to tell what each arrow shows is happening.

A. ..... breathe in ..... from the air.

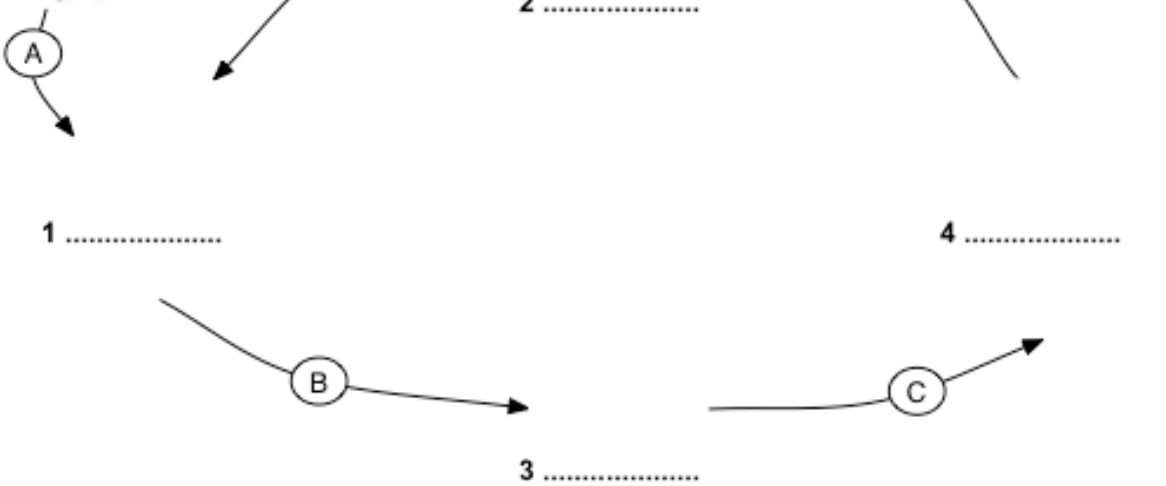
B. They eat green plants to get the ..... they need for energy.

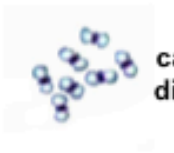
C. They use the ..... to burn the ..... and then they breathe out .....

The Carbon Cycle

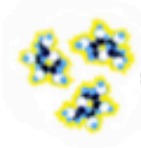
How does carbon cycle through living things?
Answer the questions to fill in the blanks.

1. What are the only things that catch sunlight energy and change it to life?
2. What's in the air that #1 need to make #3?
3. What do #1 make that lets them store some of the sunlight energy?
4. What eat green plants to get the sunlight energy the plants have stored?





carbon dioxide



sugar

green plants

animals

Complete each sentence to tell what each arrow shows is happening.

A. ..... capture energy from the sun.

B. They store some of the captured energy as .....

C. ..... eat the ..... and burn the ..... that they've stored.

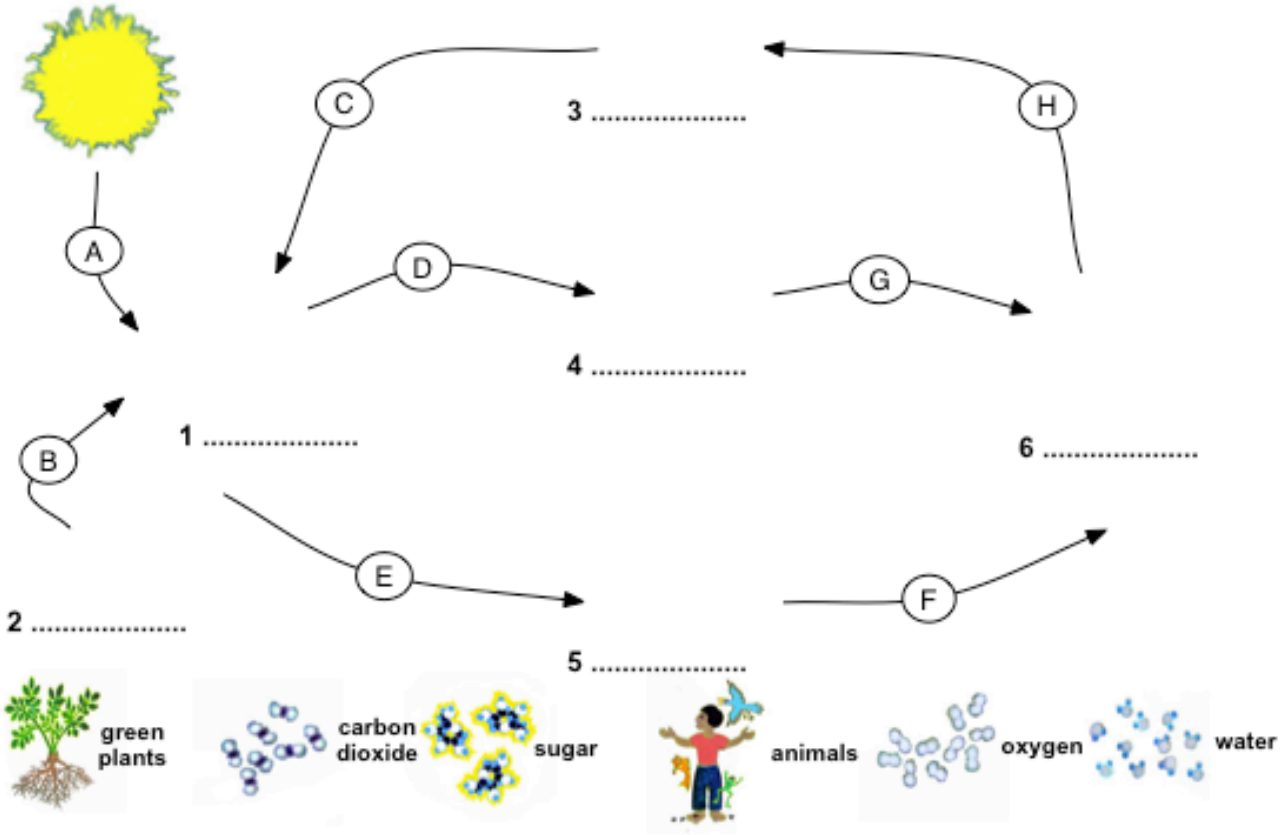
D. They release ..... into the air.

E. ..... use the ..... from the air to make more .....

Photosynthesis and Respiration

Plants give animals sugar and oxygen. Animals return carbon to the plants. Answer the questions to fill in the blanks.

1. What are the only things that catch sunlight energy and change it to life?
2. What do #1 suck up from the ground?
3. What's in the air that #1 need to for photosynthesis?
4. As part of photosynthesis, what does #1 release into the air?
5. What does #1 make that lets them store some of the sunlight energy?
6. What use #4 and #5 and makes #3?



A. ..... capture energy from the sun.
B. They suck up ..... from the ground.
C. They breathe in ..... from the air.
D. They release ..... into the air.
E. They use the sunlight energy to make .....
F. ..... eat the .....
G. They breathe in the ..... from the air and use it to "burn" the ..... for energy.
H. They breathe out .....

Steps of Photosynthesis

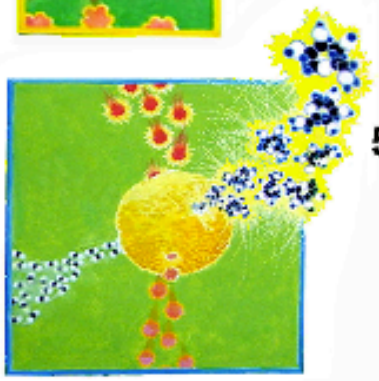
These 5 pictures show how plants catch sunlight and keep the energy inside themselves. Next to each step of the process describe what is happening.

1

2

3

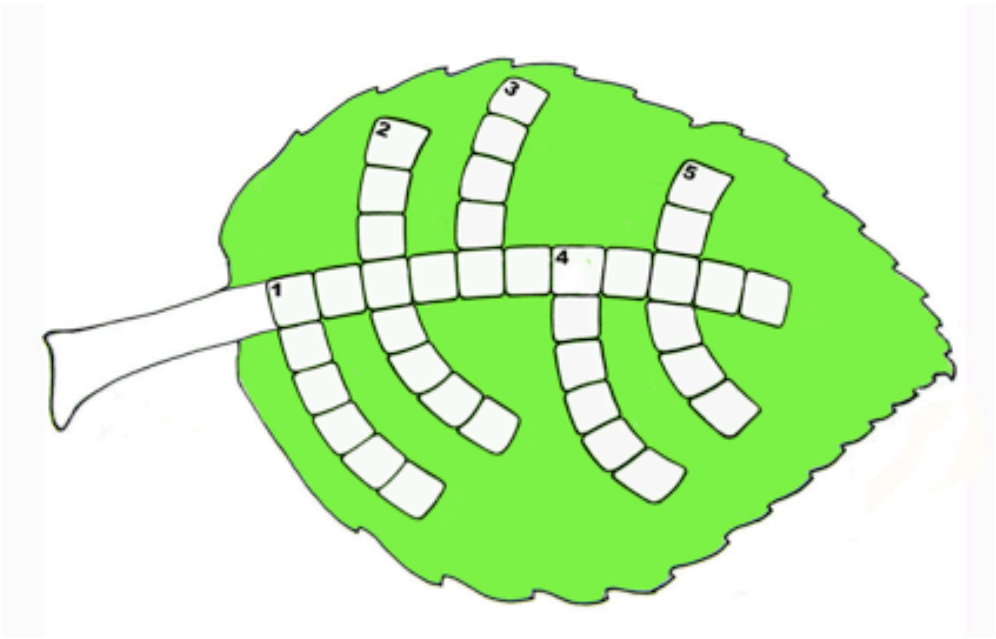
4



5

Crossword Puzzle

Fill in the missing words.



Across

1 ..... makes plants green.

Down

1 Plants breathe in ..... dioxide.
2 Only green plants can catch ..... and make life.
3 Plants make ..... from water and carbon dioxide.
4 ..... bring life to earth through photosynthesis.
5 Plants breathe out ..... that animals breathe in.

Living, Breathing Plants!

Write the missing words in these sentences.

energy $C0_2$ water chlorophyll carbon dioxide

oxygen sugar H_20 hydrogen

The scientific name for water is __ __ __ .
The letter __ stands for __ __ __ __ __ __ __ __ and the letter __ stands for _ __ __ __ __ __ .

The scientific name for carbon dioxide is __ __ __.

In daylight, green plants catch __ __ __ __ __ __ with their __ __ __ __ __ __ __ __ __ __ __ __. This is a green pigment in their leaves.

Then they use that energy to break apart the __ __ __ __ __ . They break it into two parts—hydrogen and oxygen.

Then the plants breathe out the __ __ __ __ __ __ they broke off from the water and breathe in the __ __ __ __ __ __ __ __ __ __ __ __ __ from the air.

Now the plants use the energy from the sun and the carbon dioxide from the air to make __ __ __ __ __. Plants use this to build all their parts.

Which three things do plants need to make their own food?
(circle three)

water soil oxygen seeds fruit

sunlight worms carbon dioxide fertilizer

True or False:

__Plants make food by sucking up dirt.

__Sunlight is the only thing plants need to live.

__Plants breathe air through their leaves.

__Plants breathe air through their stems.

__People and animals breathe in carbon dioxide.

__People and animals breathe out carbon dioxide.

__Plants need oxygen to make food.

__Plants need carbon dioxide to make food.

__People and animals need oxygen to live.

__People and animals get some oxygen from plants, and some from other sources.

__If there were no plants on Earth, people could still live by eating vitamins.

Open Response

At the end of Living Sunlight, it says "Without plants, there would be no life on Earth." What does this mean? (Write at least 3 sentences.)

Recipe for Plant Food (grades 3–5)

What do plants eat? Plants make their own food.
Fill in words to help complete the recipe below.

Ingredients:

- **CO_2**
- **Water**
- **Sunlight**

Instructions to plants:

1. Suck up _ _ _ _ _ from the ground.

2. Catch _ _ _ _ _ _ _ _ with the green _ _ _ _ _ _ _ _ _ _ _ _ in your leaves.

3. Use _ _ _ _ _ _ from the sun to break apart the water.

4. Break the water into two parts: _ _ _ _ _ _ _ _ and _ _ _ _ _ _ .

5. Breathe out _ _ _ _ _ _ from the water.

6. Breathe in _ _ _ from the air.

7. Now use energy and CO_2 to make _ _ _ _ _ .

8. Sugar is your _ _ _ _ ! Think of it as "sugar-energy."

9. Use this sugar to make all your parts, like _ _ _ _ _ _ , seeds , _ _ _ _ _ _ and flowers.

food energy water sugar sunlight air CO_2

seeds oxygen fruits leaves chlorophyll hydrogen

leaves roots stem

Extension: Make a Plant Food Cookbook!

- **Staple 3-4 pieces of construction paper together.**
- **Write or type the 9 steps above (use recycled paper).**
- **Draw pictures to illustrate all of the steps (use recycled paper).**
- **Make a cover for your cookbook with a picture.**
- **Now cut out your pictures and steps and lay out on the pages in a creative way. Once you are pleased with your design, use glue stick to paste all the pieces.**