Name_____ Date_____

Leaves and Photosynthesis

Have you ever wondered why leaves change colors in fall? Leaves play an important part in the life of a tree. Leaves can be thought of as nature's food factories.

Plants get their water from the ground using roots. Plants take carbon dioxide from the air. They use sunlight to turn the water and air that they take into glucose. Glucose is a type of sugar. Plants use glucose as food for energy and also as a building block for growing. The process by which plants turn carbon dioxide and water into sugar is called photosynthesis.

Photosynthesis means “putting together with light.” There are four basic things needed in order for photosynthesis to happen. They are: light energy (from the sun), water (gathered by the roots from soil), carbon dioxide (from the air), and chlorophyll (which is found in the cells of green plants).

Chlorophyll helps make photosynthesis happen. Chlorophyll is what makes plants green in color. Without chlorophyll, a plant would not be able to make the food that it needs. Chlorophyll is a pigment. It's what makes the needles of a tree look green.

Chloroplasts are special parts of a plant's cells. This is where you would find chlorophyll. This is also where photosynthesis really takes place.

Green plants are called autotrophs (or producer). Autotrophs use light energy from the sun to produce the food they need. It is this food process that actually causes leaves to change their colors as autumn approaches.

When summer ends and fall begins, the days get shorter and shorter. This is how trees know it is time to start getting ready for winter. In winter, there is not enough water or light for photosynthesis. As a result, trees rest and live off of the food that they have stored during the summer.

Trees begin to shut down their food-making process. The green chlorophyll disappears from the leaves. As the green fades from the leaves, we can see yellow and orange colors. These colors have been in the leaves all along. We just couldn't see them because they were covered by the green chlorophyll.

Bright red leaves and purple leaves are mostly made in the fall. In some trees, like maples, glucose is trapped in the leaves after photosynthesis stops. Sunlight and the cool air in autumn cause these leaves to turn their glucose into a red color. Similarly, brown leaves, like leaves from an oak tree, are made from waste left in the leaves.

The leaves changing colors in autumn show us that a tree is shutting down its food factory for the winter. This process is important because it helps to ensure that a tree conserves its energy so that it can survive the winter months.

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Leaves and Photosynthesis Questions

Fill In:

1. _____ is what makes plants green in color.

2. _____ means "putting together with light."

3. Green plants are called _____.

4. Chlorophyll is a _____.

5. List the four basic things needed for photosynthesis to happen:

_____

_____

_____

_____

True or False:

____ 6. Autotrophs use light energy from the sun to produce the food they need.

____ 7. Without chlorophyll, a plant would still be able to make the food that it needs.

____ 8. Chloroplasts are special parts of a plant's cells. This is where you would find chlorophyll.

____ 9. When summer ends and fall begins, the days get shorter and shorter.

____ 10. In some trees, like maples, glucose is trapped in the leaves after photosynthesis stops.

____ 11. The leaves changing colors in autumn show us that a tree is speeding up its food factory for the winter.

____ 12. Brown leaves, like leaves from an oak tree, are made from waste left in the leaves.

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Leaves and Photosynthesis Answers

Fill In:

1. __ Chlorophyll _ is what makes plants green in color.

2. ___Photosynthesis_____ means “putting together with light.”

3. Green plants are called __autotrophs___.

4. Chlorophyll is a _pigment__.

5. List the four basic things needed for photosynthesis to happen:

_____light energy_____

_____water_____

_____carbon dioxide_____

_____chlorophyll_____

True or False:

_T___ 6. Autotrophs use light energy from the sun to produce the food they need.

_F___ 7. Without chlorophyll, a plant would still be able to make the food that it needs.

_T___ 8. Chloroplasts are special parts of a plant's cells. This is where you would find chlorophyll.

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