

## illuminating Photosynthesis

Name: \_\_\_\_\_ Date: \_\_\_\_\_ Per: \_\_\_\_\_

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Photosynthesis in plants and a few bacteria is responsible for feeding nearly all life on Earth. Plants and bacteria do this by taking energy from the sun and converting it into a storable form, usually the sugar glucose, which plants use for their own life processes (why they are called producers). Animals that consume plants also make use of this energy, as do those that consume those that consume plants, and so on to the top of the food chain (called consumers). As important a job as making all of the world's food is, there's another vital function that photosynthesis performs. Photosynthesis generates the oxygen that oxygen-breathing animals need to survive. But here we animals repay the favor. We exhale the carbon dioxide that plants need for photosynthesis. This feature takes a look at the oxygen/carbon dioxide cycle and at the process of photosynthesis.

### The Cycle

The girl exhales \_\_\_\_\_. The plant takes in \_\_\_\_\_ and releases \_\_\_\_\_. The girl uses the red can to add \_\_\_\_\_ to the plant. The plant transfers the \_\_\_\_\_ throughout the plant. When the blinds come up and \_\_\_\_\_ shines on the plant, then the plant actively releases \_\_\_\_\_ which the girl then \_\_\_\_\_. **Summary:** You added some \_\_\_\_\_ along with some \_\_\_\_\_ and \_\_\_\_\_. The plant in the room is now "breathing" and so is the cute little tyke.

### Atomic Shuffle

Photosynthesis, the trapper of \_\_\_\_\_; is needed for life to subsist (continue). Most all plants use the process to make \_\_\_\_\_ without it most life would desist (discontinue). The process begins with plain \_\_\_\_\_ but not from the tap does it flow. Some water is made within leaf cells and some is sucked up from below (roots). The molecular formula for water is \_\_\_\_\_ which means it has \_\_\_\_\_ atom of oxygen and \_\_\_\_\_ atoms of hydrogen. With energy gained from sunlight, the plant strips the \_\_\_\_\_ from the \_\_\_\_\_ in water. These oxygen atoms then form a twosome (diatomic) and diffuse out of the plant leaf. Meanwhile \_\_\_\_\_ has just entered through holes in the leaf called \_\_\_\_\_. This gas is exhaled by Earth's creatures including all invertebrates.

The \_\_\_\_\_ that enters the plant goes through changes. It's atoms get rearranged, losing an oxygen which combines with \_\_\_\_\_ to form water. But the plant has a bigger goal to make food for storage. It builds a big structure made of up (C) \_\_\_\_\_, (H) \_\_\_\_\_, and (O) \_\_\_\_\_ to form \_\_\_\_\_, and it is really sweet. Glucose is a **monosaccharide** that combines to form starch which is a **carbohydrate**. The overall photosynthesis reaction is: \_\_\_\_\_.

Since there is water on both sides of the equal sign, the equation can be simplified as \_\_\_\_\_. When we balance chemical equations we are demonstrating an important natural law of the conservation of mass.

**Atmosphere:** There is approximately \_\_\_\_ percent of the atmosphere that is \_\_\_\_\_. The two gases that make up most of the air we breathe are nitrogen (78%) and oxygen (21%). The five main atmospheric gases are nitrogen, oxygen, argon, water vapor, and carbon dioxide.