Name \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Date \_\_\_\_\_\_\_\_\_\_

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### Lesson 1.6 What do plants do with sugar?

1. **Biosynthesis**

For each polymer in the table below, show where all the atoms came from. Indicate which reactions are photosynthesis (PS) and which are biosynthesis (biosyn).

|  |  |
| --- | --- |
| **Starch**  PS    CO2 (air) + water (roots) 🡪 sugar (leaf)  sugar (leaf) 🡪 sugar (potato)  biosyn  Multiple Sugar (potato) 🡪 starch | **Cellulose** |
| **Protein** | **Fat** |

1. **Cellular respiration - Energy to make things happen**

Cells need energy to move things and make particular reactions happen. They get that energy from food/sugar molecules and oxygen. Answer the 3 Qs for respiration.

C6H12O6 + 6O2 🡪 6CO2 + 6H20

|  |  |
| --- | --- |
| **The Location/Movement Question: Explaining changes:** Draw how atoms are moving on the picture below.  plant01.jpg | Where are atoms moving from? Where are atoms going to?  **The Carbon Question:** What is happening to carbon atoms? |
| **The Carbon Question:** What is happening to carbon atoms? | **The Energy Question: Explaining changes in forms of energy:** How do you think that energy is changing from one form to another? |

1. **Plants do both photosynthesis and respiration**

Photosynthesis: 6CO2 + 6H20 🡪 C6H12O6 + 6O2

Respiration: C6H12O6 + 6O2 🡪 6CO2 + 6H20

How are these two processes related?

Why does the plant do both processes?

Think back to the video of the plants in the light and in the dark. In the light, the lettuce plants produced carbon dioxide. In the dark, they took in carbon dioxide. Explain these results.

What will happen to the mass of a plant that is left in the dark for a long time?

It will: INCREASE DECREASE STAY THE SAME

Explain your answer.