CORNELL NOTES

Name: _____ Period: _____
Class: Science 7 Date: 27 Nov-6 Dec

Topic: Chapter 5, Section 1 Photosynthesis and Respiration

Question Column	***Notes Column***
Raw Materials	Plants take in CO2, water, light energy, nutrients from the Soil.
Materials Move	Water absorbed through osmosis through the roots, up the Stems, into the leaf cells, it is used in photosynthesis, and Excess water is released from the leaves through a process Called transpiration. Gases move through the leaves – CO2 Is taken in and used in photosynthesis, then O2 oxygen is Then expelled into the atmosphere from the leaves.
Leaf Structure and Function	Layers – cuticle, upper epidermis, palisade layer, spongy layer, and lower epidermis. Waxy cuticle keeps the leaf From drying out. The inner layers have all the chloroplasts, Where photosynthesis occurs. Two guard cells make a Stomata – open and close – CO2 comes in, and O2 and Water is expelled.
Chloroplasts	Solar discs in the leaf cells that capture sunlight. Chlorophyll is the pigment (energy juice) in which Photosynthesis occurs.
Food Production	Photosynthesis makes food (sugar) really glucose. Glucose is used to make ATP energy molecule for the plant cells. Glucose is also stored when there is too much – and used To make fruit and vegetables (excess sugar and starch). 6CO2 + 6H2O + light energy ------→ C6H12O6 + O2 Chemical Equation for Photosynthesis. Cellulose is Made from glucose and cellulose is what most of the Plant and cell wall is made of.

Cornell Notes Continued:

Light-Dependent Reactions: Photosynthesis reactions that need light which causes Water molecules to split into oxygen and hydrogen by Light energy. Oxygen leaves the plant through the Stomata.

Light-Independent Reactions: Photosynthesis reactions that do not need light. CO_2 combines with hydrogen to make glucose and other sugars.

Importance of Photosynthesis: Food production, takes CO_2 out of the air, releases Oxygen – 90% of oxygen in the air comes from Photosynthesis.

Breakdown of Food: Happens in the Mitochondria – glucose is broken down to Make ATP energy. Occurs in plant and animal cells (eukaroytes).

Aerobic Respiration: Oxygen and glucose react and produce CO_2, water, and ATP energy molecule. Chemical Equation for Aerobic Respiration:
$C_6H_{12}O_6 + 6O_2$ -------→ $6CO_2 + 6H_2O$ + ATP Energy
Every part of the cell uses ATP Energy.

Importance of Respiration: Changes glucose sugars into energy so the cells can complete their cellular processes. CO_2 is returned into the air where it can be used in Photosynthesis.

Compare and Contrast Photosynthesis and Aerobic Respiration:

Table 1, Page 135: What is done with Energy, what are The raw materials, what are the end products, where does It occur. Know these.

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