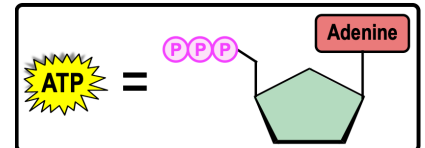
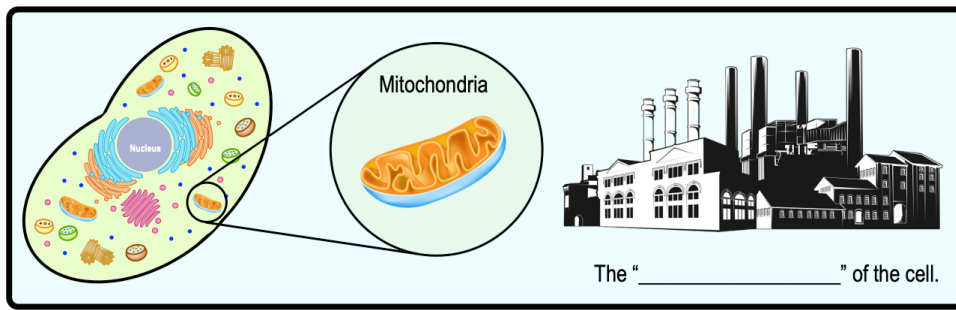


CONCEPT: MITOCHONDRIA & CHLOROPLASTS

Mitochondria

- **Mitochondria** ("The *Powerhouse* of the Cell"): organelles that synthesize lots of _____ for the cell.
 - **Adenosine Triphosphate** (_____): *high energy molecule* used to "power" cellular reactions.
 - **Cellular Respiration**: mitochondrial process that breaks down food sources like *sugars & lipids* to make ATP.

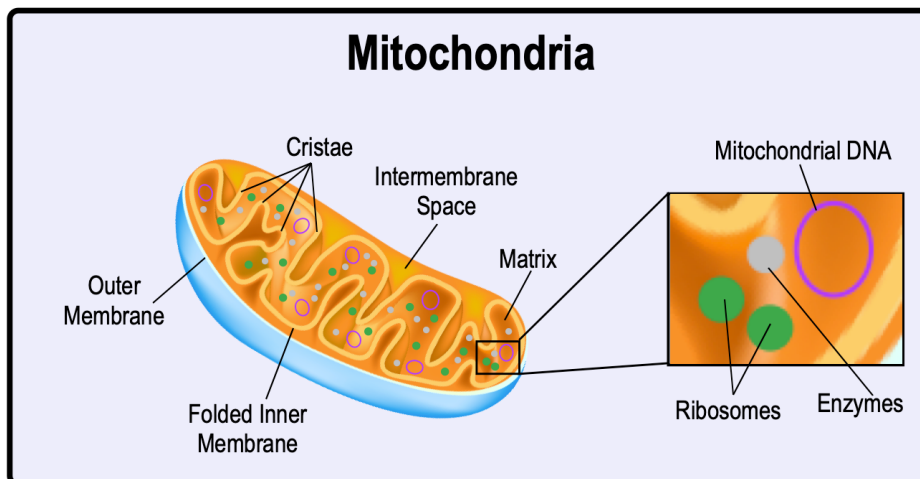


EXAMPLE: Which of the following processes is highly associated with mitochondria?

- a) Photosynthesis. b) Plasmolysis. c) Cellular Respiration. d) Crenation.

Mitochondria Structure

- Mitochondria vary in shape & have their own *ribosomes* & _____ that is *independent* of the nuclear DNA.
 - Mitochondria have _____ membranes:
 - 1) _____ membrane & 2) *Folded* _____ membrane (**cristae** ≈ folds).
 - _____-**membrane Space**: region *in-between* the two membranes.
 - _____: region within the *inner* membrane containing *enzymes, ribosomes, & mitochondrial DNA*.



PRACTICE: Which part of a mitochondria contains the mitochondrial DNA, ribosomes, and enzymes?

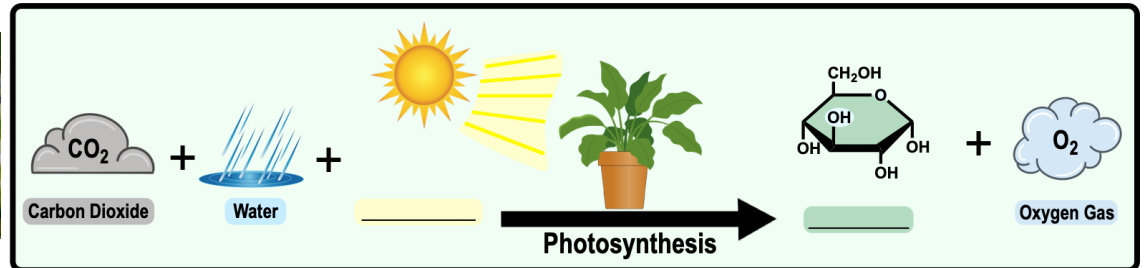
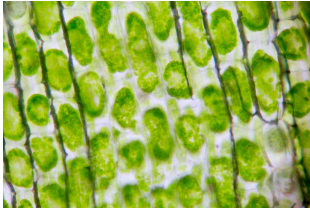
- a) Cristae. b) Matrix. c) Inter-membrane space. d) Cytoplasm.

CONCEPT: MITOCHONDRIA & CHLOROPLASTS

Chloroplasts

● **Chloroplasts:** *green* organelles that function as the *site of* _____ in many plant cells.

□ **Photosynthesis:** process that uses energy from _____ to synthesize sugars (*glucose*).



PRACTICE: The products of photosynthesis are:

- a) Water & Carbon Dioxide. b) Oxygen & Water. c) Sugar & Water. d) Oxygen & Sugar.

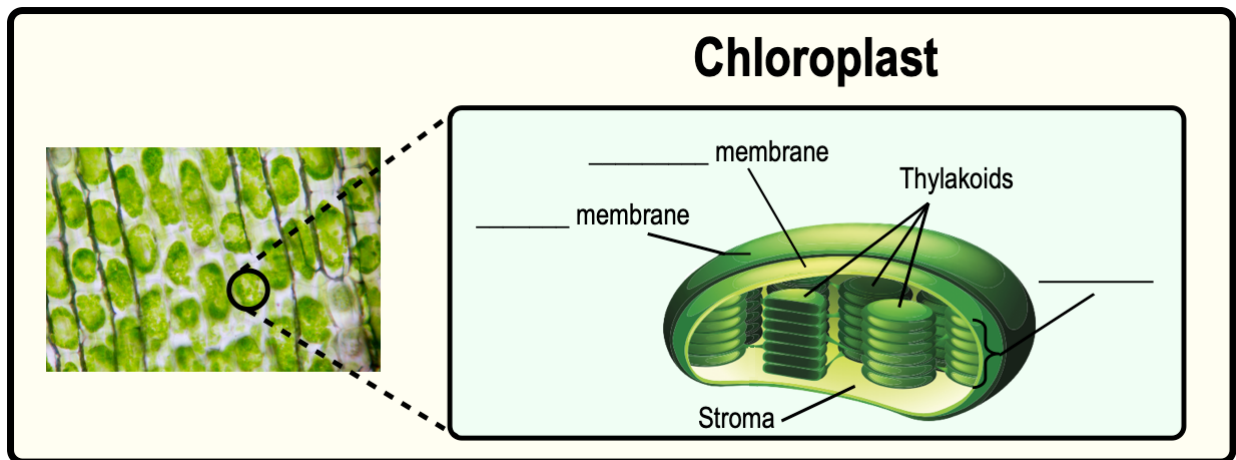
Chloroplast Structure

● **Chloroplasts** have _____ membranes (outer & inner), but unlike mitochondria, *neither* have folds/cristae.

□ **Thylakoids:** interconnected _____-shaped sacs within the chloroplast.

□ **Grana:** _____ of *thylakoids* (or “green pancake stacks”).

□ _____: innermost region of the *chloroplast* containing *enzymes*, *ribosomes*, & *chloroplast DNA*.



PRACTICE: Thylakoids, DNA, and ribosomes are all components found in _____.

- a) Chloroplasts. b) Mitochondria. c) Lysosomes. d) Vacuoles. e) Nuclear Envelopes.