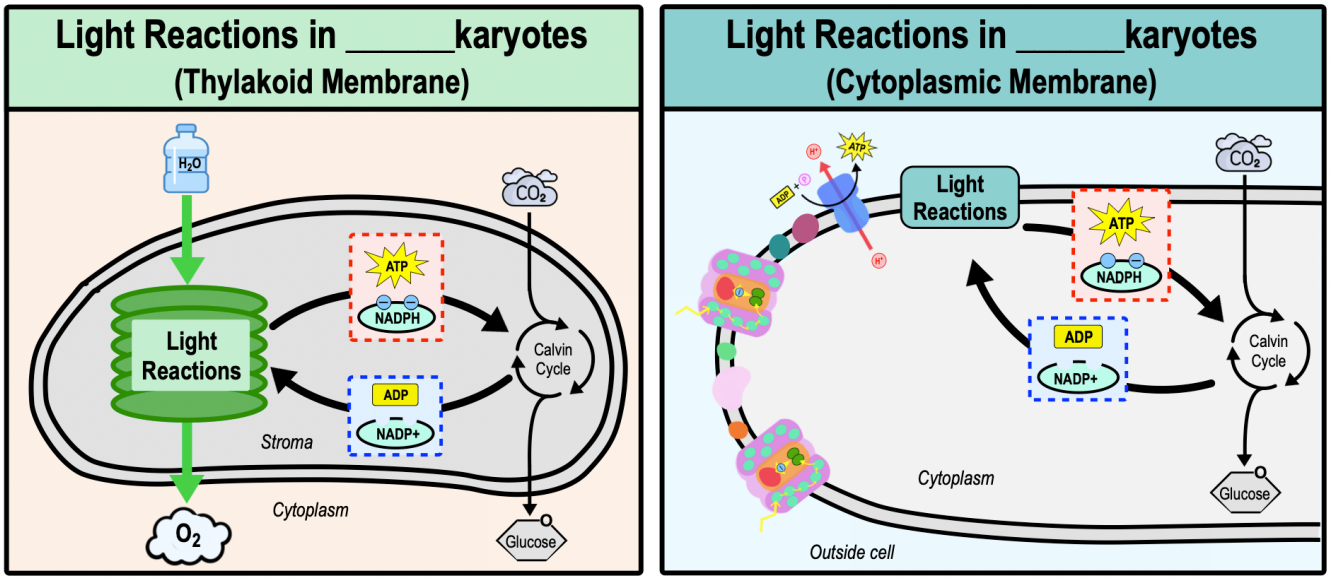
CONCEPT: PROKARYOTIC PHOTOSYNTHESIS

●While eukaryotes (plants) can perform photosynthesis, the *majority* is done by _____.

□ Unlike eukaryotic plant cells, photosynthetic prokaryotes do _____ have chloroplasts.

□ *Light Reactions* in prokaryotes occur in the _____ *membrane* & *Calvin Cycle* occurs in the *cytoplasm*.



PRACTICE: The metabolic process photosynthesis occurs in which part of the bacterial cell?

a) Gas vacuoles. b) Mitochondria. c) Chloroplasts. d) Cytoplasmic membrane.

Oxygenic vs. Anoxygenic Photosynthesis

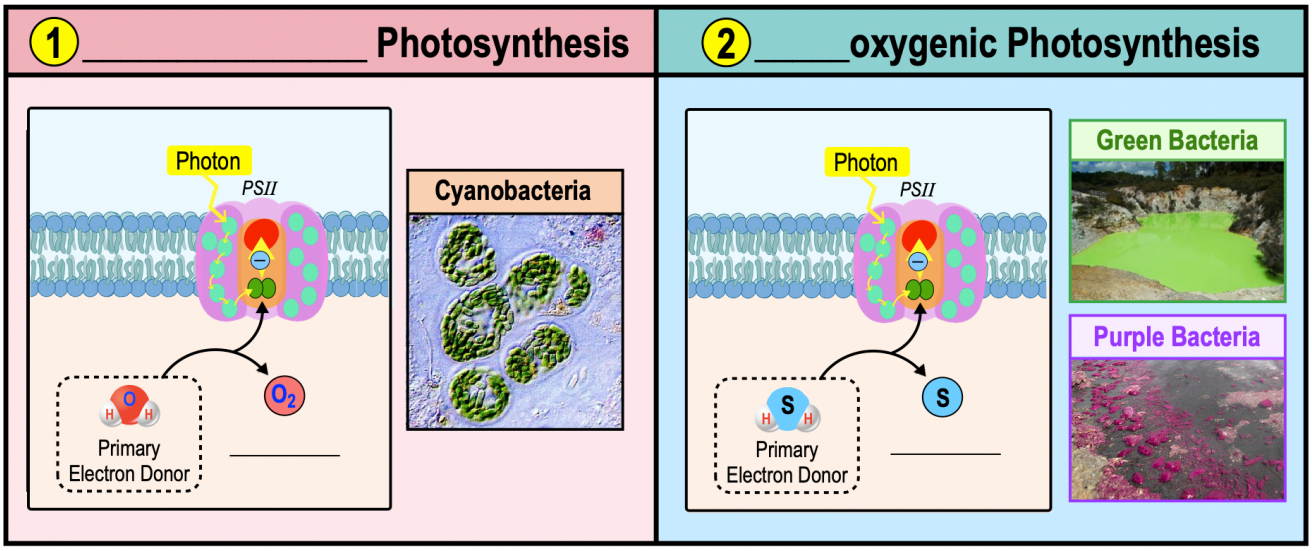
1) **Oxygenic Photosynthesis:** uses H_2O as the electron donor resulting in production of oxygen gas (_____).

□ *Chlorophyll* ____ is the reaction-center pigment molecule in *PSII* & *PSI*.

2) **Anoxygenic Photosynthesis:** uses other molecules (Ex. H_2S) as electron donor & does _____ produce O_2.

□ Uses _____*-chlorophylls* instead of *chlorophyll a* as the primary pigment molecule.

□ Instead of using both *PSI* & *PSII*, they *only* use _____ or the other.



CONCEPT: PROKARYOTIC PHOTOSYNTHESIS

PRACTICE: Choose the correct definition of oxygenic photosynthesis:

a) It uses oxygen gas as the primary electron donor to produce water.
b) It uses glucose as the electron primary donor to produce oxygen gas.
c) It uses water as the electron primary donor to produce NAD^+.
d) It uses water as the electron primary donor to produce oxygen gas.

PRACTICE: Oxygen produced during oxygenic photosynthesis comes directly from:

a) Light energy.
b) CO_2.
c) H_2O.
d) Glucose.
e) None of the above.

PRACTICE: A primary difference between cyanobacteria and purple and green phototrophic bacteria is?

a) The energy source.
b) The cell wall type.
c) Oxygen production.
d) The cell type.
e) The color.

PRACTICE: Which of these answers illustrates a major difference between oxygenic and anoxygenic photosynthesis?

a) Oxygenic photosynthesis uses H_2O as the electron donor, while anoxygenic photosynthesis uses H_2S.
b) Oxygenic photosynthesis produces O_2 gas, while anoxygenic photosynthesis produces elemental sulfur.
c) Oxygenic photosynthesis uses PSI & PSII, while anoxygenic photosynthesis uses PSI or PSII.
d) Oxygenic photosynthesis uses chlorophyll-a to absorb light, anoxygenic photosynthesis uses bacterio-chlorophylls.
e) All of the above are major differences between oxygenic and anoxygenic photosynthesis.