Homework (due Oct. 4)

- (1) Chemical reactions involve changes in which atoms (C, H, O) are bonded to which. Does photosynthesis include chemical reactions? How do you know?
- (2) Building large molecules (like glucose) out of smaller ones usually requires the input of energy. Is that true of photosynthesis? If so, where does the energy come from?
- (3) In the chemical equation for photosynthesis, how many C, H, and O atoms are on the left side of the arrow? How many of each are on the right side?

LO: Describe respiration.

SLE: Meet NGSS.

Photosynthesis vs. Respiration

• Chemical equation for photosynthesis:

• Chemical equation for respiration:

Chemical structure of glucose: chemicalformula.org

If we focus on Н the C atoms... НОН $H - \dot{C}_{1} - \dot{C}_{2} - \dot{C}_{3} - \dot{C}_{4} - \dot{C}_{5}$ Ý Η Η

$O = C_1 = 0$ $O = C_2 = 0$ $O = C_3 = 0$ $O = C_{4} = 0$ $O = C_{5} = 0$ $O = C_{5} = 0$

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Controlling the <u>rates</u> of photosynthesis & respiration

Analogy: making iPhones



https://www.quora.com/How-does-iPhone-production-get-counted-as-part-of-the-US-and-China%E2%80%99s-GDP

• "Chemical reaction" for "Phone-o-synthesis"

• What causes the "reaction" rate to go \uparrow or \downarrow ?

Supply and demand in photosynthesis/respiration

- Breathing rate before and after exercise
- Spinach leaf photosynthesis

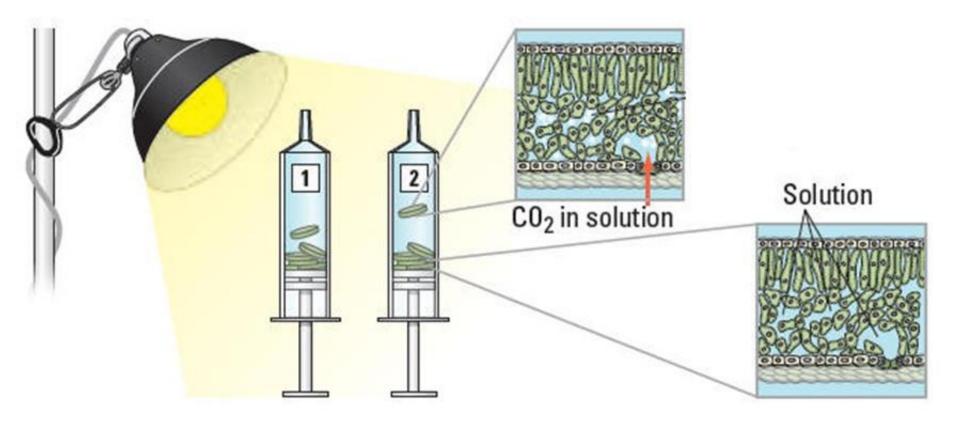
Breathing (respiration) rate before and after exercise

Procedure:

- 1. Count breaths for 30 seconds.
- 2. Do jumping jacks for 30 seconds.
- 3. Stop; count breaths for seconds.

Analysis: WHY did breathing rate change?

Tomorrow's lab: spinach leaf photosynthesis



http://www.berwicksclasses.org/AP%20Biology/Biology%20Assignments/AP%20BIOLOGY%20Lab%204.htm

Homework (due Oct. 5)

- (1) Briefly list 5 ways in which photosynthesis and respiration can be considered OPPOSITES.
- (2) Explain 2 ways in which photosynthesis and respiration are NOT exact opposites.
- (3) Why does your breathing rate change during and after exercise like jumping jacks? Your answer should refer to the chemical equation for respiration.