

# Photosynthesis/Respiration Lab

Problem: What effect will the processes of photosynthesis and respiration have on Bromothymol blue indicator?

Observation: respiration produces  $\text{CO}_2$ , photosynthesis produces  $\text{O}_2$ . Bromo blue turns green when pH is 7, turns yellow when pH is below 7, remains blue when pH is above 7.

## Hypothesis:

I think ...

Control	turns/stays	_____	.
Plant	turns/stays	_____	.
fish	turns/stays	_____	.
Plant/fish	turns/stays	_____	.

## Experiment:

1. Fill 4 beakers with water
2. Add 1mL Bromo blue to beaker 1
3. Place elodea in beaker 2 and 1mL Bromo blue
4. Place fish in beaker with 1mL of Bromo blue

5. place fish + elodea in beaker - 4  
w/ Bromo blue
6. let sit for 24 hours
7. Record observations

Data:

<u>Beaker</u>	initial color	color after 24 hours	result
Control	blue		
plant	blue		
fish	blue		
plant / fish	blue		

# Fermentation

Big Idea - anaerobic respiration -  
no  $O_2$  is present.

- Pyruvic acid cannot enter Kreb's.
- Converted into something else.
- In animals - lactic acid made
- No ATP is made
- Lactic acid builds up - muscles sore
- Takes place in cytoplasm

# Respiration

2 ATP  
2 ADP

starts with  
**glycolysis**

doesn't need O<sub>2</sub>  
produces 4 ATP  
net: 2 ATP

↓  
produces pyruvic acid

**Oxygen**

needs

Aerobic

Anaerobic does not need

**Fermentation**

**Kreb's Cycle**

↓  
may produce  
Ethyl alcohol → yeast  
Lactic acid → animals muscles  
Acetic acid → plants Sauerkraut

produces  
CO<sub>2</sub>    e<sup>-</sup>    2 ATP  
↓  
Electron Transport Chain  
H<sub>2</sub>O    32 ATP