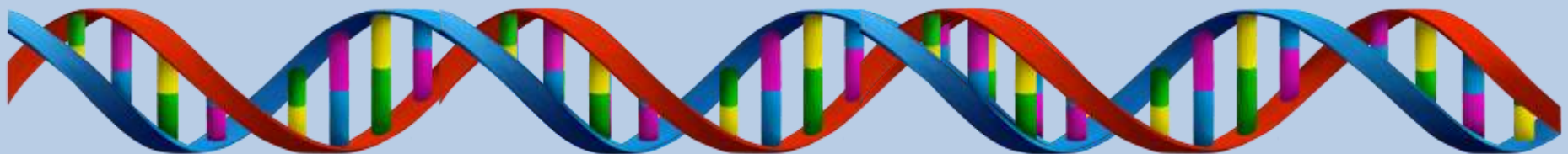
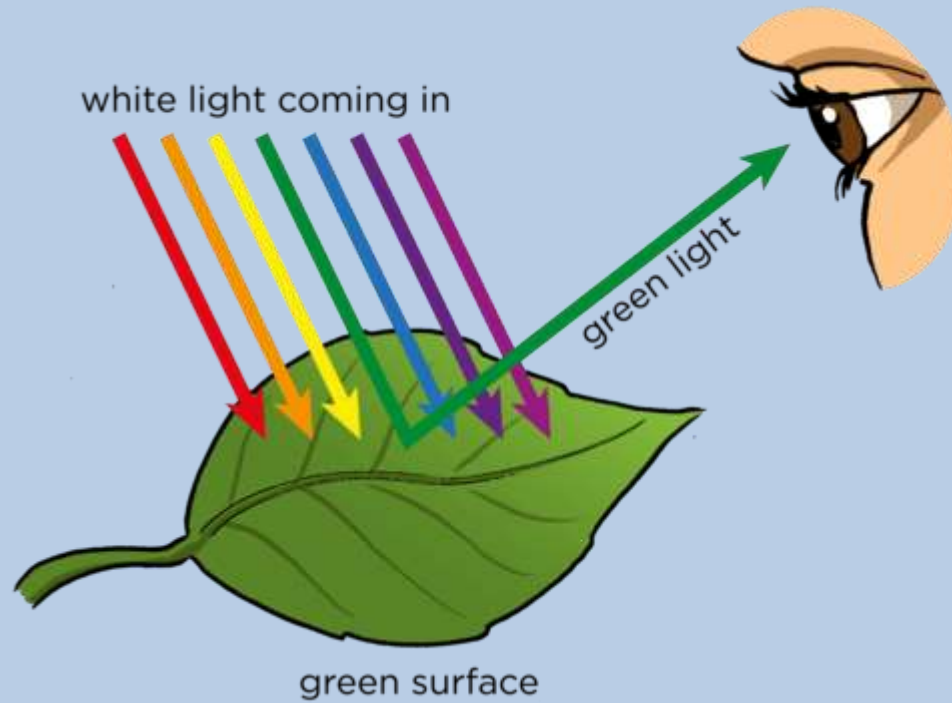


- 1. Why is chlorophyll green?**
- 2. What color would chlorophyll be if we could see the absorbed light?**
- 3. What gives energy to the light dependent reactions?**
- 4. What gives energy to the light independent reactions?**
- 5. How does photosynthesis affect the atmosphere and the biosphere?**

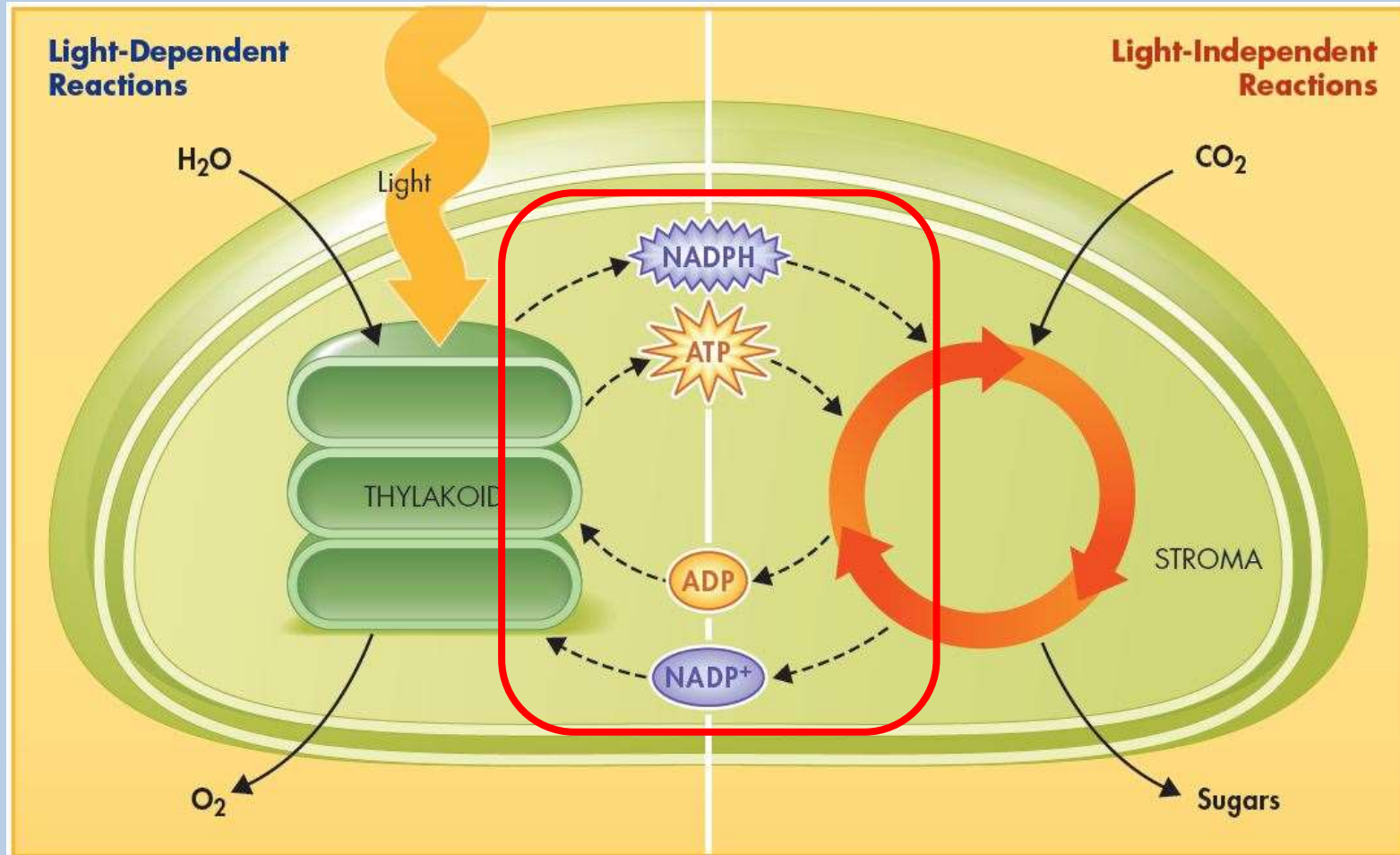


# Photosynthesis



# Interdependence of Reactions

Light-dependent and light-independent reactions have an interdependent relationship.



# Logistics

- Finals start January 21
- **START STUDYING NOW**

SUN	MON	TUE	WED	THU	FRI	SAT
[Blacked out]						
[Blacked out]		7	8	9	10	11
12	13	14	15	16 UNIT 4 TEST	17	18
19	[Blacked out]	21 7	22 5/6	23 3/4	24 1/2	25
26	[Blacked out]	28	29	30	31	

# Photosynthesis Leaf Lab



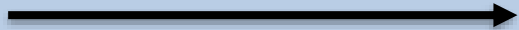
# Photosynthesis Leaf Lab

- **PAGE 43** in your notebook
  - *Write the answers to the pre-lab, data, and analysis questions*
  - **ONLY ON THIS PAGE**

# Photosynthesis Leaf Lab

- Day 2 Procedure
  - YOU MUST WEAR GOGGLES, TIE HAIR BACK, NO SANDELS
  - Follow the instructions carefully
  - BE CAREFUL; *do not rip the leaves*
  - DO NOT TOUCH THE HOT PLATE
  - KEEP ETHANOL AWAY FROM THE HOT PLATE
  - Do the pre-lab questions while the leaf boils
  - *Clean up after yourself*

# To-do:

- While you wait for your leaf work on Spinach Analysis
  - Class data 
  - Turn in

*Both labs are due FRIDAY*





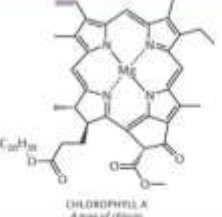
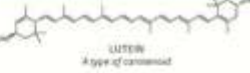

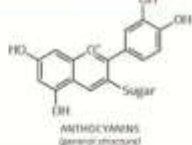
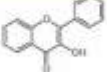
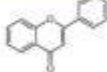

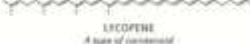
TIME	LIGHT	DARK
1	0	0
2	0	0
3	0	0
4	1	0
5	2	0
6	3	0
7	3	0
8	4	0
9	5	0
10	5	0



# Photosynthesis Leaf Lab

- Why do leaves change color in the fall? <http://www.untamedscience.com/biology/plants/why-leaves-change-color/>

## THE CHEMISTRY OF AUTUMN LEAF COLOURS

Chlorophyll	Carotenoids & Flavonoids	Carotenoids	Anthocyanins & Carotenoids
			
 <p><b>CHLOROPHYLL A</b> A type of chlorophyll</p>	 <p><b>LUTEIN</b> A type of carotenoid</p>	 <p><b>B-CAROTENE</b> A type of carotenoid</p>	 <p><b>ANTHOCYANINS</b> (General structure)</p>
<p>Chlorophyll gives plant leaves their green colour. Plants require warm temperatures and sunlight to produce chlorophyll. In autumn, the amount produced begins to decrease, and existing chlorophyll is slowly broken down, diminishing the green colour of the leaves.</p>	<p>Carotenoids and flavonoid pigments are always present in leaves, but as chlorophyll is broken down in the autumn their colours come to the fore. Xanthophylls, a subclass of carotenoids, are responsible for the yellows of autumn leaves. One of the major xanthophylls, lutein, is also the compound that contributes towards the yellow colour of egg yolks.</p>	<p>Carotenoids also contribute orange colours. Beta-carotene is one of the most common. Carotenoids in plants, and absorb green and blue light strongly, reflecting red and yellow light and causing its orange appearance. It is also responsible for the orange colouration of carrots. Carotenoids in leaves start degrading at the same time as chlorophyll, but they do so at a much slower rate; some fallen leaves can still contain measurable amounts.</p>	<p>Anthocyanin synthesis is kick-started by the onset of autumn. As sugar concentration in the leaves increases, sunlight irritates anthocyanin production. The purpose they serve isn't clear: it is suggested that they may play a light protective role. It was previously thought they might delay leaf fall, but this has been discounted.</p>
	 <p><b>FLAVONOL</b> (General structure)</p>  <p><b>FLAVONE</b> (General structure)</p>	 <p><b>XANTHANTHIN</b> A type of carotenoid</p>	 <p><b>LYCOPENE</b> A type of carotenoid</p>

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