

AP Biology summer assignment Baja 2009

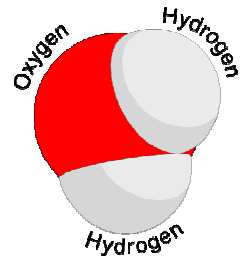
1) review vocabulary

Be familiar with each of the terms below. Be prepared for a quiz the first week.



from chemistry: anion, cation, endothermic, exothermic, metabolism, anabolic, catabolic, oxidation, reduction, acid, base, buffer, polarity, hydrogen bond, covalent bond, cohesion, adhesion

from biology: prokaryote & eukaryote, autotroph & heterotroph, photosynthesis & respiration, osmosis, diffusion, isotonic, hypertonic, hypotonic, mitosis & meiosis, lipid, carbohydrate, protein, nucleic acid, DNA & RNA, enzyme, transcription & translation



2) read and write on evolution

due 1st day of class

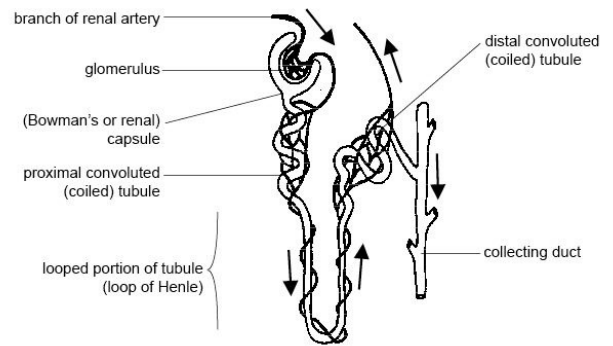
Select one of the following books to read. (Go to the library, abebooks.com, amazon.com, Borders...)

- 1) *Last Chance to See* Douglas Adams
- 2) *Your Inner Fish* Neil Lubin
- 3) *Dr. Tatiana's Sex Advice to All Creation: The Definitive Guide to the Evolutionary Biology of Sex* Olivia Judson
- 4) *The Man Who Mistook His Wife for a Hat and Other Clinical Tales* Oliver Sacks
- 5) *Merle's Door* Ted Kerasote
- 6) *The Beak of the Finch: A Story of Evolution in Our Time* Jonathan Weiner
- 7) *On the Origin of Species* Charles Darwin
- 8) *Survival of the Sickest: A Medical Maverick Discovers Why We Need Disease* Sharon Moalem
- 9) *Wild Solutions: How Biodiversity is Money in the Bank* Andrew Beattie & Paul Ehrlich

Evolution is one of eight themes in this course. It is easy for us to accept that mutations occurring in DNA are subsequently passed on to the next generation. But what about macroevolution -- did you evolve from some amoeba? Well, this assignment is not intended to address that question.

Type an essay that interprets the following quote by Theodosius Dobzhandsky: "Nothing in biology makes sense except in the light of evolution." In your own words, define evolution. Paraphrase the quote, and connect it to the text you chose to read. What is the relationship between the ideas of your book and Dobzhandsky's quote? Be sure to cite chapters, quotes, or passages from your book to support your assertions. Include a paragraph that tells what you thought of the book. Limit your response to no more than two typed double-spaced pages with one inch margins. Please avoid extra large or bold fonts.

**3) build and relate
a 3-D model
due the 1st day of class**



Build a three-dimensional model.

Choose from the following:

- nephron or kidney
- neuron
- sarcomere
- chloroplast cross section
- mitochondrion cross section
- enzyme-substrate interaction
- chromosome with histone proteins
- microvillus with capillaries and lacteals
- cross section of a dicot seed
- bacteriophage
- two homologous structures
- two analogous structures
- zygomycetes or basidiomycetes
- mycorrhiza and root
- lichen
- eyeball cross section
- planaria, tapeworm or fluke
- phospholipid bilayer
- alveolus with capillaries
- moss gametophyte and sporophyte
- C₄ leaf cross section
- allosteric inhibition
- Batesian or Mullerian mimicry examples
- cellulose
- ATP
- karyotype showing nondisjunction
- monocot leaf and a dicot leaf
- five of the following functional groups: hydroxyl, sulfhydryl, aldehyde, ketone, phosphate, amine, carboxyl, methyl

details:

- Avoid using materials that bugs would like to eat.
- THREE DIMENSIONS
- sturdy, not fragile
- Include as many details as possible.
- You are not graded on artistic ability. However, your model should be easily recognized as the structure you have selected.

Along with the model, make a key for all of its parts, AND explain how it relates to one of the following AP bio themes:

1. Science as a Process
2. Evolution
3. Energy Transfer
4. Continuity and Change
5. Relationship of Structure to Function
6. Regulation
7. Interdependence in Nature
8. Science, Technology, and Society

4) classify animals

due before end of 1st quarter

Complete the handout on **Invertebrates and Chordates**. Fill in the names of the phyla, classes and orders. Find pictures of representative organs and tape them into the boxes.

5) make a pie chart that shows how you learn best

due 1st day of class

Cut out a 7" diameter circle and make it a pie chart on how you learn best according to the test on the site <http://gsclientarea.com/learningstyles/>

Use the following colors:

red - visual

blue - auditory

green - kinesthetic & tactile

Place a picture of yourself along with your name in the center of the pie chart.



6) think and write about "What Makes Me Uneasy?"

due the 1st day of class

On loose-leaf paper and **handwritten**, write about what bothers, scares, angers, worries, saddens, annoys, disappoints or unnerves you. Explain why it does *and* what it would take to put your mind at ease about it. *You are not limited to examples from the following list.*

dreams of falling, accidents, being unprepared, crowds, cancer, ghosts, public speaking, failure, dissection, unsolved crimes, the devil, famine, war, ridicule, reincarnation, "Bs" or "Cs", high expectations, fractions, Hollywood, pollen, imaginary numbers, death, stoichiometry, time, drunk drivers, peer pressure, snakes, weight, summer assignments, Big Bang Theory, littering, addiction, blood, organic compounds, gluten, gossip, fire, bullies, hurricanes, tripping, food poisoning, hospitals, overpopulation, gunfire, organized religion, politics, evolution, rejection, excess, infectious disease, overpopulation, food in teeth, calculus, mosquitoes, hurricanes, nutmeg...

Some thoughts to consider before taking AP biology...

How do these apply to you?

I _____.

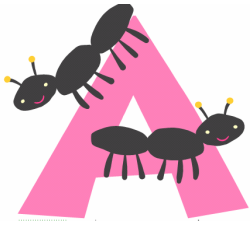
- 1) never really had to study before and am used to getting all As
- 2) think AP biology must be easy because I got a pass advanced on the biology SOL
- 3) am taking AP biology because I heard it is the easiest of all AP sciences
- 4) can always switch into oceanography or astronomy if it looks like AP biology is a lot of work
- 5) do not remember any chemistry
- 6) think I'm cool because I know how to steal test keys from my teacher without getting caught
- 7) did not pass the test for the biology and/or chemistry SOL*
- 8) feel I did not learn anything in biology and/or chemistry
- 9) do well on tests that require memorization but not on ones that require application
- 10) do not like working with other people
- 11) have not broken 1000 (verbal and math) on the PSAT/SAT
- 12) miss a lot of school but am really good at doing make-up work
- 13) am smart enough to do well by doing the bare minimum
- 14) am taking AP bio only because it's all about animals and anatomy
- 15) do not like learning about things I cannot see
- 16) do not plan on staying after school for test reviews
- 17) do not like reviewing my graded work
- 18) pride myself on getting teachers off the topic so we don't have to listen to boring material
- 19) do not like to study outside the 90 minutes I'm in class
- 20) do well in classes because I sit next to smart people and copy their work
- 21) have been successful arguing my grades with my teachers and getting my grades raised whether or not I really know the material
- 22) study hard, do well on the tests, then forget all the information
- 23) plagiarize because it's easy and I don't get caught
- 24) am the type of student who can sleep through class but will ace the test by reading the book the night before
- 25) lack organization and end up turning in most of my work late, because I can't keep track of due dates
- 26) take AP classes so it looks good on my transcript but do not plan on taking the AP exam because I don't feel like preparing for it and would fail it anyway
- 27) don't care if I fail the AP exam, because all I want to do is be exempt from the final
- 28) get discouraged easily
- 29) can get by just fine without completing reading assignments
- 30) have parents who will pull me out of a class if I am not making an A
- 31) think that even though I do not understand the concepts, I should have an opportunity to get a good grade by doing extra credit



If any of these are true, this may be an indication that the class will be more of a challenge than you think. Remember, however, your motivation and effort will determine your performance.

* If you have not passed the SOL test for biology and/or chemistry, you need to see your guidance counselor to enroll you in another science course.

Interpreting Letter Grades



SUPERIOR

The student...

- demonstrates outstanding academic achievement on all assignments.
- demonstrates mastery of curriculum objectives.
- demonstrates the ability to express ideas clearly both orally and in writing.
- demonstrates the ability to work independently and to produce original work.
- attempts and completes all assignments.

ABOVE AVERAGE

The student...

- demonstrates a level of academic achievement that is consistently above that which is expected.
- demonstrates mastery of almost all curriculum objectives.
- demonstrates the ability and willingness to work independently on all assignments.
- attempts and completes all assignments.



AVERAGE

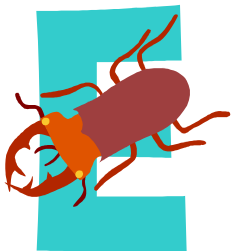
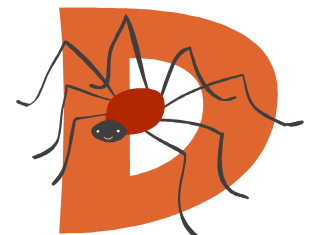
The student...

- demonstrates an acceptable level of academic achievement.
- demonstrates mastery of key curriculum objectives.
- attempts to complete all assignments and participates in class activities.
- demonstrates academic growth which will allow for progress within the appropriate curriculum.

BELOW AVERAGE

The student...

- demonstrates a level of academic achievement that is consistently below that which is expected.
- demonstrates minimum academic growth needed to advance to higher levels within the appropriate curriculum.
- frequently requires additional direction and assistance of the teacher in order to complete assignments.



FAILING

The student...

- demonstrates an unsatisfactory level of academic work.
- fails to master basic curriculum objectives that would allow advancement to the next higher level of curriculum.
- frequently rejects the assistance of the teacher.
- frequently fails to complete assignments.