

# AP Biology Course Syllabus

Murrieta Mesa High School

Ms. Schultz, Renaissance Hall – Room 155

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**Included in this packet:** *Syllabus, Lab Safety Agreement, Contract, Summer Assignment, Framework/Text*

## Course Prerequisites:

Successful completion of CP Biology and Chemistry with a grade of B or better.

## Course Credit:

Students will receive extra credit on transcripts (grade scale of 5) for successful completion of AP Biology with a grade of C or better provided the College Board AP Exam is taken in the spring. Students experiencing financial hardship may qualify for fee waivers, however must contact Mrs. Beach as soon as possible. Students who do not take the AP Exam will not receive the extra grade credit. AP Students do NOT receive a grade bump in their course grade for scoring well on the CST or AP Exams.

## AP Exam College Credit:

Colleges vary in what score they will accept for credit. Generally a student needs to score at least a 4 for credit, but some schools will accept a 3. Check with the schools you are applying to for details.

## The AP Exam:

Test Date: Monday, May 13 @ 8:00 a.m. The 2013 exam will be a new format to account for the new curriculum. More information will be provided later.

## Course Description:

AP Biology is a rigorous and demanding course, which is the equivalent of an introductory college biology course. Content will be covered in more depth and greater expectations will be placed on interpretation and analysis of information than previous biology courses. In addition, statistical analysis of data and modeling of concepts will be expected. A significant amount of studying must be completed at home to allow time for discussion, labs, and inquiry during class time. The College Board has redesigned the curriculum starting in the 2013 school year, and although the amount of material has been reduced, the emphasis on scientific thinking and analytical thinking has increased. The course will be structured differently this year due to the changes and to allow for more class time for labs and discussions. The new AP Biology curriculum encompasses 4 'big ideas', with Essential Knowledge and Process Skills that support each one.

**Big Idea 1: Evolution** – the process of evolution drives the diversity and unity of life

**Big Idea 2: Cellular Processes (Energy and Communication)** – Biological systems utilize free energy and molecular building blocks to grow.

**Big Idea 3: Genetics and Information Transfer** – living systems store, retrieve, transmit, and respond to information essential to life processes

**Big Idea 4: Interactions** – Biological systems interact and these systems and their interactions possess complex properties.

### **Class Expectations:**

- Come to class prepared - in order to facilitate class discussions and reduce lecture time in favor of labs and knowledge enhancing activities, you must complete all required assignments. AP assignments are not 'busy work'; they are designed to help you learn difficult material.
- Come to class! The work we will be doing during class cannot be replicated at home, labs in particular. You have committed to an advanced class and that requires your presence in the classroom. Missed labs cannot be made up and will receive a score of zero.
- Study at home – the convention for college courses is 3 hours of independent study for each hour of class. In order to have productive class discussion you must review the material at home.
- No whining! This is a college level course. It will be challenging. It will require a significant amount of time outside of class. If you don't like biology, this is not the class for you!
- Yes, you have to write in complete sentences. Yes, you have to show your work. Yes, you have to write out procedures, data tables, and label graphs. Yes, you are expected to show a higher level of understanding on ALL of your assignments. No, you may not write in 'text-speak'
- Read and sign the contract and lab safety agreement.

### **Class policies:**

1. Bags and jackets will be stored on the shelves, not at your table.
2. Cell phones and other electronics are turned off and stored in bag. There is a zero tolerance policy for electronics, refer to the school handbook for details. During class your brain should be turned on and your phone turned off.
3. Food and drink are prohibited in working science labs and we will follow the same policy. Take care of your metabolic needs before school, during break, and during lunch!
4. Late work **will not be** accepted. No exceptions, no excuses.
5. Do not throw any classwork away. You will need it to review for tests and mistakes do happen occasionally with grade recording.
6. Cheating is unacceptable in any form. Cheating includes, but is not limited to: copying homework, copying lab analysis answers, plagiarizing written assignments, copying test answers, use of electronics to find test answers. If copying occurs all people involved will receive a zero on the assignment and a referral. You are in class to learn and succeed on the spring exam. Cheating DOES NOT help you learn.
7. Most classes will start with a 5 minute homework quiz. If you are late to class (excused or not), or if you have an unexcused absence you will receive a zero. In the case of an excused absence you must come into class the day you return a few minutes early to make up the quiz.
8. You are responsible for your lab station. Keep it clean and organized to make lab breakdown easier at the end of class. Lab groups will not be dismissed until their lab station is cleaned completely.

### **Grading:**

Grades will be assigned based on a straight percentage. Grades will not be rounded up (100-90 = A, 89-80 = B, 79-70 = C, 69-60 = D, 59 and below = F). The grade will be broken down into the following categories:

**40%** - Tests

**15%** - Quizzes

**45%** - Labs and Classwork

**Material Requirements:**

1. Textbook – Campbell’s AP Biology: Eighth Edition
2. Lab book – composition book that will be used for all lab notes
3. 3-ring binder – sections for notes, homework, test/quizzes
4. Blue/black pens for labs, pencils, colored pencils
5. Internet access! We will be using several websites to support coursework.
6. AP Biology study books are highly recommended. Make sure you get one that is for the new curriculum. Anything published early than 2012 will not be helpful in preparation for the new test, which will be given for the first time in 2013.

**Labs:**

Labs will constitute at least 25% of the course work. The new curriculum includes more emphasis on inquiry based labs, which means you will design your own experimental procedures for a significant number of labs. In order to have as authentic a lab experience as possible, you will keep a lab notebook to record procedures and observations during labs. All labs will be done in pen. If you make a mistake, cross out (do not scribble out) the information and rewrite. In the scientific work, lab notebooks are considered legal documents and all information must be accessible. Formal lab write ups will be completed for each lab. You will turn in the formal write up, but keep your lab notebook. Lab notebooks will be reviewed for a grade twice a semester.

**Homework:**

Homework should be completely every night. Usually it will consist of reading assignments, viewing lectures (Kahn Academy, Bozeman biology), taking notes, finish labs. Even if a formal assignment is not given, you are expected to spend time reviewing content each night. AP Biology is a challenging class and can’t be just ‘picked up’ during class time. You need to invest the time outside of class to be successful in class.

**Tests/quizzes:**

We will have unit tests at the end of each unit (larger units may be split up into 2 smaller tests) which will consist of multiple choice and free response. Tests are a large part of your grade (similar to a college course) and it is important that you prepare for them. Keeping current with lessons throughout the semester will help with test preparation.

**Absences:**

AP courses are fast paced and cover a significant amount of content each day, particularly on lab and test days. It is extremely important that you attend class every day. Absences for school activities will not be approved (i.e. if it is a rally day, you are expected to be in class and may go to the rally at the same time as the rest of the class, not early). If you are ill, check the website, call a friend, or email Ms. Schultz. You are still responsible for the content covered in class on the day of your absence.

**Participation:**

Always be prepared for class so you can fully participate. The goal this year is to promote more discussion and small group analysis of information, more lab time, and less lecture time. For this to work, you must be committed to completing the work required outside of class, and to actively participating during class time.

## **LAB SAFETY GUIDELINES:**

Science classes often involve hands-on laboratory activities. Many labs will involve potentially hazardous chemicals and materials. I refer to them as potentially hazardous because they are only hazardous if used inappropriately. There is no place in my class for unsafe use of materials. Thus, you will need to either be safe or be out. You must read this contract carefully and have your parents read it. You will keep this in your notebook for reference and sign the contract to turn in to me.

### **General guidelines**

1. Conduct yourself responsibly at all times.
2. Follow all written and verbal instructions carefully. Ask questions if you do not understand.
3. Do not touch any equipment or materials before instructed to do so.
4. **NO FOOD, DRINKS, OR GUM IN THE LAB!!!**
5. Never start the lab unless you have received prior approval from me.
6. Always read and complete the pre-lab before you perform the lab.
7. Keep your work area neat and clean at all times!
8. Never leave liquid-filled containers uncovered.
9. Know the location and operation of all safety equipment.
10. Do not run, shout, or throw things in the lab.
11. Notify me if an unsafe condition exists in the classroom.
12. Dispose of all chemicals properly. I will instruct you about how to dispose of specific chemicals.
13. Keep your hands away from your face while doing labs. Also, always wash your hands after the clean-up is complete.
14. Rinse out all glassware and leave it to dry in the designated locations.
15. Stay at your lab bench with your lab group during labs.
16. Carry sharps appropriately; tips down and away.
17. You will not be dismissed from class until lab stations are clean.
18. Immediately report ALL injuries, no matter how minor, to me.
19. Use the eyewash or shower if you are splashed with a chemical. Always assume that the chemicals are hazardous.
20. Use caution when using the hot plates; remember they are hot even though the top is white.
21. Never leave a hot burner unattended.
22. Never look directly into a container that is being heated, observe from the side

### **Clothing**

1. Goggles and aprons must be worn when instructed
2. Only close-toed shoes may be worn on lab days. No loose clothing or jewelry
3. Tie long hair behind your head.

### **Handling Chemicals**

1. Consider all lab chemicals to be hazardous.
2. Double check the label before using a chemical
3. Take only the amount of chemical you will use.
4. Never let a chemical near your mouth.
5. Never remove chemicals or other materials from the lab.
6. Always hold chemical bottles with two hands when transporting them.

### **Handling Glassware**

1. Be cautious with all glass/Pyrex equipment. Never use chipped glassware.
2. Never handle broken glass. If a piece of glassware breaks, notify me immediately and I will dispose of it.
3. You will be responsible for paying for excessive broken equipment (i.e. microscopes slides = no, glass graduated cylinders = yes!)

## AP Biology Curriculum Outline:

The following is an overview of the main concepts that we will be covering this year. Each 'Big Idea' has Enduring Understandings (EU) and sub points for each EU. Although the outline does not go into detail on each sub point, it will help you to know what the important understandings are for each section. The chapters are included in parenthesis after each sub point. At the end are the science practices that will be emphasized this year through labs and class activities.

### Big Idea 1 – Evolution: The process of evolution drives the diversity and unity of life

EU 1A – Change in the genetic makeup of a population over time is evolution (CH 22.2, 23.2)

1. Natural selection is a major mechanism of evolution(CH 23.1, 23.4)
2. Natural selections acts on phenotypic variations in populations (CH 23.3)
3. Evolutionary change is also driven by random processes (CH 22.3, 25.2)
4. Biological evolution is supported by scientific evidence from many disciplines, including mathematics (CH 22.3, 25.2)

EU 1B – Organisms are linked by lines of descent from common ancestry

1. Organisms share many conserved core processes and features that evolved and are widely distributed among organisms today (CH 25.1, 25.3)
2. Phylogenetic trees and cladograms are graphical representations of evolutionary history that can be tested (CH 26.1-26.3)

EU 1C – Life continues to evolve within a changing environment

1. Speciation and extinction have occurred through the Earth's history (CH 24.3, 24.4, 25.4)
2. Speciation may occur when two populations become reproductively isolated from each other (CH 24.1)
3. Populations of organisms continue to evolve (CH 24.2)

EU 1D – the origin of living systems is explained by natural processes

1. There are several hypotheses about the natural origin of life on Earth, each with supporting scientific evidence (CH 4.1, 25.1, 25.3)
2. Scientific evidence from many different disciplines supports models of the origin of life (CH 26.6)

### Big Idea 2 – Biological systems utilize free energy and molecular building blocks to grow, to reproduce and to maintain dynamic homeostasis

EU 2A – Growth, reproduction, and maintenance of the organization of living systems require free energy and matter

1. All living system require constant input of free energy ( CH 8.1 – 8.3, 9.1-9.5, 10.1-10.3, 40.1-40.4, 51.4, 53.02, 53.4, 55.2, 55.3)
2. Organisms capture and store free energy for use in biological processes (CH 9.1-9.5, 10.1-10.3)
3. Organisms must exchange matter with the environment to grow, reproduce, and maintain organization (CH 3.1-3.3, 4.1, 4.2, 6.23)

EU 2B – Growth, reproduction and dynamic homeostasis require that cells create and maintain internal environments that are different from their external environment

1. Cell membranes are selectively permeable due to their structure (CH 7.1, 7.2)
2. Growth and dynamic homeostasis are maintained by the constant movement of molecules across membranes (CH 7.3-7.5)
3. Eukaryotic cells maintain internal membranes that partition the cell into specialized regions (CH 6.2-6.5)

EU 2C – organisms use feedback mechanisms to regulate growth and reproduction, and to maintain dynamic homeostasis

1. Organisms use feedback mechanisms to maintain their internal environments and respond to external environmental changes (CH 402, 40.3)
2. Organisms respond to changes in their external environments (CH 40.3)

EU 2D – Growth and dynamic homeostasis of a biological system are influenced by changes in the system's environment

1. All biological systems from cells and organisms to populations, communities and ecosystems are affected by complex biotic and abiotic interactions involving exchange of matter and free energy (CH 52.4, 53.1-53.5, 54.1-54.5, 55.1-55.4)
2. Homeostatic mechanisms reflect both common ancestry and divergence due to adaptation in different environments (CH 40.2, 40.3, 56.1)
3. Biological systems are affected by disruptions to their dynamic homeostasis (CH 40.2, 40.3, 56.1)
4. Plants and animals have a variety of chemical defenses against infections that affect dynamic homeostasis (CH 39.5, 43.1 – 43.4)

EU 2E – many biological processes involved in growth, reproduction and dynamic homeostasis include temporal regulation and coordination.

1. Timing and coordination of specific events are necessary for the normal development of an organism, and these events are regulated by a variety of mechanisms (18.2-18.4, 38.1)
2. Timing and coordination of physiological events are regulated by multiple mechanisms (38.1, 39.2, 39.3, 24.1, 11.1)
3. Timing and coordination of behavior are regulated by various mechanisms and are important in natural selection (CH 51.1, 51.2, 39.2, 39.3, 51.1, 54.1)

### **Big Idea 3 – Living systems store, retrieve, transmit and respond to information essential to life processes**

EU 3A – Heritable information provides for continuity of life

1. DNA and in some cases RNA, is the primary source of heritable information (CH 5.5, 27.1, 16.1, 16.2, 17.1-17.4, 19.2, 20.1, 20.2)
2. In eukaryotes, heritable information is passed to the next generation in processes that include the cell cycle and mitosis or meiosis plus fertilization (CH 12.1-12.3, 13.1-13.3)
3. The chromosomal basis of inheritance provides an understanding of the pattern of passage (transmission) of genes from parent to offspring (CH 14.1-14.4)
4. The inheritance pattern of many traits cannot be explained by simple Mendelian genetics (CH 15.1-15.5)

EU 3B – Expression of genetic information involves cellular and molecular mechanisms

1. Gene regulation results in differential gene expression, leading to cell specialization (CH 18.1-18.2)
2. A variety of intercellular and intracellular signal transmissions mediate gene expression (CH 11.1, 11.4, 18.1-18.4)

EU 3C – The processing of genetic information is imperfect and is a source of genetic variation

1. Changes in genotype can result in changes in phenotype (CH 15.4, 16.2, 17.5, 23.4)
2. Biological systems have multiple processes that increase genetic variation (CH 27.2, 13.4)
3. Viral replication results in genetic variation, and viral infection can introduce genetic variation into the hosts (CH 19.1, 19.2)

EU 3D – Cells communicate by generating, transmitting, and receiving chemical signals

1. Cell communication processes share common features that reflect a shared evolutionary history (CH 11.1, 11.2)
2. Cells communicate with each other through direct contact with other cells or from a distance via chemical signaling (CH 11.1, 11.2)
3. Signal transduction pathways link signal reception with cellular response (CH 11.3)
4. Changes in signal transduction pathways can alter cellular response (CH 11.4)

EU 3E – Transmission of information results in changes within and between biological systems

1. Individuals can act on information and communicate it to others (51.1)
2. Animals have nervous systems that detect external and internal signals, transmit and integrate information, and produce responses (CH 48.1-48.4, 49.2)

**Big Idea 4 – Biological systems interact, and these systems and their interactions possess complex properties**

EU 4A – Interactions with biological systems lead to complex properties

1. The subcomponents of biological molecules and their sequence determine the properties of that molecule (CH 5.1-5.5)
2. The structure and function of subcellular components and their interactions provide essential cellular processes (CH 6.2-6.5)
3. Interactions between external stimuli and regulated gene expression result in specialization of cell, tissues, and organs (CH 18.4)
4. Organisms exhibit complex properties due to interactions between their constituent parts (CH 48.4)
5. Communities are composed of populations of organisms that interact in complex ways (CH 53.1-53.6)
6. Interactions among living systems and with their environment result in the movement of matter and energy (CH 54.2, 55.1-55.4, 56.4)

EU 4B – Competition and cooperation are important aspects of biological systems

1. Interactions between molecules affect their structure and function (CH 5.4, 84-8.5)
2. Cooperative interactions within organisms promote efficiency in the use of energy and matter (CH 6.4, 40.1)
3. Interactions between and within populations influence patterns of species distribution and abundance (CH 54.1)
4. Distribution of local and global ecosystems changes over time (CH 25.4, 56.1-55.5)

EU 4C – Naturally occurring diversity among and between components within biological systems affects interactions with the environment

1. Variation in molecular units provides cells with a wider range of functions (CH 5.1-5.5, 21.5)
2. Environmental factors influence the expression of the genotype in an organism (CH 14.3)
3. The level of variation in a population affects population dynamics (CH 23.1-23.3)
4. The diversity of species within an ecosystem may influence the stability of the ecosystem (CH 14.3, 23.23, 54.2, 56.1)

### Science Practices (skills that are required for scientific study)

1. Use representations and models to communicate scientific phenomena and solve scientific problems.
  - a. Create representations and models of natural or manmade phenomena and systems in the domain
  - b. Describe representations and models of natural or manmade phenomena and systems in the domain
  - c. Refine representations and models of natural or manmade phenomena and systems in the domain
  - d. Use representations and models of analyze situations or solve problems qualitatively and quantitatively
  - e. Re-express key elements of natural phenomena across multiple representations in the domain
2. Use mathematics properly
  - a. Justify selection of mathematical routine to solve problems
  - b. Apply mathematical routines to quantities
  - c. Estimate numerical quantities
3. Engage in scientific questioning to extend thinking or to guide investigations within the context of the AP course
  - a. Pose scientific questions
  - b. Refine scientific questions
  - c. Evaluate scientific questions
4. Plan and implement data collection strategies appropriate to a particular scientific question
  - a. Justify the selection of the kind of data needed to answer a particular scientific question
  - b. Design a plan for collecting data to answer a particular scientific question
  - c. Collect data to answer a particular scientific question
  - d. Evaluate sources of data to answer a particular scientific question
5. Perform data analysis and evaluation of evidence
  - a. Analyze data to identify patterns or relationships
  - b. Refine observations and measurements based on data analysis
  - c. Evaluate the evidence provided by data sets in relation to a particular scientific question
6. Work with scientific explanations and theories
  - a. Justify claims with evidence
  - b. Construct explanations of phenomena based on evidence produced through scientific practices
  - c. Articulate the reasons that scientific explanations and theories are refined or replaced
  - d. Make claims and predictions about natural phenomena based on scientific theories and models
  - e. Evaluate alternative scientific explanations
7. Connect and relate knowledge across various scales, concepts and representations in and across domains
  - a. Connect phenomena and models across spatial and temporal scales
  - b. Connect concepts in and across domains to generalize or extrapolate in and/or across enduring understandings and/or big ideas

## AP Biology Campbell Chapters and College Board Correlation

CHAPT	TITLE	SECTIONS	Essential Knowledge
1	Introduction	1,2,3	
2	Chemical context of life	1,2,3,4	
3	Water and the fitness of the environment	1,2,3	2a3
4	Carbon and the molecular diversity of life	1, 2	1d1, 2a3
5	Structure and function of large biological molecules	1,2,3,4,5	3a1, 4a1, 4b1, 4c1
6	Tour of the cell	2,3,4,5	2a3, 2b3, 4a2, 4b2
7	Membrane structure and function	1,2, 3,4,5	2b1, 2b2
8	Introduction to metabolism	1,2,3,4,5	2a1, 4b1
9	Cellular respiration	1,2,3,4,5	2a1, 2a2
10	Photosynthesis	1,2,3	2a1, 2a2
11	Cell communication	1,3,4	2e2, 3b2, 3d1, 3d2, 3d3, 3d4
12	Cell cycle	1,2,3	3a2
13	Meiosis and sexual life cycle	1,2,3,4	3a2, 3c2
14	Mendel and gene idea	1,2,3,4	3a3, 4c2, 4c4
15	Chromosomal basis and inheritance	1,2,3,4,5	3a4, 3c1
16	Molecular basis of inheritance	1,2	3a1, 3c1
17	From gene to protein	1,2,3,4,5	3a1, 3c1
18	Regulation of gene expression	1,2,3,4	2e1, 3b1, 3b2, 4a3
19	Viruses	1,2	3a1, 3c3
20	Biotechnology	1,2	3a1
21	Genomes and their evolution	5	4c1
22	Descent with modification	2,3	1a1, 1a4
23	Evolution of populations	1,2,3,4	1a2, 1a3, 3c1, 4c3, 4c4
24	Origin of species	1,2,3,4,	1c1, 1c2, 1c3, 2e2, 4b4, 4c3
25	History of life on earth	1,2,3, 4	1a4, 1b1, 1d1, 1c1
26	Phylogeny	1,2,3	1b2
27	Bacteria and archaea	1.2	3a1, 3c2
38	Angiosperm reproduction	1,2	2e1, 2e2
39	Plant responses to signals	2,3,5	2d4, 2e2, 2e3
40	Basics of animal form and function	1,2,3,4	2a1, 2c1, 2c2, 2d2, 2d3, 4b2
43	Immune system	1,2,3,4	2d4
48	Neurons, synapses, signaling	1,2,3,4,	3e2, 4a4
49	Nervous system	2	3e2
51	Animal behavior	1,2,4	2a1, 2e3, 3e1,
52	Intro to ecology & biosphere	4	2d1,
53	Population ecology	1,3,4 5,6	2a1, 2d1, 4a5
54	Community ecology	1,2,3,4,5	2d1, 2e3, 4a5, 4a6, 4b3, 4c4
55	Ecosystems	1,2,3,4,5	2a1, 2d1, 4a6, 4b4
56	Conservation biology	1, 4	2d2, 2d3, 4a6, 4b4, 4c4

### Big Ideas

- 1: The process of evolution drives the diversity and unity of life
- 2: Biological systems utilize free energy and molecular building blocks to grow, reproduce, and maintain h-stasis
- 3: Living systems store, retrieve, transmit, and respond to information essential to life processes
- 4: Biology systems interact and these systems and their interactions possess complex properties

## AP Biology Summer Assignment 2012

### Murrieta Mesa High School

Ms. Schultz – Renaissance Hall Room 155

Email: [gshultz@murrieta.k12.ca.us](mailto:gshultz@murrieta.k12.ca.us), Website: [mesabiology.wikispaces.com](http://mesabiology.wikispaces.com)

Welcome to AP Biology! You have taken on a rigorous course in which you will learn a considerable amount about how life functions on many levels, from a molecular perspective up to global relationships between ecosystems. Due to the amount of material we need to cover in preparation for the AP exam in May, you will be required to do some independent study over the summer. The assignment will cover an introduction to scientific processes (chapter 1), a review of chemistry (chapter 2-3), and an introduction to carbon structure (chapter 4). We will have 2 class periods of discussion over the content and a test over chapters 2-3 on the 3<sup>rd</sup> class period after school starts.

Late assignments will NOT be accepted. In order to keep up with the pace of the class and be prepared for labs, lectures, quizzes, and tests, you must stay updated with all your assignments.

#### Assignment #1: Contracts - DUE JUNE 1<sup>st</sup> (last day of school year)

Review the syllabus, student contract, and safety contract. Check the class website occasionally over the summer for information about the upcoming year.

#### Assignment #2: Letter of Introduction – DUE JUNE 30

Write a brief letter of introduction to me. Include the following information: DUE June 30. Letters are to be emailed to me at [gshultz@murrieta.k12.ca.us](mailto:gshultz@murrieta.k12.ca.us) and should be written within the body of the email, not attached as a document. In the subject line write 'Introduction – (last name\_ first initial)'.

- Are you a junior or senior? What other science courses have you taken and your grades.
- Why you are taking AP Biology and what are your expectations regarding the course (amount of time study time, difficulty of content, lab experiences, etc...)?
- What activities you are involved in during the school year and which other AP courses are you taking this year
- Do you have regular access to a computer and the internet at home?
- What your plans are for after high school
- Anything interesting about yourself you would like to share with me (hobbies, family, jobs) 😊

#### Assignment #3: Chapter Reviews – DUE FIRST DAY OF SCHOOL (August 21 or 22)

You may choose to complete the reading guides that are posted online or to complete a detailed outline of each chapter. If you choose the reading guides, they are on the website under the 'reading guide' tab.

1. Chapter 1 – Introduction to themes: complete reading guide or outline
2. Chapter 2 – Chemical context of life: complete reading guide of outline, complete self -quiz questions, answer questions 10 and 11
3. Chapter 3 – Water and the environment: complete reading guide of outline, complete self -quiz questions, answer questions 10 and 11
4. Chapter 4 – Carbon: complete reading guide of outline, complete self -quiz questions, answer questions 9

#### **Assignment #4: Free Response Question Practice - DUE: by email – July 30 (complete by hand, scan and email the document)**

Essay writing on the AP exam is very different than on English or history exams. You get no points for style, only for content. The essay portion of the exam is the second part of the test. You will be given four essay questions which you will have 10 minutes to read and organize your thoughts. After the reading period, you will have 90 minutes to write your responses. If you divide by four, you will realize that you have 22.5 minutes on average for each response. As a result, you will have to use your time wisely. I suggest the following strategy:

During the reading period:

1. You will be allowed to outline, but not write, during the reading period. This is to give you time to prepare your thoughts and avoid rambling essays
2. Prepare a graphic organizer/outline identifying what the question is asking. This will help you keep your answer on-topic when you begin to write.

When writing:

1. **Do NOT** write an introductory paragraph or a concluding paragraph. This is a waste of time. Although it is good writing, you will earn no points for good writing—sad but true.
2. Dissect the question into its component questions. How many separate pieces of information is the author asking for and what are they?
3. Write logically using your graphic organizer as a reference. If the question asks for one example, choose your best example and fully explain it. Readers are trained to grade the first example given. Therefore, if the question asks for one example and your first example only earns one point, it doesn't matter that your second would earn two. The rationale behind this is that it prevents students from benefiting from “mind dumping”, where the student writes anything that might possibly be related in an effort to earn points.
4. Avoid contradicting yourself. Although readers look for places to give points, contradictory statements can negate earned points.
5. Avoid fluff... in the words of Sergeant Joe Friday ‘just the facts, ma’am’. AP readers don't care about fancy writing and metaphors; they want to know that you know the information.

**Now the assignment:** complete this after you read chapter 3. Do not use notes or the book and give yourself only 25 minutes. The point is to practice essay writing for the test.

1. Prepare a graphic organizer for the following question which was taken from an actual AP Biology Exam. Do NOT fill in any information at first. Simply determine what the question is asking.

The unique properties (characteristics) of water make life possible on Earth. Select three properties of water and

- a) For each property, identify and define the property and explain it in terms of the physical/chemical nature of water.
  - b) For each property, describe one example of how the property affects the functioning of living organisms.
2. Once your graphic organizer is complete, fill in any relevant information.
  3. Write your essay.

**AP BIOLOGY PARENT/STUDENT CONTRACT**  
**2012-2013**

The purpose of the AP Biology Parent/Student Contract is to provide information to parents and students and to facilitate students' success in an academically challenging course. Please read carefully the syllabus, lab safety contract, and the list of expectations below, then sign the form at the bottom confirming your understanding and commitment to AP Biology.

Expectations of AP Biology students:

1. I recognize that participation in AP Biology requires me to:
  - a. Demonstrate increased student independence
  - b. Take on a high degree of responsibility
  - c. Meet higher standards than other high school classes
  
2. I understand that AP Biology is the equivalent of a college level biology course and therefore, requires the same amount of work as a college level biology course (approximately 3 hours of independent study for each hour of class).
  
3. I understand that late work will NOT be accepted. All assignments will be completed and ready to turn in BEFORE I get to class.
  
4. I understand that between labs, lectures and reviews, **there is really no way to make up a missed class lab**, therefore, it is essential that I attend every class and am prepared to participate.
  - a. Missed labs cannot be made up and will receive a zero
  - b. Missed tests will be made up the day of return to class and will be in essay form
  - c. Absences for non-academic school activities (pep rally set up, choir rehearsal, blood drives, etc..) will NOT be permitted
  - d. If I must be absent due to illness or family emergency, I am responsible for making up work within the accepted time frame (one day per day absent)
  
5. I understand that in order to cover everything that may appear on the AP Biology National Exam, this course must proceed at a rapid pace. Therefore, if I must attend review sessions and complete all class work to prepare
  
6. I recognize that the material covered in AP Biology is extremely challenging. I also recognize that while my grade in this course and the score I receive on the AP exam matter, the amount and quality of knowledge I take from this class to college is most important.
  
7. I recognize that I am responsible for my own learning and success in class, not my parents, teacher, advisor, or friends. I will advocate for myself if I have concerns about my grade or need help with content.
  
8. I understand that lab safety is of extreme importance and I will abide by all safety rules. I realize that if I am not following procedures I may be removed from the lab and receive a zero with no opportunity to make it up. I also understand that I will be held financially responsible for broken equipment and promise to work with caution.

\* \* \* \* \*

**I have read, understand, and will abide by the student expectations and the lab safety contract. I have read the course syllabus and confirm my commitment to this class. I understand the summer assignment and will complete all work by the due dates.**

Student name \_\_\_\_\_ (printed)

Student signature \_\_\_\_\_ Date: \_\_\_\_\_

Parent signature \_\_\_\_\_ Date : \_\_\_\_\_