

AP Biology Students:

The summer reading in AP-Biology is designed to "keep you sharp" over the summer, and to introduce you to topics you will be studying in the course. Students are encouraged to examine the AP-Biology curriculum found on my website: sintichscience.weebly.com and go to AP Biology home page.

- Look for the Big Idea Standards and Science Practices link

This document contains the standards that we will be covering next year, and you are encouraged to look through them. **DO NOT DO THE PRACTICE QUESTIONS AT THE END OF THE DOCUMENT.** These questions are on the final practice we take and I want all questions to be ones you have not seen before to give you an accurate picture of how you might perform on the AP exam.

Feel free to look around the website, but I will be changing up some of the units since I will be out on maternity leave for the first part of the semester.

You will need to complete the following by the first day of school:

1. **Pick one of the following books on the following page to read over the summer.** I recommend that you find out a little about each book and pick something you will enjoy reading.
2. **Write a minimum 3 page critique of the book** (double spaced, 12pt font paper with 1 inch margins). There will be 3 parts to your paper:
 - a. *Summary:* write a summary of the book including the major biological issue presented in the book. Be sure to explain the science presented and look up any science terms you don't understand.
 - Complete summary of the book including a thorough explanation of the books main biological topic/issues (25pts)
 - At least two scientific terms need to be elaborated on (20pts)
 - b. *Personal Commentary/Reaction:* (can be written in first person) include your personal opinion on the biological issue, favorite and least favorite parts, other questions or thoughts that came to mind as you read it, whether you agree or disagree with certain parts or perspective of author, and any other comments you would like to add. Be sure to defend and explain your statements.
 - Thorough commentary/reaction to the book (10pts)
 - Includes at least 3 types of discussions or reactions (like/dislike, agree/disagree, other questions, elaborations on content, opinion of the issue) (30pts)
 - c. *Author Biography* (10pts)
 - d. Paper length and specifications met (5pts)
3. **The first topics we will be discussing will be behavior and ecology.** Go to Quizlet.com and search for Sintich AP Biology under the Class tab. Request to join the class and make sure you have an account. This is important because this is how I will be able to track your progress on the vocab sets.
 - a. **Review and study the sets of vocab that are available.** At a minimum, complete any form of review 6 times for each set before the first day of school. I can see the final time you log in and the number of sets you study, but only if you join the class.

If you have any questions over the summer, please feel free to email me. Start checking your email for information beginning in July.

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<http://www.sintichscience.weebly.com>

AP BIOLOGY SUMMER READING LIST

Survival of the Sickest by Sharon Moalem A book that looks into several diseases and why they have not been selected out of our population. Very interesting book.

Your Inner Fish: A Journey into the 3.5-Billion-Year History of the Human Body by Neil Shubin
Parsing the millennia-old genetic history of the human form is a natural project for Shubin, who chairs the department of organismal biology and anatomy at the University of Chicago and was co-discoverer of Tiktaalik, a 375-million-year-old fossil fish whose flat skull and limbs, and finger, toe, ankle and wrist bones, provide a link between fish and the earliest land-dwelling creatures

The Immortal Life of Henrietta Lacks by Rebecca Skloot (Author) From a single, abbreviated life grew a seemingly immortal line of cells that made some of the most crucial innovations in modern science possible. Henrietta Lacks was a mother of five in Baltimore, a poor African American migrant from the tobacco farms of Virginia, who died from a cruelly aggressive cancer at the age of 30 in 1951. A sample of her cancerous tissue, taken without her knowledge or consent, as was the custom then, turned out to provide one of the holy grails of mid-century biology: human cells that could survive--even thrive--in the lab.

The Demon in the Freezer by Richard Preston (Author) On December 9, 1979, smallpox, the most deadly human virus, ceased to exist in nature. After eradication, it was confined to freezers located in just two places on earth: the Center for Disease Control in Atlanta and the Maximum Containment Laboratory in Siberia. Since the fall of the Soviet Union in 1991 a sizeable amount of the former Soviet Union's smallpox stockpile remains unaccounted for, leading to fears that the virus has fallen into the hands of nations or terrorist groups willing to use it as a weapon.

The Omnivore's Dilemma: A Natural History of Four Meals by Michael Pollan (Author) In a journey that takes us from an "organic" California chicken farm to Vermont, Pollan asks basic questions about the moral and ecological consequences of our food. Critics agree it's a wake-up call and, written in clear, informative prose, also entertaining.

Genome: The Autobiography of a Species in 23 Chapters by Matt Ridley (Author) Each chapter pries one gene out of its chromosome and focuses on its role in our development and adult life, but also goes further, exploring the implications of genetic research and our quickly changing social attitudes toward this information. Genome shies away from the "tedious biochemical middle managers" that only a nerd could love and instead goes for the A-material: genes associated with cancer, intelligence, sex (of course), and more.

The Beak of the Finch by Jonathan Weiner A book about the Finches of the Galapagos islands and evolution. Infinitely better than the Origin of the Species. Fairly long, at least 500 pages.

Silent Spring by Rachel Carson A very famous book about the impact the chemical DDT had on the environment. Recommended by The Times magazine. Mentioned in the 2003 AP Bio Exam.

The Book of Life: An Illustrated History of the Evolution of Life on Earth by Stephen Jay Gould (Editor) A lucid, readily comprehensible, and largely up-to-date overview of the origins and evolution of life on earth, from the emergence of bacteria 4 billion years ago to that of Homo sapiens in recent geological time. Written by distinguished scientists, the text proceeds chronologically, giving an in-depth account of the fossil record. It is matched by hundreds of paintings, drawings, charts, and graphs that reinforce the authors' discussions.

Your Brain on Food: How Chemicals Control Your Thoughts and Feelings by Gary Wenk (Author) Why is eating chocolate so pleasurable? Can the function of just one small group of chemicals really determine whether you are happy or sad? Does marijuana help to improve your memory in old age? In this book, Gary Wenk demonstrates how, as a result of their effects on certain neurotransmitters concerned with behavior, everything we put into our bodies has very direct consequences for how we think, feel, and act.

The Seven Daughters of Eve: The Science That Reveals Our Genetic Ancestry by Bryan Sykes (Author) Sykes is passionate about his work in decoding mitochondrial DNA and about using this knowledge to trace the path of human evolution. To lure readers into this specialized work, he relates personal and historical anecdotes, offering familiar ground from which to consider the science. A discussion of the history of genetics and descriptions of the early landmark work of Sykes and his associates culminate with his finding that 90 percent of modern Europeans are descendants of just seven women who lived 45,000 to 10,000 years ago.

Welcome to Your Brain: Why You Lose Your Car Keys but Never Forget How to Drive and Other Puzzles of Everyday Life by Sam Wang (Author), Sandra Aamodt (Author) Neuroscientists Aamodt, editor-in-chief of Nature Neuroscience, and Wang, of Princeton University, explain how the human brain—with its 100 billion neurons— processes sensory and cognitive information, regulates our emotional life and forms memories. They also examine how human brains differ from those of other mammals and show what happens to us during dreams.

On Aggression by Konrad Lorenz A book about competition between tropical fish around the coral reef. Lorenz and competition are always AP Bio topics.

The Biophilia Hypothesis by Stephen R. Kellert (Editor) Why is it that most of us find baby animals irresistibly cute? Why do so many people fear even the sight of snakes? Stephen Kellert and Edward Wilson, the prolific Harvard biologist, gather essays by various hands on these and other questions, and the result is a fascinating glimpse into our relations with other animals. Humans, Wilson writes, have an innate (or at least extremely ancient) connection to the natural world, and our continued divorce from it has led to the loss of not only "a vast intellectual legacy born of intimacy" with nature but also our very sanity.

Plague of Frogs: Unraveling an Environmental Mystery by William Souder (Author) A Plague of Frogs is an ecological detective story, one that begins when a class of middle schoolers discovers an unusual number of deformed frogs in a pond on a southern Minnesota farm in 1995. William Souder spins a gripping tale of scientific investigation, environmental debate, and the frightening implications of what these deformed frogs mean for humanity. This is a superb account of a disturbing environmental happening, which finally leaves us wondering, as scientists do, over its larger implications."

And the Waters Turned to Blood by Rodney Barker (Author) Don't drink the water. Don't swim in it, fish in it, or even bathe in it. Rodney Barker's book details the latest plague to visit our shores: *Pfiesteria piscicida*, the "cell from hell," an aquatic microorganism that causes sufferers to exhibit symptoms similar to Alzheimers or multiple sclerosis and the government's attempts to suppress reports.

The Botany of Desire: A Plant's-Eye View of the World by Michael Pollan (Author) Pollan's fascinating account of four everyday plants and their co-evolution with human society challenges traditional views about humans and nature. Using the histories of apples, tulips, potatoes and cannabis to illustrate the complex, reciprocal relationship between humans and the natural world, he shows how these species have successfully exploited human desires to flourish.