AP Biology Non Fiction Reading Assignment

In AP Biology, you will need to make connections between ideas studied, be able to apply concepts to diagrams, graphs and models as well as analyze experimental data related to concepts. This reading assignment will help support you learning these skills. The assignment will include two parts.

Part 1: Keep a journal while you **read one of the book on the reading list** below to use later**. After you read each chapter of your nonfiction book, write a 1 page journal entry** that explains the thoughts you have while you read including excerpts, quotes or ideas that interest you and your thoughts about those quotes/excerpts, how it relates to any of the four big ideas of biology, what the ideas make you think about, how the ideas apply to your life, and/or what other stories or ideas relate. Be sure your entries are hand written into a composition notebook.

Part 2: How can ideas presented in a nonfiction book apply to the four big ideas of Biology? After reading one of the books from the AP Biology Non Fiction Reading List and reviewing the AP Biology Concept Outline, write a 2-4 page paper that defines at least of one of the essential knowledges for each of the four big ideas and explains how ideas from the book relate to each essential knowledge defined. Support your discussion with evidence from the text. **L2** What conclusions can you draw?

* You will be turning in notecards, an outline and a final paper for this assignment.

AP Biology Non Fiction Reading List

Carroll, Sean *Endless Forms Most Beautiful: The New Science of Evo Devo* (2006)
 The new science of "evo devo"--or evolutionary developmental biology--examines the relationships between those two processes, embryonic development and evolutionary changes, despite their radically different time scales.

Carroll, Sean *The Making of the Fittest: DNA and the Ultimate Forensic Record of Evolution* (2007)  DNA is a living chronicle of how the marvelous creatures that inhabit our planet have adapted to its many environments, from the freezing waters of the Antarctic to the lush canopy of the rain forest.

Carson, Rachel *Silent Spring* (1962)
       Carson's classic expose of poisons in the environment and how they accumulate in the tissues of animals.

Colborn, Theo, et al. *Our Stolen Future* (1997)
       The impact that synthetic chemicals in the environment have on human reproduction, development, and disease.

Dantzig, Tobias *Number: The Language of Science* (2007)
 Shows the development of math—from the invention of counting to the discovery of infinity—is a profoundly human story that progressed by “trying and erring, by groping and stumbling.”

Darwin, Charles *Origin of Species* (1859)
       Darwin's original work that presented natural selection as the mechanism for evolution.

Dawkins, Richard *The Selfish Gene*, 2nd ed. (1989)
       Dawkins makes the case that our genes maintain us in order to make more genes.

Dawkins, Richard *River Out of Eden: A Darwinian View of Life* (1995)
       Looks at genetic and mitochondrial evidence for evolution and takes "gene's eye view" of
       natural selection.

Fairbanks, Daniel J. *Relics of Eden* (2010)
 Much of the latest evidence of human evolution comes not from our genes, but from so-called "junk DNA," leftover relics of our evolutionary history that make up the vast majority of our DNA. Relics of Eden explores this powerful DNA-based evidence of human evolution.

Goodall Jane *In the Shadow of Man* (2010)
 World-renowned primatologist, conservationist, and humanitarian Dr. Jane Goodall’s account of her life among the wild chimpanzees of Gombe is one of the most enthralling stories of animal behavior ever written.

Grace, Eric S. *Biotechnology Unzipped: Promise and Realities* (1997)
       Provides the basics about DNA and an explanation of genetic engineering.

Hooper, Judith *Of Moths and Men* (2004)
 A revelatory, controversial work that uncovers the intellectual rivalries, petty jealousies, and faulty science behind one of the most famous experiments—and myths—in the history of evolutionary biology.

Humes, Edward *Monkey Girl* (2008)
 A riveting true story about an epic court case on the teaching of "intelligent design," and what happens when science and religion collide

Jones, Steve *Darwin's Ghost* (2000)
       Wonderful and easy to read, updated version of *Origin of Species* using Darwin's exact
       table of contents (and many of Darwin's original words) but replacing the 1800s examples
       with modern ones that support *Origin*'s arguments concerning natural selection.

Maddox, Brenda *Rosalind Franklin: The Dark Lady of DNA* (2003)
       A very personal look at a brilliant scientist who never got the credit she deserved for her
       X-ray crystallographs of DNA that helped Watson and Crick solve the mystery of the double helix

Margulis, Lynn *Symbiosis in Cell Evolution* (1992)
 Offers insights into the genetic and metabolic interactions of the bacterial communities that became protocists. Among these diverse organisms, the earliest eukaryotes, including some that are fossilized in the Proterozoic record, are those that then evolved to become animals, plants and fungi.

Moalem, Sharon *Survival of the Sickest* (2008)
 Through a fresh and engaging examination of our evolutionary history, Dr. Moalem reveals how many of the conditions that are diseases today actually gave our ancestors a leg up in the survival sweepstakes

Nesse, Randolph M., M.D., and George C. Williams *Why We Get Sick: The New Science of Darwinian Medicine* (1995)
       Describes illness as important to honing our adaptations to our environment (development of fever, sneezing, etc.) and hypothesizes new ways to treat problems based on Darwinian principles.

Pollan, Michael *Second Nature: A Gardener’s Education* (2003)
 Captures the rhythms of our everyday engagement with the outdoors in all its glory and exasperation.

Ridley, Matt *Nature Via Nurture -- Genes, Experience & What Makes Us Human* (2003)
       Explores nature versus nurture arguments, and presents emerging evidence that intricate
       relationships between genes and the environment make them dependent upon each other

Ridley, Matt *Genome* (2006)
 Offers extraordinary insight into the ramifications of the incredible breakthrough of mapping the human genome.

Roberts, Royston M. *Serendipity: Accidental Discoveries in Science* (1989)
       A collection of stories about accidental discoveries that have changed science.

Ryan, Frank *Darwin’s Blind Spot: Evolution Beyond Natural Selection*(2002)
 Shows how the blending of life forms through symbiosis has resulted in gigantic leaps in evolution.

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| Shubin, Neil *Your Inner Fish* (2009)  Tells the story of evolution by tracing the organs of the human body back millions of years, long before the first creatures walked the earth. |

Skloot, Rebecca *The Immortal Life of Henrietta Lacks* (2011).
 About a poor Southern tobacco farmer whose cells—taken without her knowledge—became one of the most important tools in medicine. The first “immortal” human cells grown in culture, they are still alive today, though she has been dead for more than sixty years.

Snyder, Jessica *Good Germs, Bad Germs* (2008)
  Tells the story of what went terribly wrong in our war on germs. It also offers a hopeful look into a future in which antibiotics will be designed and used more wisely, and beyond that to a day when we may replace antibacterial drugs and cleansers with bacterial ones.

Sykes, Brian *The Seven Daughters of Eve:The Science That Reveals Our Genetic Ancestry* (2001)
       How decoding mitochondrial DNA answers questions of human origins.

Watson, James *The Double Helix* (1968)
       Watson's account of the events that led to the discovery of DNA structure

Watson, James *DNA: The Secret of Life* (2003)
       A history of DNA from Mendel to genome sequencing

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| Weiner, Jonathan *The Beak of the Finch* (1995)  In this dramatic story of groundbreaking scientific research, Jonathan Weiner follows these scientists as they watch Darwin's finches and come up with a new understanding of life itself.  |
| Weisman, Alan *The World without Us* (2008) Draws on every field of science to present an environmental assessment like no other, the most affecting portrait yet of humankind's place on this planet. Wilkins, Maurice *The Third Man of the Double Helix* (2005)   Tells how Wilkins showed his colleagues the x-ray picture that gave them their crucial insight, and about his interactions with Rosalind Franklin, the researcher who actually created the picture, and who also received very little credit for her role in the discovery. Wilson, Edward O. *The Diversity of Life* (2010) Watching from the edge of the Brazilian rain forest, witness to the sort of violence nature visits upon its creatures, Edward O. Wilson reflects on the crucible of evolution, and so begins his remarkable account of how the living world became diverse and how humans are destroying that diversity. |