

2016-2017 AP Biology Summer Assignment

Below is your summer assignment. You must pick 5 items off the list and provide evidence (as noted) to their completion. Do another 5 to take the place of your lowest grade of the semester (excluding test and labs). Evidence is due on the first day of school and will earn you 100 points for your first cumulative assessment. **You must do number 5. Please see further requirements for #5 down below.**

1. Go to the Mayborn Museum and take a picture of the fossils in the museum. (photo/ticket stub)
2. Travel to an Observatory and pose with the telescope. (photo/ticket stub)
3. Plant a seed of some sort and grow it into a plant. (bring plant to school)
4. Collect 5 different species of leaves. Identify them to species. Press them in a book. (bring in on first day).
5. Read a book about science or nature. (bring in on first day of school)*** Must do this one
6. Catch a frog, salamander or toad. (photo)
7. Take two hikes. (bring the maps to first day of school)
8. Go caving (photo)
9. Visit the Botanical Gardens. Take a picture of 5 plants in the conservatory. (photo/ticket stub)
10. Go to the beach. Bring back a small bag of sand. Sand dollar +1 (bring first day of school)
11. Sleep in a tent or hammock somewhere away from people. (photo)
12. Go disc golfing or to a golf course. (photo)
13. Go to a water park. (ticket stub)
14. Build something related to science in Minecraft (screenshot)
15. Go scuba diving or snorkeling. (photo)
16. Take a picture in Texas of some kind of nature defying the odds. (photo)
17. Go to the Zoo. Take a photo of the monkeys. (photo/ticket stub)
18. See a science movie. Eat popcorn. (ticket stub)
19. Perform some kind of community service. (photo/documentation)
20. Set up a geocaching tournament for you and your friends. (photo and map)
21. Go play paintball. (photo)
22. Go kayaking on the Brazos. (photo)
23. Flip over 3 rocks and take pictures of what is underneath. Take care to flip the rock back towards you and don't get bit by a snake. (photo)
24. Horseback Riding on the trails (photo)
25. Tubing in Texas (photo)

Screenshots, photos, etc. can be placed in a Google doc if needed.

*******EXTRA CREDIT*******

Read THE SERENGETI RULES by Sean B. Carroll- This book may be on the AP Exam 2018. For the Extra Credit, you will take an

oral test to take the place of your lowest test grade. The test will be easy. TAKE ADVANTAGE OF THIS!!!!!!

The requirements for #5 reading a book or movie watching.

Choose **ONE** book, **READ** it, or **WATCH** it and create a way to summarize the book.

The Summary—you must create a comic book, story board, video (don't just read it)—act, put to music, or write a musical, or some other creative endeavor to explain your book. You must summarize each chapter in the book by creative means.

Before you buy the book or movie, check the library or on-line, you can always put the sticky notes in a notebook as long as you reference the page number and the edition of the book. You can borrow the book from me, also.

You may choose a book not on the list, but you must get it approved by me. Email me or come talk with me, my email is clondenberg@gmail.com.

The Emperor of All Maladies: A Biography of Cancer by Siddhartha Mukherjee

In 2010, about six hundred thousand Americans, and more than 7 million humans around the world, will die of cancer." With this sobering statistic, physician and researcher Siddhartha Mukherjee begins his comprehensive and eloquent "biography" of one of the most virulent diseases of our time.

On the Origin of Species by Charles Darwin—free book on-line

The Demon in the Freezer by Richard Preston

Synopsis: The first major bioterrorist event in the United States—the anthrax attacks in October 2001—was a clarion call for scientists who work with “hot” agents to find ways of protecting civilian populations against biological weapons. Peter Jahrling, the top scientist at Usamriid, a wry virologist who cut his teeth on Ebola, one of the world’s most lethal emerging viruses, has ORCON security clearance that gives him access to top secret information on bioweapons. His most urgent priority is to develop a drug that will take on smallpox—and win.

The Hot Zone by Richard Preston

*Library—book and on-CD

Synopsis: The virus kills nine out of ten of its victims. Its effects are so quick and so gruesome that even biohazard experts are terrified. It is airborne, it is extremely contagious, and it is about to burn through the suburbs of Washington, D.C. Is there any way to stop it?

***The Gene: An Intimate History* by Siddhartha Mukherjee** [2016, [The Bodley Head](#) (Penguin/Random House UK); [Amazon US](#); [Amazon UK](#)]

This hefty tome is a captivating fusion of science and personal history, genetics, and mental illness. Written by Pulitzer Prize winning writer and cancer researcher, Siddhartha Mukherjee, this fascinating page-turner never disappoints, never "dumbs down" the material or concepts, and its momentum never slows, as the author shares the history of genetics from Aristotle up to today and reveals how genes define all living things. Although there are several inexplicable and surprising omissions (for example, Barbara McClintock's discovery of "jumping genes"), and a superficial mention of epigenetics, this book is still an engrossing story of the history of the gene as an idea and as an entity. Everyone will love this book, but serious students of genetics and molecular biology will especially enjoy it.

The Gene was shortlisted for [2016 Royal Society Insight Investment science book prize](#).

THIS ONE IS FICTION!!!!

The Cobra Event- by Richard Preston

Amazon.com Review

In New York City in the late '90s, a 17-year-old girl heads off to her private school even though she has a cold. By art class her nose is gushing mucus and she's severely disoriented. Within seconds, it seems, she's in convulsions and, most bizarrely, can't stop biting herself. All the reader can do is hope she'll die quickly, but Kate Moran's body still has a few more disgusting turns to undergo, and Richard Preston--a Jacobean master of ceremonies par excellence--takes us through them in bizarre and bloody detail.

Clearly, whatever Kate had was a head cold with a scientific vengeance. Preston's heroine, Alice Austen, a doctor with the Centers for Disease Control and Prevention, realizes--in the first of several gripping autopsy scenes--that the girl's nervous system had been virtually destroyed. So far, only one other person is known to have died in the same way, but he was a homeless man. Austen must connect the two cases, seemingly linked only by the subway, before the media gets hold of them and drums up a paranoia-fest--and before the virus's creator can kill again.

The Cobra Event is itself a paranoia-fest, a provocative thriller that makes you wonder exactly how much bioterrorism is taking place in the real world. Preston, best known for his terrifying chronicle of the Ebola virus, [The Hot Zone](#), and other impeccably researched nonfictions, is not content to create fast-paced nightmarish scenes. His novel is instead a complex morality tale anchored in uncomfortable fact. Preston is keen to convey the "invisible history" of bioweapons engineering and, equally, to show the unsung heroism of his scientific detectives (along with that of the nurses and technicians who literally sacrifice their lives for medicine). Like their creator, these characters are not without a sense of humor. One calls the manmade virus "the ultimate head cold." Readers will never forget literally dozens of scenes and will never again see the subway, rodents, autopsy knives, and--above all--runny noses in the same light. --This text refers to an out of print or unavailable edition of this title.

The Immortal Life of Henrietta Lacks by Rebecca Skloot

*Library-Download, book, on-CD

Synopsis: Her name was Henrietta Lacks, but scientists know her as HeLa. She was a poor Southern tobacco farmer who worked the same land as her slave ancestors, yet her 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.

Spillover: Animal Infections and the Next Human Pandemic by David Quammen

The exemplary science writer Quammen schools us in the fascinating if alarming facts about zoonotic diseases, animal infections that sicken humans, such as rabies, Ebola, influenza, and West Nile. Zoonoses can escalate rapidly into global pandemics when human-to-human transmission occurs, and Quammen wants us to understand disease dynamics and exactly what's at stake. Drawing on the truly dramatic history of virology, he profiles brave and stubborn viral sleuths and recounts his own hair-raising field adventures, including helping capture large fruit bats in Bangladesh.

***Lab Girl* by Hope Jahren** [2016, [Fleet](#) (Little Brown); [Amazon US](#); [Amazon UK](#)]

Don't let the title of this book deceive you into thinking this is a story about a 12-year-old superhero who fights evil using strange-looking lab glassware. This memoir shares the personal story of a geochemist and paleogeobiologist who studies plants at the [University of Oslo](#). The chapters alternate between Dr. Jahren's personal and professional lives – her struggles to obtain funding, dealing with academic sexism, cut-throat competition, and bipolar disorder, combined with amusing adventures with her eccentric best friend and lab partner, Bill, and stories that reveal how research really happens in the lab, along with fascinating insights into trees, root systems and soils, and really, all sorts of flora. If you've ever wondered what a scientist does all day, this book provides a fascinating glimpse. As a female scientist who also has bipolar disorder, this book resonated strongly with me, but really, this book is a *must-read* for everyone, whether they are interested in science or not, because it's just so beautifully crafted.

The Sea Around Us by Rachel Carson (new version with afterword by Levinton)
Published in 1951

Amazon Review:

The Sea Around Us is one of the most remarkably successful books ever written about the natural world. Rachel Carson's rare ability to combine scientific insight with moving, poetic prose catapulted her book to first place on *The New York Times* best-seller list, where it enjoyed wide attention for thirty-one consecutive weeks. It remained on the list for more than a year and a half and ultimately sold well over a million copies, has been translated into 28 languages, inspired an Academy Award-winning documentary, and won both the 1952 National Book Award and the John Burroughs Medal.

This classic work remains as fresh today as when it first appeared. Carson's writing teems with stunning, memorable images--the newly formed Earth cooling beneath an endlessly overcast sky; the centuries of nonstop rain that created the oceans; giant squids battling sperm whales hundreds of fathoms below the surface; and incredibly powerful tides moving 100 billion tons of water daily in the Bay of Fundy. Quite simply, she captures the mystery and allure of the ocean with a compelling blend of imagination and expertise.

Reintroducing a classic work to a whole new generation of readers, this Special Edition features a new chapter written by Jeffrey Levinton, a leading expert in marine ecology, that brings the scientific side of *The Sea Around Us* completely up to date. Levinton incorporates the most recent thinking on continental drift, coral reefs, the spread of the ocean floor, the deterioration of the oceans, mass extinction of sea life, and many other topics. In addition, acclaimed nature writer Ann Zwinger has contributed a brief foreword.

Today, with the oceans endangered by the dumping of medical waste and ecological disasters such as the Exxon oil spill in Alaska, this illuminating volume provides a timely reminder of both the fragility and the importance of the ocean and the life that abounds within it. Anyone who loves the sea, or who is concerned about our natural environment, will want to read this classic work.

