

AP Biology Summer Assignment-

Ms. Davis- 2017-2018

Introduction:

Welcome to AP biology! The words “summer assignment” tends to send chills down any high school student’s spine but I believe that you will find that this assignment will be fun and interesting. Biology is **AMAZING, EXHILARATING, STUPENDOUS, STIMULATING, THRILLING, ETC.....**

The reasons we am giving you a summer assignment are:

- Ø To help keep your mind sharp and increase your knowledge of Biology over the summer in
- Ø To help you become familiar with the extensive vocabulary of biology in a hands-on manner.
- Ø To get you outside and look more closely at nature. Ie: field study!

Ø The summer assignment is divided into 3 parts:

Summer Assignment Overview			
Task #	Due Date	Task Description	Objective
I.	Due August 11, 2017	Adopt-a-Plant	To have you get to know some things about plants (a living thing like you).
II.	Due August 18, 2017	<u>Read The Immortal Life of Henrietta Lack</u> Submit to Google Classroom	Answer Questions: This will count as a test grade
III.	Due upon entering classroom August 14, 2017	Scavenger Hunt	.To familiarize yourself with AP Biology 4 Big Idea Concepts. This will count as a 2nd test grade.

My email address is mdavis@lisaacademy.org. Each of you needs to send an email before July 1, 2016 so we can have an email address for you. In this Email I will need you to attach letter of introduction about yourself . You will also need to register for Google Classroom: : 4wxgb1

Part I: Adopt A Plant

Goal: To nurture your Coleus (or you can get a Begonia) successfully throughout the summer. Get it to grow, branch, and become big and bushy! How do I take care of a Coleus or Begonia? How do I transplant a Coleus or Begonia? How do I stop my Coleus from blooming? How do I get my plant to branch and get bushier? Do these plants like lots of sun or do they need some shade?



Begonia



Coleus

<http://www.theflowerpot.com/images/product/Begonia.jpg>

<http://eclecticproducts.files.wordpress.com/2008/08/coleus.jpg>

Part II: Scavenger Hunt

Criteria

A. This is part of your summer project and will be assigned as an exam grade. Some of the items are objects to be photographed; some will need to be researched and written up. Be sure you can answer questions about your collection if asked to explain your findings.

B. All items need to be placed in a composition book **ONLY**. Be sure each item is clearly labeled: Write the item number on the top left of the page in your composition book. Only one item per page!!

C. All items need to be neatly placed in your composition book. If you are an artist, then items can be drawn. Otherwise, the items need to be a printed copy. Color ink is preferred but you will not be deducted for black and white. **BE SURE TO CITE THE SOURCE WHEN NOTED.**

D. Grades:

50 items= 100%

45 items= 90%

40 items= 80%

35 items= 70%

30 items= 60%

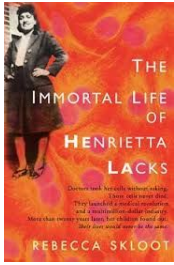
Items must be correct to count as credit *Judgment rests with the teacher.

Scavenger Hunt Items:

- List the Kingdom, Phylum, Class, Order, Family, Genus and Species for each of the following:
 - Great Blue Heron
 - Coypu
 - Collared Peccary
 - Bluebonnet
 - Golden Cheek Warbler
- Scientific name of 2 fish species considered aquatic nuisance species in North Texas; Scientific name of 1 bivalve which is considered aquatic nuisance species in North Texas; Scientific name of 1 invertebrate which is considered aquatic nuisance species in North Texas
- Current City of Rowlett water quality test results.
- URL Link to Biology related virtual lab
- A microscopic image of the following bacteria: Salmonella, Micrococcus luteus, Spirillum volutans, Helicobacter pylori, Clostridium tetani, Treponema pallidum, Klebsiella pneumoniae
- Link to a podcast that focuses on a biology related topic include a paragraph (5 sentences) personal reflection
- Identify 5 Enzymes and their function..
- Biology article from <http://www.sciencedaily.com/> include a paragraph (5 sentences) personal reflection
- Find a picture of James Watson and Francis Crick, by their model of a double helix. Cite the source.
- Sketch a prokaryote and an animal cell and identify organelles present in each
- Search the internet and find a neat microscopic image of red blood cells, sperm cells, nerve cells, osteocytes, cardiomyocyte cells, and adipose cells. Cite the source.
- A microscopic image taken from a Fluorescence Microscope, Scanning Electron Microscope (SEM), Transmission Electron Microscope (TEM), and label the specimen being observed.
- A recent scientific article that explains research explaining how emerging technologies may impact society and the environment (e.g., genetic manipulation, biofuels, and hydrogen fuels). Be sure to include the source of the article.
- Find the names and chemical structures of the 20 essential amino acids that are used to synthesize proteins.
- Copy and paste the link of a college lecture notes on DNA replication.
- A photo of a cell experiencing hypotonic, hypertonic and isotonic conditions, label each. Cite the source
- A diagram showing the general pathways of viral infection; be sure to show lytic and lysogenic infections.
- An object that underwent photosynthesis
- Diagram of the visible light spectrum with the measurements in nanometers. Cite the source
- A photograph of a flower with the formula for photosynthesis next to it
- A detailed illustration of the Calvin Cycle. Cite the source
- A detailed illustration of the glycolysis. Cite the source
- A detailed illustration of the Krebs cycle. Cite the source
- A detailed illustration of the electron transport chain. Cite the source
- Diagram labeling all of Earth's tectonic plates and diagrams showing the location of continents 225, 200, 135, 65 million years ago, and present day.
- A food made from lactic acid fermentation
- Find an enzyme lab that could be used in a Biology lesson. 28. Photograph of ATP = ENERGY written on a sidewalk with sidewalk chalk
- The formula of photosynthesis written by a math teacher with their signature.
- A recent scientific article about genetically modified organisms. Be sure to include the paper and date of the article. As well as, a paragraph personal summary of the article.
- Draw the symbolic shorthand of 6 carbon compounds
- A recent scientific article (with in the last year) that explains research done with evolutionary biology. Be sure to include the source of the article and date of the article. As well as, a paragraph personal summary of the article.
- A recent scientifically valid article that explains research done with Ethnobiology. Be sure to include the source of the article and date of the article. As well as, a paragraph personal summary of the article.
- A 100-word report on a woman geneticist describing her importance in history; what made her become a scientist, what contributions she has made, and how she has affected science as a whole.
- A recent scientifically valid article about "Ardi". Be sure to include the paper and date of the article. As well as, a paragraph personal summary of the article.
- Bacteria are used to make and process many common foods and important chemicals. List five bacteria that are used in industry and describe their function.

37. A picture showing a normal human karyotype, Monosomy X (Turner's syndrome), and a trisomy karyotype disorder. Cite the source
38. A recent scientific article from <http://www.sciencenews.org/>. Be sure to include the title of the article, URL link, and author. As well as, a paragraph personal summary of the article
39. an organism from the plantae kingdom
40. an organism from the animalia kingdom
41. an organism in the arthropoda phylum
42. an organism from the fungi kingdom
43. phylogenic tree of life which represents the branching of all kingdoms of life relating to a common ancestor. Cite the source
44. A published article featuring someone who has pursued a career in biotechnology. Be sure to include the source of the article.
45. A recent scientific article about research done with cancer. Be sure to include the paper and date of the article. As well as, a paragraph personal summary of the article
46. Map indicating the theorized migration patterns of early human throughout the world
47. Table showing the name, birthdate and death date of 10 people's tombstones found from the local cemetery
48. Branch from a deciduous tree, include the complete classification. (kingdom-species)
49. Diagram that depicts the geological time scale spiral.
50. Give the common name of the given scientific names
Lupinus texensis
Pascopyrum smithii
Procyon lotor
Thamnophis sirtalis sirtalis
Agelaius phoeniceus

Part III: The Immortal Life of Henrietta Lacks authored by: Rebecca Skloot



(purchase your own copy new/used)

In your own writing and not from internet source:- Assignment is typed and sent to google classroom

Information for submitting the assignment to google classroom

You are responsible for reading the book and answering the questions by yourself. Any help will be considered a violation of the integrity code. Your answers will be submitted to turnitin.com and will be reviewed for plagiarism.

Prologue: The Woman in the Photograph

1. What is mitosis? What beneficial biological processes involve mitosis?
2. What happens when there is a mistake during the process of mitosis?
3. According to DeFler how important was the discovery of HeLa cells?

Chapter One: The Exam

1. What did Henrietta's first doctor assume the source of the lump on Henrietta's cervix was? What stereotype or bias might this assumption be based upon?
2. Review the notes on Henrietta's medical history found on page 16. Based on the objective details in her medical chart, what can you infer about Henrietta's life and personality?
3. What did Howard Jones find "interesting" about Henrietta's medical history? What does this finding suggest about Henrietta's cancer?

Chapter Two: Clover

1. How was Day related to Henrietta?
2. How old was Henrietta when she had her first child with Day?
3. What was different about Henrietta's second child Elsie?

Chapter Three: Diagnosis and Treatment

1. How are different types of cancer categorized?
2. Summarize Dr. TeLinde's position in the debate over the treatment of cervical cancer.
3. Explain how the development of the Pap smear improved the survival rate of women diagnosed with cervical cancer.
4. How did TeLinde hope to prove that his hypothesis about cervical cancer was correct?
5. Explain what an immortal cell line is.
6. Explain how TeLinde and Gey's relationship led to Gey obtaining a tissue sample from Henrietta's tumor.
7. Analyze the consent statement that Henrietta signed on page 31. Based on this statement, do you believe TeLinde and Gey had the right to obtain a sample from her cervix to use in their

research?

8. Do you think Henrietta would have given explicit consent to have a tissue sample used in medical research if she had been asked? Do you think she would have understood what was being asked of her? Explain your answers.
9. Were cells taken only from black patients? Were black patients generally treated differently from white patients in the early 1950s? Explain your answers.

Chapter Four: The Birth of HeLa

1. Summarize the main obstacles Gey and his assistants faced in their effort to grow cells.
2. Where did the name “HeLa” come from?
3. Explain how Gey’s roller-tube culturing technique works.
4. What happened to the HeLa cells that Mary cultured?
5. Gey chose to give away samples of HeLa to his colleagues almost immediately. Do you think this was a good decision? Explain your answer.

Chapter Five: “Blackness Be Spreadin All Inside”

1. What specific details let the reader know that sending Elsie away was difficult for Henrietta?
2. Why do you think Henrietta initially chose not to tell people about her cancer diagnosis?
What does this decision suggest about Henrietta’s personality?
3. What important information did Henrietta’s doctor fail to give her before starting her cancer treatment? How did she react when this information was eventually shared with her?

Chapter Six: “Lady’s On the Phone”

1. Paraphrase the information on page 50 describing the Tuskegee Syphilis Study.
2. What do the Tuskegee Syphilis Study and the Mississippi Appendectomies suggest about the history of African Americans and medicine?

Chapter Seven: The Death and Life of Cell Culture

1. What did Gey hope to accomplish with HeLa cells?
2. What did HeLa allow scientists to do for the first time?
3. Who was Alexis Carrel? Why did he win the Nobel Prize?
4. What controversial beliefs did Carrel have?
5. Give an example of propaganda that was used to fuel the public’s fear and distrust of tissue culture.
6. What details suggest that Carrel’s claims about the immortal cell line were not scientifically sound?

Chapter Eight: “A Miserable Specimen”

1. After her initial round of treatment, what did Henrietta’s doctors assume about the effectiveness of the radium therapy?
2. How did her doctors react to Henrietta’s intuitive conviction that the cancer was spreading inside of her?
3. When did the doctors realize that Henrietta had been correct about the growth of her cancer?
4. What objective details suggest that Henrietta was in extreme pain at this point in her illness?

Chapter Nine: Turner Station

1. Who is Courtney “Mama” Speed, and how is she connected to Henrietta Lacks?
2. What does Skloot realize after watching the BBC documentary about HeLa?

Chapter Ten: The Other Side of the Tracks

1. How was Cootie related to Henrietta?
2. What illness did Cootie have as a child?
3. Where does Cootie think Henrietta’s cancer came from?

Chapter Eleven: “The Devil of Pain Itself”

1. Describe the progression of Henrietta’s cancer in the eight months between her diagnosis and her death.
2. Why did doctors stop giving Henrietta blood transfusions?
3. What did Henrietta’s friends and family do when they found out that she needed blood? Why do you think they were willing to sacrifice to help her?
4. What was Henrietta’s final request? What does this request tell you about her?

Chapter Twelve: The Storm

1. Why did Henrietta’s doctors need to ask for her family’s permission to remove tissue samples after her death? How did Day initially respond to their request?
2. What made Day change his mind and allow the autopsy?
3. What did Mary, Gey’s assistant, realize when she saw Henrietta’s painted toenails? How was the timing of this realization ironic?
4. What happened when the family started to bury Henrietta’s body?

Chapter Thirteen: The HeLa Factory

1. Explain how a neutralization test is used to determine a vaccine’s efficacy.
2. What unusual characteristics of HeLa cells made them ideal for use in the polio vaccine trials?
3. Why did the Tuskegee Institute become involved in the mass production of HeLa cells? Describe the depth of the Institute’s involvement.
4. Why was the development of methods of freezing cells an important scientific breakthrough?
5. Why did scientists want to be able to clone cells for research?

Chapter Fourteen: Helen Lane

1. Why didn’t Henrietta’s family know that her cells were still alive?
2. In what specific ways do you think that learning of HeLa soon after Henrietta’s death might have changed her family members’ lives?

Chapter Fifteen: “Too Young to Remember”

1. Describe Deborah’s childhood. What challenges did she have to overcome?

Chapter Sixteen: “Spending Eternity in the Same Place”

1. How are the white and black Lackses related? Who are their common ancestors?

Chapter Seventeen: Illegal, Immoral, and Deplorable

1. Describe the experiment that Southam developed to test his hypothesis about HeLa.
2. Who were the test subjects in Southam's first study? Were they informed about the research and its risks?
3. What was the result of Southam's first research study? Based on these results, did his hypothesis appear to be correct?
4. How did Southam justify his decision to inject HeLa cells into patients without their knowledge or consent?
5. What does the term "informed consent" mean?

Chapter Eighteen: "Strangest Hybrid"

1. Summarize the various ways that HeLa was used in the space program.

Chapter Nineteen: "The Most Critical Time on This Earth is Now"

1. Analyze the note that Joe wrote to the judge. What does it tell you about Joe's personality and background?
2. What was the lawyers's main argument in Joe's defense?
3. How did prison change Joe?

Chapter Twenty: The HeLa Bomb

1. How did the scientific community respond to Gartler's theory about HeLa contamination?

Chapter Twenty-One: Night Doctors

1. What is the Lacks family's biggest complaint about the way they have been treated by Johns Hopkins and Dr. Gey?

Chapter Twenty-Two: "The Fame She So Richly Deserves"

1. Explain how Henrietta's real name became public knowledge. Do you agree that Henrietta should have been correctly identified in order to "give her the fame she so richly deserves," or do you think her anonymity should have been protected? Explain your answer.

Chapter Twenty-Three: "It's Alive"

1. How long had Henrietta been dead when her family found out that her cells were still alive?
2. Why did researchers want DNA samples from Henrietta's family?
3. Did researchers explain why they wanted DNA samples to the Lacks family? Did the family give the informed consent for the research done on those samples?

Chapter Twenty-Four: "Least They Can Do" No Questions

Chapter Twenty-Five: "Who Told You You Could Sell My Spleen?"

1. Summarize the pros and cons of giving patients legal ownership of their cells.

Chapter Twenty-Six: Breach of Privacy

1. Why did Zakariyya decide to participate in research studies at Johns Hopkins? What is ironic about his participation in these studies?

Chapter Twenty-Seven: The Secret to Immortality

1. Explain how the human papillomavirus (HPV) causes cervical cancer.
2. Are scientists able to definitively explain why HeLa grew so powerfully?
3. Describe the contribution that HeLa has made to research on the HIV virus and the AIDS epidemic.
4. Explain Van Valen's theory that HeLa cells are "no longer human." Was his theory accepted by the scientific community?

Chapter Twenty-Eight: After London

1. Carefully reread the speech Deborah gave at Morehouse College, paying particular attention to her repetition of the word "understanding." Why do you think understanding HeLa was so important to Deborah? What obstacles does she mention as impeding her understanding?

Chapter Twenty-Nine: A Village of Henrietta's No Questions

Chapter Thirty: Zakariyya No Questions

Chapter Thirty-One: Hela, Goddess of Death No Questions

Chapter Thirty-Two: "All That's My Mother"

1. Analyze the way that Christoph Lengauer interacts with the Lacks family. Why do you think his interaction is so different from anyone the Lackses encountered at Johns Hopkins up until this point?

Chapter Thirty-Four: The Medical Records No Questions

Chapter Thirty-Five: Soul Cleansing No Questions

Chapter Thirty-Six: Heavenly Bodies

1. Discuss the impact that witnessing the interaction between Gary and Deborah—and, later, talking with Gary—had on Skloot. What new perspective did she gain after these experiences?

Chapter Thirty-Seven: "Nothing to Be Scared About" No Questions

Chapter Thirty-Eight: The Long Road to Clover

1. What string of events in 2009 suggests that, if Skloot had not begun researching Henrietta's story a decade earlier, it may have been lost forever?
2. At the time of this book's publication, how had the lives of Henrietta's great-and great great-grandchildren been affected by Skloot's research, and by the knowledge and understanding of Henrietta's contribution to science?

Where They Are Now/Afterword

1. What legal options do the Lackses have? What is their position on suing over the use of HeLa?
2. If Henrietta Lacks could know how important her cells have been to science, do you think she would approve of the fact that they were taken from her without her knowledge or consent? Explain your answer.