

Welcome to Dr. Smitley's "Summer of Biology" 2011

I'm sure you are sitting around the house bored out of your mind trying to think of something exciting and different to do this summer. Boy do I have the activities for you.

This summer you will delve into the world of biology like you never thought you would! We will explore many topics to wet your appetite for the coming year of hard work. This summer assignment has been designed for six purposes:

- 1) To get you thinking about the world around you from a biological perspective.
- 2) To keep your mind sharp, because I will expect a lot out of it come August!
- 3) To help you show me your commitment to this course and the independent work it will require.
- 4) To expand your vocabulary by familiarizing you with terms that we will be using in class.
- 5) To introduce you to major concepts from AP Biology through non-classroom methods of learning.
- 6) To have you earn some strong grades to help you begin the first quarter with confidence.

ASSIGNMENT # I

LETTER OF INTRODUCTION

Welcome to AP Biology! I want you to be able enjoy this class and feel successful this year. I believe my job is to help you succeed the best I can. In order to help you I would like to get a head start on getting to know you. Your first assignment is to successfully send me a formal letter of introduction via e-mail. Please read the guidelines below and send me your letter by June 10, 2011

1. Use clearly written, **full sentences**. Do not abbreviate words like you are texting to a friend. Use **spell check**! This is a professional communication like you would have with a college professor, so let's practice for your rapidly nearing future!

2. Address it to me at: zsmitley@gracechristian.net
3. Make the **Subject**: "AP Bio: Introduction to <Insert Your Name Here>"
(Do not include the quote marks or the brackets, just your name)
4. Begin the e-mail with a **formal salutation**, like "Dr. Smitley," or "Dear Dr. Smitley,"
5. Now introduce yourself (your name) and tell me a little bit about yourself, like:
 - What do you like to do (hobbies, sports, music, interests, etc.)?
 - Do you have a job?
 - Do you drink coffee or some other drink from Starbucks?
 - What kind of coffee drink?
 - Tell me a little bit about your family (Mom? Dad? Guardian? Siblings? Pets?)
What do your parents/guardian do for a living?
 - What are your plans for the future/next year/after graduation/career goal?
 - What was the last book you read for fun?
 - What are your strengths and weaknesses as a student?
 - Tell me something about yourself that you are proud of.
 - Why do you want to take AP Biology
 - What are your greatest concerns about taking AP Biology?
 - What other time commitments will you have this year in addition to AP Biology?
 - Was there anything that you liked about your earlier biology class?
 - Is there anything else you would like me to know about you?
6. End the e-mail with a **formal closing**: "Cordially", "Sincerely", "Warm regards", etc. and add your name as if you signed a letter.

ASSIGNMENT #2 ADOPT A PLANT

Go to your local plant nursery or Home Depot/Lowes store and obtain two plants.

Coleus:

Begonia:

They should not exceed 8" tall from the soil to the top.

My Objective:

To get you to experience that plants are living, breathing, growing, responsive organisms.

Your Goal:

To nurture your plants successfully throughout the summer. Get them to grow, get them to branch, grow them big and bushy! Specifically...

☒ **Coleus:** A prize for the biggest, bushiest Coleus. You don't want this plant to bloom!

☒ **Begonia:** A prize for the biggest, bushiest, blooming Begonia. You do want this plant to bloom a lot!

You must E-mail me photos of your plants at the time of purchase by June 10. You will send updated photos throughout the summer. You will need to take photos on your growing plant at least once a week. Send your collection by E-mail to me by the deadlines. Your photos should be taken in the same location each time. Deadlines for these photos are: June 10, June 24, July 8, July 22 and August 5. You will need to bring your plants to school August 17th.

Questions:

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?

Answers:

Look it up! Do some research!

Extra Credit:

Propagate your Coleus and Begonia. Come in with a vegetatively propagated offspring from your plants.

ASSIGNMENT #3 SUMMER READING — FOR THE YEAR OF THE VIRUS!

THE HOT ZONE: A TERRIFYING TRUE STORY

This is not textbook reading! Your summer reading is an exciting book about science. Yes, there are people who love science so much that they spend their time researching and writing books about it and there are people who love science even more that they spend their time reading these science books. You too may become one of these people.

A bit about The Hot Zone:

The Ebola virus kills nine out of ten of its victims so quickly and gruesomely that even biohazard experts are terrified. It is airborne, it is extremely contagious, and in the winter of 1989, it seemed about to burn through the suburbs of Washington D.C...

The Hot Zone tells this dramatic story in depth, giving a hair-raising account of the appearance of rare and lethal viruses and their outbreaks in the human race. From a remote African cave hot with Ebola virus, to an airplane over Africa that is carrying a sick passenger who dissolves into a human virus bomb, to the confines of a Biosafety Level 4 military lab where scientists risk their lives studying lethal substances that could kill them quickly and horribly.

The Hot Zone describes situations that a few years ago would have been taken for science fiction. As the tropical wildernesses of the world are destroyed, previously unknown viruses that have lived undetected in the rain forest for eons are entering human populations. The appearance of AIDS is part of a larger pattern, and the implications for the future of the human species are terrifying.

STUDY GUIDE QUESTIONS for "The Hot Zone" **by Richard Preston**

To prevent you from procrastinating and ruining the end of your summer you are required to e-mail the questions and answers for each section by the following due dates:

Section I----June 10

Section II---June 24

Section III--July 8

Section IV---July 22

Section V----August 5

Please indicate the page number(s) where you find the answers for each question.

READING SECTION I:

PART I: "THE SHADOW OF MOUNT ELGON"

Something in the Forest

1. Describe the life of Charles Monet. What were his "hobbies"?
2. How may Charles Monet have been exposed to a level 4 virus?
3. Describe the symptoms experienced by Charles Monet in the days following his visit to Kitum cave.
4. In what ways could the virus have been passed to other people from the time Monet left his house until he arrived at Nairobi hospital?
5. How did Dr. Musoke become infected?
6. Describe the results of Dr. Musoke's exploratory surgery.

Diagnosis

7. What virus was found in Dr. Musoke's blood? Describe the virus and its origin.
8. What is a **filovirus**?
9. Which is the worst of the filovirus "sisters"? What is the kill rate in humans?
10. Describe the information provided by "Mr. Jones" concerning the Marburg virus.
11. What is one general theory for the origin of AIDS?
12. What was the outcome for Dr. Musoke?

A Woman and A Soldier

13. Who is Nancy Jaax?
14. How did Nancy Jaax cut her hand? Why is this significant?

Project Ebola

15. What does USAMRIID stand for?
16. Describe the brief history of Biological Weapons in the U.S.
17. What is unique about Biosafety Level 4?
18. Describe the first known emergence of the Ebola virus. How did it get its name?
19. How many different proteins make up an Ebola virus particle? What is known about them?
20. Describe the effects of the Ebola virus. How does it appear to be spread?
21. Describe the Biosafety Level staging area. Describe the suit required for work in Biosafety Level 4.

Total Immersion

22. Describe the symptoms exhibited by the monkeys that were infected with Ebola.
23. Describe the structure of a typical virus.
24. What "scare" did Nancy Jaax have while working with Ebola?
25. What happened to the Ebola infected monkeys? What became of the healthy monkeys?
How?

READING SECTION II: Ebola River

1. Who is Mr. Yu G.?
2. Describe Ebola Sudan.
3. Describe Ebola Zaire.
4. Describe how the disease was spread through the Yambuku hospital.
5. Describe the shape of the Ebola virus.
6. What is the C.D.C.?
7. Who is Nurse Mayinga? Describe her situation.
8. Describe how the medical teams worked to prevent the further spread of the disease throughout Kinshasa.
9. How many other people caught the virus from Nurse Mayinga?

Cardinal

10. Explain why a virus may be more like a predator than a parasite.
11. How might Peter Cardinal have become infected?

Going Deep

12. Describe the expedition to Kitum Cave. What was the purpose of this trip?
13. What was the result of this expedition?

READING SECTION III **PART II: "THE MONKEY HOUSE"**

1. What kinds of monkeys were kept at the Reston Monkey House?
2. How many monkeys out of the original shipment did Bill Volt count as dead within one month's time?
3. Who is Dan Delgard?
4. Describe the deaths of the monkeys.

Into Level 3

5. How did Delgard ship the results of the monkey autopsy to Jahrling?

Exposure

6. Who is Tom Geisbert?

Thanksgiving

7. What significant event occurred over the Thanksgiving holiday in the monkey house?

Medusa

8. What discovery did Geisbert make about the viruses infecting the monkeys?

The First Angel

9. Who is C.J. Peters?
10. What was the purpose of the conversation between Jahrling and Geisbert? (see page 206.)
11. What came of this conversation?

The Second Angel

12. Describe Jahrling's tests with the virus samples.
13. What were the results of these tests?

Chain of Command

14. What is meant by a "chain of command" in relation to biohazard work?

Garbage Bags

16. Who is Jarvis Purdy? What happened to him?
17. How were the dead monkey's shipped to Fort Detrick?

Space Walk

18. What were the results of the monkey autopsy?

Shoot-Out

19. Who is Joe McCormick?

The Mission

20. What are the Three Priorities?

Reconnaissance

21. Describe the conditions of the monkey house upon the team entering the building.

READING SECTION IV: PART III: "SMASHDOWN"

Insertion

1. Describe the orange Raacal suits that are designed for use with airborne biological agents.

2. Describe the decontamination process upon leaving the monkey building.
3. What was located right next door to the monkey house?

A Man Down

4. What happened to Milton Frantig?

91-Tangos

5. How many monkeys occupied the building?

Inside

6. What happened to Rhonda Williams?

A Bad Day

7. What significant event occurred on Wednesday December 6?
8. What did the team do to the remaining monkey's that were still alive?

Decon

9. Describe how the team attempted to "Decon" the monkey house.

The Most Dangerous Strain

10. Describe the Ebola Reston virus strain.
11. How many humans died from Ebola Reston?
12. Why is the Reston virus so much like Ebola Zaire, when Reston supposedly comes from Asia?

READING SECTION V:
PART IV: "KITUM CAVE"

1. Describe the author's journey to Kitum Cave? Why did he make this journey?
2. How did AIDS likely first appear?
3. Why have vaccines against HIV been unsuccessful?
4. What became of the Reston, Virginia monkey house?
5. What is the author's view on the emergence of these destructive viruses?