

AP Biology Summer Reading Assignment Discussion Questions Name \_\_\_\_\_

Hello AP Biology Students, AP Biology is a course that aims to provide students with the conceptual framework, factual knowledge, and analytical skills necessary to deal critically with the rapidly changing science of biology. This course is designed to prepare students for the Biology College Board Advanced Placement Exam. You are taking a challenging and rewarding course this year. First please log on to Google Classroom to join the class.

The class code is: dxvh2sd

To get a jump start on the year, you will read, “The Sixth Extinction” by Elizabeth Kolbert and complete the assignment found in this packet. We will refer to the book, as the year progresses. Be sure to think about how you can relate the reading to biology topics we might study next year. You can buy a copy of the book, borrow it from the library, or come to school and get a copy from me. If you would like a copy from me, just stop by the high school office and they will give you a copy.

Your summer enrichment will be due the Friday we get back from summer break, August 16, 2024. You print out the questions and answer the questions on paper or complete them on a Google Doc. This assignment is posted on Google Classroom. If you choose not to work on the assignment over the summer, you will be behind the rest of the class and get a 0 for the assignment.

While reading the book “The Sixth Extinction” answer the following questions for discussion. We will discuss the book, take a reading quiz, and go over the questions the first week of school.

If you have any questions please email me at:

mike.gerst@beechwood.kyschools.us

Chapter 1:

- (1) What is Bd? Why is it a global threat to amphibians?
- (2) What is EVACC? Is EVACC a temporary solution?
- (3) What are the two major theories behind the spread of Bd?

Chapter 2:

- (1) Who were the first naturalists to acknowledge the idea of extinction? How was it established as a fact?
- (2) What is the study of stratigraphy? Explain its significance to understanding the geologic history of the planet.
- (3) Summarize Cuvier’s evolutionary theory. According to Cuvier, what were the causes of extinction?

### Chapter 3:

- (1) What is meant by Lyell's phrase "the present is key to the past"?
- (2) How did Lyell influence Darwin?
- (3) What caused the Auk extinction?

### Chapter 4:

- (1) What is the significance of the iridium spike found by Alvarez?
- (2) How did Alvarez challenge the uniformitarian viewpoint?
- (3) What is preservation potential?

### Chapter 5:

- (1) What role do catastrophes play in the theories of Darwin and Cuvier?
- (2) What is the largest of the Big Five extinctions? What caused it?

### Chapter 6:

- (1) How does carbon dioxide affect the earth's water?
- (2) Which organisms will be most impacted by ocean acidification? Why?

### Chapter 7:

- (1) What was Darwin's theory of coral reef formation? How did it differ from Lyell's?
- (2) Why are coral reefs important ecosystems?
- (3) How do carbon dioxide levels impact coral reef?
- (4) List 4 human activities threatening coral reefs.

### Chapter 8:

- (1) What is a latitude diversity gradient?
- (2) Why does biodiversity increase near the equator?
- (3) What was the cause of the ice age?

(4) According to Silman, what impact will global warming have on ecological communities?

Chapter 9:

(1) Why are islands less diverse?

(2) Why is life in the tropics diverse?

(3) How does land use impact the atmosphere?

(4) Describe 2 defining features of the Anthropocene.

Chapter 10:

(1) What did Darwin's "theory of descent with modification" say about species origins?

(2) How have humans affected geographic distribution and geographic separation of species?

(3) What are invasive species? Which species is the most successful invader?

Chapter 11:

(1) Identify and explain two reasons for the mystery of the missing megafauna.

(2) What evidence was found that challenged the idea that climate drives extinction?

(3) What was the evolutionary advantage of megafauna?

Chapter 12:

(1) What event is linked to the disappearance of Neanderthals?

(2) Explain the "Out of Africa" theory of human evolution.

Chapter 13:

(1) What is the Frozen Zoo? What is its importance?

(2) What is the sole cause of the sixth extinction?

(3) Explain the logic behind the Hall of Biodiversity's idea that humans will be undone by our "transformation of the ecological landscape".

End of Book Discussion Questions

1. The hallmark of evolutionary biology is adaptability. Is the main challenge facing our era the speed with which we are forcing things to adapt? Explain.
2. Which of Kolbert's examples seems most compelling/troubling to you, and why?
3. If humans have a place in the natural balance, should we expect the planet itself and other organisms to adapt and evolve in response to our impact?
4. How has "the new Pangea," as Kolbert calls it, accelerated certain threats to various species' future around the globe?
5. Did you find what you learned in this book alarming?
6. What do you think about the example of the ammonite – they were perfectly adapted to their environment, but the catastrophic effects of the asteroid still resulted in their extinction.
7. Do you think the “islands on dry land” method of studying small ecosystems can help us to predict the effect of our actions on our larger ecosystem?
8. In some parts of the world the number of species has dropped, in some parts of the world the number of species has increased. How does this add to the difficulty of predicting the future?
9. What percentage Neanderthal are you?
10. How far would you go to stop a species from becoming extinct?