

Advanced Biology Summer Assignment

Welcome to Advanced Biology. I am excited that you have chosen to challenge yourself this coming school year. To help introduce you to the topics we will cover, you will be reading the book The Story of More: How We Got to Climate Change and Where to Go From Here by Hope Jaharen (ISBN 9780593381120). You will need to make sure that you choose the book adapted for young adults. The book is available at the library and bookstores. It is also available as an audio book on Libby and other services. If you have trouble locating a copy, please contact me at gsimpson@huffmanisd.net.

You will upload this assignment to Canvas by Friday, August 14. There will be a reading test on that same day.

Part 1 - Life

1. What is your birthdate?
2. Go to <https://worldpopulationhistory.org/my-population-number/>
 - a. World population when you were born: _____
 - b. World population now: _____
 - c. Life expectancy in the US when you were born: _____
 - d. Life expectancy now: _____
3. Create a timeline showing population growth from Mesopotamia to Henry George.

4. Trace your family from you to the first generation that has a farmer. (For me this is two generations back with my Aunt Ruth on my Mom's side of the family.)

Part 2: Food

1. Define the following:
 - Monoculture -
 - Self-pollinating -
 - Barren -
 - Cultivator -
 - Aquaculture -
 - Crossbreeding -
 - DNA -
 - Pescatarian -

Omnivorous -
Biological Limits -

2. Explain how the same amount of farmland can produce 3 times more food today than it did in 1969.

3. What is the drawback of increased crop yield?

4. Describe the relationship between DNA and proteins.

5. Compare and contrast the increase in crop yield and animal production yield.

6. Is the return on investment worth the grain used to raise an animal? Why?

7. What are the impacts of increased aquaculture on the aquatic ecosystem?

8. Explain how a weather crisis created the market for high fructose corn syrup (HFCS).

Part 3: Energy

1. Describe the difference between energy efficiency and energy conservation. Do you have to choose one over the other? Why or why not?

2. Using the map below, color the countries with the highest populations red. Color the countries with the highest energy use blue.



3. Rank the following modes of transportation from most to least energy efficient.
Cars, busses, railway (trains) and airplanes

4. Explain how fossil fuels got their name.

5. If you live to be 80, will there be natural gas to heat your house? Explain.

6. List five ways that crude oil makes your life easier.

7. "Green energy is not truly green." What does this quote mean? Use text evidence.

Part 4 - Earth

1. In theory, how does CO₂ create the greenhouse effect?

2. What causes weather?

3. Describe how the global temperature rise has changed life experiences for the current generation.

4. List three effects of rising sea levels and ocean warming on the environment.

1.
2.
3.

5. How has the Dona Francisca Dam sped up the emergence/extinction cycle in Brazil?

6. List and explain the two main reasons for the increase in extinct and endangered species.

7. What is the common problem with proposed solutions for reducing atmospheric CO₂ levels and thus the temperature?

8. Why do industries not work on conservation efforts?

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