

## CHS AP BIOLOGY SUMMER ASSIGNMENT 2009–\*\*updated 8/11\*\*



Welcome to AP Biology at Conestoga! Because Conestoga has such highly motivated students (who don't mind doing extra school work during their summer break) and because we want you to have the most successful year possible, we have created a required summer assignment. In order to cover in just one year what most schools cover in two years of Biology, we need you to do a bit of legwork before you arrive in the classroom.

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To complete this assignment you will need to **create a login to your textbook's website:**

- ❖ Go to [www.phschool.com/access](http://www.phschool.com/access)
- ❖ Click on "Covered Titles" then select "Campbell Biology, Concepts and Connections 5e"
- ❖ Click on "Student Registration" & follow the simple directions for registering
- ❖ When prompted for an access code use **one of the 3** codes below:

SSNAST-BANJO-SASSY-RERAN-SLANT-DALES  
SSNAST-PPRIL-SASSY-RERAN-TERZA-WISES  
SSNAST-FROMM-SASSY-RERAN-CENTO-VEXES

**(Note – you only need to use a code once – when you create your account! Once you have created your account, you will use your login and password to access the site!)**

Once you have created your account, (**remember and don't share your username and password that you create- you will use this for the rest of the year!**) you are ready to begin your assignment:

- ❖ You will see a set of tabs on the left side of the screen – choose **E-book**
- ❖ Click on the link displayed to take you to the **E-book**
- ❖ Click on **Unit 7** – these are the 4 chapters that you will need for this summer assignment
- ❖ To access the textbook again, simply log into the E-book site directly at:  
[http://wps.aw.com/wps/media/access/Pearson\\_Default/1976/2024209/login.html](http://wps.aw.com/wps/media/access/Pearson_Default/1976/2024209/login.html)

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### The Assignment:

**PART I:** You are to **READ** the following chapters **and answer the Guided Reading Questions** (print out the questions and answer **by hand - not typed**) that follow these instructions.

Chapter 34: The Biosphere: An Introduction to Earth's Diverse Environments  
Chapter 35: Behavioral Adaptations to the Environment  
Chapter 36: Population Dynamics  
Chapter 37: Communities and Ecosystems



Also, not required, but might be helpful - you may wish to start reading/outlining chapters 1 & 2 which we will not be spending much time on in class.

**PART II:** In addition to reading and answering questions for these chapters, you will receive study guide exercises that correspond to the above chapters on the first day of school.

**PART III:** A test will be given the second week of school on these chapters.

**Due Date:** Answers to the Guided Reading Questions (which begin on next page) will be collected on **Friday September 4<sup>th</sup>, 2009 (yes, this is the 2<sup>nd</sup> day of school!)**

**Questions?** Contact either of the AP Bio teachers:

Mrs. Gontarek – [gontarekj@tesd.net](mailto:gontarekj@tesd.net)

Mrs. Wolfe – [wolfej@tesd.net](mailto:wolfej@tesd.net)

*See you in September!!!*



## AP Biology Summer Assignment 2009

### Ecology Guided Reading Questions

Directions: You are to answer these questions completely BY HAND – NO TYPING!!!!

DUE DATE: Friday, September 4<sup>th</sup>, 2009

#### Chapter 34: The Biosphere: An Introduction to Earth's Diverse Environments

1. How had the view of the pesticide DDT changed from 1950 and 1970? Why was it used in the first place and why was use halted?
2. What adaptations do the pronghorn antelope have to withstand the abiotic factors of an arid, windy environment with large temperature fluctuations? What adaptations do they have for the biotic factors of their available food source and predation by wolves, coyotes and cougars?
3. What are the doldrums and what causes them?
4. Describe a salt water aquatic biome with the following terms: intertidal zone, pelagic zone, benthic zone, photic zone, continental shelf, estuary and wetland.
5. Give examples of freshwater biomes and discuss the problem of fertilizer run off from the land into these bodies of freshwater.

6. List the 8 terrestrial biomes and describe the defining characteristics of each.

### **Chapter 35: Behavioral Adaptations to the Environment**

1. What is “behavior” defined as?
2. What are the 2 questions behind the basis of behavioral ecology and what distinguishes them from each other?
3. What is the definition of a fixed action pattern? Give an example of one. Why might FAP’s be linked to evolutionary success and survival?
4. Animal behavior is a sum total of one’s genes (nature) and one’s \_\_\_\_\_ (nurture).
5. Describe the mating of prairie voles as evidence for the genetic basis of behavior.



10. What is a cognitive map? Give examples of animals that use this process and describe how they put it to use.
  
11. Describe how a Skinner box is used in associative learning.
  
12. What two processes are involved in social learning? Describe this process with 2 animal examples.
  
13. What does the process of problem solving rely on? Give an example of an animal solving a problem.
  
14. Distinguish between generalists and specialists with regards to foraging for food.
  
15. What is a cost-benefit analysis and list some ways to achieve this.
  
16. What are the advantages of monogamous relationships among breeding animals?

17. Describe the purpose of courtship rituals and give an example.

18. The essential ingredient to all social behaviors like courtship, aggression and co-operation is\_\_\_\_\_.

19. What is territorial behavior used for? Give some animal examples of this behavior.

20. Describe examples of agonistic behavior and what are the outcomes?

21. What did Jane Goodall contribute to our understanding of chimp behavior?

22. Describe what types of communication signals would be given by diurnal, nocturnal and aquatic animals.

23. What is the purpose of the waggle dance which is performed by honeybees?

24. What is the definition of altruism? Give an animal example of this behavior.

25. What is inclusive fitness, kin selection and reciprocal altruism

### **Chapter 36: Population Dynamics**

1. Define a population and population density.
2. Construct a graph depicting the three types of survivorship curves and describe characteristics of each type.
3. Describe and draw (on a set of axes) the exponential growth model. What is the formula?
4. What are factors which limit growth on a population?
5. Describe and draw on a set of axes the logistic growth curve.
6. What is the carrying capacity ("K") showing you on a logistic growth curve?

7. Define and give an example of “boom and bust” life cycles. Why does this happen?
  
8. What is “big bang” reproduction and give an example of an organism who shows this and how.
  
9. Describe the differences between r-selection and k-selection. Give examples of each.
  
10. What is sustainable resource management and maximum sustained yield?
  
11. Just killing the individuals of a pest population will not significantly decrease the size of the population. Why is this?
  
12. Define integrated pest management and what does it do?
  
13. In order to fit the estimated population of 8 billion people by 2025, what will have to happen globally?
  
14. Where does the US fall in the Human Ecological Footprint graph? What does it tell us?

15. The world's richest countries with \_\_\_% of the population use \_\_\_% of the world's resources. This leaves only \_\_\_% of the resources for the remaining \_\_\_% of the population. Yikes!

16. Under what 2 conditions may a country experience Zero Population Growth?

17. Describe the birth rate in China between 1950 and 2004. Why did this happen?

18. Where does 80% of the global population live?

### **Chapter 37: Communities and Ecosystems**

1. Define "community" and the four properties of communities.

2. What are the four species interactions which determine a community structure? What are all 4 influenced by?

3. Describe competition and why it takes place. Describe the paramecium example of the competitive exclusion principle.

4. What is a niche? If 2 species occupy the same niche, what 2 things may happen?
  
5. What are some adaptations for predators and prey?
  
6. Distinguish batesian mimicry from mullerian mimicry and give animal examples for each.
7. Define a keystone species, give 2 animal examples and how their behavior gives them this title.
  
8. What are some adaptations which herbivores have? What are some of the plant defenses?
  
9. Give an example of "co-evolution".
  
10. Define symbiosis and give examples of the 3 types of symbiotic relationships.
  
11. What is ecological succession?
  
12. Distinguish primary succession from secondary succession and give examples of each.

13. In primary succession, what life forms typically are on the scene first and who follows?

14. Describe the beneficial relationship between wildfires and the chaparral shrubs.

15. What is a trophic structure? Food chain? What is the sequence of a food chain?

16. What is a detritivore and who are we talking about?

17. The actions of what 2 organisms are vital to recycling nutrients at all levels?

18. What is a food web?

19. What is ecosystem ecology?

20. Energy flow through an ecosystem is described as \_\_\_\_\_. Because of this, a constant input of energy is needed from the \_\_\_\_\_?
21. The flow of energy thru an ecosystem: light → \_\_\_\_\_ → \_\_\_\_\_
22. Producers are in charge of starting every food chain. Everyday the earth receives solar energy that equals the strength of \_\_\_\_\_ atomic bombs!
23. Of all the visible light which reaches plants, only \_\_\_\_\_% is converted to chemical energy thru \_\_\_\_\_ reaction.
24. What is biomass defined as?
25. What is the definition of primary production?
26. The supply of energy limits the length of any given \_\_\_\_\_.
27. The pyramid of energy flow shows the loss of energy at each \_\_\_\_\_ level. Describe the levels and how much available energy is actually transferred from level to level.
28. About 90% of energy at each level is either \_\_\_\_\_ or \_\_\_\_\_ in the forms of \_\_\_\_\_.
29. The energy available to top level consumers is very small. Why is this?
30. Why do top consumers (like a hawk) need a large area of territory to survive?

31. Describe (in terms of available energy) why meat is a luxury for humans and why people in some countries are forced to be vegetarians.

32. What is a biogeochemical cycle, list the 4 that exist in an ecosystem and briefly describe them.