

Biology AP Summer Project 2019

1. You will need to register with your textbook website in order to do all online assignments. I have attached a guide to help you through the registration process. The book registration code is: **B46D-B93E-373W-NB48-AHTD**

You will need to register by Monday, June 10. This will be your first grade. The first online textbook assignment is due, June 26. You will have an online assignment due every week.

2. Your second grade will be to register on turnitin. You will need to do this by **Monday, June 10**. Instructions on how to register on TURNITIN are attached.

3. Please sign into **REMIND.com** as well. I have attached instructions.

4. Please read chapters 44 – 47 of your textbook on ecology. There are six essay questions that need to be completed regarding the information you read. These are due on **TURNITIN, August 17**.

5. You will also need to answer all the questions associated with these chapters. The answers to these questions are due on **Turnitin, August 10**. The questions are attached.

6. Finally, there is an online assignment on, "Eduware.com," that you will need to complete by **August 24**. Login with your username and your school ID. Your ID is your password.

7. A **TEST** will be given on this material when you return to school. If you have any questions, you may e-mail me at sfoco@vtsd.com

Chapter 44 Ecology of Populations

1. Discuss the contribution of Ernest Haeckel.
 2. Define the following: ecology, habitat, population, community, and biosphere.
 3. What is the difference between population density and population distribution?
 4. A. What are abiotic factors?
B. What are biotic factors?
C. How do they both affect an individual?
 5. Explain the three patterns of distribution for a population.
 6. What is the difference between an abiotic factor and a limiting factor?
 7. Why are immigration, migration, natality and mortality important in the study of populations?
 8. How is the rate of natural increase (r) for a population determined?
 9. Discuss the significance of biotic potential?
 10. A. What is a cohort?
B. What is a survivorship?
C. What is a survivorship curve?
D. Explain the three types of survivorship curves.
 11. A. What are the three major age groups that are used to describe a population's age distribution?
B. What can these diagrams tell you?
 12. What is the difference between populations that has discrete breeding compared to one that has continuous breeding?
 13. A. Diagram an exponential growth curve.
B. Why does exponential growth produce a J-shaped curve?
C. What causes the difference between the lag phase and the exponential growth phase?
 14. A. Diagram a logistic (S-shaped) growth curve.
B. What causes the deceleration and stable equilibrium phase?
- (Do not worry about the formulas on page 845)
15. What is the significance of carrying capacity?
 16. Discuss a way in which knowledge of a population growth curve can be used to control a pest.
 17. Explain the difference between density dependent and density independent factors that regulate population growth.
 18. A. Discuss the characteristics of a population that is a K- strategist?
B. What type of environment favors K-selection?
 19. A. Discuss the characteristics of a population that is a R- strategist?
B. What type of environment favors r-selection?
 20. What type of population growth curve do human's exhibit?
 21. What has happened to the doubling time for the human population?

22. Compare and contrast birthrates and death rates in MDCs and LDCs?
 23. What is the demographic transition?
 24. List three ways that have been suggested to decrease the expected increase in human population.
 25. Why will replacement reproduction not always cause immediate zero population growth?
 26. Although MDCs have a lower growth rate and smaller population size, they are causing a more severe environmental impact. Explain.
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Chapter 45 Community Ecology

1. What is a community?
2. Compare the composition of a community with its diversity.
3. What does island biogeography tell us about species diversity on islands?
4. What is the difference between habitat and niche?
5. Why are generalist species better able to withstand environmental changes?
6. What is the difference between interspecific and intraspecific competition?
7. What is the competitive exclusion principle?
8. What is the significance of resource partitioning?
9. Explain character displacement.
10. Explain the predator-prey interaction between a lynx and a snowshoe hare?
11. List several prey defenses against a predator.
12. What is a mimicry?
13. Compare and contrast Batesian mimicry and Mullerian mimicry.
14. What is symbiosis?
15. Define and give an example of each of the following:
Parasitism
Commensalism
Mutualism
16. Define the following:
Succession
Pioneer community
Transitional community
Climax community
17. A. How does primary succession differ from secondary succession?
B. What are the major communities that occur during secondary succession?
18. Why does secondary succession require much less time to reach the climax when compared to primary succession?
19. A. Give some examples of fire climax communities. (Use the Internet).
B. How are plants adapted to a fire climax communities? (Use Internet to find information)

20. List the three ways that community stability can be measured or recognized.
 21. A. What is a keystone species?
B. Give an example.
 22. How can information from Island Biogeography and Biodiversity be applied to nature preserves?
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Chapter 45 Ecosystems

1. Define Ecosystem.
2. What is the biosphere?
3. Distinguish between the abiotic and biotic components of an ecosystem.
4. Distinguish between Autotrophs and Heterotrophs.
5. List the 5 main types of consumers found in an ecosystem.
6. Why are decomposers important to an ecosystem?
7. Compare the movement of energy and matter (chemicals) in an ecosystem. Explain how their movement is very different.
8. A. What is Gross Primary Productivity?
B. Why is Net Primary Productivity always lower than Gross Primary Productivity?
9. A. State the first law of thermodynamics.
B. What significance does this have for an ecosystem?
10. A. State the second law of thermodynamics
B. What significance does this have for an ecosystem?
11. What eventually happens to all the solar energy that enters an ecosystem?
12. A. What is a food web?
B. How does a food web differ from a food chain?
13. What is a trophic level?
14. A. What is an ecological pyramid?
B. Why is a pyramid of numbers not as accurate as a pyramid of biomass?
C. How does an inverted pyramid form?
D. What is the rule of 10%?
15. A. Define Biogeochemical Cycle.
B. Explain the two main types of biogeochemical cycles.
16. A. Water – How have human activities altered this cycle?
B. Carbon Cycle (What two major biological processes are involved?)
C. Nitrogen Cycle (Why are plants do dependent on the nitrogen cycle?)
17. A. What is eutrophication and what causes it?
B. How does eutrophication cause an algal bloom that results in a loss of oxygen and massive fish kills?
18. What is biological magnification?

Chapter 46 The Biosphere

1. A. What is a biome?
 - B. Explain the relationship between a biome and climate.
 - C. Explain the relationship between altitude and biomes.
2. Discuss the importance of soil to an ecosystem and a biome.
3. Familiarize yourself with the following biomes:
 - Tundra – Why are trees absent from the Tundra?
 - Taiga – How are trees adapted to the Taiga?
 - Temperate Deciduous Forest – What plant layers are found in this forest?
 - Tropical Rain Forest – What is the most productive layer in this forest?
 - What are epiphytes and what is their major adaptation?
 - Shrublands – What adaptations are found in the plants in this biome.
 - Grasslands – Why are trees absent from the grassland?
 - Savannas – List several adaptations of Savanna plants.
 - Desert - List several adaptations of desert plants.
4. What is the difference between a wetland, a marsh, and a bog?
5. A. What are the differences between an oligotrophic and eutrophic lake?
 - B. Define eutrophication and explain its cause.
6. A. What causes the spring and fall overturn?
 - B. Why are the spring and fall overturn important to a lake?
7. What are phytoplankton and zooplankton?
8. Define the following:
 - Littoral zone
 - Limnetic zone
 - Profundal zone
 - Benthic Zone
9. What are the drawbacks and benefits to living in an estuary?
10. Why are estuaries known as the nurseries of the sea?
11. Why does the oceanic pelagic zone have fewer organisms than the neritic province?
12. Discuss the mutualistic relationship between corals and algae.
13. A. What are the producers in the food chain that is found near hydrothermal vents in the benthic zone?
 - B. What is the process that they use to produce their energy?
 - C. What is their source of energy for the above process?

Chapter 47 – Conservation Biology

1. What is conservation biology?
2. What is bioinformatics?
3. What is biodiversity?
4. What is the difference between an endangered species and a threatened species?
5. What are biodiversity hotspots?
6. List some examples that illustrate the direct value of a species compared to its indirect value.
7. List and briefly explain the five major causes of extinction.
8. What is the difference between a keystone species and a flagship species?
9. What is a metapopulation?
10. How are computers utilized to protect species?

Ecology Essays:

1. A diverse ecosystem is more productive and better suited for environmental stress than ecosystems with less heterogeneity.

A. Describe and explain two sources of genetic variation in sexually reproducing organisms.

B. Explain the importance of genetic diversity and species diversity within an ecosystem.

C. Discuss and explain the major threats to biodiversity

2. Homeostasis is necessary for the survival of any ecosystem.

A. Discuss and explain TWO examples of how nutrients get recycled within an ecosystem.

B. Explain how carrying capacity can vary in time and space.

C. Choose two interspecific interactions and explain their importance within an ecosystem.

3. Humans have impacted the Earth's ecosystems through advancement in technological capabilities.

A. Discuss and explain why the greenhouse effect is detrimental to life on Earth.

B. Explain why the sun lovers of Australia have the highest rate of skin cancer.

4. Most organisms rely on other organisms for sources of food, to be used in respiration to produce energy.

A. Describe and explain a food chain and a food web, and how they are interconnected.

B. Discuss and explain the concepts of energy flow, conversion, loss in food chains, trophic levels and pyramids in relation to food webs. Including a diagram may be helpful.

5. The carbon and nitrogen cycles are essential in maintaining a balance in our environment. Describe and explain the significance of the two cycles. Trace each element through its respective cycle.

6. Organisms have reproductive strategies that control population growth.

A. Populations practice exponential population growth (r) and logistic population growth (K). Explain one of these strategies, and discuss how well it fits the growth of real populations.

B. Explain why it is important for a population to limit growth.

Instructions on how to register on turnitin.com

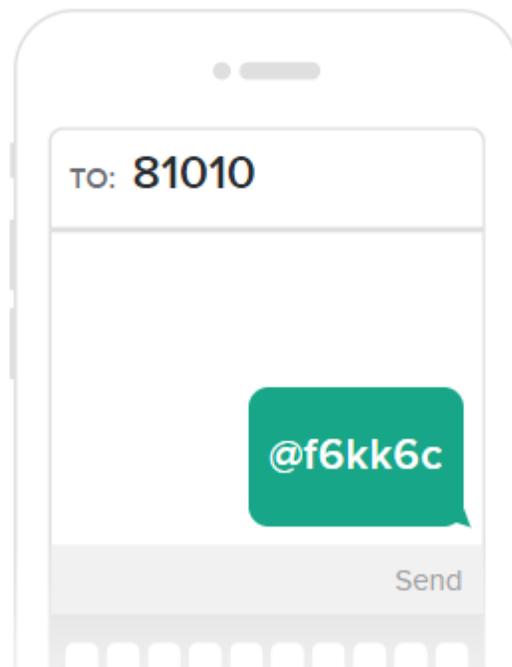
1. Go to <http://www.turnitin.com>
2. In the upper right corner, click on “Create Account.”
3. Click on “student.”
4. Enter the class ID: **21362809**
5. Enter the class enrollment password: **foco**

INSTRUCTIONS TO REGISTER W/ REMIND:

Tell people to text @f6kk6c to the number 81010

They'll receive a welcome text from Remind.

If anyone has trouble with 81010, they can try texting @f6kk6c to (973) 512-4249.



INSTRUCTIONS TO REGISTER W/ TEXTBOOK:



student registration information course

AP BIOLOGY 2019-2020
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section

AP BIOLOGY 2019-2020

online registration instructions

Go to the following web address and click the "register now" button.

<https://connect.mheducation.com/class/s-foco-ap-biology-2019-2020>

This is a unique address for
AP BIOLOGY 2019-2020

Having trouble registering?
Get help here: <http://bit.ly/StudentRegistration>