

2017-2018 AP Environmental Science Summer Work (Due: 8/21/17)

Greetings student,

Welcome to AP Environmental Science! In this packet you will find two assignments which I consider to be *optional* summer work. In short, this is work which can be completed either over the summer or over the first weekend of the school year. The choice of when you choose to complete them is yours, but both assignments will be **due on 8/21/17**. Good Luck!

-Mr. G

Assignment 1:

My most important recommendation for those taking this course is that you have some degree of genuine concern for the environment. As such, your first assignment is to think about and research an issue you believe to be one of the most important environmental issues the world is either currently facing or soon will be.

Once you've chosen and researched a topic you should complete the attached document and be prepared to discuss your issue during a class discussion. I've intentionally not given you any examples so I do not lead you but for those needing a little direction, choose a topic that;

1. Is interesting to you.
2. Is current.
3. Is or will or should be of global concern.
4. Could or is having a significant environmental impact either positively or negatively.

Assignment 2:

The second assignment is a simple Take-Home-Test. For some this may come as a disappointment but reading the book is strongly suggested, if not mandatory, for this course. As I will discuss repeatedly early on in the year, the amount of content in the course is such that I simply cannot cover everything in-depth. For this assignment you will need to read Chapters 1 and 2 in your textbook and complete the attached test. (You may circle or write your answers.)

This test will serve as the first test-grade of the school year and frees up time for us to do other labs/projects throughout first semester. Feel free to use your book and/or a partner to complete it.

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Directions: Complete the following and be prepared to discuss your issue in-depth, in class, for Assignment 1.

Name:

Environmental Issue:

1. How did you find out about this issue and why is it of concern to you?

2. Why should this issue be of global concern?

3. What aspects of the environment does this issue most impact?

4. Specifically which living species are most impacted by this issue?

5. What is the direct cause of this issue?

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Directions: For Assignment 2 complete the following; Read the question. Choose the single most correct answer. Use your book and/or a friend if needed. Good Luck.

1. Ecology is the study of
 - a. plants.
 - b. animals.
 - c. global climate change.
 - d. relationships between organisms and their environment.
 - e. the chemistry of living things.
2. Natural capital includes all of the following *except*
 - a. sunlight
 - b. air
 - c. water
 - d. soil
 - e. nutrients
3. Using normally renewable resources faster than nature can renew them is called
 - a. nutrient cycling
 - b. nutrient deficit
 - c. sustainability
 - d. trade-offs
 - e. degrading natural capital
4. An environmentally sustainable society
 - a. lives off its natural income of renewable resources
 - b. does not degrade its natural capital
 - c. provides its population with adequate and equitable access resources
 - d. does not compromise access of future generations to basic needs
 - e. all of the these
5. The annual market value of all goods and services produced within a country is called
 - a. net per capita GNP
 - b. GNP
 - c. per capita GDP
 - d. PPP
 - e. GDP
6. The amount of goods and services any country's average citizen could buy in the United States is called
 - a. per capita GDP PPP
 - b. per capita GNP
 - c. per capita
 - d. per capita GDP
 - e. PPP
7. What is the primary difference between renewable resources and nonrenewable resources?
 - a. how easily they are discovered
 - b. the amount of the resource
 - c. the length of time it takes for them to be replenished
 - d. how fast they are being used up
 - e. none of the these
8. The highest rate at which a renewable resource can be used indefinitely without reducing its available supply is called
 - a. conservation
 - b. sustainable yield
 - c. preservation
 - d. perpetual resource
 - e. degradation
9. Which of the following would *not* be considered a nonrenewable resource?
 - a. copper
 - b. oil
 - c. fresh air
 - d. salt
 - e. sand
10. Which of the following is *not* a renewable resource?
 - a. groundwater
 - b. trees in a forest
 - c. fertile soil
 - d. oil
 - e. crops

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11. Which of the following is an example of reuse?
 - a. re-melting aluminum cans
 - b. making compost out of kitchen scraps
 - c. using plastic butter tubs to store leftovers
 - d. using waste heat to warm a room
 - e. making paper goods from previously used paper
12. According to the author, three of the following are major cultural changes (revolutions) that have occurred in human history, and one is *not*. Choose the one that is *not*.
 - a. Information-Globalization
 - b. Transportation
 - c. Industrial-Medical
 - d. Agricultural
 - e. none of the these
13. Pollution includes
 - a. detergents dumped into streams
 - b. volcanoes spewing toxic gases into the atmosphere
 - c. CO₂ releases from coal burning power plants
 - d. fertilizer runoff from golf courses
 - e. all of the these
14. Nonpoint sources of pollution include all of the following except
 - a. wind carrying dirt and pesticides from croplands
 - b. runoff from a stockyard
 - c. a smokestack from a power plant
 - d. fertilizer runoff from lawns
 - e. runoff from cropland
15. The real prices of goods and services do not include
 - a. the cost of raw materials
 - b. the cost of manufacturing
 - c. the environmental costs of resource use
 - d. the cost of distribution
 - e. the cost of advertising
16. The idea that we should be responsible, caring managers of the earth is
 - a. the planetary management worldview
 - b. the stewardship worldview
 - c. the environmental wisdom worldview
 - d. the environmental justice movement
 - e. all of these
17. The four basic principles that could help us to transition to sustainable societies. Which of the following is *not* one of those principles?
 - a. reliance on solar energy
 - b. biodiversity
 - c. nutrient cycling
 - d. survival of the fittest
 - e. population control
18. Which of the following is the definition of a scientific hypothesis?
 - a. a simulation of a system being studied
 - b. a possible explanation for an observation
 - c. information needed to answer questions
 - d. procedures carried out under controlled conditions to gather information
 - e. all of these
19. Scientists try to reduce errors in their observations and measurements by
 - a. reducing bias
 - b. using standard procedures
 - c. testing measuring devices against known samples
 - d. repeating measurements several times and taking the average value
 - e. all of these

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20. An idea that has been tested widely, is supported by extensive evidence, and is accepted by most scientists in particular field of study, is called a(n)
- hypothesis
 - scientific law
 - scientific variable
 - theory
 - natural law
21. When new information or ideas can disprove or overthrow a well-accepted scientific theory, it is called
- a paradigm shift
 - consensus science
 - frontier science
 - a scientific law
 - a deductive conclusion
22. All of the following are elements except
- water
 - oxygen
 - nitrogen
 - hydrogen
 - carbon
23. Which of the following sources of iron would be of the highest quality?
- iron deposits on Mars
 - a field of spinach
 - a solid block of Aluminum
 - a one-half mile deep deposit of iron ore
 - iron in water
24. Scientists classify energy as either
- chemical or physical
 - kinetic or mechanical
 - potential or mechanical
 - potential or kinetic
 - chemical or kinetic
25. Which of the following is an example of low-quality energy?
- electricity
 - heat in the ocean
 - nuclear fission
 - gasoline
 - food
26. The first law of thermodynamics tells us that
- Doing work always creates heat.
 - Altering matter is the best source of energy.
 - Energy cannot be recycled.
 - Energy is neither created nor destroyed.
 - Energy cannot be converted.
27. Earth's supply of concentrated, usable energy is being steadily
- depleted
 - recycled
 - reused
 - used at a sustainable yield
 - converted to higher-quality forms
28. The matter and energy laws tell us that we can recycle
- both matter and energy
 - neither matter nor energy
 - matter but not energy
 - energy but not matter
 - none of these
29. The energy "lost" by a system is
- converted into an equal amount of matter
 - equal to the energy the system creates
 - converted to lower-quality energy
 - returned to the system, eventually
 - converted to higher-quality energy

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30. Which one of the following does *not* illustrate a time delay?

- a. A smoker develops lung cancer.
- b. CFCs deplete the ozone layer.
- c. Increased carbon dioxide levels enhance the greenhouse effect.
- d. A fox eats a rabbit.
- e. Polar ice melting increases absorption of sunlight.

31. Time delays in feedback systems allow changes in the environment to build slowly until the changes reach a(n)

- a. synergy point
- b. input
- c. throughput
- d. tipping point
- e. bioaccumulation point

32. Which of the following does *not* represent a synergistic interaction?

- a. Smokers who inhale asbestos die of lung cancer.
- b. Combinations of pollutants increase health hazards.
- c. Waitress who doesn't smoke gets lung cancer from secondary smoke.
- d. Running further when running with a partner.
- e. Studying for a test with a group of students.

33. Human events that affect the environment are generally characterized by

- a. predictability in what happens because the environment is so large
- b. many experiences that allow for accurate generalizations
- c. long delays between events and responses
- d. obvious and immediate feedback
- e. all of these

34. Two or more processes interacting such that the combined effect is greater than the sum of the individual effects is called

- a. homeostasis
- b. a synergistic interaction
- c. negative feedback
- d. entropy
- e. time delay

For each of the following questions mark A for True and B for False.

35. Natural services are functions of nature, such as purification of air and water, which support life and human economies.

36. In environmental science, individuals tend to matter less because the issues are global in nature.

37. Take away solar energy and all natural capital would collapse.

38. Anything from the environment that meets human needs and wants is considered a resource.

39. The *Tragedy of the Commons* refers to a lack of agricultural resources available for the common (poor) people in a country.

40. As in a human body, the earth's capacity to repair itself is critical to its survival.

41. Pollutants are all human-made; they cannot enter the environment naturally.

42. The harmful environmental effects of poverty are much worse than those of affluence.

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43. Scientists tend to be highly skeptical of new data, hypotheses, and models until they can be tested and verified.
44. When someone says that evolution is not important, "after all, it's just a theory," it is probable that they do not understand how scientists use the term "theory."
45. Scientists can disprove things but they cannot prove anything absolutely, which means there is always some uncertainty in science.
46. How useful matter is to humans as a resource is determined by its concentration, availability for use, and its potential.
47. Energy consumption does not mean the disappearance of energy; rather it is the conversion of energy from one form to another with no net loss.
48. Energy cannot be recycled.
49. The scientific principles of sustainability show that everything we do affects someone or something in the environment in some way.
50. A negative feedback loop causes a system to further change in the same direction.