

AP Exam Group Review

Day 5

Vocabulary

Directions:

- Claim your word.
- Define it.
- Identify the units associated with it.
- Use it (correctly) in a sentence

hydro-: “water”

- Hydrolysis 4
- Hydrocarbon 5
- Hydrophilic 6
- Hydrophobic 7
- Dehydration Synthesis 8

ecto-: “outer” | endo-: “inner” | meso-: “middle”

- Ectoderm 9
- Ectotherm 10
- Endoderm 11
- Endotherm 1

- Mesoderm 2
- Mesophyll 3

chloro-: "green"

- Chlorophyll 4
- Chloroplast 5

cyto-: "cell"

- Cytochrome 6
- Cytoskeleton 7
- Cytokinesis 8
- Cytoplasm/Cytosol 9
- Cytotoxic T Cell 10

Trans-: "across"/ "beyond" / "through"

- Transport Protein 11
- Transfer RNA 1
- Transmission (re: neurons) 2
- Transposon 3
- Transduction 4
- Transverse Tubule (aka "T-tubule") 5
- Transport Vessicle 6
- Transgenic Organism 7

- Translocation (re: ribosome) 8
- Transcription Factor 9

Theme 5: Interdependence

Directions:

- Claim your prompt.
- Respond fully.

1. Explain the relationship between the haploid and diploid stages of an animal's life cycle. 10
2. Explain the relationship between the sporophyte and gametophyte stages of a plant's life cycle. 11
3. Describe 2 different examples of interdependence between two different animal systems (use four different systems in your response). 12 1
4. Describe 2 different examples of interdependence between two different plant organs. 2
5. Describe a symbiotic relationship between bacteria and animals, a symbiotic relationship between bacteria and plants, and a symbiotic relationship between fungi and plants. 3
6. Describe an example of co-evolution. 4
7. Describe how growing a monoculture (like a single food crop) destabilizes an ecosystem. 5
8. Describe how the introduction of a non-native species destabilizes an ecosystem. 6
9. Describe how the loss of a species destabilizes an ecosystem. 7
10. Describe why the loss of tropical forests has global consequences. 8
11. Explain the relationship between catabolic and anabolic reactions. 9
12. Explain the relationship between photosynthesis and cellular respiration. 10

13. Explain how an organism's phenotype is dependent on its genetics and its environment. 11
14. Describe an example of competition, predation, mutualism, parasitism, & commensalism. 1
15. Describe the major niches that are seen in a stable ecosystem (stick to trophic level niches). 2
16. Explain why organisms with overlapping niches in an environment will compete for resources. 3
17. Explain what a keystone species is. Give an example. 4
18. Describe how a reduction in the size of a population leads to an "extinction vortex" 5
19. Explain the concept of an interaction network, and how it relates to "Hardin's Law" (you can not do just one thing) 6

AP Exam Group Review

Day 6

Vocabulary

Directions:

- Claim your abbreviation.
- Debbreviate it and identify the role(s) it plays in biological systems.
- Identify the units associated with it.
- Use it (correctly) in a sentence

Alphabet Soup

- Na^+ 7
- Cl^- 8
- Ca^{++} 9
- K^+ 10
- RuBP 11
- G3P 1
- NAD^+/NADH 2
- GTP 3
- AMP 4
- FAD/FADH_2 5
- $\text{NADP}^+/\text{NADPH}$ 6

- $C_6H_{12}O_6$ 7
- ATP/ADP 8
- ACTH a
- FSH 10
- LH 11
- p53 \
- dNTP 8

Theme 6: Energy Transfer

Directions:

- Claim your prompt.
 - Respond fully.
1. Explain how the hydrolysis of ATP is used to activate proteins and synthesize macromolecules. 3
 2. Explain how pH, temperature, and the concentration of substrate affect enzyme function. 2
 3. Explain how enzymes affect the rate of chemical reactions, and why they are required by living organisms. Provide a common example of a digestive enzyme and a common example of a synthesis enzyme. 5
 4. Explain the induced fit model of enzyme function. 6
 5. Describe the role of NADH & $FADH_2$ in cellular respiration. 7
 6. Describe the structure of a mitochondrion, and localize the stages of aerobic cellular respiration to areas of the organelle. 8
 7. Describe fermentation (lactic acid and ethanol pathways). 9
 8. Describe glycolysis. 10

9. Describe the citric acid cycle. 11
10. Describe the electron transport chain & explain how it functions to make ATP. 1
11. Describe the structure of a chloroplast, and localize the stages of photosynthesis to areas of the organelle. 2
12. Describe the light reactions of photosynthesis. 3
13. Describe the Calvin Cycle. 4
14. Compare chemiosmosis in aerobic cellular respiration and photosynthesis. 5
15. Explain how primary productivity is the ultimate determinant of the structure of a community. Describe the difference between gross and net primary productivity. 6
16. Describe the transfer of energy through an ecosystem. Diagram and describe a typical terrestrial food chain and a typical marine food chain. 7
17. Describe 2 ways to measure the rate of photosynthesis and the rate of cellular respiration in an experimental setting. 8
18. Describe 2 ways to measure the rate of an enzyme's function in an experimental setting. 9

AP Exam Group Review

Day 7

Compare and Contrast

Directions:

- Claim your abbreviation pairs.
- Compare them and contrast them (at least one similarity and one difference).

Cells:

- Gene regulation in prokaryotes vs. Gene regulation in eukaryotes 10
- DNA structure in prokaryotes vs. DNA structure in eukaryotes 11
- Cell wall structure in fungal cells vs. Cell wall structure in plants. 1
- Cell wall structure in fungal cells vs. Cell wall structure in bacteria. 2
- Internal organization of a prokaryotic cell vs. Internal organization of a eukaryotic cell 3
- Energy production in a prokaryote vs. Energy production in a eukaryote. 4

Animals vs. Plants:

- Response to environmental stimuli. 5
- Reproduction 6
- Transport (vertebrate vs. vascular plant) 7
- Specific example of active transport use. 8

- Tissues 9
- Gas Exchange 10

Animal Systems

- human lungs vs. fish gills 11
- mammalian excretory system vs. flatworm excretory system. 1
- mammalian temperature regulation vs. reptile temperature regulation 2
- gas exchange in a human vs. gas exchange in a grasshopper 3
- gastrovascular cavity vs. alimentary canal.. 4
- circulation in a mammal vs. circulation in a grasshopper. 5
- nervous system of an insect vs. nervous system of a human. 6

AP Exam Group Review

Day 8

Relationships of Terms

Directions:

- Claim 5 pairs of terms.
- Define both members of the term pair.
- Discuss the relationship between the term pair.
- Identify the unit(s) they are most closely associated with.
- Propose a third term that could be added to the term pair, and explain why it could be added.

1. Cellulose, chitin 7
2. Crossing over, tetrad 8
3. SnRNA, intron 9
4. Plasmolysis, flaccid 10
5. Polar covalent bonds, hydrogen bonds 11
6. Allosteric, cooperativity 1
7. Oxidative phosphorylation, chemiosmosis 2
8. Cholesterol, sex hormones 3
9. Facilitated diffusion, osmosis 4
10. Antiparallel, complimentary 5
11. Initiation, elongation 6
12. Cytosol, mitochondrial matrix 7

13. Segregation, independent assortment 4
14. Alpha helices, hydrogen bonds 9
15. tRNA, wobble 10
16. Flagella, cilia 11
17. Frame shift, substitution 1
18. Cleavage furrow, cell plate 2
19. Anabolism, dehydration 3
20. NADPH, NADH 4
21. Chemiosmosis, O₂ 5
22. Pyruvate, acetyl CoA 6
23. Nucleosomes, histone 7
24. Hydrolysis, polymerization 8
25. CO₂, Calvin cycle 9
26. Natural selection, sexual selection 10
27. Inversion, translocation 11
28. Pinocytosis, phagocytosis 1
29. Cristae, thylakoid 2
30. Alcohol, lactic acid 3
31. Promoter, operator 4
32. 3', 5' 5
33. Desmosomes, plasmodesmata 6

- 34. Allopatric, sympatric 7
- 35. Purines, nitrogenous base 7
- 36. Glycerol, fatty acids 9
- 37. Lysosomes, centrioles 10
- 38. Integral, peripheral 11
- 39. Temporal isolation, gametic isolation 1
- 40. Chromatids, centromere 2
- 41. RFLP, electrophoresis 3
- 42. Gene, allele 4
- 43. Microtubules, microfilaments 5
- 44. Heat, denaturation 6
- 45. Rubisco, carbon fixation 7
- 46. Gradualism, punctuated equilibrium 8
- 47. Central vacuole, cell wall 9
- 48. Restriction enzymes, plasmids 10
- 49. Okazaki fragment, ligase 11
- 50. Microvilli, large intestine 1
- 51. Triploblastic, mesoderm 2
- 52. Symbiosis, mutualism 3
- 53. Sporophyte, diploid 4
- 54. Thermophiles, methanogens 5
- 55. Liver, gall bladder 6

- 56. Conjugation, binary fission 7
- 57. Xylem, tracheids 8
- 58. Photoautotrophs, chemoheterotrophs 9
- 59. Hemocyanin, hemoglobin 10
- 60. Erythrocytes, leukocytes 11
- 61. K-selected populations, r-selected populations 1
- 62. Blastula, gastrula 2
- 63. Phylum, division 3
- 64. T cells, antibodies 4
- 65. Protozoa, algae 5
- 66. Urea, uric acid 6
- 67. fruiting bodies, mycelium 7
- 68. Monocots, taproots 8
- 69. Mold, yeasts 9
- 70. Arachnida, insecta 10
- 71. Pollen, anther 11
- 72. Chordates, vertebrates 1
- 73. Parenchyma, collenchyma 2
- 74. Water vascular system, tube feet 3
- 75. Oparin-Haldane, Miller-Urey 4
- 76. Style, filament 5

- 77. Allantois, amnion 6
- 78. Xylem, companion cells 7
- 79. Threshold potential, action potential 8
- 80. Monotremes, marsupials 9
- 81. Apical dominance, terminal bud 10
- 82. Hormones, target cells 11
- 83. Transpiration, photosynthesis 1
- 84. Cloaca, urethra 2
- 85. Apoplast, Casparian strip 3
- 86. Stomata, guard cells 4
- 87. Parthenogenesis, regeneration 5
- 88. Mycorrhizae, lichens 6
- 89. Spermatogenesis, oogenesis 7
- 90. Sarcomere, tropomyosin 8