

## AP Bio Summer Work

### *PART 1: Vocabulary*

Research the definitions of the following terms from Unit 1. These must be **HANDWRITTEN** on index cards (Writing it out helps you remember more than typing!). You will be quizzed on these terms during the first week of school. The course will move **VERY** quickly starting on the very first day, so don't procrastinate or you will fall behind!

1. Adhesion	19. Double helix	37. London dispersion force	55. Pyrimidine
2. Amino (N) terminus	20. Electronegativity	38. Macromolecule	56. Ribonucleic acid (RNA)
3. Amino acid	21. Fatty acid	39. Monomer	57. Saturated fat
4. Anion	22. Functional group	40. Monosaccharide	58. Soluble
5. Antiparallel	23. Gene	41. Nitrogenous bases (5)	59. Solute
6. Carbohydrate	24. Glucose	42. Nonpolar	60. Solution
7. Carboxyl (C) terminus	25. Glycogen	43. Nucleic acid	61. Solvent
8. Cation	26. Glycosidic linkage	44. Nucleotide	62. Specific heat capacity
9. Cellulose	27. Heat of vaporization	45. Organic molecule	63. Starch
10. Central Dogma	28. Hydrocarbon	46. Peptide bond	64. Stereoisomer
11. Chitin	29. Hydrogen bond	47. Phosphodiester linkage	65. Structural isomer
12. Chromosome	30. Hydrolysis	48. Polar	66. Surface tension
13. Codon	31. Hydrophilic	49. Polymer	67. Synthesis
14. Cohesion	32. Hydrophobic	50. Polypeptide	68. Triglyceride
15. Covalent bond	33. Ion	51. Polysaccharide	69. Unsaturated fat
16. Dehydration synthesis	34. Ionic bond	52. Primary protein structure	70. Van der Waals forces
17. Density	35. Isomer	53. Protein	
18. Deoxyribonucleic acid (DNA)	36. Lipid	54. Purine	

*A few great resources options you could use while researching definitions:*

-[Khan Academy AP Bio Unit 1: Chemistry of Life](#) (Unit One videos, summaries, etc.)

-[Prentice Hall Biology Glossary](#) (Online glossary including some common biological terms)

-Any other reliable academic source (For example, a random Quizlet is probably not the safest option)

***PART 2: Science Practices***

This course requires both memorization and application of various biological concepts. There are six skills, or “Science Practices” that you must master for concepts covered throughout the year. Complete the following questions to practice each “Science Practice” below:

**Science Practice 1: Concept Explanation**

Choose any biological process you have learned throughout your previous high school coursework. Describe the overall process, identify the roles of each key component, and explain the outcome of this process. There is no length requirement. Rather, focus on giving a detailed explanation of how this process works.

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**Science Practice 2: Visual Representations**

Using the same process you described above, create a detailed concept map to help visualize the relationship between different components. This could be a diagram of a structure or process, map, flowchart, etc. If you need more space, you can staple an extra piece of paper to this one.

### Science Practice 3: Questions and Methods

Read the following scenario: A plant is placed in a room with varying light intensities. Over time, the plant's growth is measured.

1. Formulate a testable question based on the scenario.

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2. Develop a hypothesis related to this question.

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3. Identify the independent and dependent variables

Independent: \_\_\_\_\_

Dependent: \_\_\_\_\_

4. Describe your experiment procedure in detail.

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### Science Practice 4: Representing and Describing Data

Use the following data from the same experiment to construct a bar graph. Label each axis. Describe the relationship between light condition and plant growth. Predict if plant growth would increase or decrease if light intensity was further increased.

**Data:**

Light Condition	Height (cm)
Low	5
Medium	13
High	11

**Bar graph:**

Relationship between light condition and plant growth:

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Plant growth prediction:

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### Science Practice 5: Statistical Tests and Data Analysis

Analyze the following data:

pH level	Enzyme Activity (U/mL)
4	20
5	40
6	60
7	80
8	60

What is the mean enzyme activity? \_\_\_\_\_

Determine the standard deviation \_\_\_\_\_

$$\sigma = \sqrt{\frac{\sum (x - \text{mean})^2}{n}}$$

### Science Practice 6: Argumentation

Evaluate the following claim: "Increasing the pH of a solution will always increase enzyme activity in the same solution."

1. Assess the validity of the claim based on evidence shown in the previous question.

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2. Provide reasoning to support your assessment.

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