

# AP BIOLOGY

## SUMMER WORK

**Welcome to AP Biology! AP Biology is a rigorous course designed to be equivalent to a first year biology course at a university. This summer work was designed to get you started on the content material prior to starting the course in the fall. All work is due on the first day of class.**

### Part 1: Vocabulary Photo Journal

- 1) Choose 50 terms from the list below
- 2) Take digital photos using your phone or camera that represent each vocabulary term.
- 3) The pictures must be taken by you! In every picture you MUST have an item that you choose that is consistent (i.e. an index card with your name or an object that you can use in every picture...ring, pen, cell phone, etc.)
- 4) 1 picture can represent up to 3 vocabulary words
- 5) Pictures will be put in a power point presentation
- 6) Each slide will have the picture AND the vocabulary terms AND your reasoning for choosing the picture
- 7) \*\*\*\*If you do not have access to digital photography and computer, the project may be completed as a scrapbook using a disposable camera\*\*\*\*

#### Terms

1-Adaptation of Animal	36-Enzyme	71-Mychorrhizae
2-Adaptation of Plant	37-Epithelial Tissue	72-Protein
3-Actin	38-Ethylene	73-Nematode
4-Amniotic Egg	39-Eubacteria	74-Niche
5-Amylase	40-Eukaryote	75-Parasite
6-Angiosperm	41-Exoskeleton	76-Phloem
7-Animal with segmented body	42-Fermentation	77-Pollen
8-Annelid	43-Flower Ovary	78-Pollinator
9-Anther and Filament of Stamen	44-Frond	79-Porifera
10-Arthropod	45-Fruit-dry w/seed	80-Primary Succession
11-Secondary Succession	46-Fruit-fleshy w/seed	81-Prokaryote
12-Autotrophs	47-Gametophyte	82-Protostome
13-Population	48-Gastropod	83-R-strategist
14-Species	49-Genetically Modified	84-Radial Symmetry
15-Batesian Mimicry	50-Giberrellins	85-Rhizome
16-Biological Magnification	51-Glycogen	86-Spore
17-Bryotphyte	52-Gymnosperm Cone	87-Sporophyte
18-Clavin Cycle	53-Metamorphosis	88-Stem-herrbaceous
19-C4 Plant	54-Hermaphrodite	89-Stem-woody
20-Calvin Cycle	55-Insect	90-Stigma and style
21-Carbohydrate	56-K-Strategist	91-Tendril of plant

22-Cambium 23-Chitin 24-Cnidarian 25-Coelomate 26-Conifer Leaf 27-Commensalism 28-Connective Tissue 29-Cuticle Layer of Plant 30-Deciduous Leaf 31-Dicot Plant w/flower 32-Echinoderm 33-Ectotherm 34-Endosperm 35-Endotherm	57-Keratin 58-Bryophyte 59-Lichen 60-Lignin 61-Lipid 62-Long Day Plant 63-Meristem 64-Modified Leaf of Plant 65-Modified Root of Plant 66-Modified Stem of Plant 67-Monocot plant 68-Muscle Fiber 69-Mutualism 70-Mycelium	92-Thorn of plant 93-Unicellular organism 94-Vascular Plant tissue 95-Xylem
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## Part 2-Cell Analogy Project

### Introduction:

Cells need to carry on the same basic functions as we do to sustain life; the difference is cells do this with much smaller parts. These smaller structures that allow the cell to function are called organelles-tiny organs.

### Your Task:

You will come up with an analogy for the cell of your choice (plant or animal) and its organelles. Your analogy will be represented in the form of a poster that represents a cell and its organelles. You should compare the roles of 10 organelles to a part of the analogy.

### Ex. Cell City

The nucleus is the main control center of the cell. Therefore it is like the city hall where information, policy and governing are done to run the city.

The mitochondria of a cell are where energy is created. This would be the power plant for the city.

### The poster:

You should have a well-drawn or constructed picture of your analogy (i.e. if you were doing the city analogy you would have a picture of a city and each of the parts of your analogy) and short 2-3 sentence descriptions of each organelle function and analogy.

### **Organelles:**

Plasma membrane                  Nucleus                  Lysosome                  Ribosome  
Rough Endoplasmic Reticulum                  Smooth Endoplasmic Reticulum  
Golgi Apparatus                  Mitochondria                  Chloroplast                  Vacuole  
Extra Credit-cell wall, cytoplasm, nucleolus, cilia and or flagella

## **Part 3-The Big Ideas**

The AP Biology curriculum is centered around 4 big ideas. You must find one current event article for each big idea.

**Big Idea 1-The process of evolution drives the diversity and unity of life.**

**Big Idea 2-Biological Systems utilize free energy and molecular building blocks to grow, to reproduce and to maintain dynamic homeostasis.**

**Big Idea 3-Living Systems store, retrieve, transmit, and respond to information essential to life processes.**

**Big Idea 4-Biological Systems interact, and these systems and their interactions possess complex properties.**

Articles can be taken from journals, magazines or the internet. All sources must be current (within last 2-3 years).

### **For each article:**

a-You must have a copy of the article to turn in with summary

b-Summarize each article

c-Explain why you feel it fits with one of the Big Ideas.

## RUBRIC FOR AP BIOLOGY SUMMER ASSIGNMENT

### Part 1: Vocabulary Photo Journal

<b>CATEGORY</b>	<b>3</b>	<b>2</b>	<b>1</b>	<b>0</b>
<b>Title on Slide</b>	<b>Relevant title on each slide</b>	<b>Relevant title on most slides</b>	<b>Relevant title on some slides</b>	<b>Title on slides are not related to vocabulary</b>
<b>Photo Source</b>	<b>Each photo has personal identification symbol</b>	<b>Most photos have personal identification symbol</b>	<b>Some photos have personal identification symbol</b>	<b>Photos do not have personal identification symbol</b>
<b>Vocabulary words identified and related to picture</b>	<b>All (50) vocabulary words are identified and relate to the picture</b>	<b>Most (26-49) vocabulary words are identified and mostly relate to the picture</b>	<b>Some (1-25) vocabulary words are identified with some relation to picture</b>	<b>Vocabulary words are not related to picture</b>
<b>Appearance</b>	<b>Title slide with name, assignment on it, organized, logical order, easy to follow</b>	<b>Title slide with name, assignment on it, mostly organized, some logical order, mostly easy to follow</b>	<b>Title slide with name, assignment incomplete, little organization, little order, difficult to follow</b>	<b>Title slide with name, assignment absent, no organization, no logical order, difficult to follow</b>

Total: \_\_\_\_/12

Part 3: The Big Ideas

CATEGORY	3	2	1	0
Article selection	All articles are current (within last 2-3 years) and turned in with assignment	Most articles are current (within last 2-3 years) and turned in with assignment	Some articles are current (within last 2-3 years), not turned in with assignment	Articles are absent or not current
Sources	All Sources are from a reputable site (.gov, .org, .edu preferred)	Most sources are from a reputable site (.gov, .org, .edu preferred)	Some sources are from a reputable site (.gov, .org, .edu preferred)	No sources are from reputable site (.gov, .org, edu)
Summary	Concise, accurate summary	Mostly concise, accurate summary	Somewhat concise, accurate summary	Absent or inaccurate
Big Ideas	ALL articles clearly relates to Big Ideas	Most articles relate to Big Ideas	Some articles somewhat relate to Big Idea	Articles are absent or do not relate to Big Ideas

Total: \_\_\_\_/12

Assessment Summary

Section	Possible Points
1	/12
2	/12
3	/12
TOTAL	/36

**Part 2: Cell Analogy Project**

<b>CATEGORY</b>	<b>4*</b>	<b>3</b>	<b>2</b>	<b>1</b>	<b>0</b>
<b>Content</b>	<b>All extra credit organelles included in poster</b>	<b>All (10) assigned organelles are included in poster</b>	<b>Most (6-9) assigned organelles are included in poster</b>	<b>Some (1-5) assigned organelles are included in poster</b>	<b>Organelles are absent</b>
<b>Graphics</b>	<b>Graphics are directly related to the analogy and are clearly displayed on poster</b>	<b>Graphics are directly related to the analogy and are clearly displayed on poster</b>	<b>Graphics are mostly related to the analogy and are generally displayed clearly on the poster</b>	<b>Graphics are partially related to the analogy and are somewhat displayed clearly on the poster</b>	<b>Graphics absent or not related to analogy</b>
<b>Knowledge</b>	<b>Analogy is totally accurate with organelle's structure and function; short, accurate description included</b>	<b>Analogy is totally accurate with organelle's structure and function; short, accurate description included</b>	<b>Analogy is mostly accurate with organelle's structure and function; short, mostly accurate description included</b>	<b>Analogy is somewhat accurate with organelle's structure and function; partially accurate description</b>	<b>Analogy does not related with organelle's structure and function; description absent</b>
<b>Appearance</b>	<b>Poster is neat and easy to follow</b>	<b>Poster is neat and easy to follow</b>	<b>Poster is mostly neat and easy to follow</b>	<b>Poster is somewhat neat and relatively easy to follow</b>	<b>Poster is messy and difficult to follow</b>

\*Extra credit

Total: \_\_\_\_/12