



## 2018-2019 PreAP Biology Summer Work



Welcome to Pre-AP Biology!

Pre-AP Biology is an introductory science course taught to prepare students for the critical thinking and problem solving skills required in higher-level high school and college courses. We will study everything from the microscopic organelles of a cell to the complexity of living organisms! The summer assignment will introduce you to some of the topics that we will visit at the beginning of this year as well as develop some of the skills needed throughout your science courses.

The purpose of this assignment is to give students an opportunity to show that they are proactive and willing to put in the extra work and time into being enrolled in Pre-AP courses. What you get out of this class will be based solely on what you are willing to put into the class. The students who are most successful in this class and on the End of Course (EOC) exams are those students who are willing to work steadily throughout the summer, the school year and are willing to work independently. If you come to class eager to learn, focused and prepared, you will learn a great deal about Biology and have a good time in the process.

To complete this assignment, you may use ANY resources that you wish. However, make sure that you do not simply copy information from that source or from another student. Students with plagiarized or copied work from each other will ***automatically be denied entry into the Pre-AP course***. Feel free to contact me over the summer with ANY QUESTIONS about this assignment I will check my email periodically throughout the summer.

Make sure that you complete all four parts of the summer assignment. You may turn in your work to the front office of the High School or email it to me in a PDF form. If your assignment is incomplete or not turned in **by August 1<sup>st</sup>, 2018**, you will be removed from the Pre-AP Biology course. **DO NOT** wait until the end of summer to start working!

Biodynamically yours,

Mr. Fuchs

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## The Grade Breakdown (Grading Rubric) is as follows

### Daily Grade #1: 100 points total

#### Part 1. Prefix/Suffix Chart – 50 points

1 point for Meaning & 1 point for Example

|                              |           |
|------------------------------|-----------|
| - 30 Prefix @ 2 points each: | 30 points |
| - 20 Suffix @ 2 points each: | 20 points |
| Total =                      | 50 points |

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#### Part 2. Studying – 50 points

|                                     |           |
|-------------------------------------|-----------|
| - 9 studying/note-taking techniques | 45 points |
| - Sources for each technique        | 5 points  |
| Total =                             | 50 points |

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### Daily Grade #2: 100 points total

#### Part 3. Climate Graphing – 50 points

|                                      |           |
|--------------------------------------|-----------|
| - City Choice                        | 5 points  |
| - Data Chart (5 points each)         | 15 points |
| - Graphs (5 points each)             | 15 points |
| - Graph descriptions (5 points each) | 15 points |
| Total =                              | 50 points |

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#### Part. 4 Hypothesis & Variable Statements – 100 points

5 Statements @ 10 points each

|                                 |           |
|---------------------------------|-----------|
| - Testable scientific question: | 3 points  |
| - Hypothesis:                   | 3 points  |
| - Independent Variable:         | 2 points  |
| - Dependent Variable:           | 2 points  |
| Total =                         | 10 points |

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### Major Grade #1: You will have a test over the Prefix/Suffix chart and Hypothesis/Variable Statements during the first week of school.

#### PreAP Biology Supply List

- 1 spiral notebook (100 pages or more)
- 1" or 1 ½" binder or folder (your choice)
- Notebook paper
- Pencils
- Pens (blue or black)

Name: \_\_\_\_\_

### Part 1: Biology Prefixes and Suffixes

Learning science vocabulary can feel like learning a different language, mainly because it is! The roots of most of these words are either Latin or Greek. Look up the meaning of each prefix and suffix below and give one example.

| <b>Prefix</b>  | <b>Meaning</b> | <b>Example Using Prefix/Suffix</b> |
|----------------|----------------|------------------------------------|
| <b>Ab-</b>     | Away, from     | abnormal                           |
| <b>Anti-</b>   |                |                                    |
| <b>Auto-</b>   |                |                                    |
| <b>Bi-</b>     |                |                                    |
| <b>Cyto-</b>   |                |                                    |
| <b>Di-</b>     |                |                                    |
| <b>Macro-</b>  |                |                                    |
| <b>Meta-</b>   |                |                                    |
| <b>Micro-</b>  |                |                                    |
| <b>Mono-</b>   |                |                                    |
| <b>Hemi-</b>   |                |                                    |
| <b>Hetero-</b> |                |                                    |
| <b>Homo-</b>   |                |                                    |
| <b>Hydro-</b>  |                |                                    |
| <b>Hyper-</b>  |                |                                    |
| <b>Hypo-</b>   |                |                                    |
| <b>Inter-</b>  |                |                                    |
| <b>Intra-</b>  |                |                                    |
| <b>Iso-</b>    |                |                                    |
| <b>Neuro-</b>  |                |                                    |
| <b>Path-</b>   |                |                                    |
| <b>Poly-</b>   |                |                                    |
| <b>Photo-</b>  |                |                                    |
| <b>Pseudo-</b> |                |                                    |
| <b>Sub-</b>    |                |                                    |
| <b>Therm-</b>  |                |                                    |
| <b>Trans-</b>  |                |                                    |
| <b>Tri-</b>    |                |                                    |
| <b>Un-</b>     |                |                                    |
| <b>Zoo-</b>    |                |                                    |

| <b>Suffix</b> | <b>Meaning</b> | <b>Example Using Prefix/Suffix</b> |
|---------------|----------------|------------------------------------|
| -asis         |                |                                    |
| -blast        |                |                                    |
| -emia         |                |                                    |
| -genic        |                |                                    |
| -gram         |                |                                    |
| -graph        |                |                                    |
| -ism          |                |                                    |
| -ist          |                |                                    |
| -itis         |                |                                    |
| -kinesis      |                |                                    |
| -lysis        |                |                                    |
| -meter        |                |                                    |
| -oma          |                |                                    |
| -osis         |                |                                    |
| -otomy        |                |                                    |
| -ous          |                |                                    |
| -phyll        |                |                                    |
| -philic       |                |                                    |
| -phobic       |                |                                    |
| -scope        |                |                                    |

Name: \_\_\_\_\_

## Part 2: Studying

As a Pre-AP Biology student, your success will depend on your ability to actively engage in the information before, during, and after class. There are a lot of note-taking and studying strategies that you can utilize to help you learn and retain the information. Not all students learn and study the same, so it's important for you to figure out which strategies work best for you.

**Task:** Read and summarize at least three note taking or studying strategies that can be done before, during, and after class. Include the educational institution that recommends this strategy.

### Before class I can prepare by...

| Technique/Strategy | Education Institution |
|--------------------|-----------------------|
| 1.                 |                       |
| 2.                 |                       |
| 3.                 |                       |

### During class I can...

| Technique/Strategy | Education Institution |
|--------------------|-----------------------|
| 1.                 |                       |
| 2.                 |                       |
| 3.                 |                       |

### After class on a nightly basis I can...

| Technique/Strategy | Education Institution |
|--------------------|-----------------------|
| 1.                 |                       |
| 2.                 |                       |
| 3.                 |                       |

Name: \_\_\_\_\_

### Part 3: Climate Graphing Practice

You are responsible for completing a weather study for a city somewhere in the United States. The following is to be included in your study:

#### 1. Data Chart

- Complete a weather data chart that includes 10 consecutive days of weather data for your selected city for 2016, 2017, and 2018. **Pick a city that starts with the first letter of your first name.** The chart should include the following information:
  - Temperature—maximum, minimum, and mean (average)
  - Precipitation
  - Humidity
  - Pressure
  - Wind (speed and direction)

#### 2. Graphs (3)

- Create three graphs based on the weather data that was collected in your data chart. Make sure that you use color in each of your graphs and that your graphs are labeled correctly (X and Y axis should be labeled, there should be a title and a key to show what each color represents).
  - i. Create a line graph showing the daily mean (average) temperatures. All three years of information should be on the same graph with each year being a different colored line. Based on the trends for the three years, add an additional colored line to represent what you predict for 2019.
  - ii. Create two more graphs showing a different set of data other than temperature. \*For example, one graph could represent humidity and the other represents wind speed. Make sure you look up what type of data each graph is used to represent.



For each graph, you must write 3 sentences describing what you notice when you look at the graph. What 'trends' do you notice when you look at the graph? Where do you notice significant changes in the graph? Is there something on the graph that really stands out or surprises you?







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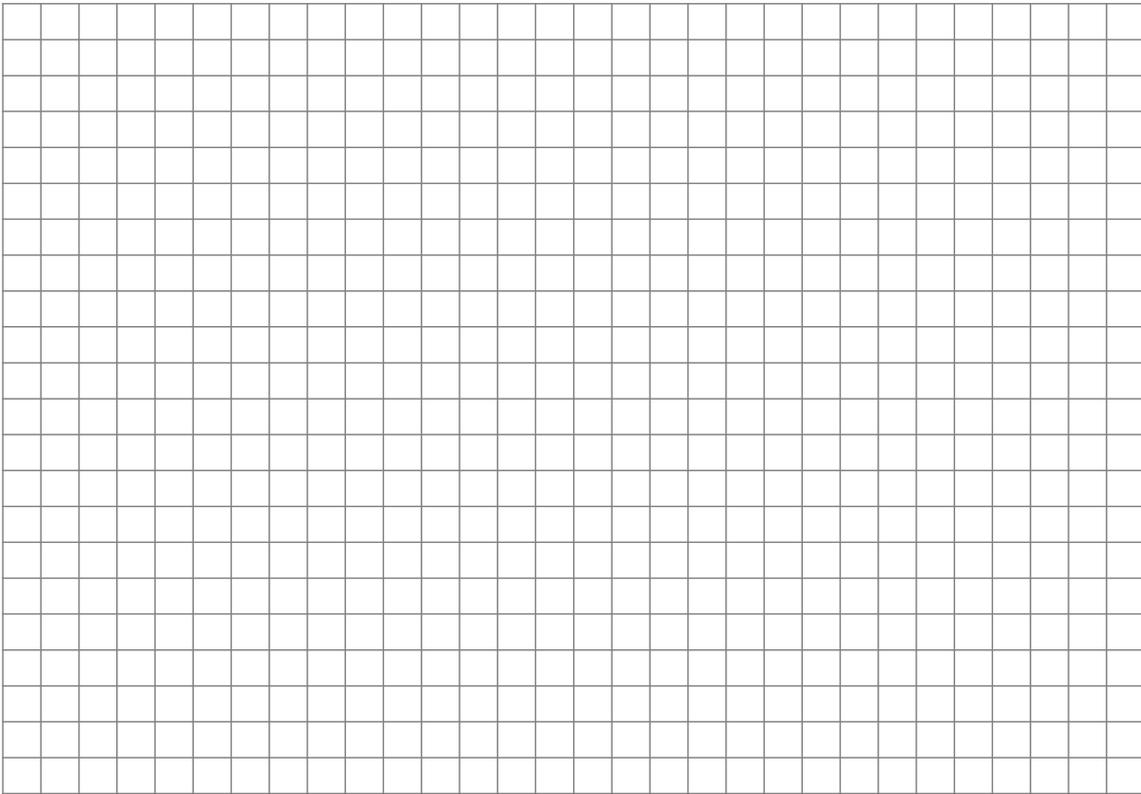
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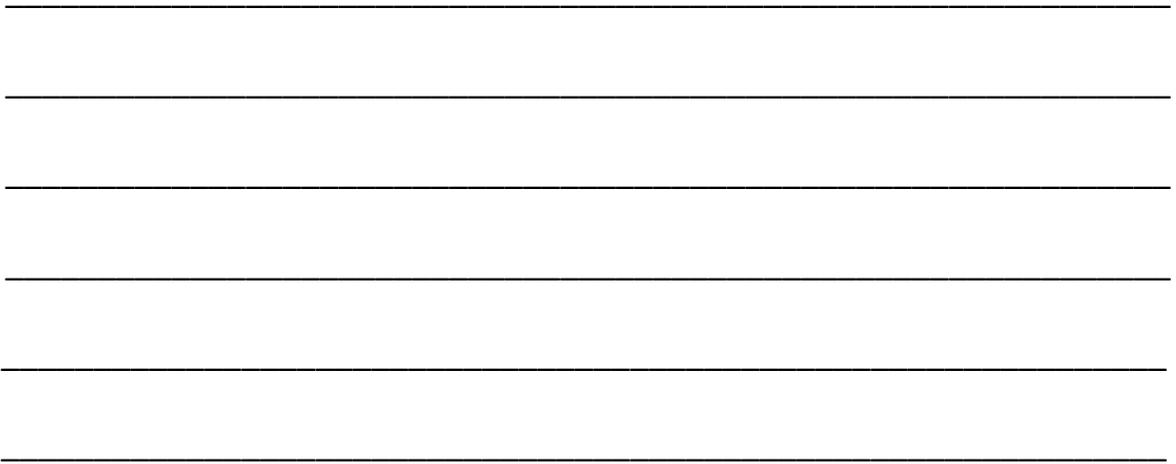
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## Part 4: Hypothesis & Variable Statements

A hypothesis is usually written a particular way. Hypotheses are written as an “If this, then that” statement. In the following statements, create a hypothesis and identify the independent variable and then the dependent variable.

Make sure you take some time to think about a scientific question that you are interested in, can research, and can complete an experiment to answer.

Independent Variable: The variable being changed by the experimenter. (What you are manipulating)

Dependent Variable: The variable that changes in response to the independent variable. (What you are measuring)

**Example:**

Question: Will loud music affect the height of corn plants?

Hypothesis: If the volume of music is increased, then the height of the corn plants will decrease.

Independent Variable: Volume of music

Dependent Variable: Height of corn plants

1. **Question:** \_\_\_\_\_

a. Hypothesis: \_\_\_\_\_

b. Independent Variable: \_\_\_\_\_

c. Dependent Variable: \_\_\_\_\_

2. **Question:** \_\_\_\_\_

a. Hypothesis: \_\_\_\_\_

b. Independent Variable: \_\_\_\_\_

c. Dependent Variable: \_\_\_\_\_

3. **Question:** \_\_\_\_\_

a. Hypothesis: \_\_\_\_\_

b. Independent Variable: \_\_\_\_\_

c. Dependent Variable: \_\_\_\_\_

4. **Question:** \_\_\_\_\_

a. Hypothesis: \_\_\_\_\_

b. Independent Variable: \_\_\_\_\_

c. Dependent Variable: \_\_\_\_\_

5. **Question:** \_\_\_\_\_

a. Hypothesis: \_\_\_\_\_

b. Independent Variable: \_\_\_\_\_

c. Dependent Variable: \_\_\_\_\_