

Name: _____

AP Biology Summer Work 2023-2024

Begin your study of biology this year by reading Chapter 1 in the textbook. Then complete the **Ch. 1 Introduction** and the **graphing practice**. This will serve as a review and introduction of biological concepts and skills that we will study this year.

Chapter 1: Introduction: Themes in the Study of Life

1. What are emergent properties? Explain two examples.

2. Define the following terms:

- Eukaryotic cell-
- Prokaryotic cell-
- DNA-

- Genes-
 - Genome-

 - Negative feedback-
Give an example:

 - Positive feedback-
Give an example:
3. Study figure 1.14 on p. 12.
 - Which level contains the greatest diversity of organisms?
 - Which level contains the least diversity of organisms?
 - Write the levels of organization in order from the most inclusive group to the smallest, most specific group.
 4. What are two main points that were conveyed in Darwin's *The Origin of Species*?
 5. What is data? Distinguish between quantitative and qualitative data.

 6. How do scientists define hypothesis?

7. Look at figure 1.24 on p. 19. Write a hypothesis using the “If...., then.....” format.
8. What is a controlled experiment?
9. What is a scientific theory? List three ways a theory is different from a hypothesis.



Graphing and Analyzing Scientific Data

Graphing is an important procedure used by scientists to display the data that is collected during a controlled experiment. There are three main types of graphs:

Pie/circle graphs: Used to show parts of a whole.

Bar graphs: Used to compare amounts.

Line graphs: Use to show the change of one piece of information as it relates to another change.



Both bar and line graphs have an “X” axis (horizontal) and a “Y” axis (vertical).

Parts of a Graph:

Title: Summarizes information being represented in ANY graph.

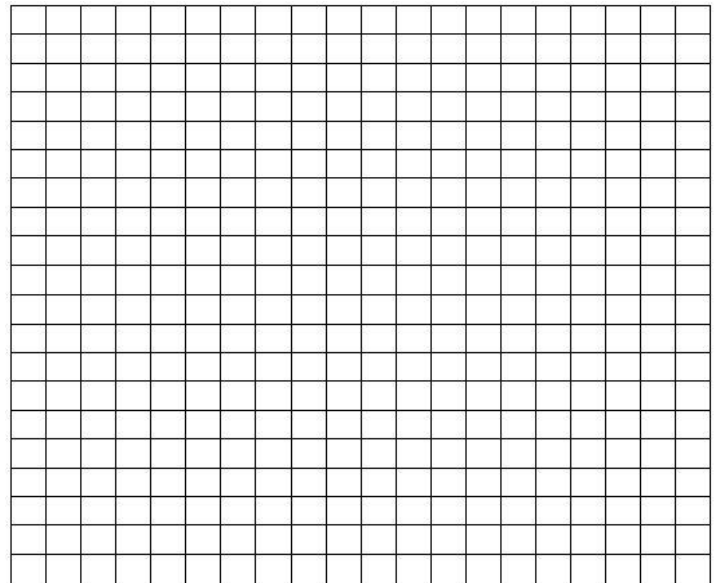
Independent Variable: The variable that is controlled by the experimenter, such as, time, dates, depth, and temperature. This is placed on the X axis.

Dependent Variable: The variable that is directly affected by the I.V. It is the result of what happens as time, dates, depth, and temperature are changed. This is placed on the Y axis.

Scales for each Variable: In constructing a graph, one needs to know where to plot the points representing the data. To do this a scale must be employed to include all the data points.

A. Graph the following information in a **BAR graph**. Label and number the x and y-axis appropriately.

Month	# of deer
Sept	38
Oct	32
Nov	26
Dec	20
Jan	15
Feb	12



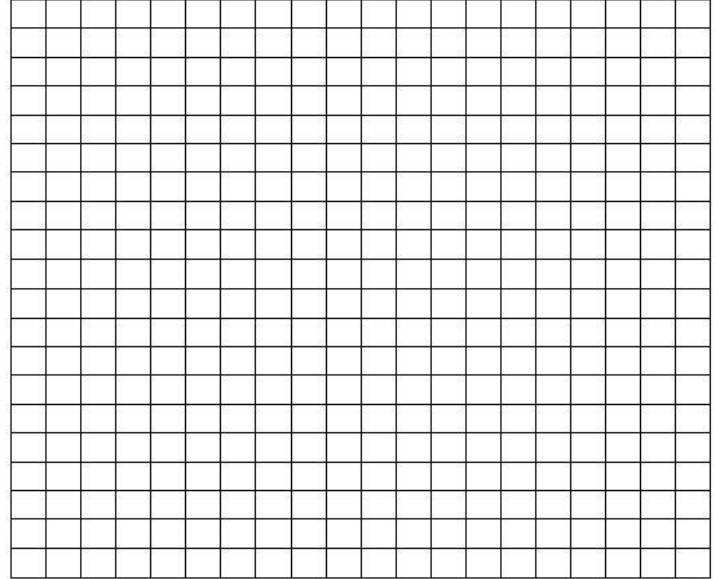
1. What is the independent variable? _____

2. What is the dependent variable? _____

3. What is an appropriate title? _____

B. Graph the following information in a **LINE graph**. Label and number the x and y-axis appropriately.

# of Days	# of Bacteria
1	4
2	16
3	40
4	80
5	100
6	200



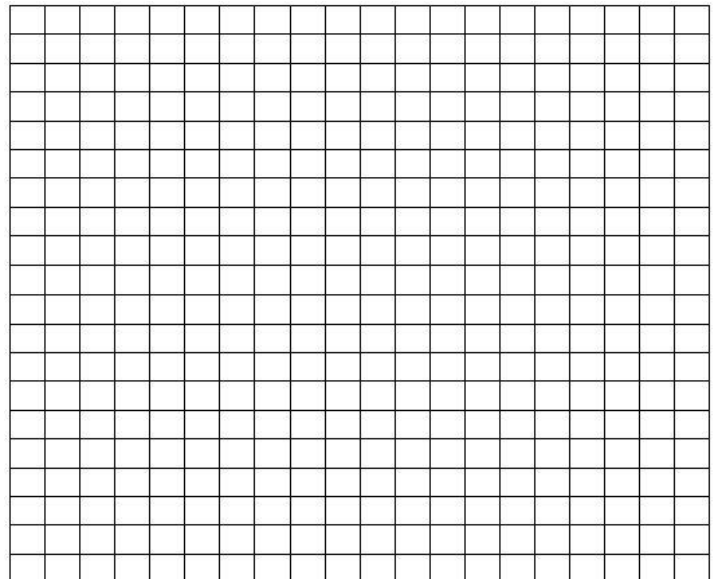
1. What is the independent variable? _____

2. What is the dependent variable? _____

3. What is an appropriate title? _____

C. Graph the following information in a **BAR graph**. Label and number the x and y-axis appropriately.

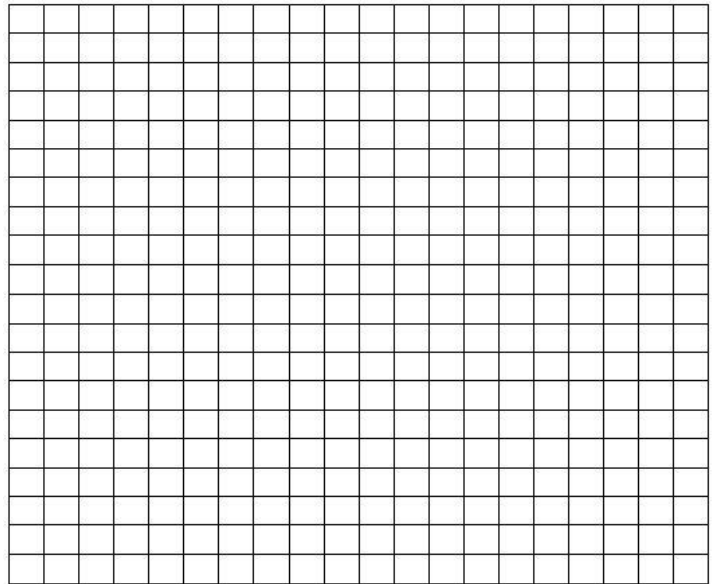
# of Hours of Study	Grade
0	20
2	60
4	70
6	80
8	90
10	100



1. What is the independent variable? _____
2. What is the dependent variable? _____
3. What is an appropriate title? _____

D. Graph the following information in a **LINE graph**. Label and number the x and y-axis appropriately.

Temperature	Enzyme Activity
0	0
20	10
30	15
40	20
50	8
60	5
70	0



1. What is the independent variable? _____

2. What is the dependent variable? _____

3. What is an appropriate title? _____