Unit 1 : Studying Biology

Daily Warm Up

The very first thing that you will do every day when you walk into class is a science warm up. This will usually be a question that will either get you thinking about what we will be learning that day or will help you think about what we learned during the day before. You should first try to answer the question from your own memory and using your own thoughts but, if you are having difficulty, you may look for the answer outside the class (book, internet, etc).

At the end of the week you will hand them in. *This booklet will be glued into your BILL on test day*. You can change your answers at any time prior to when it is graded (in fact, it is **encouraged!** Learning is a process). If you ever miss a day, it is your responsibility to make-up the warm ups for the day you missed.

Warm Up questions are worth 4 points each. I will be looking for any misconceptions you might have, how thoroughly you answer a question, how much you used resources available to you, and even how well a particular Warm Up question is constructed.

Scoring Rubric:

Score			
4	**3**	**2**	**1**
Excellent	**Good**	**Fair**	**Poor**
Correct Answer : Student answers the Warm Up question correctly and completely. Student incorporates information from the text, research, or class notes into the answer.	*Incomplete Answer* : Student shows some accurate prior knowledge and may use correct terminology to answer the Warm Up question. Student does not use appropriate information from the text or lecture notes to answer the question.	*Incorrect Answer* : Student tries to answer the Warm Up question but shows minimal accurate previous knowledge to assist in answering. Student shows significant misconceptions about concepts. Student does not use any information from the text or lecture notes to answer the question.	*No Attempt* : Student says s/he does not know how to answer the Warm Up question.

Date _____

Concept Covered: Characteristics of Life

1. L E C L S — The basic unit of all life. _____
2. A B M S M L O E T I — Obtain and use material and energy. _____
3. U E N L T V I O O — As a group, organisms change over time.. _____
4. O H R W T G — Increase in size and cell number. _____
5. A N D — Universal genetic code passed to offspring. _____
6. S S E E R O N P — A stimulus causes this change. _____
7. E O H SO S S A M T I — Maintain a stable internal environment. _____

Date _____

Concept Covered: Characteristics of Life – Asexual Reproduction

Abraham Trembly could not believe his own results! In 1744, he cut a few cells from the animal he'd been studying. From those cells, he grew a whole new animal. He repeatedly cut sections from other specimens of this organism, and each regenerated a whole new specimen. Word of the discovery caused a sensation, not only among scientists but also philosophers, literary figures, and ordinary people. The organism's ability to redevelop from a few cells focused attention on the hydra.

- Name at least one other organism that can reproduce by dividing. _____
- How is this an evolutionary advantage? _____

  _____
- How could this be a disadvantage? _____

_____

Date _____

Concept Covered: Characteristics of Life - Evolution

Some dried moss had been in storage for 120 years in a museum. Yet when researchers dampened it, tardigrades, the tiny “water bears” that had once lived upon it, lived again!
Tardigrades can slow down their metabolism for long periods, in a process even more complex than hibernation. This process is called cryptobiosis, “hidden life”.

- *In the space below, explain how cryptobiosis is a useful evolutionary adaptation for the water bears.*

- *What organism very important to “bread-making” does something similar to the water bear?*

Date _____

Concept Covered: Taxonomy - Kingdoms

Classify each organism into its correct kingdom.

PR = Protista

B =Archaeabacteria or Eubacteria

PL = Plants

A = Animals

F = Fungi

1. E. coli

4. Paramecium

2. Mushrooms

5. Bread Mold

3. Puppy Dog

6. Oak Tree

Answers:

1. _____ 4. _____

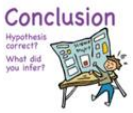
2. _____ 5._____

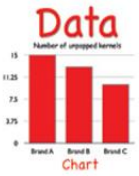
3. _____ 6. _____

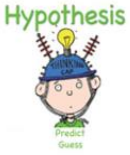
Date _____

Concept Covered: Scientific Method

Place the following events in order according to the Scientific Method.







Answers:

Number 1 is completed for you:

1. __make an observation_

2. _____

3. _____

4. _____

5. _____

6. _____

7. _____

Date _____

Concept Covered: Interpreting the Data

Breathing Rate of Fish at Different Temperatures	
Temperature (°C)	**Breathing Rate (per minute)**
10	**13**
15	**23**
20	**28**
25	**35**
30	**10**

1. What is the independent variable? _____
2. What is the dependent variable? _____
3. Where does the independent variable go on a graph? _____
4. Where does the dependent variable go on a graph? _____
5. What conclusion can be reached about this data? _____

_____

_____

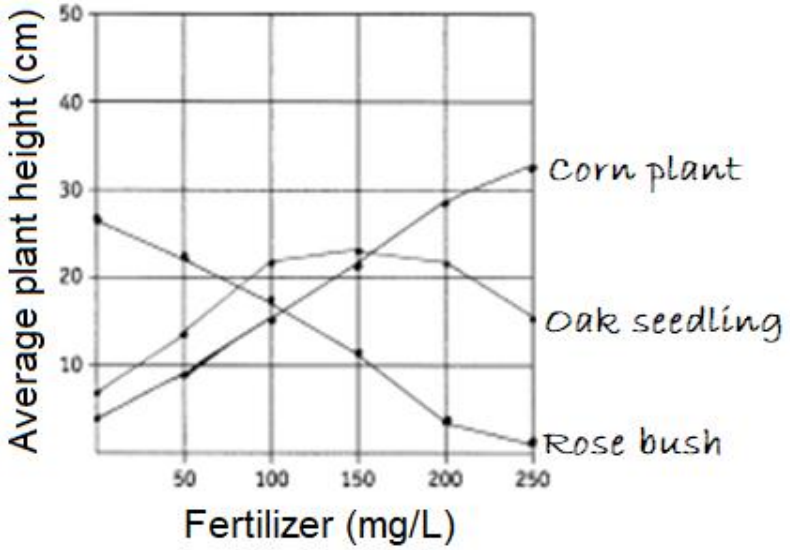
_____

_____

Date _____

Concept Covered: Graphing – Line Graphs

Directions: Study the graph below and answer the questions.



1. The fertilizer being tested is most effective on which plant?

   _____

2. What effect did the fertilizer have on the rose bush? _____

   _____

3. What concentration of fertilizer is best for the oak seedling?

   _____

4. What happened to the oak seedling when the concentration of fertilizer was too high? _____

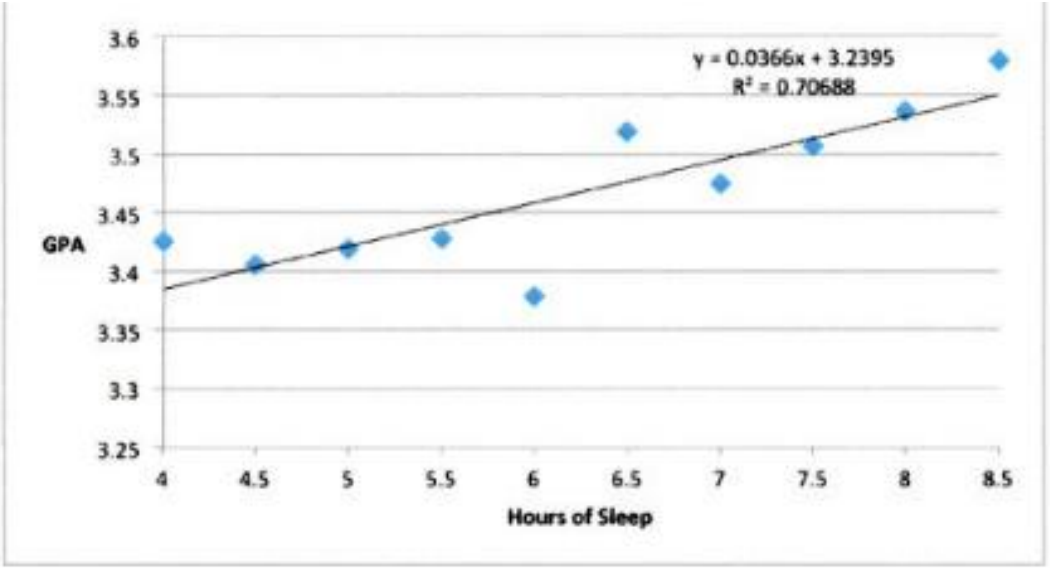
5. What was the average height of the corn plant when 100 mg/L of fertilizer was used? _____

6. The rose bush had an average height of 4 cm when treated with what concentration of fertilizer? _____

7. Predict the height of the corn plant if it had been treated with a 175 mg/L concentration of fertilizer. _____

Date _____

Concept Covered: Scatterplots



1. If this was your experiment, what would you write for the **title** to this graph?

   _____

2. What is the **independent** variable? _____
3. What is the **dependent** variable? _____
4. Name one variable you might have **controlled** amongst your participants in this study.

   _____

5. What **claim** could you make based on this data?

   _____

   _____

6. State two pieces of **evidence** that would support this claim.

   a) _____

   b) _____

7. If a participant only got 3.5 hours of sleep, what would you predict would be their GPA?

   _____

Date _____

Concept Covered: Data Analysis, T-Test

A research study was conducted to examine the differences between older and younger adults on perceived life satisfaction. A pilot study was conducted to examine this hypothesis. Ten older adults (over the age of 70) and ten younger adults (between 20 and 30) were give a life satisfaction test (known to have high reliability and validity). Scores on the measure range from 0 to 60 with high scores indicative of high life satisfaction; low scores indicative of low life satisfaction. The data are presented below. Calculate the mean value of each data set.

Older Adults	**Younger Adults**
45	34
38	22
52	15
48	27
25	37
39	41
51	24
46	19
55	26
46	36
Mean =	Mean =

1. What would be the null hypothesis in this study? _____

   _____

2. What would be the alternate/predicted hypothesis? _____

   _____

3. The t-test results in a p value of 0.000474. If we use a 95% confidence level (p=0.05), can the students **reject or fail to reject (accept)** their data. Explain _____

   _____

Date _____

Concept Covered: