

# Science Homework

SECTIONS 5A, B, C, D, & E

September 26-30, 2022

Day	Homework
Monday	•No School-Teacher Planning Day
Tuesday	•Pages 1-3 •Complete Topic 1a Review questions 1-11
Wednesday	•Page 4 •Complete Testable Question Exercise 1 and 2
Thursday	•Page 5 •Complete Hypothesis Exercise 1-2
Friday	• <b>Study for your Topic 1a Test, Tuesday, October 4th</b> •Review Topic 1a Quizlet •Review science notebook class notes (The Scientific Method Steps, Experimental or Investigational, Data Graphing, Observations, Inferences, Facts, and Opinions) •Review Testable Question and Hypothesis presentations

## Reminders

- Homework may be completed on the iPad using Good Notes or printed.
- **Homework 9/26-9/30 DUE MONDAY 10/3**
- **Topic 1a Test Tuesday, October 4<sup>th</sup>**
- **Study for Topic 1a Test**
- Check Archie, under *science resources* for Quizlet link and class notes/presentations.

## Science Vocabulary TOPIC 1a

Problem Statement  
Research  
Hypothesis  
Manipulated/Independent/Test Variable  
Responding/Dependent Variable  
Control Variable  
Control Group  
Materials  
Procedures  
Results  
Conclusion  
Application  
Abstract

**1. A scientist hypothesizes that the temperature at which an alligator's egg is incubated will determine whether the alligator will be male or female. The independent variable is:**

- A. the temperature
- B. the incubator
- C. the gender of the alligator
- D. the male alligators

**2. Which of the following experiments is MEASUREABLE**

- A. McDonald's is a good place to buy coffee
- B. McDonald's coffee cups keep coffee warmer for longer than Burger Kings
- C. McDonald's is dirty inside
- D. McDonald's coffee tastes good

**3. The scientific method is a process that involves following certain steps. Which of these steps would come first?**

- A. Ask a question
- B. Make a hypothesis
- C. Conduct an experiment
- D. Analyze data

**4. The statement "The worm is 4 centimeters long" is a (n)**

- A. observation
- B. theory
- C. inference
- D. hypothesis

**5. An inference is**

- A. The same as an observation
- B. A logical interpretation of an observation
- C. A statement involving numbers
- D. A way to avoid bias

6.

Experimental Plot (4m x 15m)	Wavelength (nm)	Wave intensity (Joules/m <sup>2</sup> )	Crop Yields (g/m <sup>2</sup> )
A	357.6	0	110
B	357.6	8	110
C	357.6	20	30
D	357.6	25	20

Which of these statements is best supported by these data?

- A. Wheat plants exposed to high-intensity ultraviolet light produce fewer seeds.
- B. . Chloroplasts of wheat are able to filter out low-intensity ultraviolet light.
- C. High-intensity ultraviolet light may be used to control weed growth.
- D. No exposure to ultraviolet light increases pollination in wheat plants.

7. A scientific theory is

- A. The same as a hypothesis
- B. A well tested explanation that unifies a broad range of observations
- C. The same as the conclusion of an experiment
- D. The first step in a controlled experiment

8. In 1859 a scientist designed an experiment by placing boiled broth in one flask and non-boiled broth in another flask. The scientist covered both flasks so that air could not enter the flasks and observed the flasks for two weeks. Neither flask grew any biological matter. From this the scientist concluded that spontaneous generation was an invalid theory. Select the best conclusion for the experiment

- A. The conclusion is an invalid conclusion because the scientist did not wait long enough for anaerobic cells to grow in the broth.
- B. The conclusion is an invalid conclusion because living objects often require air to grow regardless if their origin was spontaneous or not.
- C. Since no colonies of cells grew in either flask, the conclusion is a valid conclusion because cells can only grow from other cells.

9. A scientist conducted an experiment to determine how the amount of salt in a body of water affects the number of plants that can live in the water. In this experiment the dependent variable is:

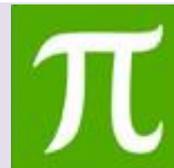
- A. the number of plants in the water
- B. the temperature of the water
- C. the water

10. When conducting an experiment, scientists usually follow the Scientific Method. Put the following steps in order:

Analyze Data
Experiment
Ask a question
Share Results
Draw Conclusions
Form a Hypothesis

11. 1) In an experiment, the \_\_\_\_\_ is the section that tells us the steps we need to take to run the experiment.

- A. Procedure
- B. Materials
- C. Hypothesis
- D. Data



## Testable Question

### Homework

#### Exercise 1 - Instructions:

Identify whether the following questions are testable or not, like in the examples below.

Examples:

- *What is the best time to do homework?* \_\_\_no, it is not testable\_\_\_
- *Does doing different exercises affect heart rate?* \_\_\_yes, it is testable\_\_\_

1. Does the type of surface affect how fast a caterpillar moves? \_\_\_\_\_
2. Does the brand of cat litter affect how often the cats will use it? \_\_\_\_\_
3. Which flowers are prettier, daisies or roses? \_\_\_\_\_

#### Exercise 2 - Instructions:

Write a Testable Questions, using the Variables given, like in the example below.

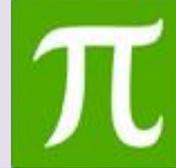
Example:

*Independent Variable (IV): different exercises*

*Dependent Variable (DV): heart rate*

*Testable Question: Does doing different exercises affect the heart rate?*

1. IV: height of a ramp  
DV: distance a car moves until it stops  
Testable Question: \_\_\_\_\_  
\_\_\_\_\_
2. IV: amount of sunlight  
DV: plant growth  
Testable Question: \_\_\_\_\_  
\_\_\_\_\_



## Hypothesis

### Homework

#### **Exercise - Instructions:**

Identify the Independent Variable (IV) and the Dependent Variable (DV) in the following Testable Questions. Then write the Hypothesis, based on the Rationale in the parenthesis, like in the examples below.

Example:

- Testable Question: Do different amounts of water, used to water bougainvillea, affect the plant's growth?  
(The plant bougainvillea needs little water to thrive)  
IV: different amounts of water  
DV: plant growth  
Hypothesis: If I water the bougainvillea with 50ml water every week, then the plant will grow bigger, as it will weigh more, than watering it with 200ml water, because bougainvillea needs little water to thrive.

1. Testable Question: Does feeding my cat three times, instead of twice per day, affect my cat's weight in three weeks?  
(The more calories the cats intake, the more weight they put.)

IV: \_\_\_\_\_

DV: \_\_\_\_\_

Hypothesis: \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

2. Testable Question: Does the number of Mentos dropped in 200ml diet coke affect how high the soda will explode?  
(The candy produces more and more carbon dioxide as it sinks in the soda.)

IV: \_\_\_\_\_

DV: \_\_\_\_\_

Hypothesis: \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_