

Monday

- Finish Topic 1a in Notebooks if needed
- Complete pg. 5 in HW Packet
- Read and complete graphic organizer pg. 7-9 in HW Packet

Tuesday

- Finish Topic 1a in Notebooks if needed
- Complete pg. 17-18 in HW Packet

Wednesday

- Finish Topic 1a in Notebooks if needed
- Complete pg. 15 in HW Packet

Thursday

- 1a Review Test



<https://forms.office.com/r/p44Zj909Yb>

[Click link or Scan QR Code:](#)

Sign into Microsoft using Dadeschools login

**NO HOMEWORK FRIDAY!!
ENJOY YOUR WEEKEND :)**

Reminders

- Topic 1a Test Monday 9/16
- HW Packet due 9/15 at 11:59pm
- Cut and Paste Notebook Cutouts before class on 9/18
- Open House 9/17, 6-8pm
- Topic 1a Notebook check 9/16

Topic 1a Vocabulary Quizlet



Assignment Instructions: Read the following Controlled Experiment Scenarios. Identify the Independent Variable (**IV**), Dependent Variable (**DV**), Constant Variables (**CV**) (at least 2) and Control Group (**CG**). Form the Testable Question (**TQ**) and the Hypothesis (**HP**) (**find the Rationale in the scenarios: What did the experimenters think...?**).

A student investigated whether ants dig more tunnels in the light or in the dark. She thought that ants used the filtered light that penetrated the upper layers of earth and would dig more tunnels during the daytime. Ten ant colonies were set up in commercial ant farms with the same number and type of ants per ant farm. The same amount of food was given to each colony, and the colonies were in the same temperature. Five of the colonies were exposed to normal room light and five were covered with black construction paper so they did not receive light. Every other day for three weeks the length of the tunnels was measured in millimeter using a string and a ruler. Averages for the light and dark groups for each measured were then computed. The averages are listed in the following chart.

- **IV:**

- **DV:**

- **CV:**

- **CG:**

- **TQ:**

- **HP:**

TYPES OF SCIENTIFIC INVESTIGATIONS

Scientific investigations are planned attempts to test predictions, verify results, and explain natural phenomena. There are several different methods of making scientific investigations. Among the most common are carrying out controlled experiments, making models or simulations of a system, observing the natural world, and conducting field studies.

A Controlled Experiment is an investigation that must have an identified **control group and an experimental group**. The two testable groups must have values that are kept the same for each except for the variable being tested (independent variable). An example of a controlled experiment is, *"How does the color black affect heat absorption?"*

The control group is the part of the experiment that remains the same to be used compared to the independent variable. The control is the variable that is usually the "normal" outcome as it compares to the outcome being explored in the independent variable(s). In the example: *"How does the color black affect heat absorption?"* If our experiment used aluminum cans to measure heat absorption, the unpainted aluminum cans would be the control group.

The experimental group includes the variables in the experiment. The **independent variable (manipulated variable)** is the variable that is changed on purpose. For example, the aluminum cans in this experiment must be painted black to test their effects on heat absorption.

The key to any controlled experiment is that the **controlled variables (constant variables)** be kept the same during the experiment. Controlling the variables ensures that any change that occurs is only because of the independent variable. The controlled variables are to be kept the same for both the control and the independent groups. Examples of the controlled variables in the aluminum can experiment include the same sized cans, the same heating source, the same thermometer, etc.

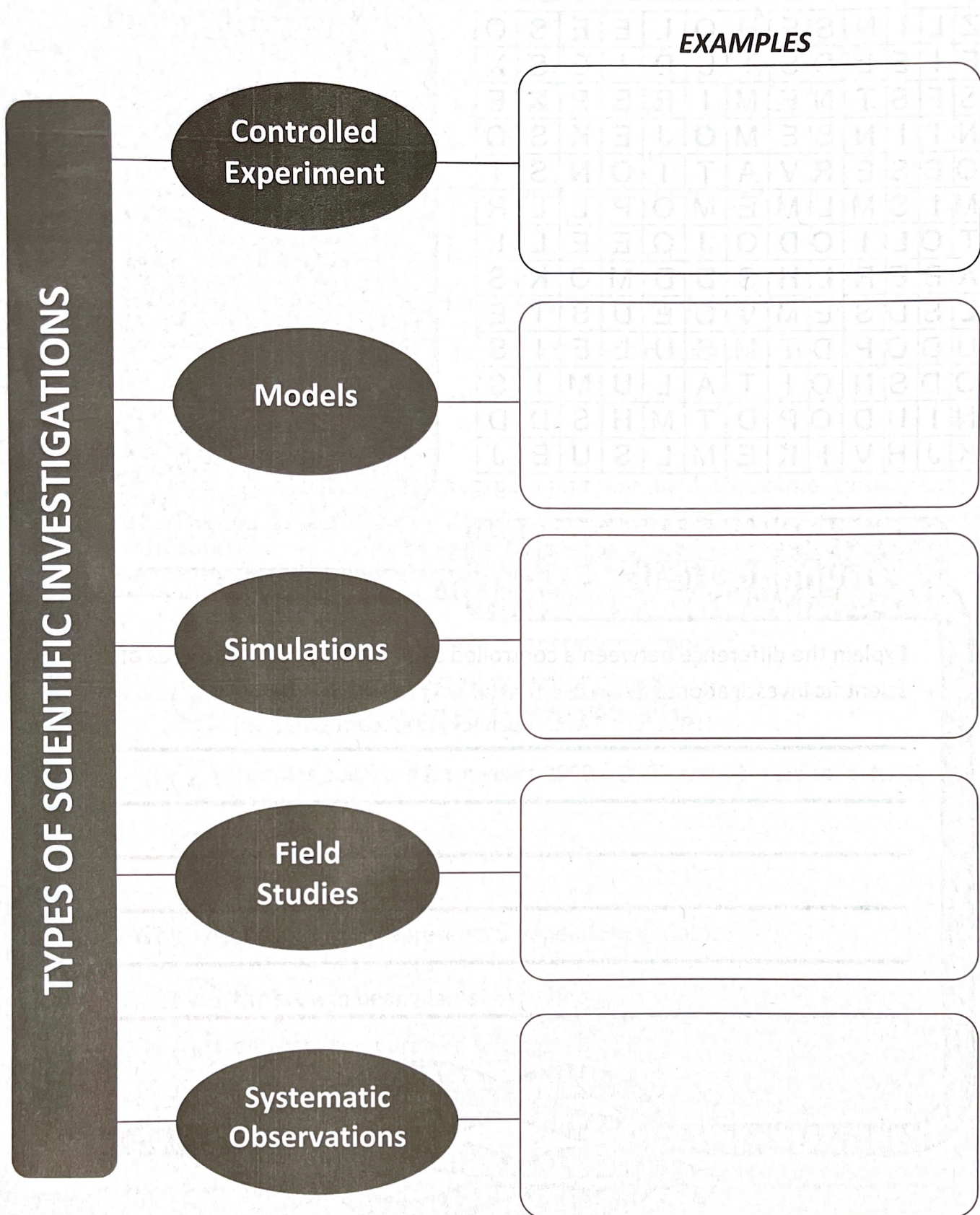
The dependent variable is the variable being measured in your experiment. This variable will change based on the independent variable. In the above example, the dependent variable would be the amount of heat absorbed by the cans.

Making Models or Simulations of Systems is a method of investigation carried out when it is necessary to understand something too vast, too minute, or too dangerous to explore. A **model** is a representation of an arrangement of some object or event in the real world. For example, it is very common to make models of the solar system to compare sizes, distances, and/or movements from one point to another. **Simulations** are another popular means of studying systems. A simulation is an imitation of the functioning of a system or a process. An example is a computer simulation used to predict weather patterns.

Performing Field Studies is a method of investigation for studying plants and animals in their natural habitat. This form of observation takes place without altering or harming the organism being investigated. An example of a field study is the seasonal study of birds' migration using just a log book, binoculars, and bird books.

Systematic Observations made of the natural world require descriptive details of events in nature. Specific facts are noted, including the amounts, the sizes, the colors, and other relative details and measurements. An example of systemic observations is observing and taking note of how the phases of the moon change in the night sky over the course of the month.

Graphic Organizer



PRACTICE QUESTIONS

SC.5.N.1.3/SC.5.N.2.2

- 1 Daniel learned that many ants feed on certain sweet liquids left behind by other insects called honeydew. Daniel decides to investigate ant food further by conducting an experiment to see if ants are more attracted to honey than sugar. The results of Daniel's findings are listed below.

Experiments	Ants in the Sugar Container	Ants in the Honey Container	Ants in the Surrounding Area
Trial 1	8	14	2
Trial 2	6	16	1
Trial 3	6	16	3

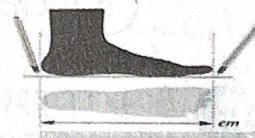
Which statement is the **best** conclusion to draw from Daniel's recorded results?

- (A) The ants are more attracted to sugar.
 (B) The ants are more attracted to honey.
 (C) The ants are not attracted to sugar or honey.
 (D) The ants equally like sugar and honey.

2

Marc's Birthday	Age	Shoe Size
January 9, 2003	9	3
January 9, 2004	10	4
January 9, 2005	11	5
January 9, 2006	12	6
January 9, 2007	13	7
January 9, 2008	14	6
January 9, 2009	15	9

Marc's mother noticed that his feet seemed to be growing at one shoe size per year. So, out of curiosity, she decided to record his shoe size each year on his birthday.



What mistake did Marc's mother most likely make in her measurements?

- (A) She measured his feet twice per year.
 (B) She made inaccurate measurements in the year 2007.
 (C) She made inaccurate measurements in the year 2008.
 (D) She stopped measuring her son in 2009.

PRACTICE QUESTIONS

SC.5.N.1.3/SC.5.N.2.2

3

Chloe wants to know if caterpillars prefer eating decaying old leaves or new leaves just picked from the tree. She takes some cuttings of a plant and combines one set with new leaves and another set with old leaves. She then places the cuttings of the plant, combined with leaves, on opposite sides of a bed of soil. The caterpillars she has collected are placed in the middle of the soil bed, an equal distance from both sets of cuttings.

In order to record the results, what should Chloe do next?

- ☐ A Research which type of food caterpillars prefer.
- ☐ B Repeat the experiment with worms or bugs.
- ☐ C Record the number of caterpillars that remain somewhere in the soil.
- ☐ D Count and record the number of caterpillars that feed off of each set.

4

The science lab for the week was to investigate the effect of color on heat absorption. The class decided to compare heat absorption using the color black as compared to the color white. The results of four of the five lab groups indicated that more heat is absorbed by the color black.

What should the lab groups do to determine why one group got different results?

- ☐ A All groups should immediately try the experiment again.
- ☐ B Compare the procedures of the one group to the other four groups.
- ☐ C The group that concluded that white colors absorb deserve a failing grade.
- ☐ D Change the data of the group that had different findings to match the others.

5

Anaya created an experiment to see if apple cider vinegar, when added to baking soda, releases more gas bubbles than when added to white vinegar. Which statement **best** describes why Anaya should write down her experimental procedure?

- ☐ A The information will show other experimenters that baking soda causes too many gas bubbles.
- ☐ B The result will help consumers decide which vinegar to purchase.
- ☐ C To allow other researchers to understand why she selected her hypothesis.
- ☐ D So that experimenters may repeat the exact scientific investigation.

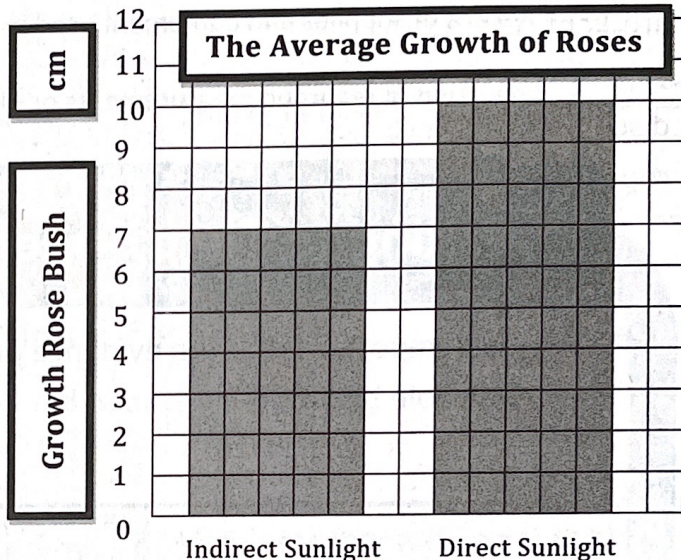
Graphic Organizer

In the investigation of "Where do rose bushes grow best?" the following data was recorded:

SUE'S DATA LOG – Day 12

At the end of twelve weeks, the heights of all six plants were measured. The three that were positioned to receive indirect sun rays measured: 5, 7, and 9 centimeters. The three rose bushes that were grown after being exposed to direct sun rays measured: 9, 10, and 11 centimeters. The average growth of the rose bushes at the end of twelve weeks were calculated as follows: The rose bushes that received energy from direct sun rays were 10 centimeters, and those that received indirect sunrays were 7 centimeters.

TRIALS (Plants)	Plant Growth - Indirect Sunlight	Plant Growth - Direct Sunlight
Rose Bush # 1	5 cm	9 cm
Rose Bush # 2	6 cm	10 cm
Rose Bush # 3	7 cm	11 cm
AVERAGE GROWTH	7 cm	10 cm



Location of Rose Bushes

Use the data table and a graph above to report the results of Sue's investigation.

Sue's Results
