

Dependent Variable Name vs. Independent Variable Name

A large grid for graphing dependent vs. independent variables. The grid is 20 units wide and 30 units high. The vertical axis is labeled 'Dependent Variable Name vs. Independent Variable Name' and the horizontal axis is labeled 'Independent Variable Name (units)'. The grid is empty.

Independent Variable Name (units)

Independent Variable Name (units)

Phenomenon

Questions

Research investigation

Science story

Thinking more

Phenomenon

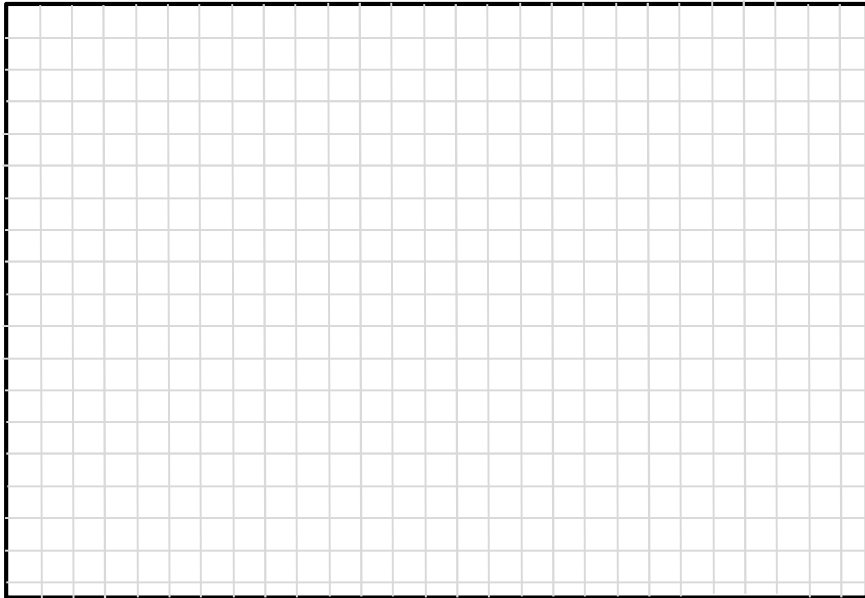
Student Name

Notice, Wonder, Learn Journal



DaNel Hogan and Brooke Meyer – STEMAZing.org

Draw and label **P**henomenon



I notice _____

I notice _____

I notice _____

Independent Variable Name (units)	Dependent Variable Name (units)					Average
	Trial 1	Trial 2	Trial 3	Trial 4	Trial 5	

Experimental Procedure (detailed enough to allow data collection to be repeated exactly as you collected it)

NOTE: Control Variables (all independent variables not selected for testing must be given a set value or controlled. These controlled settings must be explicitly noted in the procedure.)

Questions

I wonder why...? I wonder if...? I wonder what...?
I wonder how...? I wonder what would happen if...?

I wonder _____

I wonder _____?

I wonder _____

I wonder _____?

I wonder _____

I wonder _____?

More Questions

I wonder why...? I wonder if...? I wonder what...?
I wonder how...? I wonder what would happen if...?

I wonder _____

_____?

I wonder _____

_____?

I wonder _____

_____?

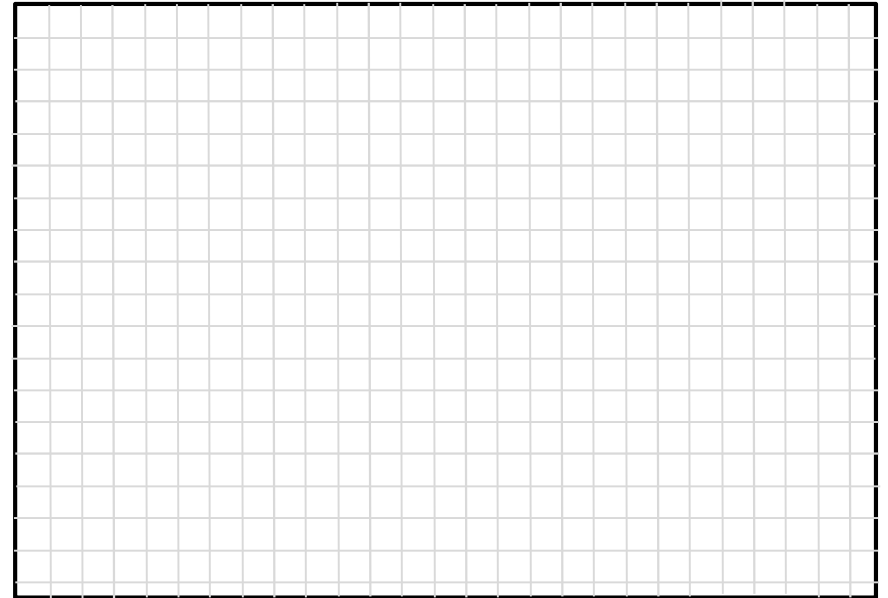
I wonder _____

_____?

I wonder _____

_____?

Draw and label experimental setup.



Materials and Equipment List for Experiment

Thinking more...

Now I wonder why...? Now I wonder if...? Now I wonder what...?

Now I wonder how...? Now I wonder what would happen if...?

Now I wonder _____

_____?

Now I wonder _____

_____?

Now I wonder _____

_____?

Now I wonder _____

_____?

Now I wonder _____

_____?

All Materials and Equipment Available

Play to learn more – tinker and experiment with materials and equipment you have available to explore how everything works.

I notice _____

_____.

I notice _____

_____.

I notice _____

_____.

Even More Questions

Now I wonder why...? Now I wonder if...? Now I wonder what...?
Now I wonder how...? Now I wonder what would happen if...?

Now I wonder _____

_____?

Now I wonder _____

_____?

Now I wonder _____

_____?

Now I wonder _____

_____?

Now I wonder _____

_____?

Reasoning (connect evidence to claim using scientific principles and rules) _____

Peer Critique of CER (Is there another way to interpret the data? Is there something they might not have considered? Is there another explanation which could connect the evidence to the claim?)

Science Story (Using **C**laim, **E**vidence, and **R**easoning, share the story the data tells and the science explains.)

Claim (answer to investigation question, should either be one of you hypotheses from page 7 or a new claim you had not considered) _____

Evidence (cite data from the experiment to support the claim) _____

Research Investigation (Experiment)

Independent Variables (a variable manipulated or changed by the experimenter – think “I” control it)

Dependent Variables (a responding variable which could vary depending on other factors and can be measured and/or calculated with available equipment)

Testable Question (can be answered with a claim based on evidence from a scientific experiment)

How will changing _____
independent variable selected for testing
affect _____?
dependent variable selected for testing

Multiple Hypotheses (consider every possible claim you might be able to make once you collect data)

1. Direct Relationship

Increasing the _____
independent variable selected for testing
will **increase** the _____.
dependent variable selected for testing

2. Indirect Relationship

Increasing the _____
independent variable selected for testing
will **decrease** the _____.
dependent variable selected for testing

3. No Relationship

Increasing the _____
independent variable selected for testing
will **not change** the _____.
dependent variable selected for testing

Data Observations (What do you notice as you look at the raw data collected in the data table and at the graphical representation of the data?)
