

# 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 \_\_\_\_\_

Testable?

\_\_\_\_\_  
\_\_\_\_\_?

Now I wonder \_\_\_\_\_

Testable?

\_\_\_\_\_  
\_\_\_\_\_?

Now I wonder \_\_\_\_\_

Testable?

\_\_\_\_\_  
\_\_\_\_\_?

Now I wonder \_\_\_\_\_

Testable?

\_\_\_\_\_  
\_\_\_\_\_?

Now I wonder \_\_\_\_\_

Testable?

\_\_\_\_\_  
\_\_\_\_\_?

Phenomenon

Questions

Research investigation

Science story

Thinking more

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Phenomenon

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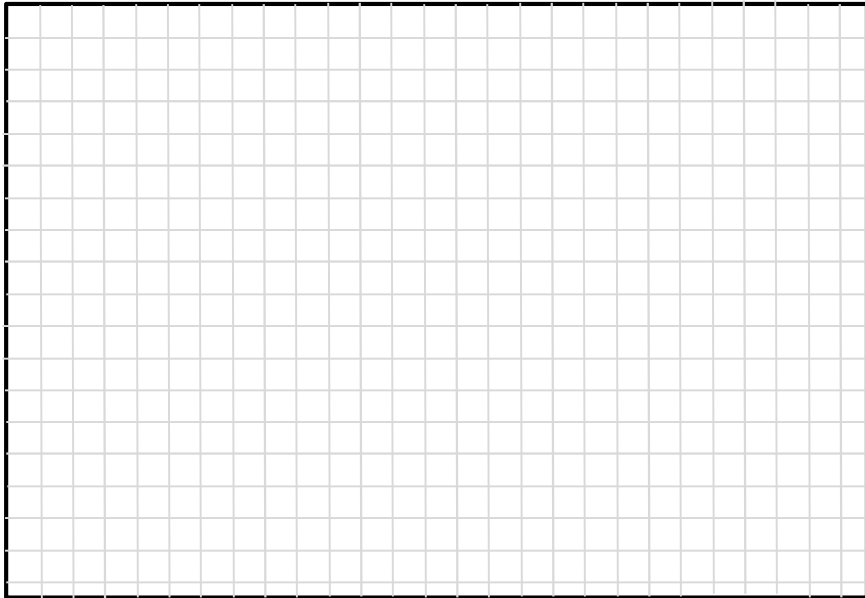
Scientist's Name

## Sciencing Journal



DaNel Hogan – STEMAZing.org  
Brooke Meyer – SARSEF.org

## Draw and label **P**henomenon



I notice \_\_\_\_\_

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_.

I notice \_\_\_\_\_

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_.

I notice \_\_\_\_\_

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_.

**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?)

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_



## More Questions

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

I wonder \_\_\_\_\_

Testable?

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..?

I wonder \_\_\_\_\_

Testable?

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..?

I wonder \_\_\_\_\_

Testable?

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..?

I wonder \_\_\_\_\_

Testable?

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..?

I wonder \_\_\_\_\_

Testable?

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..?

**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?)

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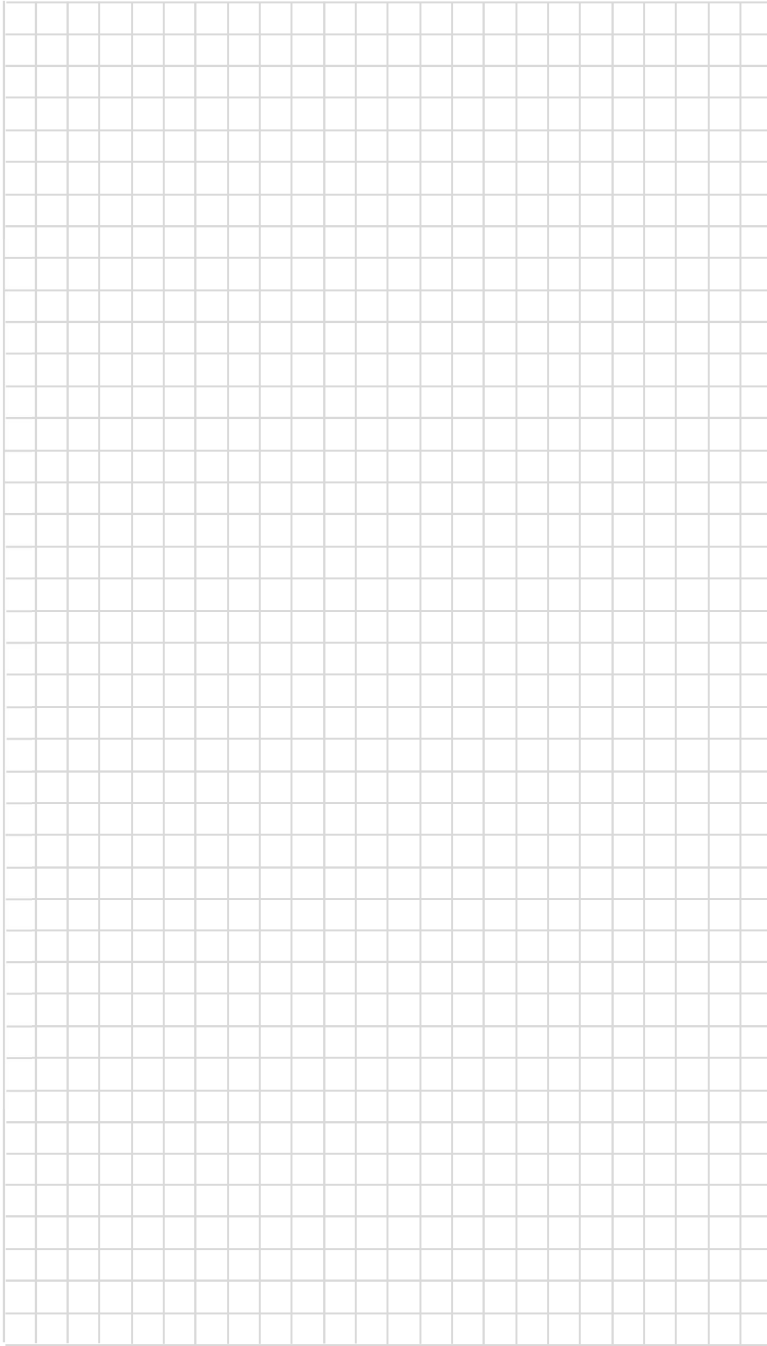
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Dependent Variable Name vs. Independent Variable Name



Dependent Variable Name (units)

## 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 \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_.

Independent Variable Name (units)

# 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 \_\_\_\_\_

Testable?

\_\_\_\_\_

\_\_\_\_\_?

Now I wonder \_\_\_\_\_

Testable?

\_\_\_\_\_

\_\_\_\_\_?

Now I wonder \_\_\_\_\_

Testable?

\_\_\_\_\_

\_\_\_\_\_?

Now I wonder \_\_\_\_\_

Testable?

\_\_\_\_\_

\_\_\_\_\_?

Now I wonder \_\_\_\_\_

Testable?

\_\_\_\_\_

\_\_\_\_\_?

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



**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

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**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

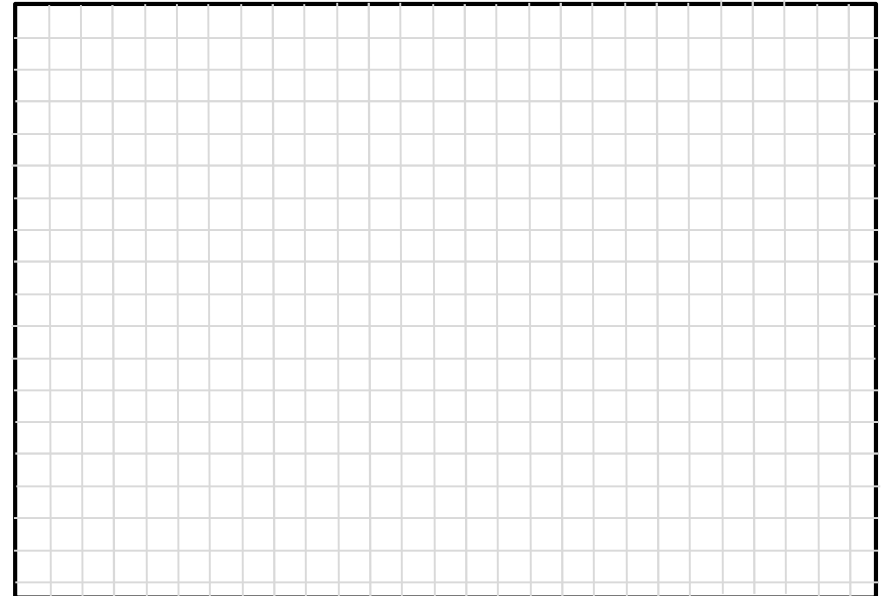
2. Indirect Relationship

**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

**Draw and label experimental setup.**



**Materials and Equipment List for Experiment**

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