

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

Phenomenon

Scientist's Name

Basic Sciencing Journal

V4 – Line/Dot Plot

DaNel Hogan – STEMAZing.org

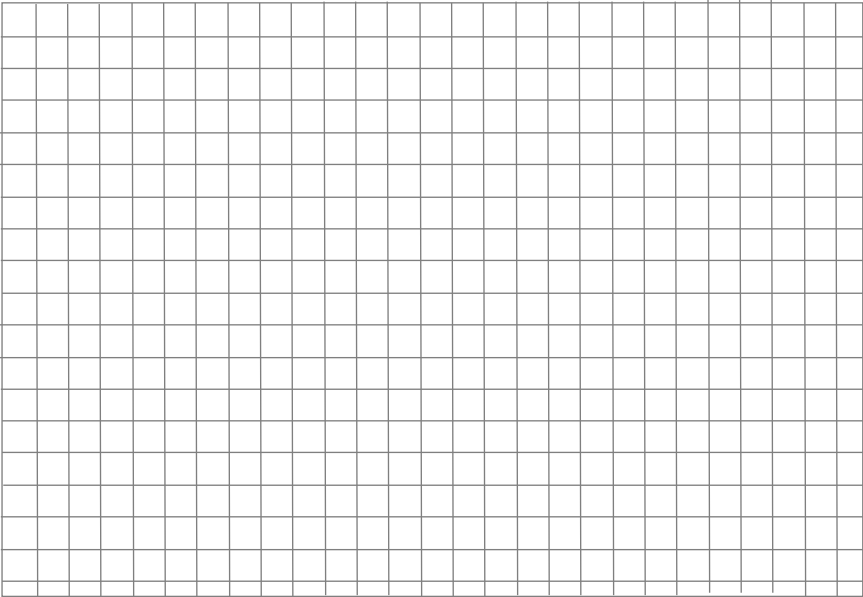
Brooke Meyer – SARSEF.org

Sherrie Dennis – STEMAZing.org

Kristin Hunter-Thomson – dataspire.org



Draw and label **Phenomenon**



I notice _____

_____.

I notice _____

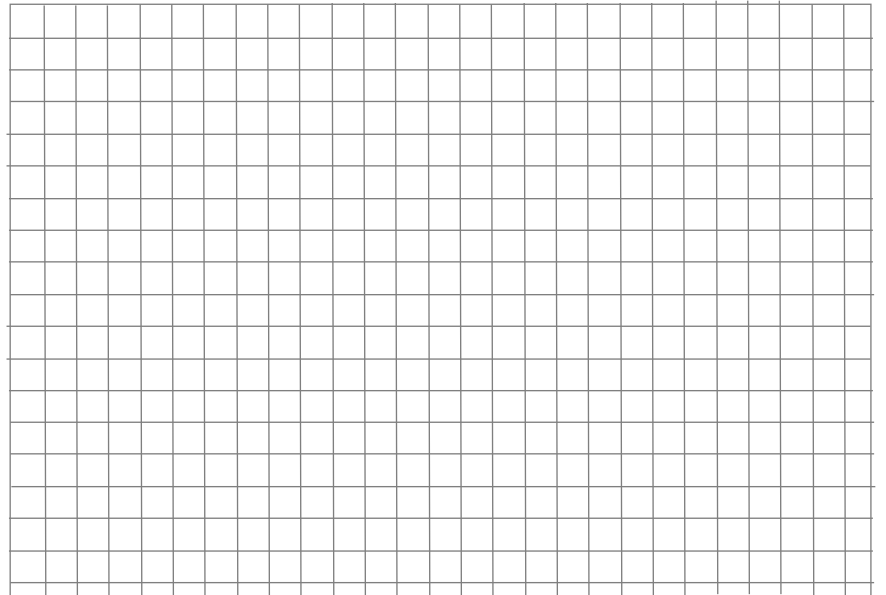
_____.

I notice _____

_____.

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

Drawing to Explain Reasoning (Draw a model with labels to show what happens and why.)



Science Story (Using **Claim**, **Evidence**, and **Reasoning**, share the story the data tells and the science explains.)

2. Claim (answer to testable question, should either be one of your hypotheses or a new claim you had not considered) _____

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

Questions (or rather declarative wonders)

I wonder why... I wonder if... I wonder what...

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

I wonder _____

Testable?

I wonder _____

Testable?

I wonder _____

Testable?

I wonder _____

Testable?

I wonder _____

Testable?

All Materials and Equipment Available

_____	_____
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____

Play to learn more – tinker and experiment with materials and equipment you have available to explore how everything works. Continue observing the phenomenon, noticing, and wondering.

I notice _____

_____.

I notice _____

_____.

I notice _____

_____.

Data Talk (Notes from peer discussion about data observations, claim, evidence, and reasoning.)

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?)

Even More Wonderings

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?

Brainstorm Break

What can I change that might impact how the phenomenon works? (cause)

What can I measure about the phenomenon that might be different when I setup the experiment differently using one of my ideas above? (effect)

What do I want to test?

Independent variable _____

Option 1 _____ Option 2 _____

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

How will changing _____
independent variable (what I manipulate – **cause**)

affect _____?
dependent variable (what I measure as the outcome – **effect**)

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

Hypothesis/Prediction A: Yes, _____

_____.

Hypothesis/Prediction B: Yes, _____

_____.

Hypothesis/Prediction C: No, _____

_____.

phenomenon



Option 1



Option 2

Dependent Variable Name (units)

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

Data Prediction for Each Hypothesis

Option 1

A

Option 2

A

dependent variable name

Option 1

B

Option 2

B

dependent variable name

Option 1

C

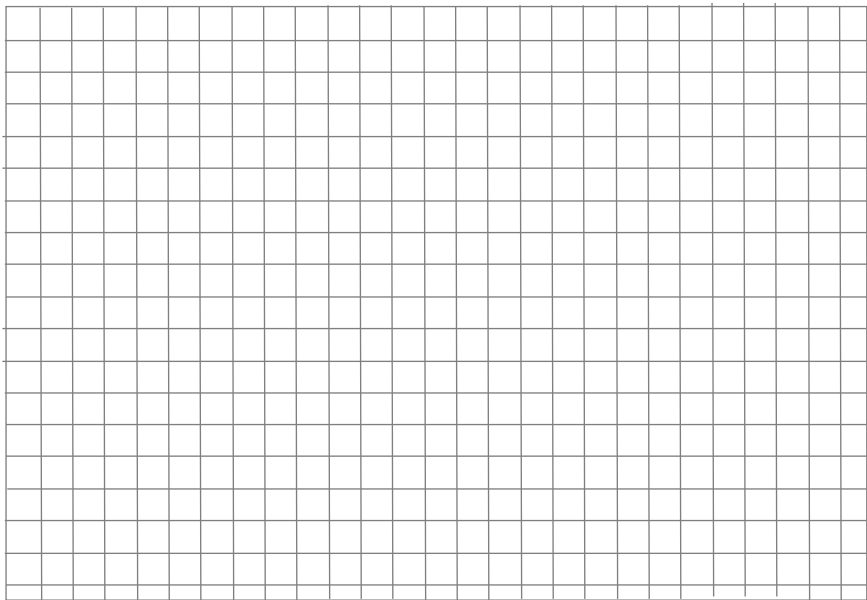
Option 2

C

dependent variable name

Research Investigation (Experiment)

Draw and label experimental setup.

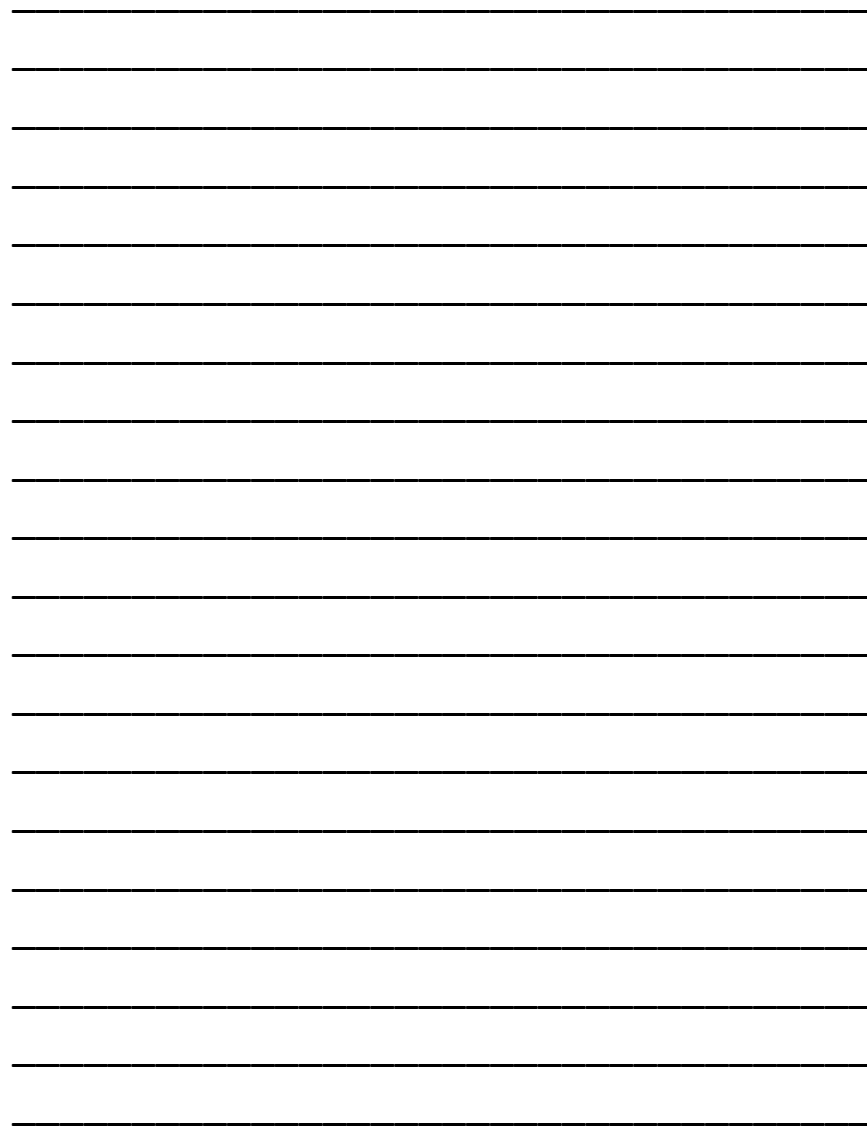
A large grid consisting of 20 columns and 15 rows of small squares, intended for drawing and labeling an experimental setup.

Materials and Equipment List for Experiment

A series of 12 horizontal lines provided for listing the materials and equipment used in the experiment.

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.)

A series of 18 horizontal lines provided for writing the detailed experimental procedure.