

Initiate

Step 1: Observing & Questioning

What did I observe?

(What do you notice about the object or event? Use your senses to describe the object or event.)

quiry (4-8)

& Plan

What am I wondering?

(What questions or predictions do you have about the object or event?)

Labeled diagram:

Initiate

Step 2(a): What could I change or vary about
- Brainstorm (Place sticky notes of t

Variable

Variable

quiry (4-8)

& Plan

ut the object or the event?
(the same colour in the squares below.)

Variable

Variable

Variable

Step 2(b): What could I measure or observe
- Brainstorm (Place sticky notes of a new

Dependent Variable

Variable

... about the object, or event?
(... colour in the squares below.)

Dependent Variable

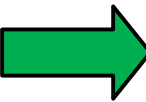
Initiate

Step 3: What will I change and not change?
- Choosing Variables

One variable I will change:

Independent Variable

(Place a sticky note from Step 2(a) here)



Variables I will NOT change:

What conditions will be held constant so it is a fair test? Place

Controlled Variables

quiry (4-8)

& Plan

ge?

I will measure or observe this result:

Dependent
Variable

(Place a sticky note from Step 2(b) here)

Place remaining sticky notes from Step 2(a) here.

Controlled

Variable

Controlled
Variable

Controlled
Variable

Variable

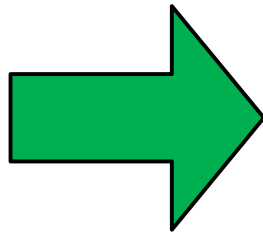
Controlled
Variable

Controlled
Variable

Initiate

Step 4: What is the question I want to explore?

If I change
this one
variable...



Independ
Variable

Write your
question here:



Depen
Variable

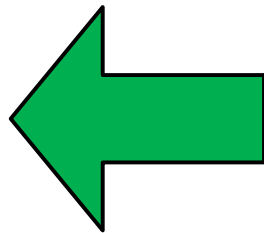
quiry (4-8)

& Plan

xplore?

endent
able

If I don't
change this
one variable...



What will
happen to:



Write your
question here:

endent
able

Step 5: What is my prediction (what

Based upon my question, I predict that

What?

if I change _____

(Independent)

then I predict this will happen to what

(Dependent)

Why?

I think this will happen because _____

(Adapted from: Buttemer, H. "Inquiry on Board." Science and Children Oct. 2006.; Fulwider, J., & Feasey. Making Sense of Primary Science Investigations. Hatfield: ASE, 1994.)

APIC

and why)?

t :

pendent Variable)

t I will measure or observe:

pendent Variable)

4 of 4

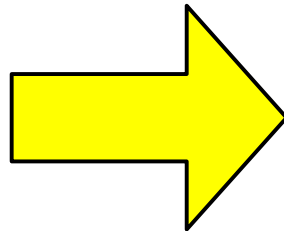
Steps to Inquiry

Plan, Perform

Step 6: How do I test my prediction?

My Test Set-Up

Here's how I will
change the
variable...



Indepe
Varia

(What will I do?
How will I change
the variable?)

My Test Steps:

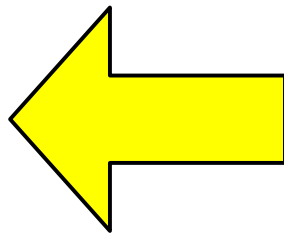
quiry (4-8)

m & Record

endent
able

My Control Set-Up

Here's how I
won't change this
variable...



(What will I do?
How will I keep
the variable the
same?)

My Control Steps:

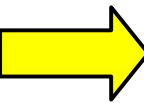
(Adapted from: Buttemer, H. "Inquiry on Board." Science and Children Oct. 2006.; Fulw
Feasey. Making Sense of Primary Science Investigations. Hatfield: ASE, 1994.)

Plan, Perform

Step 7a): Preparing for Data Collection

When I changed:

Independent Variable



Sample Chart for Recording Measurement

- Modify this chart to suit your investigation or design

What I changed: _____ ()	What I _____
----------------------------------	-----------------

quiry (4-8)

m & Record

What measurements resulted?

Dependent
Variable

ts / Observations

ign your own. (Specify units if appropriate.)

measured/observed:

()

(Dependent Variable)

units

(Independent Variable)	units	Observation
Control Condition:		
Condition 1:		
Condition 2:		

(Adapted from: Buttemer, H. "Inquiry on Board." Science and Children Oct. 2006.; Fulwider, J., & Feasey. Making Sense of Primary Science Investigations. Hatfield: ASE, 1994.)

Observation #1	Observation #2	Observation #3	Observation #4

Plan, Perform

Step 7b): Equipment Set-Up & C

Have I

collected all of the materials?

organized and/or set-up my equip

reviewed my procedure and reco

quary (4-8)

m & Record

Check

oment properly?

ording chart?

made changes where necessary?

Step 7c): Perform Experiment

Follow the procedure to complete the
Record the data in your chart. (See S

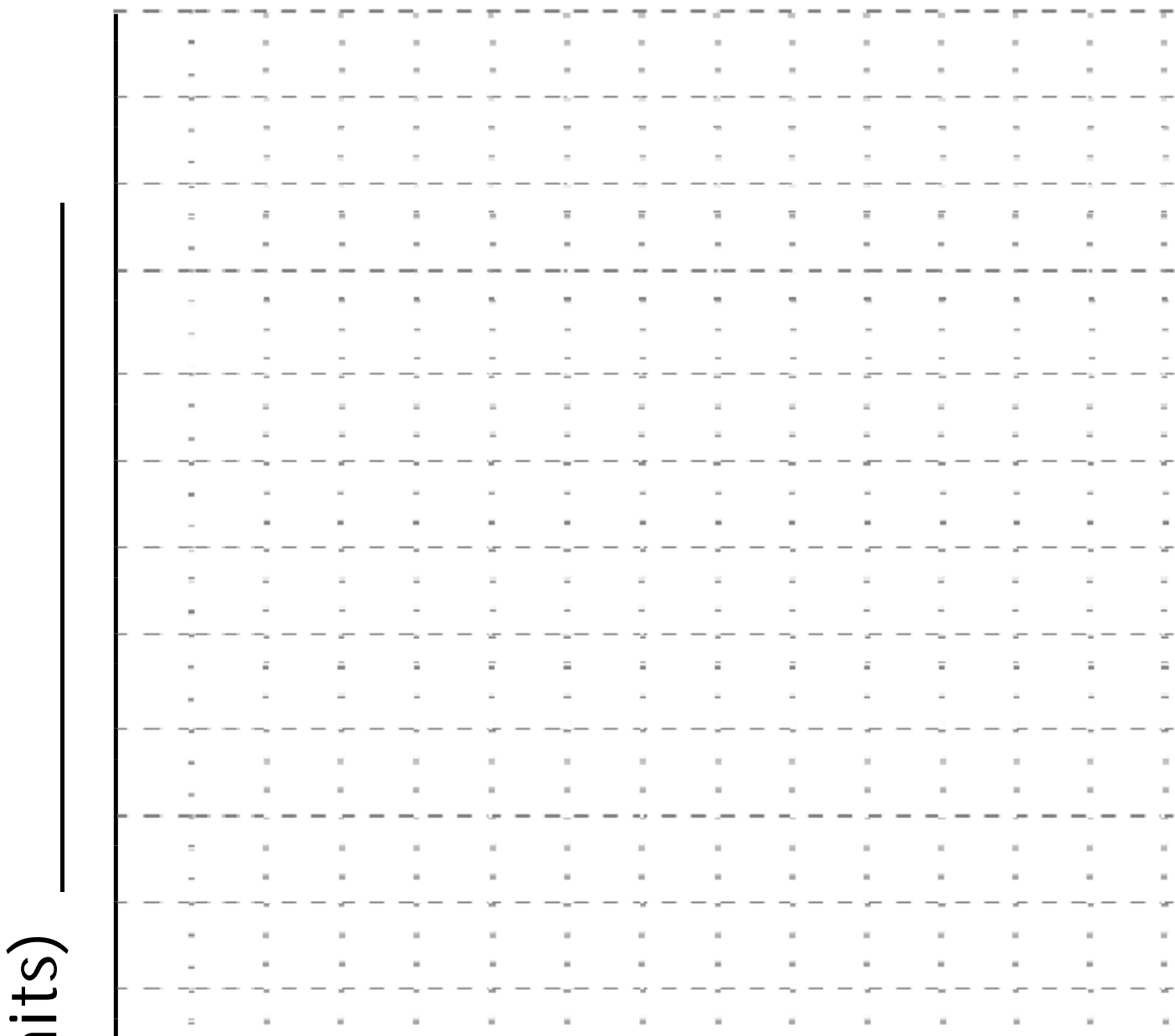
and Collect the Data

the experiment.
(Step 7a).

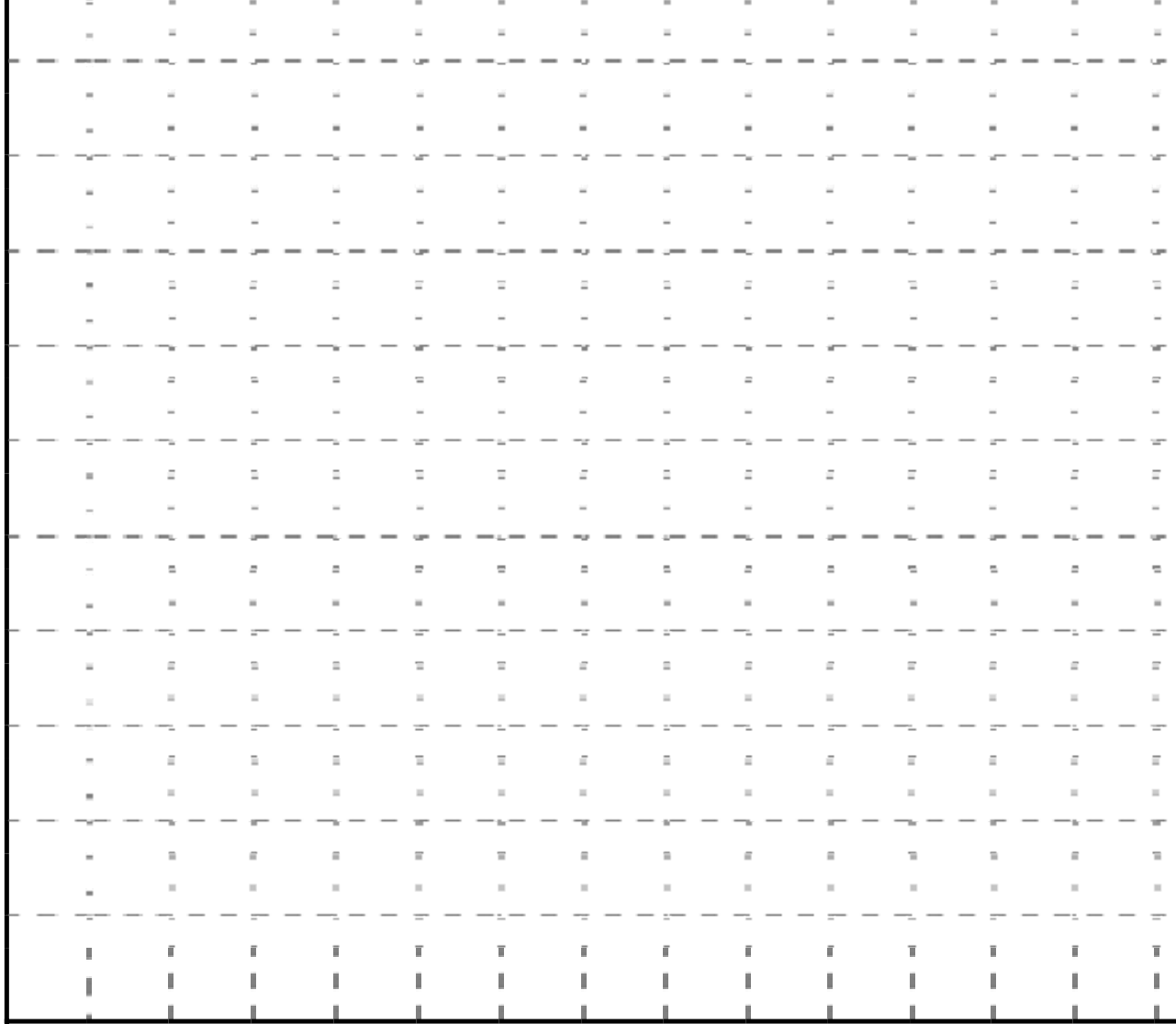
Analyze &

Step 8: Graphing Results

What type of graph best suits my data?



Dependent Variable (unit)



Observa

Figure # ____ : _____

(descriptiv

Remember to label axes, add so

Page 1

(Adapted from: Buttemer, H. "Inquiry on Board." Science and Children Oct. 2006.; Full
Feasey. Making Sense of Primary Science Investigations. Hatfield: ASE, 1994.)

ation #

(ive caption)

scales appropriately and include a legend.

1 of 3

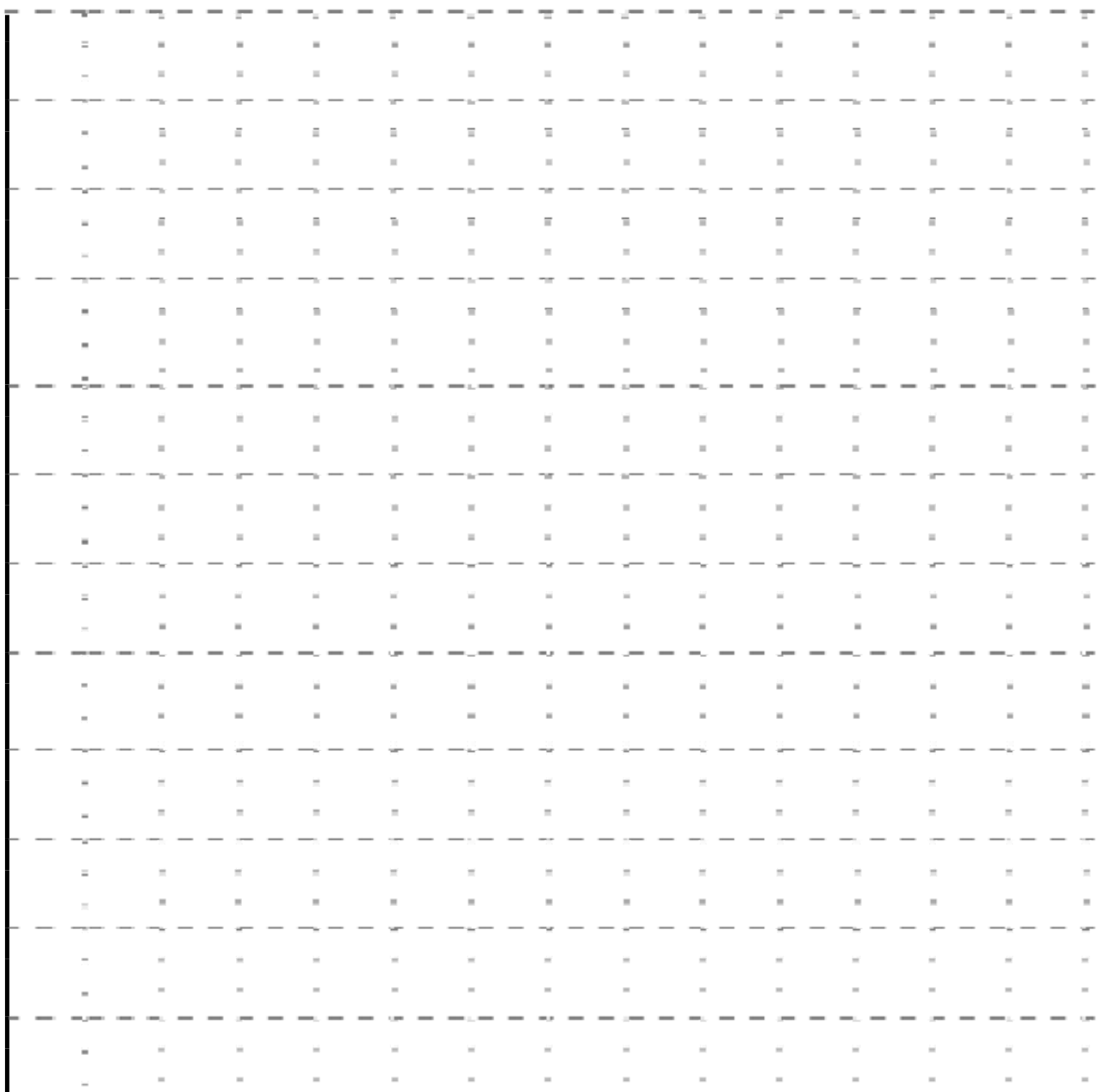
ulwiler, B. Writing in Science. Portland: Heineman, 2007.; Goldsworthy, A., and R.

Analyze &

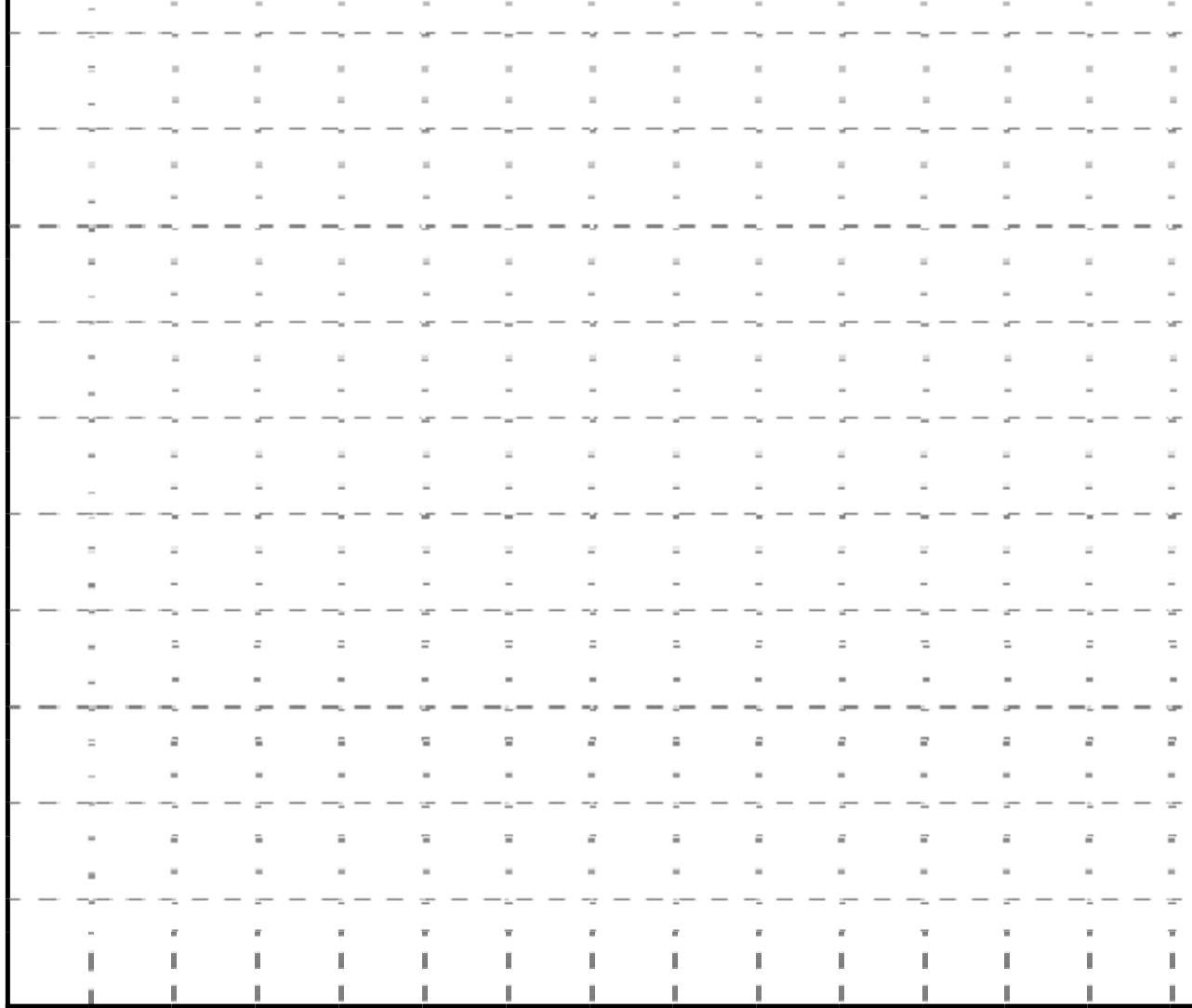
Step 8: Graphing Results (continued)

What type of graph best suits my data?

nits)



Dependent Variable (units)



Independent Variable (units) _____

Figure # ____: _____

(descriptive)

Consider measures of central tendency

(Adapted from: Buttemer, H. "Inquiry on Board." Science and Children Oct. 2006.; Fullan, M., & Stiegelmeier, M. (2000). *Learning by Design: Making Sense of Primary Science Investigations*. Hatfield: ASE, 1994.)

ve caption)

tendency* (mode, median and mean).

2 of 3

ulwiler, B. Writing in Science. Portland: Heineman, 2007.; Goldsworthy, A., and R.

Analyze &

Step 9: Finding Patterns and Relationships

From the graphs and table:

What I changed: _____ (Independent Variable) (____) units	What _____ Central V
Control Condition:	
Condition 1:	
Condition 2:	

The trends show that when the _____ (Indep
 the _____

(Describe what happens to the depend

quiry (4-8)

Interpret

hips in Results

I saw happen:

(Dependent Variable)			() units
Value*	Highest Value	Lowest Value	Rank

pendent variable)

(increases/decreases)

pendent variable)

I know this because:

(What is my evidence?)

Qualitative Data	When I observed _____ I saw/heard/felt/smelled, _____ _____ _____
Quantitative Data	When I measured _____ with _____ _____ _____

Step 10: Communicating My Results

Answer the question in a general way.

When I _____
increased / decreased

_____ what I measured/observed

Provide evidence from your observations.

For example: The _____
dependent variable

the

was

inquiry (4-8)

Communicate

_____ the _____ the
independent variable

_____ .
increased / decreased

ions or tests.

_____ was _____ when
highest value

But the

the _____ was _____
independent variable

_____ was only _____
dependent variable lowest/setting

was _____ .
value/setting

Make a concluding statement based on the

Therefore, changing _____
the inde

_____ the dependent variable change observed

_____ . But the
value/setting

_____ when the _____
dependent value

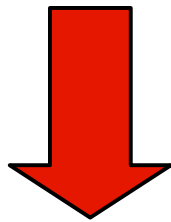
e evidence.

_____ makes
dependent variable

_____ .

Refer to your prediction.

The data does support my prediction.



The data does support my prediction because I

predicted that _____
change in the IV

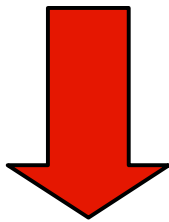
would make _____ .
the change in the DV

I thought _____ would cause
the IV

quiry (4-8)

Communicate

The data does NOT support my prediction.



The data does NOT support my prediction

because I predicted that _____
change in the IV

would make _____.
the change in the DV

I thought _____ would
the IV

this change because _____

_____.

Make an inference:

I think this happened because _____

cause this change because _____

_____.

Now I know that _____ doesn't
the IV

have that effect.

_____.

Commun

Step 10 b): Other Considerations

1. If you had data that was different (different, inconclusive or inconsistent), what would you conclude?

2. How might you have improved your experiment?

quiry (4-8)

Communicate

nt from other groups (or was
hat might have caused these results?

ed your investigation?

3. What new/additional questions
investigate?

ons do you now want to

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iler, B. Writing in Science. Portland: Heinnean, 2007.; Goldsworthy, A., and R.