

## Steps to Inquiry Planning Our Investigation

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

If we change

Changed  
Variable

what will happen to

Measure/  
Observe

compared to our control?

Step 5: What is our prediction?

State how we will change the variable and predict the outcome.

We predict that ....

We think this will happen because .....

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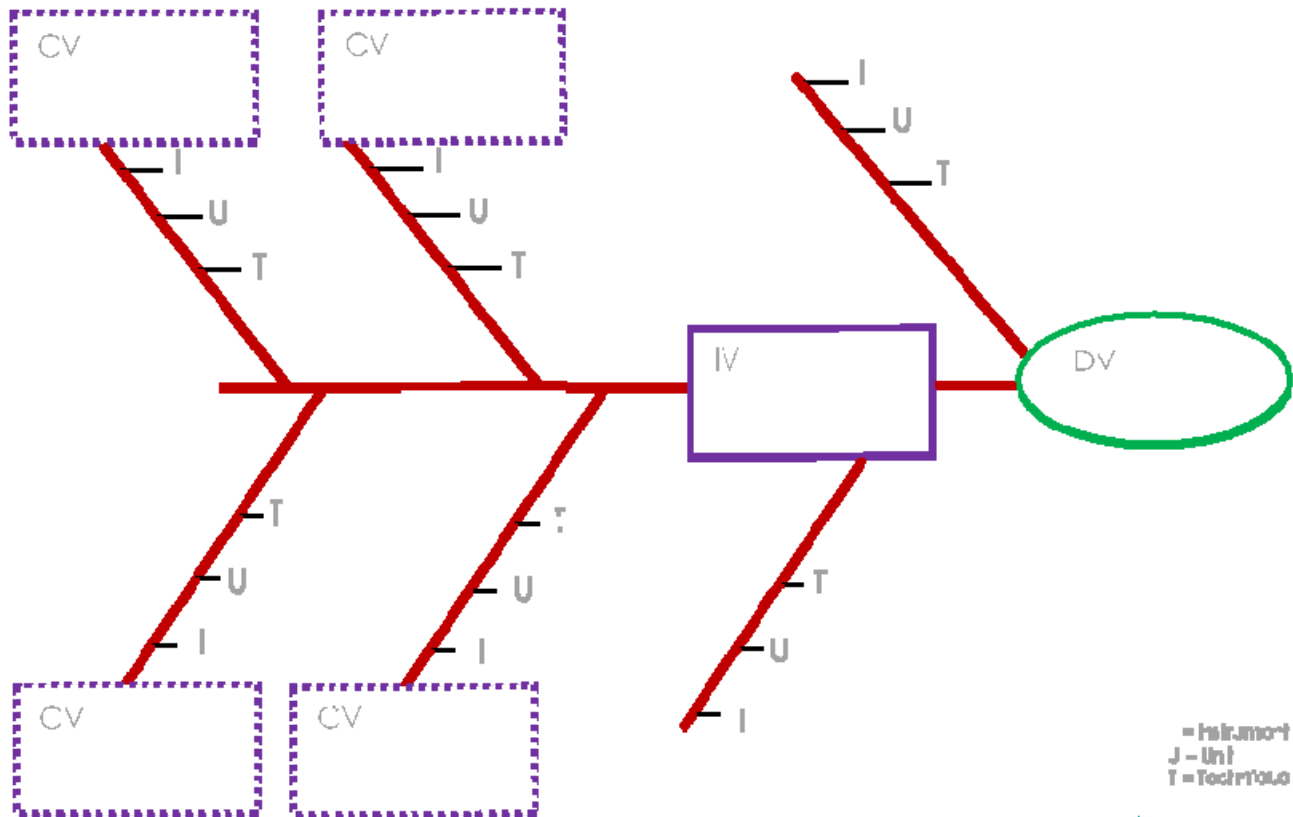
Process Skills: Beginning → Exploring → Emerging → Competent → Proficient

Modified & Revisited by the "Harvest Valley C.E.S. Inquiry Skills" Task Force, April 2012.

Originally adapted from: <http://www.illustrativemathematics.org/HS-MS-Science-Practices/MS-Science-Practices/MS-Science-Practices-1207>.

**INITIATE AND PLAN**

**STEP 3: FISHBONE – EXPERIMENT ORGANIZER**



**Process Skills:**

**beginning → Exploring → Emerging → Competent → Proficient**



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# Steps to Inquiry

## Plan, Perform & Record

### Step 6: How will I test my prediction?

#### My Test Set-Up

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



Independent Variable

#### My Control Set-Up

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



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

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

**My Test Steps:**

**My Control Steps:**

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**Process Skills: *Beginning* → *Exploring* → *Emerging* → *Competent* → *Proficient***

Modified & Based by the Thomas Valley S.S. Elementary 5th Task Force, April 2010.  
Originally adapted from: Bullock, H. "Inquiry on Board." *Science and Children* Oct. 2006; Pielke, E. *Willing in Science*. Portland: Heinemann, 2007.

# Steps to Inquiry

## Plan, Perform & Record

Step 7a): How will I record our observations and/or measurements?

Sample Chart for Recording Measurements / Observations

- Modify this chart to suit your investigation or design your own. (Specify units if appropriate.)

<p>What I changed:</p> <p>_____ ( )          (Independent Variable) units</p>	<p>What I measured/observed:</p> <p>_____ ( )          (Dependent Variable) units</p>			
	Observation #1	Observation #2	Observation #3	Observation #4
Control Conditions				
Condition 1				
Condition 2				



# Steps to Inquiry

## Analyze & Interpret

### Step 9: Finding Patterns and Relationships in Results

From the graphs and table:

What I changed: _____ (____) units (Independent Variable)	What I saw happen: _____ (____) units (Dependent Variable)			
	Central Value*	Highest Value	Lowest Value	Rank
Control Condition:				
Condition 1:				
Condition 2:				

The trends show that when the \_\_\_\_\_ (independent variable) \_\_\_\_\_ (increases/decreases),  
 the \_\_\_\_\_ (Describe what happens to the dependent variable)


I know this because:  
 (What is my evidence?)


<b>Qualitative Data</b>	When I observed _____ I saw/heard/felt/smelled, _____ _____ _____
<b>Quantitative Data</b>	When I measured _____ with _____, I found _____ _____ _____

# Steps to Inquiry

# Communicate

**Refer to your prediction.**

<input checked="" type="checkbox"/> 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 _____ the IV would cause this change because _____ _____ _____.

<input checked="" type="checkbox"/> 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 _____ the IV would cause this change because _____ _____ _____.
Now I know that _____ the IV doesn't have that effect.

**Make an inference:**

I think this happened because \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_.

## Steps to Inquiry

# Communicate

### Step 10 b): Other Considerations

1. If you had data that was different from other groups (or was inconclusive or inconsistent), what might have caused these results?

2. How might have you improved your investigation?

3. What new/additional questions do you now want to investigate?