Using Inquiry Boards in the Classroom

Notes and tips on effective use of the Inquiry Board model
as a way to teach the Scientific Process

Contents

Purpose:

The purpose of Inquiry Boards is to provide a scaffold for students as they learn about the scientific process. The model provides students with a step by step format as they work with variables, prediction, data collection, and conclusions.

Procedure:

First, you will want to decide on your modeling format. Depending on the equipment you have in your room you have several choices:

- Make overheads of the student sheets, so that you can share them with the whole class and work through together (easy to add information and share with the whole class)
- Make posters of the sheets and then use post-its to add variables and other information to the sheets (helpful to have them hanging up for easy reference and see all at once)
- Make copies of sheets for use under a document camera to use with a projector (easy to add information and share with the class)

Next, decide if you want to make copies of student sheets for students to write on and then tape into science notebooks or just have students re-create forms in their notebooks. It would be a good idea to provide forms for students at least once. Have students leave forms blank, insert in their notebooks (tape or glue) and then they can refer back to the form whenever they need to. However, if you are using these forms with younger students or for the first time, you may decide just to provide all forms and have students actually write on them or use post-its to move around on sheets.

When you use this format for the first time you will want to do it as a whole class and go through an investigation together. Depending on the age and ability of your students, you may need to do whole group activities a few times. After students have some familiarity and success with the forms, you can let them use them on their own or in their groups to provide structure to their work. It would be a great idea to have students stop at various points during their investigations and share forms with the class. That will provide several things: a way for you to re-direct students and provide some re-teaching, allow students to see various student ideas and formats, and help students solidify their understanding as they have to explain it to others.

Description of the student sheets:

- Brainstorm sheet: on this page have students brainstorm a list of all the variables that they could change in the investigation and add them to the first box and then next have them brainstorm all of the things that they could observe or measure in the investigation
- Choosing Variables sheet: on this page have students select items from their brainstorm list and select one variable to change, one variable to measure and list those that will be kept the same
- Ask a Question sheet: on this page have students write out their investigation question using the manipulated and responding variables from the Choosing Variables sheet (there are two choices for their question format)
- Prediction sheet: on this page students will complete a prediction, again inserting their

selected manipulated variable and measured variable, and then at the end they will make a prediction of the outcome.

- Table of Results sheet: on this sheet students will again enter their changed and measured variables and then use the section below to create a data table to collect the data they gather from the investigation.
- Graph of Results sheet: on this page students can create a graph of their data
- Conclusion sheet: on this page students will write up their conclusion by filling in the changed variable, measured variable and then explain what happened and why

Notes:

- Notice that the student forms use a key (the solid box is for the manipulated variable, the dashed box is for the measured variable, and other information is placed in the double line box). You could also use color codes to help as well.
- The student sheets are set up so that you can write in the boxes, so if you want to fill in portions to make it a bit easier at first, it is very easy to add text to the documents and then print.

Questions:

If you have any questions or would like some training on this instructional strategy, please contact Tracy Dabbs.
tdabbs@be.wednet.edu

Brainstorm

Things that I can change or vary

(change or manipulated variable)

Things that I can observe or measure

(measured or responding variable)

Choosing Variables

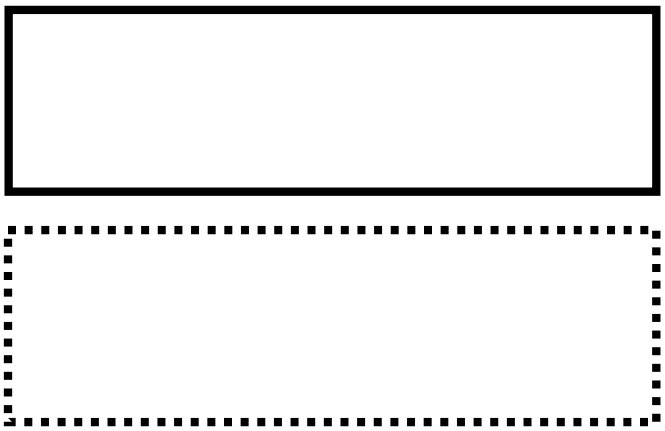
I will change
(one changed or manipulated variable)

I will measure or observe
(measured or responding variable)

I will keep the same
(controlled variable)

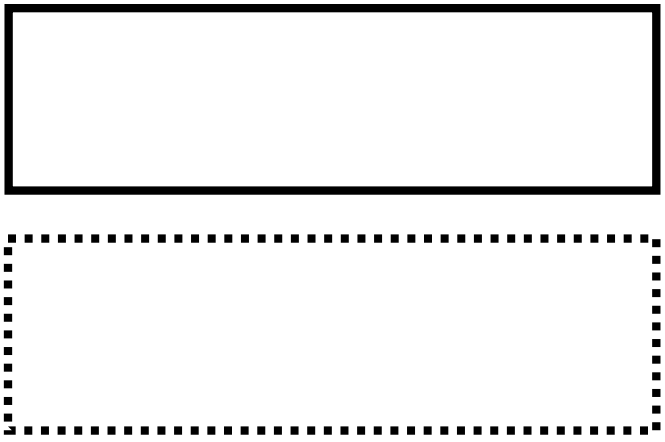
Ask a Question

What is the effect of the
(changed or manipulated variable)
on the
(measured or responding variable)



OR

How does the
(changed or manipulated variable)
affect the
(measured or responding variable)



Prediction

As the

(changed or manipulated Variable)

increases or decreases,

the

(measured or responding variable)

will increase or decrease,

because

(support your prediction with a scientific explanation)

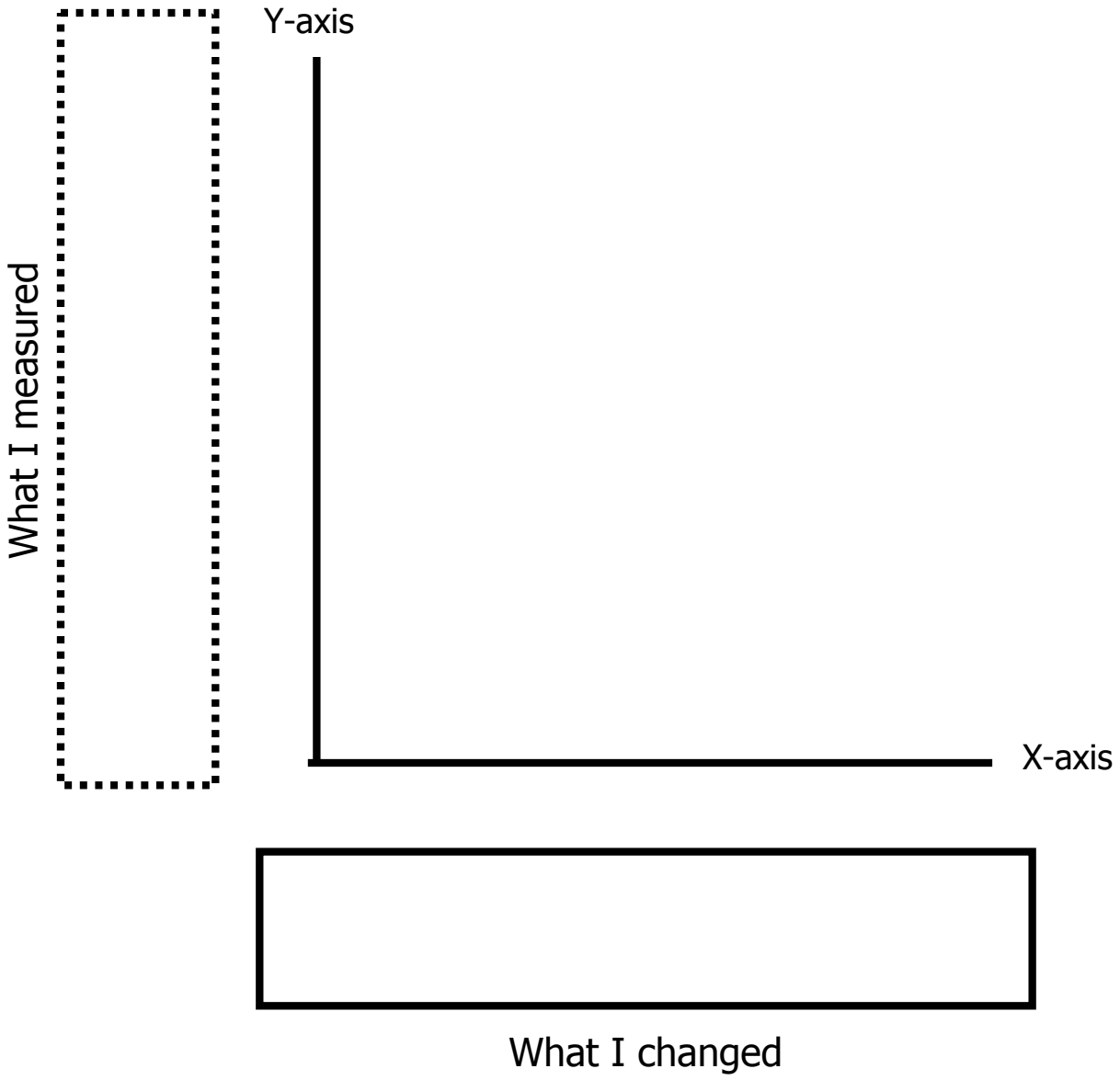
Table of Results
(raw data)

What I changed:
(changed variable)

What I measured:
(measured variable)

Raw Data Table

Graph of Results



Conclusion

When I changed

(changed or manipulated variable)

the

(measured or responding variable)

(What happened? Explanation of results)

because

(scientific explanation)