MORE IN-DEPTH FOR 3rd – 5th Grades

Doing an Experiment Using the Scientific Method

(These are the steps to follow and show on your display board)

TESTABLE QUESTION: A question that can be tested doing an experiment that compares something and is measurable. This could also be used as the **title** of your experiment.

Example: Do plants grow taller with or without fertilizer?

HYPOTHESIS: This is a prediction written as an "If…Then…Because…" statement. This offers an educated guess or answer to your question. Your hypothesis may turn out to be wrong, but that is ok; predicted answers are not always correct, but can lead to new learning or more questions.

Example: **If** I put fertilizer in the soil, **then** plants will grow taller, **because** fertilizer has nutrients like calcium, magnesium, and sulfur that plants need to grow.

VARIABLES: Independent Variable (what you change), Controlled Variable (what you keep constant, or the same), Dependent Variable (what you are measuring)

Example: ***Independent Variable***: soil with and without fertilizer

Controlled Variable: the same amount of fertilizer, the same kind of plant, the same amount of water

Dependent Variable: measuring the height (cm)

MATERIALS: List all of your supplies and the amounts used.

PROCEDURE or METHOD: The steps taken to complete your experiment.

Example: Step 1 – fill 2 pots with the same amount of soil.

Step 2 – add one tablespoon of fertilizer to the soil in one pot

Step 3 – put the same size plant in each pot

And so on….

DATA/RESULTS: The results of your experiment and summary of your data.

Example: Show your data and results using charts, graphs, pictures, etc. Write a summary of what you discovered.

CONCLUSION: A written explanation of what you learned as a result of your experiment. Was your hypothesis correct? Why or why not? What are some next steps?

Additional Optional Components

BACKGROUND INFORMATION: Cite any resources you used to research information about your experiment. These can include books, magazines, websites, etc.

NEW QUESTIONS: List any new questions or changes you could apply to your experiment to learn something new.

Example: Will different types of fertilizer affect how plants grow?

Your Name _____ Teacher's Name _____

Scientific Method Worksheet

Use this for planning your experiment, keeping track of your data, and making sure you have included all the parts of the Scientific Method on your display board.

TESTABLE QUESTION: What question are you trying to answer or discover?

_____

_____

HYPOTHESIS: What is your prediction, an educated guess or answer to your question?

_____

_____

VARIABLES

Independent Variable (what you will change): _____

_____

Controlled Variables (what you will keep the same): _____

_____

_____

_____

Dependent Variable (what you will measure): _____

_____

MATERIALS: What supplies or equipment will you use for your experiment?

_____

_____

PROCEDURE OR METHOD: How are you going to conduct your experiment, step by step? Example: Step 1, Step 2 or transition words such as First, Next, Then, Last

_____

_____

_____

_____

DATA and RESULTS: What happened in your experiment? Explain what the results were. This is a great place to use charts, graphs, labeled pictures, etc. on your display board.

_____

_____

_____

_____

SUMMARY OF YOUR RESULTS:

_____

_____

_____

_____

CONCLUSION: Was your prediction or hypothesis correct? Why or why not?

_____

_____

Optional Additional Categories

BACKGROUND KNOWLEDGE: Cite books, magazines, and websites you used for learning more about your experiment.

_____

_____

NEW QUESTIONS: What questions or changes could you apply to your experiment to learn something new?

_____

_____

Examples of Display Boards

This page is designed to give general guidelines. Each project will vary.

All projects must be freestanding. Include on the <u>front</u> of the display board:

Your Name

Grade

Teacher's Name

Be sure to LABEL each step with large, easy-to-read letters Use colored paper, borders, printed fonts, sticky letters, graphs, charts, photos, etc. The goal of your display is to communicate what you've learned.