

**MORE IN-DEPTH FOR 3<sup>rd</sup> – 5<sup>th</sup> 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?**

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

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#### VARIABLES

**Independent Variable (what you will change):** \_\_\_\_\_

**Controlled Variables (what you will keep the same):** \_\_\_\_\_

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**Dependent Variable (what you will measure):** \_\_\_\_\_

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

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**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**

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**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.

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**SUMMARY OF YOUR RESULTS:**

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

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### Optional Additional Categories

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

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

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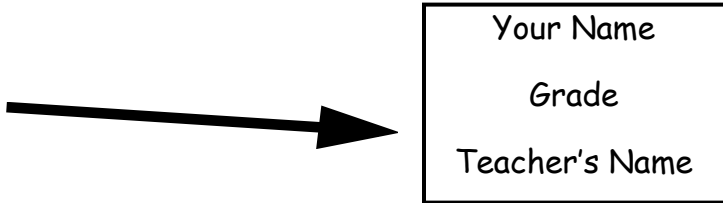
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# Examples of Display Boards

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

**All projects must be freestanding. Include on the front of the display board:**



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

### Science Fair Display Board Example

<p><b>MATERIALS</b></p> <ul style="list-style-type: none"> <li>•100 piece puzzle</li> <li>•Stopwatch that records minutes and seconds</li> <li>•Data sheet</li> <li>•3 5<sup>th</sup> graders</li> <li>•3 8<sup>th</sup> graders</li> <li>•3 11<sup>th</sup> graders</li> </ul>	<p><b>It's PUZZLING?!?!</b></p> <p><b>QUESTION</b></p> <p>Which age group (5<sup>th</sup> graders, 8<sup>th</sup> graders, or 11<sup>th</sup> graders) will take the longest to complete a 100 piece puzzle?</p>	<p><b>VARIABLES</b></p> <p><b>Independent</b>= age of the person</p> <p><b>Dependent</b>=the time it takes to complete the puzzle</p> <p><b>Controlled</b>=the puzzle</p>
<p><b>PROCEDURES</b></p> <ol style="list-style-type: none"> <li>1. Give the same 100 piece puzzle to a 5<sup>th</sup> grader.</li> <li>2. Begin stopwatch and time how long it takes for the person to complete the puzzle.</li> <li>3. Record the time on the data sheet.</li> <li>4. REPEAT steps 1-3 with two more 5<sup>th</sup> graders.</li> <li>5. REPEAT steps 1-3 with the 8<sup>th</sup> graders and the 11<sup>th</sup> graders.</li> </ol>	<p><b>HYPOTHESIS</b></p> <p>If I give a 100 piece puzzle to three different age groups, then the 11<sup>th</sup> graders will be able to complete the puzzle the fastest because their brains are more fully developed.</p> <p><b>CONCLUSION</b></p> <p>My hypothesis proved to be correct. The group of 11<sup>th</sup> graders was able to complete the project 10 % faster than the other students.</p>	<p><b>DATA</b></p> <p><b>RESULTS</b></p> <p>My graph shows that 11<sup>th</sup> graders are able to complete the 100 piece puzzle faster than other age groups.</p>

36 inches	<p><b>Question</b></p> <p>Place Question Here</p>	<p><b>Project Title</b> (PUT NAMES &amp; CLASS ON BACK ONLY!)</p>	<p><b>Results</b></p> <p>Place a summary of your data/results here. Include specific data points that you think are significant. Discuss any trends you noticed in your data. DO NOT explain why you think it happened that way, ONLY what you noticed.</p>
	<p><b>Purpose</b></p> <p>Explain the purpose of your investigation here. Tell why it is an important question.</p>	<p><i>The use of photographs is encouraged. Photographs used should NOT include direct face shots. Photos of students conducting their investigations and of materials or contraptions are appropriate. Photos of test subjects should be back, top, or side views only. Photos should be placed on the board in a logical manner and should include captions explaining their purpose.</i></p>	<p><b>Conclusion/Abstract</b></p> <p>Place your conclusion/abstract here. Include a brief overview or summary of your scientific investigation, an analysis of your results (the why), problems you encountered, extensions you could try, and real world applications. Add flaps, if needed.</p>
	<p><b>Background Research</b></p> <p>Place a summary or bullets of information from resources here.</p>	<p><b>Materials</b></p> <p>Place a detailed list of materials used during your investigation here. Use bullets and specify amounts and/or types.</p>	<p><b>Resources</b></p> <p>Use <a href="http://www.easybib.com">www.easybib.com</a> (MLA) &amp; acknowledge those who assisted by first name only.</p>
	<p><b>Hypothesis</b></p> <p>State your prediction based on your research here.</p>	<p><b>Procedures</b></p> <p>Place a detailed, step by step list of the process you followed to construct, set up and test during your investigation here. Include diagrams / photographs as appropriate. Add flaps if more room is needed.</p>	<p><b>Results</b></p> <p><b>Data Table(s)</b></p> <p>Place all data collected here. Use extra flaps if needed. Data collected can be in the form of tables, written observations, calendars, photos, drawings or timelines. All data should be labeled appropriately with units of measure and/or detailed descriptions of what it represents.</p> <p><b>Graph(s)</b></p> <p>Place all graphs/charts here. Be sure that they are labeled appropriately on each axis and have a descriptive title. Make sure units of measure are noted on each axis and you include a brief statement of what each graph shows. "This graph shows..."</p>
	<p><b>Variables</b></p> <p>Identify the IV, DV(s), and the Constant variables here.</p>	48 inches	