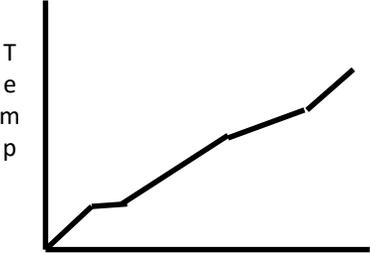


# Inquiry/Experiment – Use the Scientific Method to investigate a question through experimentation.

## THE SCIENTIFIC METHOD:

- 1. Ask a Question** – Find a question that interests you. Use online resources for help if you are having trouble coming up with an idea.
- 2. Do Background Research** – State why you chose the question, and do some research on the topic if applicable.
- 3. Construct a Hypothesis** – Make a prediction about what you think will happen based on your knowledge and background research.
- 4. Test Your Hypothesis by Doing an Experiment** – Create a repeatable procedure which tests your hypothesis. Collect data from your tests and create charts or graphs to display data.
- 5. Analyze Your Data and Draw a Conclusion** – Describe what happened and discuss any interesting results.
- 6. Communicate Your Results** – Write a Conclusion discussing how your hypothesis compared to your actual results.

## Display Example

<p style="text-align: center;"><b>Background</b></p> <p>I picked up a rubber band outside on a cold day and tried to shoot it but it did not go very far. I wondered why it did not go far.</p> <p style="text-align: center;"><b>Materials</b></p> <p>Rubber band, weight, ruler, thermometer, hair dryer, ice</p> <p style="text-align: center;"><b>Procedure</b></p> <ol style="list-style-type: none"><li>1. Hang the weight on a rubber band.</li><li>2. Measure how far it stretches.</li><li>3. Change and measure temperature of rubber band.</li><li>4. Hang weight on the rubber band</li><li>5. Measure how far it stretches</li></ol>	<p style="text-align: center;"><b>Temperature Impact on Elasticity</b></p> <div style="border: 2px solid black; padding: 10px; text-align: center;"><p><b>Does Temperature Effect the Elasticity of a Rubber Band?</b></p><p>By: Hiteon Hawk Grade: 4 Teacher: Ms. Falcon</p></div> <p style="text-align: center;"><b>Hypothesis</b></p> <p>I think temperature will not have an effect on how a rubber band stretches.</p> <p style="text-align: center;"><b>Conclusion</b></p> <p>My hypothesis was incorrect. The temperature of the rubber band did have an effect on how far it stretches. A warm rubber band stretches more and a cold rubber band stretches less.</p>	<p style="text-align: center;"><b>Data</b></p>  <p style="text-align: center;"><b>Analysis</b></p> <p>The warmer the temperature of the rubber band, the further the rubber band stretched. When the rubber band was cold, it stretched the least.</p>
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You can include photos, drawings, or materials from the experiment in your display (as long as they meet the safety guidelines)

**Invention** – Create a new device to address a real world problem.

### Display Example

<p><b>Background</b> Explain why you chose this problem to solve and reference any research materials.</p> <p><b>Materials</b> List materials required by your project</p> <p><b>Build Steps</b> List the steps required to build your invention</p>	<p><b>Project Title</b></p> <div style="border: 2px solid black; padding: 5px; text-align: center;"> <p><b>State your Problem you are solving</b></p> <p>By: Hiteon Hawk Grade: 4 Teacher: Ms. Falcon</p> </div> <p><b>Requirements</b> List the requirements your invention or design must meet to be successful. Include any constraints you have as well.</p> <p>Include diagrams and pictures as necessary.</p>	<p><b>Test Procedure</b> Describe the test procedure you will use to test your design. The procedure should include testing all the requirements for your invention.</p> <p><b>Results</b> Describe the results of your testing procedure</p> <p><b>Improvement Plan</b> Describe any further improvements you would make to the design or the testing process.</p>
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**Reverse Engineering** – Disassemble a mechanical product to analyze and discover how it works.

**\*\*IMPORTANT\*\* Products containing hazardous materials (such as screens and TVs) and weapons of any kind (including toy guns) are not allowed. Products chosen for reverse engineering should be appropriate for elementary aged students and allowable on school grounds.**

### Display Example

<p><b>Background</b> Explain why you chose this product to reverse-engineer. Include any background research on the product.</p> <p><b>Procedure</b> List the steps required to take apart the product.</p>	<p><b>Project Title</b></p> <div style="border: 2px solid black; padding: 5px; text-align: center;"> <p><b>List item you are Reverse-Engineering</b></p> <p>By: Hiteon Hawk Grade: 4 Teacher: Ms. Falcon</p> </div> <p><b>Product Description</b> Describe how the product works and what it is used for.</p> <p>Include diagram or schematic of where each component is in the product.</p>	<p><b>Individual Components</b> Mount the individual components of the product and label them. Include a brief description of the component function</p>
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You can include photos, drawings, or materials from the experiment in your display (as long as they meet the safety guidelines)