

Humboldt County Doris Niles Science Fair 2024

Student & Family Information



<i>Scientific Method Steps (Competitive showcase)</i>	<i>Detailed Help for Each Step</i>
<p>★<u>Question or Purpose</u> of your Experiment The problem or question you are interested in answering with your experiment.</p> <p>★<u>Origin of Idea</u> What made you want to conduct this experiment? Where did this idea come from? Why do you think it is an important investigation to conduct?</p>	<p>Finding your Question</p>
<p>★<u>Background Research & Bibliography</u>: Before you start your experiment, you will want to conduct research to find out what is already known about your topic. Ideally you will write down notes from at least 3 varied sources. Books, websites, and interviews with experts are great sources. Don't forget: record your sources for a bibliography! **Extra: NoodleTools website info</p>	<p>Background Research Plan Finding Information</p>
<p>★<u>Hypothesis</u>: A hypothesis is an idea that can be tested through experimentation. It is not a prediction (i.e. the expected outcome of an experiment) or an educated guess. It is a statement that answers your question with an explanation that comes from your research and can be tested in your experiment. Write a hypothesis for your idea and a prediction for the outcome of your experiment.</p>	<p>Hypothesis</p>
<p>★<u>Materials</u>: List everything that you will use to conduct your experiment including the specific amount and types of materials. When recording measurements, indicate units.</p>	<p>Materials List</p>
<p>★<u>Procedure</u>: A step-by-step plan or list of instructions in numerical order that you will follow to test your hypothesis. Make sure your instructions are clear enough that anyone could read it and perform your experiment in the exact same manner.</p>	<p>Procedure</p>
<p>★<u>Variables</u>: While identifying variables in your experiment is required for 6th-12th graders, it is great if 4th-5th graders get comfortable identifying them as well. An experiment usually has three types of variables: controlled, independent, and dependent.</p>	<p>Variables</p>
<p>★<u>Data & Results</u>: When you start your experiment, record all of the data you collect. It is good practice to do at least 3 trials for your experiment to make sure your answer was not caused by an uncontrolled variable (accident or something you haven't thought of). It is also helpful to find the AVERAGE of your 3 trials. You can record your data in a table using numbers, drawings, or descriptions. DON'T FORGET TO TAKE PICTURES OF YOUR EXPERIMENT! These are great to include on your project display. You can also make a GRAPH to display your data in a way that helps show patterns.</p>	<p>Conducting an Experiment</p> <p>Data Analysis & Graphs</p>
<p>★<u>Conclusions & Real World Application</u>: Your conclusion should include: 1) If your hypothesis was supported or not (claim). 2) What evidence from the data proves your conclusion. 3) Reasoning (process of making clear how your evidence supports your claim about your hypothesis) to support your conclusion. Include a description about how your experiment relates to the field of study and will be helpful in the real world with your conclusion or in a separate section. Explain what you learned and further ideas for experimentation related to the conclusion.</p>	<p>Conclusions</p>