

Initials of person responsible	7 th Grade Science Project Sections, Components & Timeline	Due by...
	What do you enjoy doing; List three of your favorite things to do and then see if you can find a connection between your three favorite things to do and your partner's most favorite things. Start with the things you really like to do on the weekends. Talk with your parents about the science project you will be doing later in the year and let them know you will need to meet with your partner after school and on weekends later on. Helpful website; http://www.sciencebuddies.org/	Done
	Community issues —What are the issues facing the Loma Prieta community and/or our local region or even society? Really think about the challenges that we are facing today and how your project relates to them. Interviewing parents and community members is key here to discovering issues.	Done
	Initial idea for Science Project —Here your team will be forming a connection between what you both enjoy doing, issues facing our community, and a science project idea. Remember the movies we saw on cutting edge technology and inventions. This is your chance to dream big! You may end up changing this initial idea over the next two weeks, but this is the one thing you and your partner are really interested in doing. Main question; is it feasible? Talk to your parents about this!! Ask their permission, regardless of the complexity or amount of materials you will need. Remind them you will need to meet with your partner.	Done
	Science content link; What area of science does your project involve? Does it involve Engineering, Environmental science, Biology, Physics, Earth science, Astronomy, or Chemistry? Make this connection early on. <u>For example;</u> in the V.W. experiment the science content link is velocity, speed, and momentum.	Done
	Manipulated variable; This is one of the most important points to consider in designing your experiment. If you are able to clearly identify the one thing you want to change in your experiment, you are well on your way to a great science project. <u>For example;</u> the size of the engine in the VW scenario. One sentence.	Done
	Responding variable; This is the thing you think will change because you, the researcher, change the manipulated variable. In many ways this is an inference; a prediction based on prior experience. In reality you cannot be sure this thing will respond until you actually do your experiment. <u>For example;</u> the speed of the car in the VW. One sentence.	Done
	Controlled variables; These are all the many and varied things you will keep the same between one trial and the next of your science fair experiment. Make a long and detailed list here. Be sure to come back here to add to it when you begin your experiment and come up with new items. In our example, weight of car, same tires, same road, same driver... You will easily have a list of a dozen or more things here. <u>For example;</u> same weight of the V.W., same type of tires, etc.	Done

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	Control or Control Group (optional in 7th Grade); The control is the standard against which you compare your manipulated variable trials and should not be confused with controlled variables. The control group is the test which does not have a manipulated variable. It is the untreated plant, the normal situation, the “placebo” group that doesn’t receive the change. <u>For example</u> ; the control in our example is the original V.W.	Done
	Research question; This is always one sentence and is a conditional statement in the format of “I wonder if...then...” and connects the m.v. and r.v. by showing what you think is the relationship between the manipulated and responding variables. You need to know the m.v. and r.v. before you can write your research question. One sentence only. If you have the type of experiment that has several manipulated variables, you will only choose <u>one</u> as an example of your research question. <u>For example</u> “I wonder if I increase the size of my VW engine then will the car then go faster?” One simple sentence	Done
	Hypothesis; Once you have a research question you can write a hypothesis. Again, a hypothesis is a conditional if/then statement and always begins “We predict that...if...then” and connects the m.v. and r.v. together in a way that makes a prediction about what you think will happen. Basically it is a research question in statement format. The research question and hypothesis should always “go together.” If you have the type of experiment that has several manipulated variables, you will only choose <u>one</u> as an example of your research question. <u>For example</u> “I predict that if I increase the size of my VW engine, then my car will go faster”. One simple sentence	Done
	Begin Background Research	Done
	Materials; This is where you initially list all the “stuff” you will need to carry out your experiment. You will add and subtract to this list as your research unfolds. Be very specific. Talk to your parents about this and gather materials early on, don’t wait!!	Done
	Procedure; Your procedure will be another component of your work that will unfold as you do your experiment. Whenever you change your initial procedure while doing your experiment write down what you did! That way if you discover something spectacular the experiment can be repeated accurately. This should be detailed, in PBJ format, numbered sequence, making sure to list number of trials (3-minimum).	Done
	Data table(s); This is where you physically write down your data. It is created ahead of time and is empty to begin with but when you begin your experiment you will fill it in (and probably modify it as you move forward). Along with your “Observations”, your “Data Table(s)” should be with you while your doing the experiment. You should have your data table(s) on a clipboard and use pen. The data (numbers and/or words) will be typed later in Word or Excel on your computer. Be sure to leave room for observations outside the data table where you note changes in procedure, expectations, bias, controlled variables, or design. You should be actively engaged in your science project at home by this time. 1 page of data tables is not uncommon.	Done

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	Performing your Experiment	Dec 10-Feb 15
	Begin Background Research This is where you do some research to see what has been studied about your topic. We will spend time in the library and computer lab but you should plan on doing the rest of your work on this part outside of class. You need two internet and two written references in addition to a fifth reference as background research into some aspect of your topic. Wikipedia does not count as an internet source. Oral references must have interview notes with them to count. All references must be presented in MLA style. <u>For example</u> ; for our V.W. we could research speed, velocity, momentum, etc in our book, library and internet. We could relate it to improving race time in NASCAR. 1/2-page; 12-point font; double space; Times.	December 21 st
	Bibliography; A bibliography is a list of citations to books, articles, websites, interviews, and other documents. In 7 th grade you must have a minimum of two book/article and two internet site and one of your choosing. You should take notes on your citations and discuss those notes in your “Analysis” section. Your bibliography is in MLA style.	December 21 st

	Project Title; Catchy phrase first; then “The Effect of... (M.V.)... on (R.V.)...” format. For example; “Will I get there in time? The Effect of Increasing Engine Size on VW Bug Speed”. 1-Sentence.	Done
	Begin Typing Your Reports & Display Boards	

✓ when done	7 th Grade Presentation Board and Report Typing	Due by...
	Here is the timeline for writing your report and putting together your project display board. Type the report first and then create the display board from that. By March 1 st put the finishing touches on your science experiment and gather all data. <u>Student teams have been gathering data since December 18th at this point.</u> Remember, more data is better; repeated trials, 3 minimum. Your team should have detailed, complete, hand-written notes, materials, procedures, and well-organized data tables and observations in your lab notebooks.	

	<p>Typed Observations; This is the typed list of all the stuff you noted outside your data table. This can be lengthy in a well-done experiment. All these observations form your “Cycle Of Inquiry” in which your experiment becomes not a linear end goal but an open-ended cycle of experimenting, modifying, and experimenting over and again. Remember the 4 types of observations are qualitative, quantitative, direct, indirect. Observations for the V.W. bug experiment might include a wet road or strong winds on one of the test days, etc.</p>	Due by...
	<p>Physical Materials; These are all the “things” you used, built, grew, raised, or produced during your experiment and must not take up more room than in front of your display board without express express consent of your teacher. The most important item here is your science notebook and may also include a laptop, photos, video, etc. Space is limited, so if you think you will need more <u>ask</u>.</p>	Due by...
	<p>Typed Cycle of Inquiry (optional in 7th Grade); This is where you will explain the cycle of inquiry you went through. Every experiment has this component, regardless how simple and well-planned, and regardless whether you are a seasoned scientist or a student. This is where you will describe <u>how your experimental design changed from the beginning of the year to the end</u>, with all the reasons why you made those changes. Your experiment may be very different from the idea you had when you began and here is where you describe the changes you went through. Remember to keep <u>detailed notes of every change!</u> ½ page</p>	Due by...
	<p>Typed Results; This is where you present the results of your experiment. It is a summary, not a repeat of <u>all</u> your observations and data. Remember our work with observations and inferences here. Be sure not to make inferences when you should be making observations. <u>Be sure also to give just the facts; don’t explain or interpret your data here;</u> that comes later in the analysis section. The Results section should match your Materials and Procedures sections. That is, if you present temperature data in the Results section, then back in the Materials and Procedures sections it should say when and how you measured temperature. If you explain in the Materials and Procedures sections that you were looking for certain species of birds, then in the Results section should present that data. Charts, data tables, (in Word or Excel), drawings, photos, videos, and physical artifacts are all ways to summarize results in addition to the 1/2-page typed discussion.</p>	Due by...
	<p>Typed Analysis; What did the “Results” show? What does it all mean? How does what you discovered relate to the literature you reported on in “Background Research?” The “Analysis” section is where you explain your Results. Here is where you will do the majority of your writing. The Analysis section explains the relationships seen in the data and any connections between your variables. For instance you should state <u>whether your experiment found there to be a cause-effect relationship</u> between the manipulated variable and responding variable. Any patterns that you discovered showing up in the Results section are described in the Analysis section using words and <u>various types of graphs</u>. Here is where you discuss <u>how your background research relates to your results</u> (one book/article and one website) and how your results may be a benefit to the community or society. 1-page.</p>	Due by...

	<p>Typed Conclusion; What does it all mean? The Conclusion section restates the research question, variables, hypothesis, and what you wanted to discover or investigate. It answers the research question and states if your Hypothesis was correct or incorrect (you don't lose points for an incorrect hypothesis!). <u>For example:</u> did you discover what you thought you would find? Were the results different from what you expected? What have you learned from your analysis? What further questions would you like to answer based on your study? The conclusion also answers the question of what experiment(s) would/might you do next. 1/2-page.</p>	Due by...
	<p>Typed Summary Introduction; This comes right after the title, is only one or two paragraphs long, and is written after your experimenting is completed. The summary statement includes an introductory sentence that will catch the reader's attention, your interests, the problem in the community or society that you are addressing, and a brief description of your variables and hypothesis. It does <u>not</u> give results of your experiment but rather what you hope to discover. 1-paragraph</p>	Due by...
	<p>First half of presentation board and report completed (typed):</p> <ol style="list-style-type: none"> 1. Title Page (Report only) 2. Table of Contents (Report only) 3. Science content link 4. Introduction/Summary statement 5. Community issue addressed 6. 3 variables, Control group (c.g. is optional in 7th grade) 7. Research question 8. Hypothesis 9. Materials & Procedure in PBJ format 10. Draft data table(s) 11. Integrate extra credit from list 12. Think about alternate presentation modes (optional, see list) 	Due by...
	<p>Second half of presentation board and report completed</p> <ol style="list-style-type: none"> 1. Complete data tables 2. Observations (bulleted, outline, brief) 3. Summary of results 4. Analysis, graphs, charts, etc. 5. Background research 6. Cycle of Inquiry (optional in 7th grade) & Conclusion 7. Bibliography 8. Gather and choose <u>physical materials</u> you want to display by board 	Due by...
	<p>Finishing touches</p> <ol style="list-style-type: none"> 1. Complete last minute details (homework) 2. Incorporate all your extra credit stuff (homework) 3. Rehearse your judging presentations (in class) 4. Rehearse your alternate presentations (in class) 5. Evening of the 3rd; gather materials in one spot by the front door at home. 6. Morning of the 4th; load all your stuff in the car to bring to school. Drop off in designated area. During science class you will set up your boards and materials in the gym and practice your judging presentations; each partner has a role. 	Due by...

	<p>7. At school in science on the 5th; Your big day; Present your results to the judges as a team. Remember our work on leadership, public speaking, teamwork, and community.</p> <p>8. Afternoon of the 6th; Present your projects to the community at the Loma Prieta Science Festival. Afterwards, gather material for home.</p>	
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