

SCIENCE PROJECT STEPS

1. **Choose a topic.** Be sure it interests you. Don't pick one because you think it will be easy. Do some research first. Talk it over with your parents and when you have decided, inform your teacher, and do not ask to change your topic later. Get "Checklists 1 & 1A" from your teacher, signed by your parent and turn it in.
2. **State your purpose as a question.** What is it that you want to find out by doing this project?
3. **Research your problem.** Look at any books/websites that might help you, make observations by simply looking at things, talk to people, and find out as much as possible about your topic. Write down any ideas you have and where you got them. Also, keep note of all information needed for citing your resources. You will use this information to write your Research Plan.
4. **Form a hypothesis.** What do you think is going to happen? Based on what you know or found out from step #3, what do you think the results of your experiments will be? After doing the experiments, it may turn out that what you predicted was wrong. It is okay if this happens.
5. **Plan your project.** How will you test your hypothesis? What experiments will you do? How will you measure the results? Where will you keep your information? Be sure to keep notes and write down everything you do and what happens. Write your Research Plan:
Your Research Plan should be written in FUTURE TENSE and should include the following:
 - a. **Rationale** ("why" you chose this topic/question): Includes a summary of the research you did that supports your research question(s) or hypothesis and explains why this research this research is important and how it might impact society.
 - b. **Research Question(s), Hypothesis(es), /engineering goal(s), Expected Outcomes:** Explain how this is based on the rationale.
 - c. **Procedures-** Describe the following in detail:
 - i. Give a step-by-step, detailed description of how you will conduct your experiment and collect your data.
 - ii. **Risk and Safety:** Describe any potential risks and safety precautions needed.
 - iii. **Data Analysis:** Describe the procedures you will use to analyze data/results.
 - d. **Bibliography:** List your references from your literature review.
6. **Collect all your materials.** Find a place to keep things where others won't bother them. Let other family members know what you are doing so they do not throw your materials away by mistake.
7. **Conduct your experiment.** Remember, the more times you do an experiment the more reliable and accurate the results will be (You should have at least 3-5 trials). Use an average of the results to graph your data. Use something to measure your experiments for example: A ruler or meter stick if you are measuring distance, a clock to measure time, etc. Check the measurements to be sure you are correct. Use the METRIC system for all measurements.
8. **Record your data.** As you do your experiments, you will want to write down what you saw or found out. Organize this information in an orderly manner in your log book. Put the date, time, and any other useful information. Write your measurements clearly.
9. **Draw conclusions.** What did you learn from your experiments? Have you proved or disproved your hypothesis? You made a prediction about what you thought would happen based on your research. Now tell what really did happen. You don't lose points if your hypothesis turned out to be wrong. Write a summary of your conclusions and include this with your **Research Plan**.

10. **Prepare your titles, charts, graphs, drawings, and diagrams.** Make them large enough to see, neat, and colorful.
11. **Construct your science fair display.** Get your cardboard display board from your teacher so you can show all your work and have your hands free to point to sections when you present your work.
12. **Prepare and practice your presentation.** Be able to tell about what you used what you did in your experiments, and what you found out. Know it well enough that you don't have to read it from the display.
13. **Use time line so you don't leave everything until the last minute.** If you need help, tell your parents and your teacher, the earlier the better.
14. **Relax and Enjoy yourself.** You will do a GREAT job!