
Chapter 3

Topic Research

Now that you understand the scientific method, you are ready to get started.

KEEP A JOURNAL

Purchase a bound notebook to serve as your **journal**. This notebook should contain topic and project research. It should contain not only your original ideas but also ideas you get from printed sources or from people. It should also include descriptions of your exploratory and project experiments as well as diagrams, graphs, and written observations of all your results.

Every entry should be as neat as possible and dated. A neat, orderly journal provides a complete and accurate record of your project from start to finish, and it can be used to write your project report. It is also proof of the time you spent searching out the answers to the scientific mystery you undertook to solve. You will want to display the journal with your completed project.

SELECTING A TOPIC

Obviously you want to get an A+ on your project, win awards at the science fair, and learn many new things about science. Some or all of these goals are possible, but you will have to spend a lot of time working on your project, so choose a topic that interests you. It is best to pick a topic and stick with it, but if you find after some work that your topic is not as interesting as you originally thought, stop and select another one. Since it takes

time to develop a good project, it is unwise to repeatedly jump from one topic to another. You may in fact decide to stick with your original idea even if it is not as exciting as you had expected. You might just uncover some very interesting facts that you didn't know.

Remember that the objective of a science project is to learn more about science. Your project doesn't have to be highly complex to be successful. Excellent projects can be developed that answer very basic and fundamental questions about events or situations encountered on a daily basis. There are many easy ways of selecting a topic. The following are just a few of them.

LOOK CLOSELY AT THE WORLD AROUND YOU

You can turn everyday experiences into a project topic by using the "exploring" question "I wonder...?" For example, you often see cut flowers in a vase of water. These flowers stay pretty for days. If you express this as an exploring question—"I wonder, why do cut flowers last so long in a vase of water?"—you have a good question about plants. But could this be a project topic? Think about it! Is it only the water in the vase that keeps the flowers fresh? Does it matter how the flower stems are cut? By continuing to ask questions, you zero in on the topic of water movement through plants.

Keep your eyes and ears open, and start asking yourself more exploring questions, such as "I wonder, why does my dad paint our

house so often?" "I wonder, do different brands of paint last longer?" "I wonder, could I test different kinds of paint on small pieces of wood?" To know more about these things, you can research and design a whole science fair project about the topic of the durability of different kinds of paint. You will be pleasantly surprised at the number of possible project ideas that will come to mind when you begin to look around and use "exploring" questions.

There are an amazing number of comments stated and questions asked by you and those around you each day that could be used to develop science project topics. Be alert and listen for a statement such as "He's a chip off the old block, a southpaw like his dad." If you are in the searching phase of your science fair project, this statement can become an exploring question, such as, "I wonder, what percentage of people are left-handed?" or "I wonder, are there more left-handed boys than girls?" These questions could lead you to developing a project about the topic of genetics (inheriting characteristics from one's parents).

CHOOSE A TOPIC FROM YOUR EXPERIENCE

Having a cold is not pleasant, but you could use this "distasteful" experience as a means of selecting a project topic. For example, you may remember that when you had a cold, food did not taste as good. Ask yourself, "I wonder, was this because my nose was stopped up and I couldn't smell the food?" A project about taste and smell could be very successful. After research, you might decide on a problem question such as "How does smell affect taste?" Propose your hypothesis and start designing your project experiment. For more on developing a project, see Chapter 6, "A Sample Project."

FIND A TOPIC IN SCIENCE MAGAZINES

Don't expect topic ideas in science magazines to include detailed instructions on how to perform experiments and design displays. What you can look for are facts that interest you and that lead you to ask exploring questions. An article about Antarctic animals might bring to mind these exploring questions: "I wonder, how do penguins stay warm?" "I wonder, do fat penguins stay warmer than skinny penguins?" Wow! Body insulation, another great project topic.

SELECT A TOPIC FROM A BOOK ON SCIENCE FAIR PROJECTS OR SCIENCE EXPERIMENTS

Science fair project books, such as this one, can provide you with many different topics to choose from. Even though science experiment books do not give you as much direction as science fair project books, many can provide you with exploratory "cookbook" experiments that tell you what to do, what the results should be, and why. But it will be up to you to provide all the exploring questions and ideas for further experimentation. The 50 project ideas described in this book can further sharpen your skills at expressing exploring questions. A list of different project and experiment books can be found in Appendix A.

SOMETHING TO CONSIDER

You are encouraged not to experiment with vertebrate animals or bacteria. If you do wish to include them in your project, ask your teacher about special permission forms required by your local fair organization. Supervision by a professional, such as a veterinarian or physician, is usually required. The project must cause no harm or undue stress to the subject.