

Managing Successful Science Fair Projects

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J. WESTON
WALCH
PUBLISHER

Portland, Maine

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Science Fair Project Checklist

(Check off each item when completed)

Week #	Due Date	
		SELECTING THE TOPIC
2	_____	<input type="checkbox"/> Hand in Worksheet 1.
3	_____	<input type="checkbox"/> Hand in Worksheet 2.
		RESEARCHING THE SUBJECT
5	_____	<input type="checkbox"/> Hand in Worksheet 3 and Research Notebook with at least six sources.
		WRITING THE HYPOTHESIS
5	_____	<input type="checkbox"/> Hand in Worksheet 4.
		PLANNING THE PROJECT
8	_____	<input type="checkbox"/> Hand in your checklist, Worksheet 5, and Worksheet 5a, if required.
		DISTRICT SCIENCE FAIR PRELIMINARY RESEARCH PLAN AND CERTIFICATION
11	_____	<input type="checkbox"/> All students —submit preliminary research plan to teacher.
11	_____	<input type="checkbox"/> Students with vertebrate animal/DNA/tissue/pathogen/controlled substances/human study projects only —submit the appropriate district science fair certification.
		EXPERIMENTING (VERTEBRATE/HUMAN STUDY PROJECTS UPON APPROVAL BY DISTRICT SCIENCE FAIR)
11	_____	<input type="checkbox"/> Do not begin experimentation until your teacher has signed the “Approval to Proceed” line on the Teacher Approval Form.
11	_____	<input type="checkbox"/> Hand in Worksheet 6.
		MAKING OBSERVATIONS
15	_____	<input type="checkbox"/> Hand in Worksheet 7.
		UNDERSTANDING THE FUNDAMENTALS
17	_____	<input type="checkbox"/> Hand in Worksheet 8.

(continued)



Science Fair Project Checklist *(continued)*

Week #	Due Date	
		ANALYZING THE DATA
20	_____	<input type="checkbox"/> Hand in Worksheet 9.
		INTERPRETING THE RESULTS
22	_____	<input type="checkbox"/> Hand in Worksheet 10.
		SUBMIT ENTRY APPLICATIONS TO SCHOOL AND DISTRICT SCIENCE FAIRS
23	_____	<input type="checkbox"/> Submit completed entry applications to teacher for school and district science fairs.
		WRITING THE ROUGH DRAFT OF PROJECT REPORT—PART 1
23	_____	<input type="checkbox"/> Hand in rough draft of title, introduction, hypothesis, experimental procedure, and bibliography with Worksheet 11.
		WRITING THE ROUGH DRAFT OF PROJECT REPORT—PART 2
24	_____	<input type="checkbox"/> Hand in rough draft of observations, conclusion, and application with Worksheet 11.
		PLANNING THE EXHIBIT
25	_____	<input type="checkbox"/> Hand in sketches of exhibit with Worksheet 12.
		WRITING THE ROUGH DRAFT OF ABSTRACT
26	_____	<input type="checkbox"/> Hand in rough draft of abstract with Worksheet 13.
		PREPARING FOR THE ORAL PRESENTATION
27	_____	<input type="checkbox"/> Hand in Worksheet 14.
27	_____	FINAL PROJECT REPORT AND ABSTRACT DUE
27	_____	PRESENT PROJECT TO CLASS
28	_____	SET UP PROJECT (SEE DETAILED SCHEDULE FOR SCHOOL SCIENCE FAIR)
28	_____	SCHOOL SCIENCE FAIR (SEE DETAILED SCHEDULE FOR SCHOOL SCIENCE FAIR)
30	_____	DISTRICT SCIENCE FAIR (SEE DETAILED SCHEDULE FOR DISTRICT SCIENCE FAIR)



Science Project Tip Sheet 6

EXPERIMENTING

Take nobody's word for it; see for yourself.
—The motto of the Royal Society

Working on your science fair project at home or in the laboratory is an interesting and rewarding experience. During your research, you will be working with materials and equipment that can cause injury if not handled properly. Accidents do not just happen—they are caused by carelessness, haste, and by ignoring safety rules. Before beginning your lab work, read the following safety rules, learn them, and adhere to them.

General Rules

1. Experimenting is serious work, not horse-play.
2. Perform only those experiments previously approved by your teacher.
3. Keep your work area clean and uncluttered.
4. Wear safety goggles when working with flame or chemicals.
5. Know the location of the fire extinguisher, eyewash station, and safety shower before you begin work.
6. Have all apparatus checked out by your teacher before use.
7. Use the correct tool for each job.
8. Keep combustible materials away from heat and flame.
9. Never put your face near an open container of chemicals.
10. Clean up all spills immediately.
11. Report all accidents immediately to your teacher, if working at school, or to your parents, if working at home.
12. Experiments involving fumes or vapors must be conducted under a fume hood.
13. Do not view lasers, the sun, ultraviolet lamps, or other light sources directly.

(continued)



Science Project Tip Sheet 6
EXPERIMENTING *(continued)*

Biological Precautions

1. Use only nonpathogenic bacteria and fungi.
2. Seal all petri dishes with tape and never open them.
3. Wear rubber gloves when working with bacteria.
4. Kill all cultures of bacteria and fungi before disposing of them. This can be done in an autoclave or sterilizer.
5. Make sure that you follow all rules for working with vertebrate animals.

Chemical Precautions

1. Use only chemicals you have obtained from your teacher.
2. Read and double-check all labels on chemical bottles. Take only as much as you need.
3. Avoid touching chemicals.
4. Do not use unlabeled chemicals.
5. Do not return unused chemicals to stock bottles.
6. Never taste chemicals.
7. Use of known or suspected carcinogenic chemicals is strictly regulated. Ask your teacher.
8. Pour acid into water—NEVER pour water into acid.
9. Never mix chemicals without prior clearance from your teacher.

(continued)



Science Project Tip Sheet 6

EXPERIMENTING *(continued)*

Recording Data

For your research data to have significance, you will have to be aware of the measuring limitations of the instrument used. However, you will be able to produce meaningful research results by consulting your teacher about accuracy, significant figures, and scientific notation.

Note: You will need to keep an experimental notebook for your data. Another loose-leaf, three-ring notebook with Experimental Notebook written on the cover is required for your exhibit. Enter all your data and observations in ink. Date all entries. You should also include costs, supplies, problems encountered, and how you solved those problems.

The experimental procedure for your project can be in list or paragraph form. Use the past tense, passive voice. (For example, instead of “I mixed the solution,” say “the solution was mixed.”) The scientific point of view is impersonal. Avoid use of the first person (*I, me, mine, etc.*). Refrain from using contractions. No separate listing of materials is to be made. Materials will be incorporated into the procedural steps.

The test subjects (plants, animals, protists) must be identified by common name and by scientific name. The scientific name is written in italics or underlined. The first word of the scientific name (the genus) is capitalized, but not the second (the species). Specify the source of the test subjects. (For example, Corn seeds, *Zea mays*. Obtained from Parks Brothers Seed Company, taken from 1995 harvest.)

Specify the exact type and brand of all test equipment. If the equipment was borrowed from the school, identify it as such, but do not indicate the name of the school.

Clearly indicate the independent and dependent variables, the controlled variables, and the control group. Use the term “experimental group(s)” for your test group(s).

Another science student of your caliber should be able to exactly duplicate your research from the procedure you have written.



Science Project Worksheet 6**EXPERIMENTAL PROCEDURE**

Write your experimental procedure in the form specified on page 29 so that it can be used for your project report. Use the checklist below to keep on track while you are writing the procedure and again while you are proofreading. Staple your experimental procedure to this worksheet.

- Proper form (list or paragraphs)
- Past tense, passive voice is used (“Seeds were planted...”).
- First-person pronouns (*I, me, my*) are not used.
- Contractions are not used.
- Test subjects (plants, animals, protists) are named by:
 - common name
 - scientific name (genus and species are underlined or italicized)
- Source of test subjects is specified.
- Control group is specified.
- Experimental group(s) are specified.
- Independent variable(s) are described.
- Dependent variable(s) are described.
- Test equipment specified by:
 - brand
 - model
 - source (if borrowed from school, do not use school’s name)
- Controlled conditions are described.
- Another student could duplicate the experiment from this procedure (have another science student read it to be sure).

(continued)



Science Project Worksheet 6

EXPERIMENTAL PROCEDURE *(continued)*

Teacher Comments:

- Proper form
- Past tense, passive voice
- Test subjects named
- Common name of test subjects
- Scientific name of test subjects
- Control group specified
- Experimental groups specified
- Independent variable(s) described
- Dependent variable(s) described
- Test equipment specified
- Controlled conditions are sufficiently described.
- Another student could duplicate the experiment from procedure given.

- Resubmit by _____.
- OK! Well done!

Grade: _____

Science Project Tip Sheet 14

PREPARING FOR THE ORAL PRESENTATION

Science is analytical, descriptive, informative.

—Eric Gill

The oral presentation of your project is your best opportunity to show what you know and what you have accomplished. Your best preparation will be practicing at home in front of your family or in front of a mirror. Making a video or audiotape of your presentation will help you find areas that need improvement.

Dress appropriately for the judging session and for the evening public exhibit. Your teacher will tell you what type of clothing is customary. You may want to bring a snack, but keep it unobtrusive. **Do not chew gum.** These guidelines must also be followed for the district judging session and awards ceremony.

During the judging presentation, you will have your exhibit to use as a visual device and to help you remember facts and figures. Use it! Remain at your project at all times. Do not wander. You will have an opportunity to see the other students' projects during the evening public exhibit.

Normally, judges visit you individually and may stay from one minute to thirty minutes. You may have only one judge, or as many as twenty! When a judge arrives at your exhibit, stand up and smile. If the judge does not immediately ask you a question (typically, "Tell me about your project"), begin with your well-rehearsed opening statements. Some suggestions for opening statements will be given later. Some judges like to appraise your exhibit and even read your abstract before talking with you. If a judge seems to want to follow that path, allow it graciously.

Be courteous and polite at all times. If the judge offers advice on improving your project, listen carefully and thank him or her. You will want to keep a pen and tablet handy to jot down comments and advice given by the judges. These bits of information may help you improve your project for the next year or suggest alternate methods of study.

Do not be upset if the judge asks you a question that you cannot answer. Simply say that you do not know. Do not try to fake it. However, if you feel that the question involves some aspect that you did not intend to research or some factor that you were unable to measure, explain that politely.

(continued)



Science Project Tip Sheet 14**PREPARING FOR THE ORAL PRESENTATION** *(continued)*

Your opening statements are very important and are easy to master. Tell the judge what is exciting and unique about your project. If you had a special or personal reason for selecting this project, explain it. Convince the listener that this is a great project and that you really accomplished something. Show enthusiasm! If you master three to five minutes of opening statements, you will put yourself at ease for the remainder of the judging session.

Here are some tips for your oral presentation to the judges:

- Know your project completely.
- Do not memorize your presentation.
- Dress neatly and professionally.
- Relax.
- Stand up when a judge arrives.
- Be enthusiastic.
- Speak slowly and clearly.
- Be polite.
- Make eye contact.
- Smile.
- Keep it simple.
- Be concise.
- Take a deep breath if you get confused.
- If you don't know, say so.
- Be proud of your project. Remember that not many students can accomplish what you have!

Science Project Worksheet 14

ORAL PRESENTATION CHECKLIST

Use the checklist below to judge your oral presentation. Practice in front of a mirror or make the presentation to friends or family; make a video or audio recording, or present your project to your class or advisor.

- I did not chew gum.
- I made use of the display.
- I had a three-to-five-minute opening statement.
- I used correct grammar.
- I smiled (at least sometimes).
- I had a tablet and pen handy.
- I did not fake answers.
- I took a deep breath if I got lost or confused.
- I spoke slowly and clearly.
- I was enthusiastic.

I practiced:

- with a video camera.
- with an audio recorder.
- in front of a mirror.
- in front of friends or family.
- in front of a class.

Teacher Comments:

- Your oral presentation needs more work. Resubmit by _____.
- Excellent! Good luck with your oral presentation to the judges. Keep practicing.

Grade _____

