

Dates to remember:

- **September 6, 2022:** turn in science fair research report for 20 bonus points. (experiment must be complete)
- **October 3, 2022:** turn in science fair research report for 10 bonus points. (experiment must be complete)
- **October 31, 2022:** final research reports due.
- **Monday, January 9, 2023:** science fair backboards are due at school.
- **Wednesday, January 11, 2023:** science fair open house (p.m.).

Student Name: _____

Homeroom: _____

Science Fair Project Timetable

This project timetable must be printed, completed, and submitted weekly by all students. It is designed to provide students with guidance and assistance, and to ensure successful progress of this long-term project. Each Monday this *same* timetable must be resubmitted with a parent/guardian signature. Note that the first due date on September 6 includes additional requirements for full credit. On each do/due date, students with completed timetables will receive five do/due points; students without timetables will receive zero. *There are no late, partial, or makeup points for do/due grades.* Parent or guardian signatures must be included and all items must be checked off. Before asking a parent to do any of the following timeline tasks for you, circle and highlight the line item and list the reasons on the back of this page that prevent you from completing the task(s) yourself. This timetable will continue to be due until the final research paper is turned in. That means that students taking advantage of the early bird turn-in bonus dates will no longer be required to turn in the timetable.

8 Weeks before the Science Fair: Due 9-6-22 Parent Signature: _____

_____ Your project should have been approved last spring before leaving for summer break. If not, have you taken the necessary steps to get your revisions approved so you may begin?

_____ *Make a list of resources (books/periodicals/journals from the library, people you could interview, letters to send to companies or individuals, internet sites, etc.) Go to www.easybib.com to start listing your complete resource information. Turn in a printed copy. Next to each resource place a handwritten "S" or "H" to indicate whether this will be included in your historical or scientific background. Dictionaries and search engines are *not* references and should not be included in your reference list.

_____ Organize information and narrow focus. Select the materials that are appropriate to your topic and eliminate those you won't be using. Those that are being eliminated should be removed from your working reference list. Add new ones later as needed.

_____ Write, call, and e-mail for additional information and/or help from business firms, government agencies and universities *as appropriate*.

7 Weeks before the Science Fair: Due 9-12-22 Parent Signature: _____

_____ Work on your research notebook writing down everything you did, learned, thought, and observed about the topic and experiment. Date each entry.

_____ *For those who are on the external competition track:* Ms. Rossman identified which Science Day forms are required for your experiment. Make sure all are properly signed and completely filled out *before* starting your experiment. Signatures cannot be requested after the experiment is turned in and will result in disqualification from competition (Academy of Science rule). Make sure all forms are completely filled out. Remove any instructional post-it notes attached by Ms. Rossman after you complete her instruction(s).

_____ Collect materials and equipment, select an appropriate work site, and carefully follow all safety regulations.

_____ Learn how to use any apparatus required for the project. Seek expert *guidance* whenever necessary.

_____ Set up your investigation/experiment.

6 weeks before the Science Fair Due 9-19-22 Parent Signature: _____

_____ Begin testing, experimenting, or building. How many trials will you have or how many prototypes? This should have been decided when you submitted your proposal.

_____ Keep your research notebook current by writing down what you do each day. **Date each and every entry.** It is your research diary, *not* your report. It is your go-to document when you get *ready* to type your report.

5 Weeks before the Science Fair Due 9-26-22 Parent Signature: _____

_____ Sometimes unexpected events happen or you may get an idea about a change you'd like to make. Check with Ms. Rossman first for approval of any *major* changes, especially if they might require a change in paperwork for those on the competition track.

_____ Add new information to your research notebook as your experiment continues.

_____ Collect data. This means that you should take measurements of whatever you said you would be counting or designing in your proposal and include all those numbers and measurements in your notebook.

_____ Complete the research for the scientific and historical backgrounds for your topic. Begin work on first draft of written report: problem statement or need (copy from proposal), hypothesis or design statement (copy from proposal), first draft of historical and scientific background information (what you have been researching up to this point—no fewer than six total paragraphs but no more than four word-processed pages), credits (who helped you and what did they do?), and references (use information placed in easybib.com and select option to convert to Word document. **Also, according to Academy of Science requirements, URLs *must* be included despite MLA designations for non-inclusion).**

4 Weeks before the Fair Due 10-3-22 Parent Signature: _____

_____ Continue recording notes and observations in your research notebook. **Date all entries.** This would be a good time to double-check the research report checklist to make sure you are including all the point-bearing elements in your notebook.

_____ **Take photographs of the research project in progress.** You should be able to visually document your experiment with photos. **The pictures must show you and your experiment in progress.**

_____ Revise rough draft—read it over and think about how you might improve upon it. More details?

_____ Grammar check? Spelling check? Are sentences complete? Are more resources needed?

_____ Become the expert.

3 Weeks before the Fair Due 10-10-22 Parent Signature: _____

_____ Continue experimentation if needed.

_____ Start the analysis of data collected. This means you should think about the meaning of the measurements you took. Decide whether or not additional experiments or trials are needed. Did something unexpected happen that will require you to do the experiment again? Example—no seeds sprouted. Or maybe you just want to double check the outcome because your results were different from what you thought might happen. If so, re-run the experiment making observations as you go.

_____ Finish taking photographs of your project.

2 Weeks before the Science Fair Due 10-17-22 Parent Signature: _____

_____ Finish the experiment.

_____ Write second draft of research paper to include data analysis (all of which should be taken from your source document—the science fair notebook where you should have written everything to be included in your final report): what did you observe (**qualitative observations related to the responding variable**), what did you count or measure (**quantitative observations related to the responding variable**), what do you think it means, would you change anything if you did it again, what did you conclude, did you *support* your hypothesis, etc. Review requirements in your formatted example to make sure you included *all* necessary parts and that they are presented in the correct order. If not, fix.

_____ Write an abstract for the project using 250 words or fewer. This is a summary of your project.

Tell the topic of your project, what you thought would happen (hypothesis), what you did to test your idea (brief overview of procedure), brief overview of results, whether or not it turned out as you expected and whether or not hypothesis was *supported*. End by telling what you concluded about the *science* behind your project. (Proper: I concluded plants grow better with fertilizer; Improper: I concluded that I have a green thumb.)

1 Weeks before the Fair Due 10-22-22 Parent Signature: _____

_____ Write final draft of report. Proofread carefully. Competition candidates: make sure you have secured all required signatures on the science day forms. Once your research paper is turned in, the ability to request signatures on any science day form is closed. No exceptions. Failure to have the proper signature will disqualify your project from competing at external science fairs. These are the rules of the Academy of Science.

_____ Practice gratitude: Use this time to write thank-you notes to all those who assisted you in the completion of your science fair project. Take a picture of the thank you notes you wrote and include a copy at the end of your report.

October 31: Research project is due. You are temporarily done with science fair.

Preparing for a Successful Science Fair

It is time to start working on next year's science fair project! Why should students participate in science fairs? According to The Ohio Academy of Science, "One of the primary goals in science teaching is to develop a student's skills in critical thinking, inquiry and/or problem solving. A Science Day Program offers each student the opportunity to define a problem and to design an experiment that will attempt to solve or investigate that problem, thus enabling the student to learn through discovery."

Topic Selection

- Your project must either test a design or perform an experiment (not a demonstration of something that exists or pure research on a topic).
- Taking a survey by asking people questions does *not* count as an experiment.
- Your experiment *must* take measurements and collect data.
- The materials available to conduct the experiment must be available to you.

Research Notebook

Based on Ohio Academy of Science Day Standards, students are required to keep a *bound, handwritten* research notebook from the very beginning stages of gathering ideas to the end written research report. Record the date on the page every time you record something in the notebook. I will be looking for printed copies of your proposals, notes for research report, references, etc. Word processed research notebooks are *not* acceptable and will receive zero credit from me on the academic portion of your grade. Your notebook is a working resource that demonstrates progress over time starting with your project's humble beginnings and ending with its revised research report. It is *not* written for an outside audience. It is *not* a rough draft of your research report. There should be nothing in your final report that does not originate from your bound, handwritten research notebook. It is your "go-to" resource when there are questions to be answered or clarification required. You should be able to sit at the computer with nothing but your research notebook and complete your entire report. If you can't, your notebook is incomplete. Lastly, under *no* circumstances should you recopy the contents of your notebook into a new notebook to make it look "neater." It will diminish the value of your work and call its authenticity into question. Also, pages should never be removed from the notebook. Visit the following link for information on what makes a great notebook:

<http://www.sciencebuddies.org/mentoring/project-laboratory-notebook.pdf>

Descriptive Title Here
Your Name Here

This is a sample poster display. Actual displays may vary somewhat from this sample, but all basic elements that would appear in a technical paper should be displayed, including:

Project Title
Abstract
Problem, objective or question and hypothesis
Materials and methods
Results
Discussion including conclusions
References and/or
Acknowledgments

Abstract

Text description of project with major results and conclusion(s).

Problem, Objective or Question

Concise question that was addressed.

Hypothesis

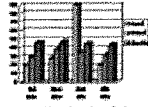
Single sentence statement.

Click "embed TrueType fonts" when saving your presentation

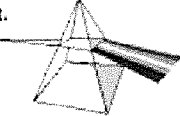
Materials & Methods

Experimental design - Have your laboratory notebook with you for more details.

Results



To change the look of the chart, double click on it. To change the data in the chart, double click on the chart, use the view pulldown and choose datasheet.



Here is an example of a picture inserted into the poster. This one is from clip art, but a scanned image from your camera would also work.

Discussion

Tell about your thought process which led to your results.

Conclusions

OK, you did all this work So what...? Do the results make sense?

Acknowledgments

References

What's next?

What's left to do?

Illustration modified from original PowerPoint™ presentation by Richard Sundburg.

Backboard Setup

Do *not* complete your backboard until your written report has been returned to you, which will be before Thanksgiving break. Use the feedback in your report to make corrections to the information you will be placing on your backboard.

- All text on the backboard must be *computer generated*. Exceptions would be pre-made lettering for titles. Make it visually pleasing. Don't forget to word process your NAME! Place your name on the front *and* back of the board.
- Lay out the materials on the backboard *before* you attach them. Be sure they fit and that you have no mistakes. Proofread carefully. Arrange twice; glue once. Your topics should flow in chronological order starting with the upper left corner and ending in the lower right corner. Complete your backboard in enough advance time of the due date to make certain your elements will stay stuck to your board.

Science Fair Research Report Assessment Checklist

(Contents should appear in the following order)

1. Title Page (follow packet guidelines)	_____ /5
2. Table of Contents (follow packet guidelines)	_____ /5
3. Abstract (250 words or fewer)	_____ /10
4. Introduction	
a. Reason for interest in project (1 paragraph)	_____ /5
b. Historical background (Min. 3 paragraphs/max 4 pages sections b & c combined)	_____ /10
c. Scientific background (Min. 3 paragraphs/max 4 pages sections b & c combined)	_____ /10
d. Reason proof should be done (1 paragraph)	_____ /5
e. How information can benefit society (1 paragraph)	_____ /5
5. Experimental	
a. Problem Statement <u>or</u> Need, (use approved copy from proposal)	_____ /5
b. Hypothesis <u>or</u> Design Statement (use approved copy from proposal)	_____ /5
c. Materials (use approved copy from proposal)	_____ /5
d. Procedure (use approved copy from proposal)	_____ /10
e. Observations (follow packet guidelines)	_____ /5
f. Data Analysis (follow packet guidelines)	_____ /5
g. Conclusion (follow packet guidelines)	_____ /5
6. Credits (follow packet guidelines)	_____ /5
7. Alphabetized References (printed from easybib.com, min. 5 scientific references, URLs included)	_____ /25
8. Spelling	_____ /5
9. Sentence structure, grammar, punctuation	_____ /5
10. Overall organization and quality	_____ /10
11. Bound Research Notebook (separate document but due with report, should include printed copy of original proposal (2), signed plagiarism form (2), all pages intact (2), references (3), notes to write report \ or copies of information used in written report (8), data, (8), dates of all entries (3)	_____ /28
Total	_____ /168

Research report points will be posted in 2nd quarter.

For Those on the Competition Track

This is the rubric that the judges will use for those who plan to participate in competitive science fairs (District Qualifier, District, State, NEOSEF):

1. For all Experimental Projects, except those involving Engineering Design

Knowledge Achieved (considering the student's age and grade level)

- Correct use and understanding of terms and principles
- Evidence that student acquired in-depth knowledge
- Literature search: extent of scientific, engineering or medical journals/sources or just popular literature citations
- Supplements answers with additional information

Effective Use of Scientific Method or Technological Design

- Well-documented Project Data Book/notebook/ lab journal.
- Experimental Design: specific problem or question, clearly stated hypothesis or technological design statement
- Experimental Design: clear method(s) with correctly defined and measured variables and controls
- Experimental Design: sufficient understanding of methods from related studies in the literature
- Data handling, data tables, graphs, statistics; sufficient number of trials or samples for the problem
- Valid conclusion(s) or discussion of results
- Effective Use of professional equipment, or correct construction/use of home-made apparatus, equipment, experimental materials, or models

Clarity of Expression

- Explanation and understanding of the project is demonstrated in Oral Presentation; questions answered clearly and correctly
- Written report: title, organization, results, citations, references
- Abstract with clear statement of results
- Ability to explain written passages of the Abstract, Research Report, and Project Data Book/notebook/logbook.

Originality and Creativity

- New idea, concept, principle, hypothesis, insight or non-obvious approach or problem definition
- Novel association or relationship of previous discoveries or knowledge
- Inquiry or Designed based rather than a summary of knowledge
- Unique approach to a problem, ingenious use of materials
- Evidence of initiative; rigorous analyses of extensive or robust data or results that reveal previously unknown relations

2) For projects involving Engineering Design

Knowledge Achieved (considering the student's age and grade level)

- Correct use and understanding of terms and principles
- Literature search: appropriate use of scientific, engineering or medical journals /sources vs just popular literature citations
- Student shows they have gained knowledge and understanding unique to their project
- Adequate depth of knowledge and skills in technology systems involved
- In interview student supplements answers with additional relevant information

Use of Engineering Design

- Engineering design: specific problem or need defined, background information gathered and analyzed, criteria for success established, preliminary designs prepared and prototype or model created, prototype or model tested and results analyzed, results clearly communicated
- Sufficient testing of the prototype or model; data appropriately measured, presented and analyzed
- Prototype meets criteria for success that were established
- Well-documented design/engineering notebook
- Student effectively used materials and processes to correctly build prototype or model
- Student identifies and applies scientific principles in their design

Clarity of Expression

- Clear statement of technological problem or need and the appropriate criteria for success
- Design notebook: organization, sketches/photos, iterations, testing data and results, references
- Written report: unambiguous title, organization, results, conclusions, reflections, correct grammar and spelling, citations, references
- Visual display: neatness, conveys essence of the problem statement, background, design statement, prototype, testing & results, and conclusion(s)
- Oral presentation: understanding or from memory; questions answered correctly and clearly

Originality and Creativity

- New idea, concept, principle, design, or non-obvious approach
- Novel association or relationship of previous designs or knowledge
- Design effectively addresses problem or need creatively
- Design-based rather than a summary of knowledge

Additional Report Considerations from Ms. Rossman:

When turning in your proposal:

- I would like students and parents to be aware that proposals are *rarely* approved on the first or even second round of submission. Since this is a problem-solving activity, I find it best to assist students in identifying problems in advance that I anticipate will arise based on the proposals they submit. A returned proposal should be viewed as a growth opportunity, not negative criticism. Sir Isaac Newton took over a decade to formalize his ideas about gravity and motion. It is reasonable to expect that middle school students will need more than one round to think their idea through. If returned, students should strive to solve the problem or answer the question I have asked. Do *NOT* change topics in search of something “easier.”

When turning in your research report and research notebook:

- Print and staple all pages together in the proper order. Place the report inside the right pocket of your folder. All other papers should be placed in the left pocket of your folder in the order you wish me to review the papers—original printed proposal, original plagiarism form, science day form(s), etc. Place the folder in the front cover of the research notebook making sure your name is on the front cover of the notebook as well. Projects will not be accepted in binders or with plastic page protectors.
- In addition to a printed copy of your report, students must also submit a digital copy either on jump drive or via email attachment to cindy.rossman@iwaonline.org. Your report must be contained in one single Word document (not Google.doc or PDF).
- Students on the competition track must include the completed science day forms, completion of which was required prior to beginning the project. Keep the originals and submit photocopies of the required forms in the folder with your research report. Simply submitting blank printed forms is not enough. **Once your research paper is turned in, the ability to request signatures on any science day form is closed.** No exceptions. Failure to have the proper signature will disqualify your project from competing at external science fairs. These are the rules of the Academy of Science, and I enforce them to the letter.
- **Plagiarism:** The following consequences will result if any part of the project is plagiarized: All sections involved will receive a zero, early bird bonus points permanently forfeited, the project will be disqualified from any external competition, and individual participation in next year’s science fair will be required.

Science Fair Competition at IWA and Beyond:

- **District Qualifier:** Any student who wishes may participate in the District Qualifying Science Fair at Kent State University. Students must decide *during the proposal stage* if they are interested in external science fair competition. Students may withdraw their name from competition any time up to the point of official registration. However, students may *not* have their name added to the competition list once they decline competition in the proposal stage. Students who register to participate at any external competition are expected to attend. This is a team effort and your lack of participation is viewed as a forfeit for the school. Please weigh your other commitments carefully in advance, including sports commitments.
- **District 5:** In order to qualify to attend District 5 Science Day, students must score a “Superior” rating at the district qualifier.
- **State Science Day:** Students who receive a “Superior” at District 5 advance to State Science Day in Columbus, Ohio.
- **N.E.O.S.E.F.:** Student registration is limited to ten for this fair. Objective consideration will be given to students who attend the district qualifier coupled with their IWA academic score. Ms. Rossman will make the final determination and notify students in writing if they are selected to represent IWA in the science fair. Only those who *attend* the district qualifier will be eligible for consideration.

The following document has been distributed by the Ohio Academy of Science and it is a requirement for all science fair participants and their parents to read and sign. Please print (this full page plus the next one), sign, and attach both pages to your proposal. This document, along with your proposal, will become part of your research notebook.

What is Plagiarism

By S.E. Van Bramer, Widener University 1995.

Introduction

Because students often are confused about what is and is not plagiarism, I have prepared this handout to help you understand what is acceptable. There are some gray areas and if you have any questions, ask your instructor.

Plagiarism is very serious and it can be grounds for failure in a course. So ask first.

Another important point is that as you progress in your education the standards become higher. As a College student you are expected to have your own ideas. To read information and explain it in your words. If you complete an assignment by copying material, you are not showing that you understand something. Only that you can repeat what the textbook says. This does not show that you understand.

Definition

Lets start with a definition:

Plagiarize \ˈplɑ-je-,rɪz also j - ə \ *vb* **-rized; -riz-ing** *vt* [*plagiary*] : to steal and pass off (the ideas or words of another) as one's own : use (a created production) without crediting the source *vi*: to commit literary theft: present as new and original an idea or product derived from an existing source - **plagiarizer** *n*
FROM: *Webster's New Collegiate Dictionary 9th ed*, (Springfield, Ma: Merriam 1981, p. 870).

What to do

Now what does this mean for you?

1. First, it is unacceptable to copy something out of a book, newspaper, journal or any other printed source. The most blatant example of this is to directly copy something word for word. It does not matter if it is only a phrase. If it is not yours, either do not use it or place it in quotes and reference it. There are different methods for doing this. The important thing is that the reader can tell what is yours, and what is someone else's.
 - a. For short quotes, use quotation marks in the sentence. An example is "CFC's: These substances are also of concern in connection with the destruction of stratospheric ozone" [Bunce, N. *Environmental Chemistry* (Winnipeg: Wuerz, 1994, p. 19)]
 - a. b. For longer quotes it is appropriate to indent the entire passage:

Chlorofluorocarbons, CFCs: These substances are also of concern in connection with the destruction of stratospheric ozone (Chapter 2). Like N₂O, they have no tropospheric sinks, but are infrared absorbers. Up to 1984, the tropospheric concentrations of three of the major commercial CFCs...

[Bunce, N. *Environmental Chemistry* (Winnipeg: Wuerz, 1994, p. 19)]
0. Another reason to use references is to show where you get information from. When you state a fact, unless it is "general knowledge," you should say where it comes from. Otherwise, a careful reader will have no way to verify your statement. It may be subjective to decide what is "general knowledge" but keep in mind who is your audience. As an example what is your reaction to the statement:

Wetlands emit 150 million tons of methane each year [Bunce, N. *Environmental Chemistry* (Winnipeg: Wuerz, 1994, p. 18)].

Without the reference, why should you believe me?

0. The above examples may seem obvious. If you use something word for word it **MUST** be acknowledged. Things start to get a bit gray when you paraphrase. There is one simple solution to this dilemma. **DO NOT PARAPHRASE!** Only use someone else's writing when it serves a purpose. Only use someone else's writing when you want to quote precisely what they wrote. If this is not your goal, **USE YOUR OWN WORDS.**

a. This avoids any ambiguity about who wrote it. After all, you do not want someone to accuse you of plagiarism.

a. You need to learn how to write in your own style. You may be influenced by authors that you find clear and easy to understand, but your writing needs to be YOUR writing. Mimicking someone else is not a productive exercise. You just learn to cut and paste.

b. An instructor who is reading or grading your work is interested in YOUR understanding of an idea. I am not interested in your ability to copy explanations from the textbook. I know that the author of the book understands it, which is why I picked the textbook. I need to know if YOU understand it.

c. Understanding and learning is more than just replaying something you have heard. Writing is a valuable exercise that tests your ability to explain a topic. I often think I understand something, until I try to write it out. This is an important part of learning.

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This page has been accessed 515736 times since 1/5 /96 .
Last Updated Tuesday, August 13, 1996 1:47:24 PM

Student printed name: _____

**Student signature: _____

Date: _____

Parent Signature: _____

Date: _____

- ****Remember:** The following consequences will result if any part of the project is plagiarized: All sections involved will receive a zero, early bird bonus points permanently forfeited, the project will be disqualified from any external competition, and individual participation in next year's science fair will be required.