



TEACHER GUIDELINES

Teacher Guidelines for Student Science Day Projects

This document has been put together for The Ohio Academy of Science with the assistance of a former teacher who led student-research projects in her classroom. Using her experience, recommendations have been made to help the implementation and execution of independent research projects in your classroom.

This is a four part document to assist teachers:

[Part I Educational Value for Students](#)

[Part II Student Interdisciplinary Performance Expectations](#)

[Part III Guiding Students through Scientific Research Projects](#)

[Part IV Implementing a Local Science Day](#)

Part I. Educational Value for Students

Teachers who recognize the multiple advantages that the implementation of science research projects offer to students, often find themselves trying to convince their administrators, colleagues, and some parents that the time and effort needed for project completion provides significant rewards for students. This section offers a brief listing of learning objectives, and curriculum skills addressed to assist teachers in the discussion.

Science Days or Science Fairs are occasions for the display and evaluation of student-originated, inquiry-based or engineering and technological design projects. A successful Science Day Program will achieve several student-learner objectives:

- Enhance Self-Concept
- Develop Inquiry and Problem-Solving Skills
- Develop Engineering and Technological Skills
- Promote Development of Creativity
- Improve Organizational Ability
- Utilize Mathematical and Statistical Concepts, and Procedures
- Develop Verbal Communication Skills
- Enhance Presentation Skills
- Extend Written Communication Skills
- Promote Independent Learning
- Develop Research Skills
- Develop Critical Thinking Skills



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- Deepen in-depth Knowledge of Science, Technology, Engineering and/or Mathematics

Part II. Implementing Student Performance Expectations

This section provides a brief overview of the expectations addressed throughout the completion of a science research project in Language Arts, Reading and Mathematics. With time being at a premium in the classroom, it is important to recognize that an interdisciplinary approach is both advantageous and manageable.

Science Day Project work *will increase* a student's development of:

- **Vocabulary**
 - Learning new science terminology
 - Developing a personal glossary of the parts, procedures, equipment, methods, and processes regarding their project topic
- **Reading Skill**
 - Using many reading processes such as: making inferences, drawing conclusions, identifying supporting detail, and others
 - Using challenging articles and texts to gain Critical Reading experience
 - Formulating testable questions
 - Skimming and analyzing nonfiction resources for relevant information
 - Using technical resources
- **Written Language**
 - Taking notes
 - Quoting authors
 - Avoiding plagiarism
 - Organizing a research paper
 - Editing paragraphs of research
 - Combining information from multiple sources
 - Preparing an abstract
 - Citing references
- **Verbal Language**
 - Explaining science concepts, and principles



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- Verbalizing the correct pronunciation of scientific vocabulary
- Increasing the ability to respond to different levels of questioning: Factual, Interpretive, Evaluative
- Using graphic visuals to assist in explanations

- **Mathematics**
 - Developing a deeper sense of numbers
 - Recognizing the importance of number accuracy
 - Collecting raw data
 - Organizing data to show patterns, trends
 - Using appropriate Statistical methods

Part III. Guiding Students through a Scientific Research Project

This section will assist a teacher who is working with a large group or classes of students who each have separate topics/projects. The following information is suggested as a successful method of organizing a classroom of students, while maintaining written records of individual students throughout the research project process.

It is essential for teachers to read and become familiar with [The Ohio Academy of Science Standards](#) and the [Student Guide for Project Completion](#), including the [9 Student Appendices](#), before instructing their students about participation in a Science Day Program. After reviewing the documents, teachers may contact the Ohio Academy of Science with any questions or concerns about the student project expectations.

Contact: phone: 614.488.2228 Email: info@ohiosci.org

Website: <http://www.ohiosci.org>



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The [Student Guide for Project Completion](#) is a document written specifically for students that may be completing their project independently. The document provides a step by step approach that students may follow to complete a science research project. The nine Appendices provide required forms and additional explanations that may be needed for entry into the Ohio Academy of Science's Science Day Program. The appendices are referred to throughout the document and should be printed and made available for students in your class that are completing a science research project.

Posting a copy of the Student Guide including the appendices in the classroom will allow students to refer to the forms and procedures at any time. Specific dates that the required documents are due should also be made available at the beginning of the project work. Students will then be able to record the dates in their Project Data Book and on their checklist, Appendix 8.

The [Student Guide](#) discusses the overall progression of project development, as well as the individual steps for students to follow to complete their project. The teacher/instructor should also describe the assessments that are scheduled for each section of student project work. Knowing the due dates, the project components, and the criteria for assessments well in advance, will enable students to plan the completion of the project around their personal schedules in order to meet the deadlines.

[Appendix T10 - Student Record Sheet \(pg 20\)](#)

One of the most frequently mentioned problems that classroom teachers encounter in helping students to complete the science research project is keeping track of each and every student. Teachers often question if their students: need materials or equipment, are collecting accurate data, have enough notes, are correctly implementing their experimental design, or need more time to meet deadlines. I have prepared a form, Appendix T10, for teachers to use that will enable them to record all of the necessary student project information. It is recommended that the teacher print a copy of Appendix T10 for each student they are supervising. Placing all of the copies in a 3- ring notebook for each class of



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students that you are assisting with science research projects will give you immediate access to each student's progress. Thus, teaching three classes will require three separate notebooks (color coding is suggested). All notes, Status Sheets, and results from your student conferencing sessions will be included in this notebook. Keeping the Class Notebook updated is a commitment well worth your time. The contents of the notebook will allow you to: 1) know exactly where each student is currently working within the scientific process, 2), communicate specific performance information with parents, and 3) assess each class's needs and progress throughout the process.

Students should be earning in-class performance grades on a regular basis. This practice will keep students on task and progressing through the project on a timely basis. Even though some teachers may think this practice unnecessary, I have found that if students know in advance that every Tuesday they will earn (points/per cent) grade for the work they have completed, effective use of class time becomes a priority. This strategy can be accomplished by checking student notebooks, written notes, status sheets, experimental data, etc. Direct students to number all of their notecards, pages of written notes, sources used, as well as their Project Data Book pages. Numbering is important for several reasons: it will alert the student if notecards, or resources are missing; it will provide order; and it will show evidence of progress for weekly performance assessments.

Appendix T11

Teachers should be prepared to offer a multitude of resources for students to search for their project idea. I have found consulting with a local Research Librarian prior to the students' search, allowed me to suggest current, scholarly and student friendly resources, as well as identify a contact person for students that may need individual assistance. If possible, two class periods should be scheduled to allow students time to search for new ideas with an instructor present to respond to questions and possible topic ideas. Students should then be ready to narrow their list of potential topics. After acquiring an overview of each topic of



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interest, the students will use Appendix T11 to write drafts of their most promising topics. Further research and a discussion with the science advisor should result in a chosen area of study for most students.

Individual Student Conferencing

It will be necessary for the teacher/science advisor to schedule student-conference time for each student during classes, lunch, study hall or any independent work time. I use student-conferencing throughout the **entire** project process. The conferences need not be lengthy—sometimes they are just a check-in time to ensure the student that their project is going well and that they are on schedule. Conferences are most often held during class time while the other students are quietly writing notes, reviewing resources, or working on other sections of the project. The purpose of the first student conference is to assist any students having difficulties choosing a topic and/or question or problem to study. Some students may also need assistance with writing their hypothesis or design statement.

Formulating Design Statements or Hypotheses while considering variables, constraints, materials, etc. may take a few additional days of more in-depth research on the chosen project topic. Students should have a deadline for submitting their final copy of Appendix T11 for “Teacher Approval”.

After earning approval of their project design, students will continue writing notes to learn additional information about their area of study. The required Research Plan, student Appendix 1, should be collected by the teacher when students have decided on the Methods and Materials to be used in their project. The Research Plan must be submitted and approved **before any** experimenting begins.

Appendix T 12 Status Sheet

Once the students are working independently on their **teacher approved** projects (be sure to recheck individual Appendix T10 forms for approval date), the teacher may want to begin using Appendix T12, the Status Sheet. This document was created for the classroom teacher to be able to gain project information and assess the progress of each student. Distribute a Status Sheet to be completed by each student and then collected for review by the instructor. The form requests



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information on many project components, however the students only complete the statements that reflect their own progress. Dated forms are essential for the teacher to assess the progress of students week to week. This project information will alert the teacher to recognize students within the class who are experiencing frustration, or are in need of special assistance. Teachers should encourage students to express in detail any difficulties they are experiencing with their project on the Status Sheets. It is also recommended that teachers establish a method for students to request “immediate assistance” at any time throughout the months of the project. Teachers working with multiple classes may experience a time when it is difficult to respond to all of the students’ Status Sheet information due to the overwhelming volume of paperwork and conferencing, thus having an established method for immediate assistance is important. Teachers should have Status Sheets, [Appendix T12](#), constantly available to be used whenever there is an indication that students may need help or are not meeting document deadlines. Status Sheets are also beneficial with students returning from a lengthy absence. Comparing the student’s Status Sheet dated before they departed with the one completed when they returned, immediately shows the student’s progress during the missing time period.

The practice of assigning in-class performance grades to all students helps to keep students on task, while providing a positive environment for the teacher to meet individually with other students. As discussed earlier, implementing the practice of Student Conferencing cannot be overstated. Scheduled conferencing with individual students provides many benefits for the student: 1) the student is able to express their need for materials, or resources; clarification of written passages or definitions, 2) the student is able to discuss project components such as the Research Paper, the Project Data Book, the Display and the required forms necessary for them to compete in other events, 3) the student is able to relate their frustrations and disappointments, as well as future assignments, 4) the student receives encouragement and support from the teacher, 5) the student is provided with possible alternatives or solutions to problems with their experiment or design, 6) the student may wish to review their performance assessments with the teacher and make adjustments for future procedures.



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Photographic/Graphic Source Identification Student Appendix 5

It is important to suggest to students that photographs be taken throughout the experiment, the model building, or the prototype trials. The photographs provide evidence that the student actually completed the work themselves, and will be useful as dated visuals on the student's poster display, and/or in written reports. Refer students to Appendix 5 in the **Student Guide**. This form should be printed or copied and then placed on the student's Display Boards during the Science Day event.

Project Data Book

While the experiments or design trials are in progress, and your students are writing both quantitative and qualitative observations in their Project Data Books, repeated checks on each student's progress regarding recorded data should be implemented. Appendix T10, the Student Record Sheet, has a specific section for teachers to complete this task. Teachers may use their own discretion as to the number of times they wish to check student Project Data Books. It is important that the students are writing **everything** that is occurring in the experiment, the trials, the model building, the designs, etc. Teachers should also record the presence of: numbered pages, recorded dates, and the mention of observations, procedural changes, as well as other essential information in the student Project Data Book.

Research Report Drafts

The first draft writing of the Research Paper should be completed after the project data has been collected. Students should be referred to Appendix 2 and be aware that this Report is required for District and State Science Day participation. If a teacher is working alone in the assessment of multiple research papers, it is suggested that he/she set up a staggered deadline listing for students. A reasonable schedule should be worked out so that the teacher is able to assess the number of papers collected each day to avoid the delays students may encounter waiting for



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the return of the research paper draft. Students should make all changes, corrections, and suggestions recommended by their science teacher/English advisor on their first draft before turning in the Final Draft. I strongly encourage teachers to require that each student turn in **both** the First Draft copy and the Final Draft of their Research Paper together on the scheduled date. This is important so that the teacher can easily detect the addition of information prepared by the student, evidence that the student followed the teacher's directions for editing, and if references cited have been corrected or added. Once the final Research Paper has been collected, students should proceed to create the design of their Poster Display, and begin writing an outline for their Oral Presentation to the Judges.

Formative Assessment

The use of Formative Assessment allows teachers to monitor each student's understanding of the research project components, and provides immediate feedback to the students. The teacher will also have written data regarding each student's performance and progress to share with parents or colleagues. The Student Record Sheet, Appendix T10, is a concise form offering specified areas for the teacher to indicate the number of notecards completed, when the first draft was received, the condition of the Project Data Book, and other specific information regarding the research project. As stated previously, the Student Record Sheets ([Appendix T10](#)) are essential to enable teachers to monitor the progress of individual students while supervising several science classes. If you are the Science Day Director, and have several classes of students within your school to monitor, plus the added responsibility of advising teachers in your district, encouraging the use of the Student Record Sheet by all teachers will enable them to successfully monitor each of their students.



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Student Appendix 9

This Check List should be completed by all students. It will ensure that the student has followed the procedures and met the criteria of all required policies. Scheduling Presentation times for each student to present their project, the data they collected, their results and the visual evidence to support their conclusions is another significant part of the project. Students experience a sense of accomplishment when they are given the opportunity to present their own findings, and discuss their project with their peers. During the presentation time, usually 15-25 minutes, you may find the Final Assessment Sheet, [Appendix T13](#), useful to record quantitative and qualitative notes for each part of the overall project. The assessment sheet is detailed, and will allow you to further evaluate and record elements of the Poster Display, and the Project Data Book, even after the student's oral presentation is completed. Of course, you may prepare your own assessment form, but inclusion of all the major project components, and the Judging criteria is strongly suggested.

The same [Judging Criteria](#) used at the Ohio Academy of Science's Science Day events should be used to assess each student's oral presentation. Students should use their scores and the written suggestions by their instructor to improve their project before displaying at a Local Science Day. To be fair to students, it is imperative that the same criteria be used by the judges at a Local Science Day that will be used by judges at the District Science Day and State Science Day. Take time to review the **Instructions to Judges** documents available on The Ohio Academy of Science website. <http://ohiosci.org>

Mini Lessons for Small Group Instruction

When students are having difficulty meeting deadlines, becoming highly frustrated, or are in need of personal attention, it may be time to consider reorganizing your class. Selecting small groups of students that may benefit from receiving additional assistance on a specific topic, procedure, or strategy within the research project process, will enable you to efficiently handle student needs.



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The majority of students would continue to work independently, as you offer the Mini Lessons to the smaller groups.

The Mini Lessons suggested below should be implemented to assist students in clarifying the components of the research project in question. Students may be placed in groups as to the area of need, such as: those needing extra help in writing their research paper, those who need help on their poster display, etc. The amount of time dedicated to addressing student needs is at the discretion of the teacher.

MINI LESSONS are sections of the project on which some students need a more detailed explanation, or additional examples to enable them to implement the skill, or strategy within their own project. I encourage teachers to create a file on each of these 12 topics, as well as others that they find necessary for their students.

- A. Choosing a Topic idea
- B. Identifying a problem and stating a hypothesis or design statement
- C. Locating Research Information and Resources
- D. Note Taking procedures
- E. Documentation
- F. Project Data Book Organization
- G. Experimental Design
- H. Collecting and Organizing data
- I. Analyzing and Interpreting results
- J. Research Report Components
- K. Planning a Display
- L. Outlining the Oral Presentation



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Part IV. Setting up a Local Science Day

This section briefly outlines the procedures a teacher/science day director may follow in setting up a local Science Day at their school.

Teacher Adherence to the Ohio Academy of Science Standards

Teachers promoting student research projects and conducting local science days leading to District and State Science Days, are expected to have their students follow the official Science Day Standards outlined in this document, and those offered on the website at <http://www.ohiosci.org>

Included in these Standards are the Judging Criteria for both individual and team projects that teachers should use locally and that must be used at all District Science Days. **The Ohio Academy of Science discourages the assignment or use of special points or a scoring rubric unique to local science days, and does not permit their use by District or State Science Days.**

Responsibilities of THE LOCAL SCIENCE DAY DIRECTOR:

1. SET DATE AND LOCATION

Science Day Directors first must clear a date that coordinates with their own school's schedule, as well as the events in their District's schedule. When selecting the location it is necessary to keep in mind: a) the estimated number of students who will participate, b) the number of Judges required, c) the room needed for the Judges' meeting, d) the room for recording scores, rating and awards, e) the location for the Awards Ceremony.

2. COORDINATE VOLUNTEERS

Many volunteers are needed to implement a Science Day program in your school. I have found that the officers/coordinators of the school's PTA/PTO are more than willing to assist. It is important to establish a contact person within the group that will coordinate with you and the



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group of volunteers. The contact person should be given a written list of the specific areas where volunteers are needed. It is suggested that you assist in the choosing of the volunteers appointed as coordinators of specific areas. Sometimes, it is ----- to appoint teachers or staff personnel to be coordinators of areas such as: the Judges Room, the initial student set up of projects, and the room where the scores and ratings are calculated. The individual tasks to be accomplished in each area should be printed and posted. The directions for the tasks and procedures should be clearly stated to avoid any misunderstandings. You may want to establish a method and time with your coordinators/volunteers that you will be available to answer any questions or concerns.

3. ACQUIRE SUPPORT

The need for financial and/or in-kind support will depend on the size of your Science Day (number of participants and Judges) and what you choose to award student participants. Many PTA/PTO Organizations will have funds to provide most of the Science Day needs. Small grants within the school district may also be available.

4. DETERMINE THE SCHEDULE

It is essential to have a manageable schedule for everyone participating in your Science Day. Obviously, the larger the number of participants, the longer the time needed for both Set Up and Judging. If it is a school day, students will need to be released from classes and monitors will be needed in the project location. The date and schedule will also be a determining factor for the number of professionals available to Judge. Consulting with your staff, administration, and other professionals should help you gain the support of colleagues to serve as Judges and/or coordinators.

5. RECRUITMENT AND INSTRUCTIONS FOR JUDGES

The need for the participation and support of the professionals in your community cannot be overstated. The date and location, as well as the actual judging time period assigned, will determine their availability and willingness to assist. When recruiting Judges keep in mind the number of



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projects entered in each science area, as well as the grade level of the students. Contact all school administrators; community doctors, dentists, veterinarians, optometrists; government officials, and professional business personnel. Fairness in the assessment of student projects is essential. Three factors are major contributors to a successful assessment: 1) the qualifications of each Judge (level of education, no connection to students, etc.) 2) the implementation of the Ohio Academy of Science criteria; 3) the explanation of the instructions given to the Judges prior to their interviewing students. The goal is to have every student depart knowing that they were judged by a professional that was both knowledgeable in their field of study, and responsible in the use of the established criteria to assess their score.

Print and post all Judging material offered on our website. If possible send a copy of the Judging Instructions to each Judge as they are recruited. Addressing all the Judges prior to the event is extremely important to assure that they both understand their responsibilities, and implement the judging process using the Academy's criteria and rating numbers.

6. ASSEMBLE JUDGES FOLDERS

Even though you may have sent Judging Instructions with the letters to professionals when requesting their assistance in student project judging, often it is not read or studied. It is suggested that a folder be prepared for each judge to receive as they arrive at your Science Day event. The folders should be assembled prior to the event by volunteers. You will need to provide the documents that will be included: 1) print and copy the Ohio Academy of Science's Judging and Ethics Guidelines, 2) print a brief outline of the requirements issued to each student participant, 3) a sample scoring card with a place designated for Judges' Comments and Suggestions to the student, 5) a Thank You note for their participation. Name Tags identifying each Judge is also necessary. Every adult volunteer, judge, staff person, etc. must be identified to be present with students during the judging process.



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7. DEVELOP ENTRY FORM

An Entry Form may seem unnecessary especially if your Science Day is small, but I have found the form to be an official, written consent from the student that he/she will be prepared and intends to participate in the event. It becomes even more important when a misunderstanding occurs with a parent or the student as to their intention to participate. Knowing the number of participants and their topics will assist you when recruiting judges.

8. CREATE PROGRAM

An official program that lists each student participating with their specific Project Title, their Hypothesis, or their Design Statement provides parents, friends and students with a keepsake/record of their participation. This information would be available when students submit their Entry Form.

9. DRAW FLOOR PLAN

Designate space assignments prior to the event. Volunteers may tape numbers to tables that will be used the day of the Science Day, but you should sketch a floor plan as soon as the entry forms have been received to ensure that the location size will be adequate. If students are bringing their own card tables, the spaces should be numbered and displayed on the floor.

10. PREPARE NAME TAGS

All Volunteers, Judges, Participants, and Administrators should have a name tag. Security is always important, so anyone working at the Science Day event needs to be identified. Anyone without a name tag should be asked for identification and their role at the event. Blank name tags and markers need to be available.

11. SET UP TALLY ROOM

The Tally Room is a designated area where the Judges submit their completed judging cards. The Ohio Academy of Science Standards and



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Judging Policies should be available in this location. Teachers, working with a few volunteers will calculate the scores, determine the Ratings, and prepare the Certificates. This area should be off limits to parents of participants, and participants themselves. Trusted professional individuals should be assigned to this area to assure scores are not debated or discussed. School staff personnel should be assigned to read the Judges' Comments before the judging cards are returned to the students. Student Scores are not to be revealed until the Awards Ceremony.

12. ACQUIRE SUPPLIES

Prepare a listing of the supplies that you will need throughout the event and make it available to a volunteer to acquire or purchase. Paper copying of documents, instructions, policies, etc. may be extensive and needs to be addressed when requesting support and funding.

13. ORDER AWARDS

Awards are personal preference when involved with Local Science Days. The Ohio Academy of Science awards each participant at District and State Science Day an official Certificate that includes the earned rating. Some schools prefer to present certificates of participation, ribbons and/or trophies similar to athletic awards. This should be discussed and coordinated with your school staff and administration.

14. AWARD CEREMONY

Receiving awards is another area of personal preference. Some schools want an evening event to allow parents and friends to attend and be able to highlight the students' accomplishments. Other schools prefer a shorter program that may take place soon after the scoring has been completed.

15. SPONSORED AWARDS

Local Science Days may have community business members and/or professional organizations, or industries that are interested in recognizing student accomplishments their field of interest. These awards may



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consist of plaques, financial awards, internships or something significant for the specific industry. The student participants earning the awards are chosen by the professional or community organization.

16. PUBLICITY

Initially, the teacher will want to announce the date and time of the Local Science Day early so that articles may be written by local reporters and appear in the community newspapers. TV Channels and radio or school newspapers may also announce your event. You may decide to include a phone number or email address where you can be contacted by individuals interested in judging student projects. However, it is recommended that the Science Day Director write any articles that discuss the Ohio Academy of Science Standards involving student requirements, project components, and the Judging criteria to ensure that these topics are addressed correctly. The results of the Local Science Day event to be distributed to reporters after the conclusion of the event should also be written by the Science Day Director. This practice will ensure that all students are recognized for their participation and accomplishments, and if additional awards were earned that those students' names are correct as well.

TIMELINE FOR LOCAL SCIENCE DAY DIRECTOR

Four or more months prior

- Student project work in process
- Ask for support from the PTA or PTO
 - (Need volunteers, awards, judges “snacks”)
- Confirm date, location and schedule
 - (Local science day should be 2-3 weeks prior to the District Science Day)
- Prepare Judges' source listing



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Two months prior

- Begin contact with judges
- Order materials (judging cards, certificates, ribbons, plaques, etc.)
- Acquire Supplies
 - (Name tags, pencils, pens, markers, a folder for each judge, masking tape, scissors, staplers, paper clips)
- Record keeping strategies
- Check facilities (all rooms to be used for student displays, judges' room, tally room, award presentation space and Public Address System)

One month prior

- Collect all Entry Forms
- Mail letters to Judges (include Judging Criteria, time, place and age group of students)
- Design a floor plan placing all registered students
- Produce and assemble printed Program
- Make space assignments (projects in 36" sections)
- Complete Judging cards
- Display Awards for Student Motivation
- Contact media
- Print Certificates
- Complete name tags (for participants, judges, officials, other volunteers)
- Confirm list of Volunteers (time available and task)

One week prior

- Review the entire schedule with student participants
- Offer encouragement and support to student participants
- Assign Judges to Individual Projects (if possible)
- Assemble Judges' folders (OAS Mission, Standards, Judging Criteria, and Ethics)
- Re-contact Media



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Science Day

- Meet with Volunteers
- Issue Participant name tags
- Project set up (36" space allowance)
- Assemble students at their assigned space number
- Judges' Briefing
 - Review the Judging Criteria, the procedures and the minimum number of points needed to earn a Superior Rating that may give the participant an opportunity to display at the District Science Day.
 - Discuss Judging Expectations and Ethics
 - Emphasize the need for Judges to write constructive comments and suggestions for students on the back of the judging card that will be returned to the student participant.

Tally Room

- Essential to have a responsible, professional in charge of this room to ensure that the two Judging cards for each student have been totaled and then averaged correctly. The ratings are not to be discussed.
- Stamp or write the Rating on the certificates
- Prepare lists of Awardees and all Superior Rated student Projects

Awards Program

- Recognize all students individually when issuing the Certificates
- Distribute special Awards as applicable
- Name Superiors that are eligible for District Science Day
- Thank all teachers, volunteers, and judges for their time and participation
- Issue summary news release immediately for Media that are present and/or to send to local news papers



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APPENDIX OAS 10

STUDENT RECORD SHEET

Student's Name _____ Class/grade level _____

Identified Problem:

Hypothesis/Design Statement

Experimental Method Date Approved _____

Chosen Design

Variables/conditions/constants/limiting factors

Sample size ---Number of Trials

Procedure for Data Collecting

Equipment Located/Needed

Materials Located/Needed

Literature Search

Date	QUANTITATIVE & QUALITATIVE DESCRIPTION OF NOTES	SOURCES NOTED
------	---	---------------

_____	_____	_____
_____	_____	_____
_____	_____	_____



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STUDENT RECORD SHEET

RESEARCH PLAN COMPLETION DATE/ QUALITY _____

PROJECT DATA BOOK CHECK

1ST DATA BOOK CHECK/QUALITY ____/____ 2ND DATA BOOK CHECK/QUALITY ____/____

3RD DATA BOOK CHECK/QUALITY ____/____ 4TH DATA BOOK CHECK/QUALITY ____/____

FIRST DRAFT OF RESEARCH PAPER DUE: ____ COMPLETED ____ QUALITY ____

FINAL DRAFT OF RESEARCH PAPER DUE: ____ COMPLETED ____ QUALITY ____

DISPLAY DUE: ____ COMPLETED ____ COMPONENTS VISIBLE: ____ QUALITY ____

ORAL PRESENTATION DUE: ____ COMPLETED ____ QUALITY ____

TEACHER COMMENTS

DATE _____

DATE _____

DATE _____

DATE _____

DATE _____

DATE _____

DATE _____



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APPENDIX OAS 11

PROJECT WORKSHEET

QUESTION/PROBLEM TO BE INVESTIGATED _____

DRAFT OF HYPOTHESIS _____

DRAFT OF DESIGN STATEMENT _____

NEED _____

VARIABLES

INDEPENDENT (MANIPULATIVE) _____

DEPENDENT (RESPONDING) _____

CONSTRAINTS _____

SAMPLING _____

TRIALS _____

EXPERIMENTAL GROUPS _____

CONTROL GROUP _____

PROTOTYPE _____

TEACHER APPROVAL:

APPROVED AS WRITTEN _____

APPROVED IF STUDENT IMPLEMENTS STATED CHANGES _____

TEACHER COMMENTS:

DATE _____

DATE _____

DATE _____



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Appendix OAS 12

Science Research Status Report

Name _____ Date _____

Topic _____

1. Number of notecards/pages I have written _____
2. Number of facts/sentences on each card/page _____
3. Number of complete References written on my list or on
Note cards _____
4. My NOTE TAKING is going: (CIRCLE 2) Fine Okay Difficult

I Need Help I need more references I'm doing well

5. My Hypothesis/Design Statement _____

6. My Experiment: (circle all that applies to you)

Is started going fine finished some questions

I need materials I need help no help needed



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7. I have written about my project design/experiment in a notebook/data book, and I am writing all the measurements and observations in that book also. My data book currently has: (check all that applies)

Page Numbers **Dates** **Procedures Listed**

Materials Listed **Measurements** **Observations**

I need help with my Data Book

8. My Research Report is _____



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Appendix OAS 13

Assessment Student Inquiry and Design Projects

Student Name _____	Points Earned
1. Research Plan	_____/50
2. Controlled Experiment/Design a prototype with Project Data Book/Notebook	_____/100
3. A Research Report:	_____/100
i. Title Page (including date and name)	_____
ii. Table of Contents	_____
iii. Abstract (250 words or fewer)	_____
iv. Introductions (background, problem, hypothesis, or technological design statement)	_____
v. Methods and Materials (used to study problem)	_____
vi. Results (included an analysis of data collected, graphs, tables, photographs, and diagrams)	_____
vii. Discussion (included conclusions/ implications/further study)	_____
viii. References or Literature Cited	_____
4. Physical Display (Including Project Notebook)	_____/100
5. Oral Presentation	_____/100
6. Participation in a Local Science Day (met criteria ____ did not meet criteria ____)	



TEACHER GUIDELINES