



## ODACS RULES ELEMENTARY, LEVEL I, GRADES 4-6

### AREA FIVE: ACADEMICS

#### GENERAL RULES

A student may enter a total of two Academic categories. However, he may enter only one category from Division 3 and one category from Division 4. (He may not enter both composition categories or both science fair categories.) Example: He may take two academic tests; or he may take one academic test and enter a science fair project; or he may enter one writing category and one science fair project.

#### Division 4: Science Fair

#### GENERAL RULES

1. A student may enter a total of two Academic categories. However, he may enter only one category from Division 3 and one category from Division 4. (He may not enter both composition categories or both science fair categories.) Example: He may take two academic tests; or he may take one academic test and enter a science fair project; or he may enter one writing category and one science fair project.
2. Science Fair projects will be displayed during the entire competition in the specific location announced by the Competition Director.
3. Students are required to follow the procedures and format described in the ODACS Science Fair Manual. It can be found beginning on page 149 of this manual.
4. Competition will be held in two distinct areas with the student responsible to choose one specific topic area or sub-category to enter.
6. Each student must sign the "Statement of Originality" found on the Science Fair judging form and be present to answer questions in defense of his project. **Statement of Originality:** "I certify that this project is my own original and authentic work and that I received no help in completing this project other than general instruction and supervision."
7. *STEM projects may be entered, but they must meet all science fair regulations and requirements.*
8. Science Fair projects are to be individual projects, not group projects.

#### Category 10: Biological Sciences

1. Behavioral and Social Science
2. Biochemistry
3. Botany
4. Medicine and Health
5. Microbiology
6. Zoology

### SCIENCE FAIR RULES

#### Section 1

The following are the rules used in the annual AACS Science Fair Competition. Experiment appropriateness and safety requirements *must be in compliance with the Regeneron International Science and Engineering Fair Rules. Contestants can view the rules at The Society for Science and the Public ([www.societyforscience.org](http://www.societyforscience.org)); choose the Regeneron International Science and International Science and Engineering Fair; from the Rules and Guidelines, choose the 2020 Rules and Guidelines (or the latest posted year).*

To ensure student safety and compliance with federal and state guidelines **all students must complete Form A and include it in the Forms and Addenda Notebook.** The purpose of the form is to require adult review of the student's



experimental ideas ensuring a safe and adequate method and use of equipment to conduct the experiment, acknowledgment of and compliance with the state and federal government safety requirements, and to provide the necessary adult oversight throughout the entire experiment.

To best prepare for science fair competition, each contestant should use a copy of the Science Fair Judging Form (included in the Judging Forms portion of this manual) as a personal critique sheet.

### Introduction

1. Participants are divided into two categories: Biological or Physical Science. A student may enter only one of the two categories.
2. *Science fair projects will be displayed during the entire competition in the identified location.*
3. *Each contestant must sign the Statement of Originality found on the science fair judging form and be present to answer questions in defense of his project. Statement of Originality: I certify that this project is my own original and authentic work and that I received no help in completing this project other than general instruction and supervision.*
4. *Since they may be interviewed by the judges, Science Fair contestants must attend ODACS Competition.*
5. *Science Fair projects are to be individual projects, not group projects.*
6. *STEM projects may be entered, but they must meet all science fair regulations and requirements.*
7. *Competition will be held in two distinct areas with the student responsible to choose one specific topic area or sub-category to enter. AACS and ODACS recognize the following areas of competition within the Biological and Physical Science categories.*

### Biological Sciences

1. Behavioral and Social Science
2. Biochemistry
3. Botany
4. Medicine and Health
5. Microbiology
6. Zoology

### Physical Sciences

1. Chemistry
2. Computer Science
3. Earth Science
4. Engineering
5. Environmental Science
6. Mathematics
7. Physics
8. Technology

### The Log Book

The Log Book is the **most extensive portion** of the science fair project. The book contains all pertinent information regarding the project to include the thought process as to the choice of the topic and the development of the experimental procedure eventually used. It should include the observed results of the experimental process. It should have sufficient detail so that a person, after reading the Log Book, would be able to duplicate the experiment and achieve the same results without any help from the author.

### Form and Addenda

The notebook **must contain a completed copy of the required Form A**. Further, as the project progresses, there will be information collected that cannot be practically inserted into the Log Book (information such as pictures, certain graphs, correspondence, referenced photocopies, material printed from Internet sources, etc.). Material such as this should be placed in the notebook. Information cited from the Internet must be copied (including webpage address and date printed) and included here. Internet sources are of varying levels of integrity and will be judged accordingly.

### Research Paper

1. Before starting any research on the Internet, Form A (Parent or Guardian Approval section) must be completed.
2. Any research information cited from websites must be printed out and included as part of the Forms and Addenda Notebook.



3. The basic structure of the paper should be a title page, an abstract, the main body, and the bibliography.
4. The abstract (a separate page) summarizes in 250 words or less the entire project. The abstract defines the experiment, briefly explains how it was conducted and summarizes the results.
5. The main body of the paper should flow coherently from start to finish. Appropriate pictures, graphs and other types of visual information may be inserted as required but are not considered as part of the minimum length of the paper. The required length of the paper should be a minimum of ten double spaced pages. The font should be 12 point, margins approximately one inch, and of a style that is easily read. Pages should be numbered.

**ODACS Clarification:** The rules do not indicate a maximum number of pages for the body of the paper. Instead, only a minimum number of pages is indicated. Papers should be typed on a computer, double-spaced, using a 12-point font. The minimum number of pages required is as follows:

Elementary – 5 typed pages (or 7 pages if hand-written)

Junior High – 7 typed pages

Senior High – 10 typed pages

**Important Note:** An “Unbalanced Research Paper” is a common project mistake. This refers to giving to a part of the paper attention that is not appropriate to that part’s relative importance. For example, including four pages of historical background is inappropriate to the purpose of the project. The main focus of the paper should be the science of the project itself. The following chart gives an ODACS suggested guideline for writing a “balanced” research paper of minimum length. It is not intended to be construed as a rule, but merely as a guide for ODACS competition. If the paper exceeds the minimum length, then this guide could be expanded proportionally.

| Discussion Topic | Elementary | Junior High | Senior High |
|------------------|------------|-------------|-------------|
| Research         | 3 ½ pages  | 5 pages     | 7 pages     |
| Experiment       | 1 page     | 1 ½ pages   | 2 pages     |
| Results          | ½ page     | 1 page      | 1 page      |
| <b>Total</b>     | 5 pages    | 7 ½ pages   | 10 pages    |

### Experiment

The experiment is the single most important aspect of the project. It is the project. The entire project revolves around this part. An experiment is a series of tests undertaken in order to verify or refute a hypothesis. The experiment must have a single variable and be controlled; whereas the majority of the experimental population has alterations applied to it, the control portion of the population is set aside and remains unaltered. The observed results of the experimentation should be recorded in the Log Book and be used to draw conclusions concerning the veracity of the hypothesis. The experiment should be repeated multiple times in order to verify the results.

### Project Display

The project display will be positioned on a table such that the project’s maximum height (as measured from the floor) will not exceed 96 inches; the maximum width will not exceed 48 inches. The project display will include a display board positioned on the table with the following items positioned on the table in front of the board: the experimental apparatus (if available), the Log Book, the Forms and Addenda Notebook, the research paper, and three copies of the appropriate judging form. Note: Do not assume that electrical connections will be available at the display location at the AACS National Competition *or at the ODACS Competition.*

The display board will include a project title, hypothesis, abstract, description of materials, procedure, results, and conclusion.

1. Project Title: Wording of the student’s choosing that has a professional appearance.
2. Hypothesis: A stated explanation of an observed or considered event or phenomenon.
3. Abstract: A 250 (or less) word summary which defines the experiment, briefly explains how the experiment was conducted and summarizes the results.



4. Description of Materials: A description of the equipment used in the experimental process.
5. Procedure: A step-by-step explanation of how the experiment was conducted.
6. Results: The data observed—presented in a format of student’s choosing.
7. Conclusion: The student’s assessment as to whether the hypothesis was verified or refuted.

### **Additional Information**

All contestants must submit Form A from the AACS manual with the project. This form is found *in the 2020 AACS Science Fair Manual* and on pages 194a and 194b of the ODACS Manual. Form A includes two pages which may be copied front and back.

### **There is an emphasis on student interviews at ODACS competition for Level II and for Level III.**

1. Judges at the ODACS State Competition will interview all junior high and senior high contestants. Interview slots will be scheduled in the early afternoon on the day of state competition. Students will sign up for interview times when they check in their projects upon arrival. Copies of the schedule of the day will be available in the science fair room; students may consult this schedule while signing up for an interview time so that they may avoid scheduling conflicts.
2. The decision to conduct student interviews at each regional competition will be made region by region based on scheduling and personnel considerations. Students will be informed in advance if interviews will be required at their regional competition. Note: Even if interviews are not required of all students, judges will still have the authority to interview an individual student if they deem it necessary to do so.
3. At any competition where student interviews are conducted, the judges will consider the interview when determining what score to assign to the student in the third box of the judging form, PRESENTATION and DOCUMENTATION.

### **Guidelines Regarding How to Document the Research**

1. Although the rules require the student to include a bibliography page, no specific bibliographical format is required. It will be up to the teacher to guide the student in choosing an acceptable format for organizing the bibliographical information.
2. Each student should use an acceptable format for footnoting information in order to avoid any question about plagiarism.
3. ODACS recommends that each junior high and senior high contestant develop an outline while working on the research paper and that each contestant submit the outline with the project.
4. Level III students may not have help assembling their projects.

## **Section 2**

This section contains abbreviated guidelines pertinent to AACS science fair projects. In general, the *Regeneration International Science and Engineering Fair Rules* will determine the appropriate experiment and safety requirements. However, where applicable, AACS science fair projects will be restricted to comply with the following rules.

1. Experiments Involving Human Subjects and Living Vertebrate Animals
  - a. Experimentation directly involving human subjects is prohibited. This includes all areas of research with the exception of statistical studies.



- b. Experimentation endangering the life of vertebrate animals is prohibited.
- c. Statistical studies are permissible if they comply with the following:
  - (1) The student researcher is not directly involved in the acquisition of raw data from humans. Material must be obtained from reliable, outside sources.
  - (2) The material obtained does not compromise the anonymity of the human individuals surveyed.
  - (3) The project may not deal with a subject that violates or contradicts biblical standards of morality. Competition officials shall have full authority for making any determination in this regard. Projects determined to be inappropriate will be penalized.
  - (4) The student researcher may be directly involved in the acquisition of raw data from living vertebrate animal subjects but only if it involves observation of the animals in their natural habitat undisturbed by the student researcher. An exception for domesticated farm animals is such that the farm is considered the animal's habitat.
  - (5) The student researcher must comply with all existing federal, state, and local laws during the course of his experiment.
- 2. Experiments Involving Bacteria, Fungi, Microorganisms, etc. (including rDNA)
  - a. Experiments involving agents classified as bio-safety level risk group 3 or 4 (BSL-3 and BSL-4) are prohibited.
  - b. Experiments involving rDNA that requires containment are prohibited.
  - c. Experiments may involve material that are agents classified as bio-safety level risk 2 and may also include non-containment rDNA. These projects should be undertaken with the risk well understood and include the following additional regulations:
    - (1) All research must be under the direct supervision of a qualified scientist or certified expert.
    - (2) All experimentation must be at an institution where proper bio-safety protocol can be observed.
    - (3) The qualified scientist or certified expert will be solely responsible for the acquisition and disposal of all material in accordance with procedures appropriate to the material used.
    - (4) The student researcher must be educated by the qualified scientist or certified expert in regard to the risks involved with such material.
  - d. Disposal of all biological agents must be in accordance with their bio-safety levels. The qualified scientist or certified expert will manage acceptable methods of disposal.
  - e. **No** experimental material from this category may be displayed. Pictures should be properly referenced in the Forms and Addenda Notebook. All display apparatus will be properly sterilized to ensure that no experimental or hazardous material is on this apparatus.
- 3. Experiments Involving Animal Tissue (Non-Human)
  - a. The tissue utilized must be safe for student researcher handling. Experiments involving diseased or infected tissue are prohibited.
  - b. The tissue must have been already dead or obtained as a result of an otherwise required/necessary procedure for the health of the animal (e.g. tooth removal resulting from a dental cleaning). Removal of the tissue must be performed by the qualified scientist or certified expert, and any tests performed must be at a research institution, veterinary clinic, or equivalent.
  - c. The qualified scientist or certified expert must educate the student researcher as to proper handling of animal tissue. Dispose of tissue in accordance with generally accepted procedures.
  - d. No tissue may be displayed. Pictures should be properly referenced in the Forms and Addenda Notebook.
- 4. Experiments Involving Controlled or Radioactive Substances are prohibited, i.e., radiation, prescription or otherwise illegal drugs and tobacco.
- 5. Experiments Involving Hazardous or Dangerous Substances or Potentially Dangerous Apparatus (including Firearms, Explosives, etc.)
  - a. The purchase and use of firearms, ammunition, powder, etc., is regulated by law. All federal, state, and local laws must be obeyed in the course of the project.
  - b. The student researcher must be educated as to the danger of the substance, protective measures necessary, legal disposal and procedures regarding the accidental spillage of these substances. Until properly trained, substances deemed hazardous, toxic, or dangerous must be handled only by the



- qualified scientist or certified expert. Safety precautions, protective clothing, protective shielding, etc., should be in place prior to any experimentation. Material Safety Data Sheets must also be on hand.
- c. If the apparatus utilized is potentially dangerous, then it must be operated in the presence of the adult supervisor, qualified scientist or certified expert.
  - d. No hazardous or dangerous substances may be displayed. Pictures should be properly referenced in the Forms and Addenda Notebook. The apparatus may be displayed at the competition but must not be operated. If the apparatus has items that are sharp, dangerous, or that might potentially be considered hazardous, then it must be shielded or somehow enclosed.
6. Experiments Involving Voltages Greater Than 250V AC or DC
- a. The adult supervisor, qualified scientist or certified expert must approve the experiment device prior to its operation. The apparatus must have a clearly visible and accessible disconnect or on/off switch. The circuitry must be protected by appropriate fuses or circuit breakers and appropriate insulation or shielding must be in place prior to any experimentation.
  - b. The apparatus must be in accordance with the National Electric Code and any federal, state, or local regulations. Unless required by the experiment protocol, all wiring must be UL approved. All wire must be sized per load.
  - c. Any device which stores electricity must be properly insulated or discharged prior to the competition.
  - d. The apparatus may be displayed at the competition but must not be operated. If the apparatus has items that are dangerous, or that might potentially be considered hazardous, then it must be shielded or somehow enclosed.