Mission College MESA Science & Engineering Fair
Rules and Guidelines

(Modified from the Intel ISEF Science and Engineering Fair Guidelines)

ETHICS STATEMENT

Scientific fraud and misconduct are not condoned at any level of research or competition. Such practices include plagiarism, forgery, use or presentation of other researcher's work as one's own and fabrication of data. Fraudulent projects will fail to qualify for competition. Under no circumstance can a store bought model be utilized for purposes of experimentation, demonstration or display.

REQUIREMENTS

GENERAL

1. All MESA students competing in the MESA Science and Engineering Fair must adhere to all of the rules as set forth in this document, including the Ethics Statement above.
2. Projects must adhere to local, state, county and U.S. Federal laws, regulations and permitting conditions.
3. The use of non-animal research methods and the use of alternatives to animal research are strongly encouraged and must be explored before conducting a vertebrate animal project. Introduction or disposal of non-native species, pathogens, toxic chemicals or foreign substances into the environment is prohibited. See www.anstaskforce.gov/documents/isef.pdf .

APPROVAL AND DOCUMENTATION

4. Before experimentation begins, all proposed projects must be approved by the MESA Director/Counselor. Bring your Student Checklist (1A) and Research Plan (1B) to the MESA Director/Counselor and review your project. After initial approval any proposed changes in the Student Checklist (1A) and Research Plan (1B) must be re-approved before laboratory experimentation/data collection resumes.
5. A Science and/or Engineering Faculty member is required for all studies involving BSL-2 potentially hazardous biological agents, DEA-controlled substances, many human participant studies and many vertebrate animal studies.
6. On the day of the Science & Engineering Fair, each team must submit a (maximum) 250-word, one-page abstract which summarizes the project work. The abstract must describe research conducted by the team. A project data book and research paper are not required, but are recommended.

PARTICIPANTS

7. Individual teams (one member) or group teams (up to 3 members) are encouraged to compete.
8. Teams must consist of Mission College students currently enrolled in 6 or more units.
9. Each team must include at minimum one MESA Student currently in good standing. A MESA Student in good standing is abiding by all MESA Student contract guidelines.
10. Team membership cannot be changed, including converting from an individual project or vice versa.
11. Each team should appoint a team leader to coordinate the work and act as spokesperson. However, each member of the team must be able to serve as spokesperson, be fully involved with the project, and be familiar with all aspects of the project. The final work must reflect the coordinated efforts of all team members.

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STUDENT CHECKLIST (1A)

1. TEAM MEMBERS

First name	Last name	Email	Phone	Student ID number	Current MESA member? *Yes or no*	Enrolled in 6.0 units or more at MC? *Yes or no*	Check here if team leader
#1.							
#2.							
#3.							

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	STUDENT #1	STUDENT #2	STUDENT #3
PRINT NAME:			
SIGNATURE:			

2. PROJECT

A. Title of Project: _____

B. Start date_____ End date:_____

C. Where will you conduct your experimentation? (check all that apply) ___ Home ___ School __ Field ___ Other: _____

MESA DIRECTOR/COUNSEOR NOTES

Approved or Denied SIGNATURE: _____ Date:_____

COMMENTS:

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Research Plan Instructions (1B)

Provide a typed research plan and attach it to Student Checklist (1A). Please include your name on each page.

The research plan for ALL projects is to include the following:

A. Question or problem being addressed.
B. Goals/Expected Outcomes/Hypotheses.
C. Description in detail of method or procedures (the following are important and key items that should be included when formulating ANY AND ALL research plans.)
   - Procedures: Detail all procedures and experimental design to be used for data collection.
   - Data Analysis: Describe the procedures you will use to analyze the data that answer research question or hypothesis.
D. Bibliography:
   - List at least five (5) major references (e.g. science journal articles, books, internet sites) from your literature review. If you plan to use vertebrate animals, one of these references must be an animal care reference.
   - Choose one style and use it consistently to reference the literature used in the research plan. Guidelines can be found in the ISEF Student handbook: http://www.societyforscience.org/document.doc?id=12

Items A-D below are subject-specific guidelines for additional items to be included in your research plan as applicable:

A. Human Participant's Research:

- Participants. Describe who will participate in your study (age range, gender, racial/ethnic composition). Identify any vulnerable populations (minors, pregnant women, prisoners, mentally disabled or economically disadvantaged).
- Recruitment. Where will you find your participants? How will they be invited to participate?
- Methods. What will participants be asked to do? Will you use any surveys, questionnaires or tests? What is the frequency and length of time involved for each subject?
- Risk Assessment
  - Risks. What are the risks or potential discomforts (physical, psychological, time involved, social, legal etc.) to participants? How will you minimize the risks?
  - Benefits. List any benefits to society or each participant.
- Protection of Privacy. Will any identifiable information (e.g., names, telephone numbers, birthdates, email addresses) be collected? Will data be confidential or anonymous? If anonymous, describe how the data will be collected anonymously. If not anonymous, what procedures are in place for safeguarding confidentiality? Where will the data be stored? Who will have access to the data? What will you do with the data at the end of the study?
- Informed Consent Process. Describe how you will inform participants about the purpose of the study, what they will be asked to do, that their participation is voluntary and they have the right to stop at any time.

B. Vertebrate Animal Research:

- Briefly discuss potential ALTERNATIVES to vertebrate animal use and present a detailed justification for use of vertebrate animals
- Explain potential impact or contribution this research may have
- Detail all procedures to be used
  - Include methods used to minimize potential discomfort, distress, pain and injury to the animals during the course of experimentation
  - Detailed chemical concentrations and drug dosages
- Detail animal numbers, species, strain, sex, age, source, etc. (Include justification of the numbers planned for the research).
- Describe housing and oversight of daily care
- Discuss disposition of the animals at the termination of the study

C. Potentially Hazardous Biological Agents:

- Describe Biosafety Level Assessment process and resultant BSL determination
- Give source of agent, source of specific cell line, etc.
- Detail safety precautions
- Discuss methods of disposal

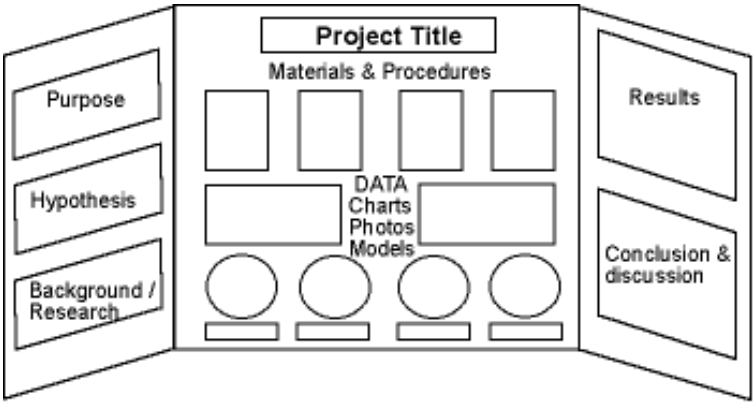
D. Hazardous Chemicals, Activities & Devices:

- Describe Risk Assessment process and results
- Detail chemical concentrations and drug dosages
- Describe safety precautions and procedures to minimize risk
- Discuss methods of disposal

Mission College MESA Science & Engineering Fair
Get ready for the Fair!

A. DISPLAY BOARD

What Makes for a Good Science Fair Project Display Board?	You Should Answer "Yes" to Every Question
Does your display board include: • Title • Abstract • Question • Variables and hypothesis • Background research • Materials list • Experimental procedure • Data analysis and discussion including • data chart(s) & graph(s) • Conclusions (including ideas for future research) • Acknowledgements • Bibliography	Yes / No
Are the sections on your display board organized like a newspaper so that they are easy to follow?	Yes / No
Is the text font large enough to be read easily (at least 16 points)?	Yes / No
Does the title catch people's attention, and is the title font large enough to be read from across the room?	Yes / No
Did you use pictures and diagrams to effectively convey information about your science fair project?	Yes / No
Have you constructed your display board as neatly as possible?	Yes / No
Did you proofread your display board?	Yes / No



B. ABSTRACT

- On the day of the Science & Engineering Fair, each team must submit a (maximum) 250-word, one-page abstract which summarizes the project work. The abstract must describe research conducted by the team.
- Review samples and get help from ISEF at: http://www.societyforscience.org/document.doc?id=27
- A project data book and research paper are not required, but are recommended.