

Dear students and parents,

Welcome to the Silver Mesa Science Fair! This packet contains general rules and guidelines to assist you in your research. The rule packets are separated as follows: K-3<sup>rd</sup>, 4<sup>th</sup>, and 5<sup>th</sup> grade.

K-3<sup>rd</sup> grade students will get the opportunity to present their projects to judges. The 4<sup>th</sup> and 5<sup>th</sup> grade projects will be judged and the top two projects in each grade will be awarded. A judging rubric will be made available for 4<sup>th</sup> and 5<sup>th</sup> grade participants. As 5<sup>th</sup> grade students are the only ones that can progress to the district and regional fairs, the requirements are more rigorous and in full compliance with the University of Utah Science and Engineering Fair (USEF) rules. Note to fifth grade students: Silver Mesa will be advancing award-winning projects to the Canyons School District Science Fair.

In talking about judges, we are always in need! If you love talking to students, then you are qualified! The rubric is a great guide and simple to follow. If you have at least an hour, please reach out to the contact person below. You will need to be registered as a volunteer with Canyons School District. Please see the school PTA website with a link to the application.

If you have questions, please feel free email.

Thank you for your support,

Jill Eichbauer

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# Science Project Information Packet

## 4<sup>th</sup> Grade

This packet contains information that will prove helpful in developing and representing a science experiment. To ensure that the project is realistic and age appropriate, please have the project reviewed by your student's teacher prior to beginning of the experiment.

For this age group an experiment is not required, but encouraged. An acceptable project would be to research and answer a scientific question. This can include a hypotheses or engineering question that develops results or a conclusion or investigation of a topic of interest. The intent is for the student to ask and answer a question using the scientific process.

Teams of two or three are allowed. Students must be in the same class, this includes color class for dual immersion students.

### Requirements:

1. An answerable question or statement of interest
2. Outside research (minimum of 3)
3. Hands on experience with subject or research (may include an experiment)
4. Data in a binder or envelope (including permission slips)
5. Poster for presentation (tri-fold)

The following items **should not be displayed** at the school. If you have a project that includes them please take pictures to have on display.

Living Organisms	Sharp items- Needles/Syringes/Glass
Preserved animals (any remains)	Flames or highly flammable materials
Moldy/decomposing food (see note)	Drugs, Poisons or Hazardous substances
Food (Human or Animal)	Liquids
Bacteria (see note)	Other items inappropriate for school

**Students are not allowed to grow mold or bacteria at home.** Any experiment that begins to decay should be discarded.

\*If you are using human or animal subjects in any experiment you **MUST** have a signed permission slip from the parent of each subject. Unless the subjects are in a public setting, and are unidentifiable and are not being asked to do something for the experiment.

For example:

- Asking friends to play a video game to test if talking on a cell phone reduces reaction time- YES
- Watching the lunchroom to see if boys or girls ate more of their vegetables- NO

## **Recommended Steps:**

### **1. Clear Answerable Question**

The project should have a specific question (hypothesis) that the student is trying to answer or statement about what they are researching. Make sure that the question is not too broad or it will be too difficult to answer. For instance, if you ask how the human body works there are too many answers to effectively support this project. Rather, you could ask the question/statement “I think the appendix helps a body function” or “I think there are more left handed girls than boys in 1<sup>st</sup> grade.”

Here is a 4 question approach offered by the district to facilitate inquiry:

- a) Which materials are available?
- b) What does X do and how does it act?
- c) How can I change the materials to affect the action?
- d) How can I measure or describe the response of X to the change?

Try to help your student keep the question at a good level for their understanding. The purpose of a science fair project is for your student to learn more about science and specifically the scientific method. It is important that the subject is something they have interest in, but also it needs to be at a level that they are capable of understanding. Also not all hypotheses are correct; it's more about the process than the results. The intent is to be able to develop a question with an opinion and learn how to answer/prove it.

### **2. Research (minimum of 3)**

Students are allowed to use books, magazines, websites, documentaries or an interview with an expert in the field they are researching. Wikipedia is a great source for credible sources, but is not considered an original or credible source for information. For this age group it can be helpful, just be cautious of the facts that are stated – they are not always correct! All sources should be documented.

Try to make sure that all the sources are at the student's reading level. The library has lots of wonderful books for all reading levels that can help. Again, the goal is for your student to gain knowledge for themselves, which means materials need to be age appropriate.

### **3. Hands-on Experience**

Students do not have to do an “experiment”, although it is certainly beneficial if relevant to the project. They should have some kind of hands-on experience with their subject. This may be going to a museum, building a model, testing or experimentation, interactions with the subject directly or any other experience that involves hands-on learning that is appropriate for the project. A report will work for this age group but don't forget that the purpose is to gain experience and exposure to the scientific method.

Document the hands-on learning in some manner. Pictures, collected data, models or journals. Use whatever works best for your project keeping in mind what will present best on the poster.

#### 4. Data (Notebook or Journal)

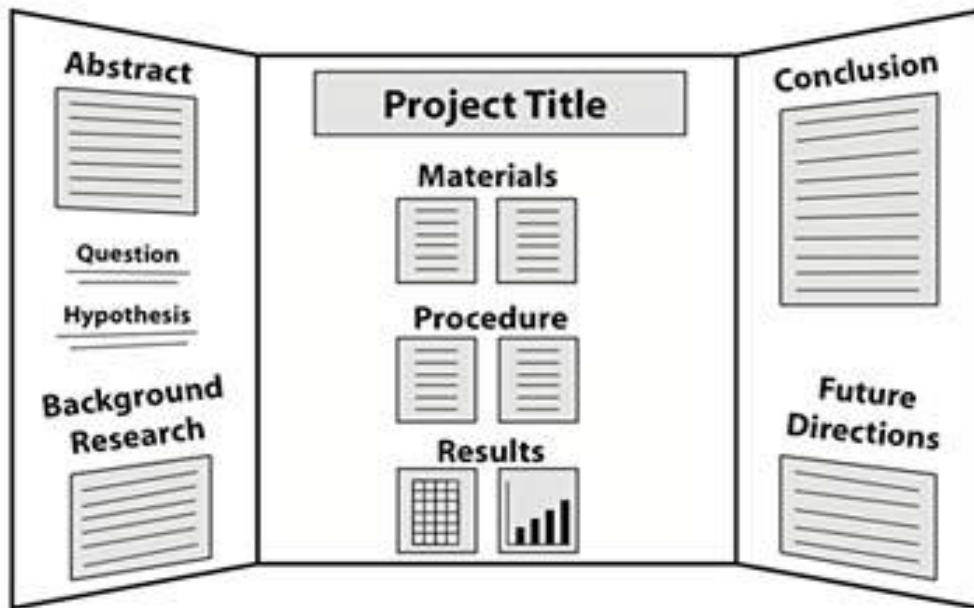
This should be the student's results or findings. Document the source and observation, so they can go back and find the information. All data, raw and tabulated, should be kept together, as well as any other paperwork that is important to the project. This will be the “notebook” or journal for the project. Teams will only need to have one copy of the notebook to accompany their poster, although it is recommended each team member have their own copy to remember their science fair experience.

#### 5. Poster

This should be one of the tri fold posters that can be bought at any craft or office supply store. Your poster should summarize your project in a clear and neat way, containing the following information:

- \*Title for your project
- \*The hypotheses or the question that the student was answering or researching.
- \*The sources the student used for research
- \*Documentation of the hands on experience (photos)
- \*The answer to the question (correct or not) or the conclusion reached
- \*Optional items – Photos, art, abstract summarizing the important or key points, etc. Photos should not show the face of any human that is not the student presenting the project. (Put a sticker over other faces if needed.)

Please make sure that your student's name and teacher name are written on the BACK of the poster. Any items that come for display in addition to the poster also need to be labeled.



For ideas/help visit the U of U Science Fairs' “Tips” web page at <https://usef.utah.edu/resource-center/tips-and-advice> or visit the Science Buddies web page at <http://www.sciencebuddies.org/>. If you have any questions please email. I am happy to try and help in any way possible. Good Luck!

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