Welcome to the 2018
Sunset Primary STEAM Night!
April 26, 2018

The following pages will tell you and your family everything that you need to know to submit a science or inquiry project to STEAM Night. Please contact Willow McCormick if you have additional questions: 503-673-7206 or mccormiw@wlwv.k12.or.us

General Information

The event is non-competitive and highlights student inquiry and learning. Students may enter individually or as a group.

To enter: Please fill out the participation form included in this packet and return it to the office as soon as possible. The participation form must have a parent/guardian signature. We may contact you to confirm or obtain any missing information. You may purchase project boards for $3.00 from the office. Scholarships are available as well. You can also make your own project board at home from old boxes or tag board.

Participation Expectations:

Your project should:

* Show your own ideas and work (no purchased science kits)
* Use correct spelling
* Use photos when possible
* Be neat and creative
* Follow the attached format for display
* Use graph, tables, and charts to present data

Not allowed on display:

- Live animals, reptiles, bugs, bacteria cultures, or molds
- Matches or flames
- Chemicals or substances that are flammable or explosive
- Electricity passing through uninsulated wire. Electrical projects should be battery powered. No power will be available to the display tables.
- Parts or display items too fragile to handle (Please remember that many hands will be touching)
- Uncontained masses or liquids, anything that may cause stains
- Peanuts, tree nuts, or latex
- Blood, gory products or illustrations
- ***If it can spill, hurt, or cause an allergic reaction, it's not allowed.***

Project Ideas

Biology

What color of birdseed do birds like best?

Which cheese grows mold faster?

What foods attract sugar ants? (Why do you find them where there is no sugar?)

Is it easier to judge distance with two eyes or one?

Chemistry

Which crystal grows faster salt or sugar?

Will cola dissolve metal?

How much salt does it take in water to float an egg?

Consumer Science

Which brand of raisin cereal has the most raisins?

Which dish soap makes the most bubbles?

Which laundry detergent works best?

Which pancake syrup is the thickest?

Behavioral Sciences

Do sound levels in school get loud enough to damage our ears?

Does music affect short term memory?

Can things be identified by just their smell?

Botany

Can plants grow without soil?

Do the roots of a plant have to grow downward?

Do calamine lotion and hydrocortisone cream have any effect on poison ivy leaves?

Does soil pH affect the growth of pinto beans?

Physics

Does the size of the wheels on a Lego car affect the distance traveled?

Will a bulb burn brighter with the batteries in a series or parallel?

What kind of things do magnets attract?

Environmental Sciences

Does a bath take less water than a shower?

Does the type of materials put in compost affect its temperature?

Does the location on rainfall change the pH of rainwater?

Earth Sciences

Do different amounts of water create different water pressure?

Can different soil types absorb different amounts of water?

Do meteorites going at a faster speed make bigger craters on impact?

Engineering

Does adding weight to the nose of a paper airplane make it fly straighter?

Does the shape of a parachute affect how it falls?

How big does a lever have to be for someone to lift twice their weight?

Steps in a Scientific Investigation

1. Question

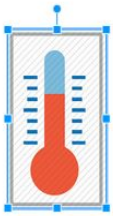
Choose a topic you find interesting. Observe and think about…

- How something works?
- How two things differ from each other?
- How does an animal or organism behave?
- What changes behavior?

Now the challenge – <u>narrow the topic to a specific question</u> with one thing that changes. That's your variable!

Decide what you will measure after you change that thing.

- Time (hours, minutes, days)
- Distance or Height (meters, millimeters, inches, miles)
- Amount – weight (grams, kilograms) or volume (cups, tablespoons, milliliters, liters)
- Temperature
- Occurrence - Did something happen or not?
- Frequency – number of times something happens?



Score	Tally	Frequency
1	/	1
2	/	1
3	///	3
4	/	1
5	////	4
6	~~////~~	5
7	~~////~~ /	6
8	~~////~~	5
9	///	3
10	/	1

2. Hypothesis

Think about what you know about your topic; predict what your experiment will show.

3. Framing the investigation (Background information)

Tell what you already know about your topic. How did you become interested in this question? How did you come up with your question and hypothesis?

4. Design the investigation (Procedure)

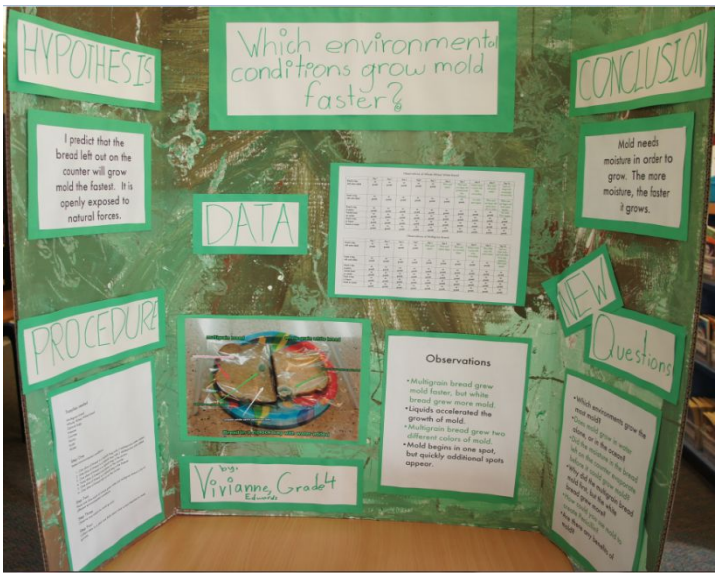
Try to keep everything the same except the one thing you are changing. For example, if you are measuring how many times your cat plays with the big ball compared to the small ball, you would try not to change the color of the balls, the bounciness of balls, or the smell of the balls. Plan the steps in detail. Someone should be able to follow your instructions and do the same exact experiment.

5. Collect and organize your data

- Run your experiment
- Record data
- Record extra observations
- Present data in a way that shows how the thing you changed affected the thing you measured. For example, how ball size compared to how many times the ball was played with. Decide if a chart or graph would show this best. Think about how best to display your data so it answers the question your experiment is asking.

6. Analyze and interpret your data (Conclusion)

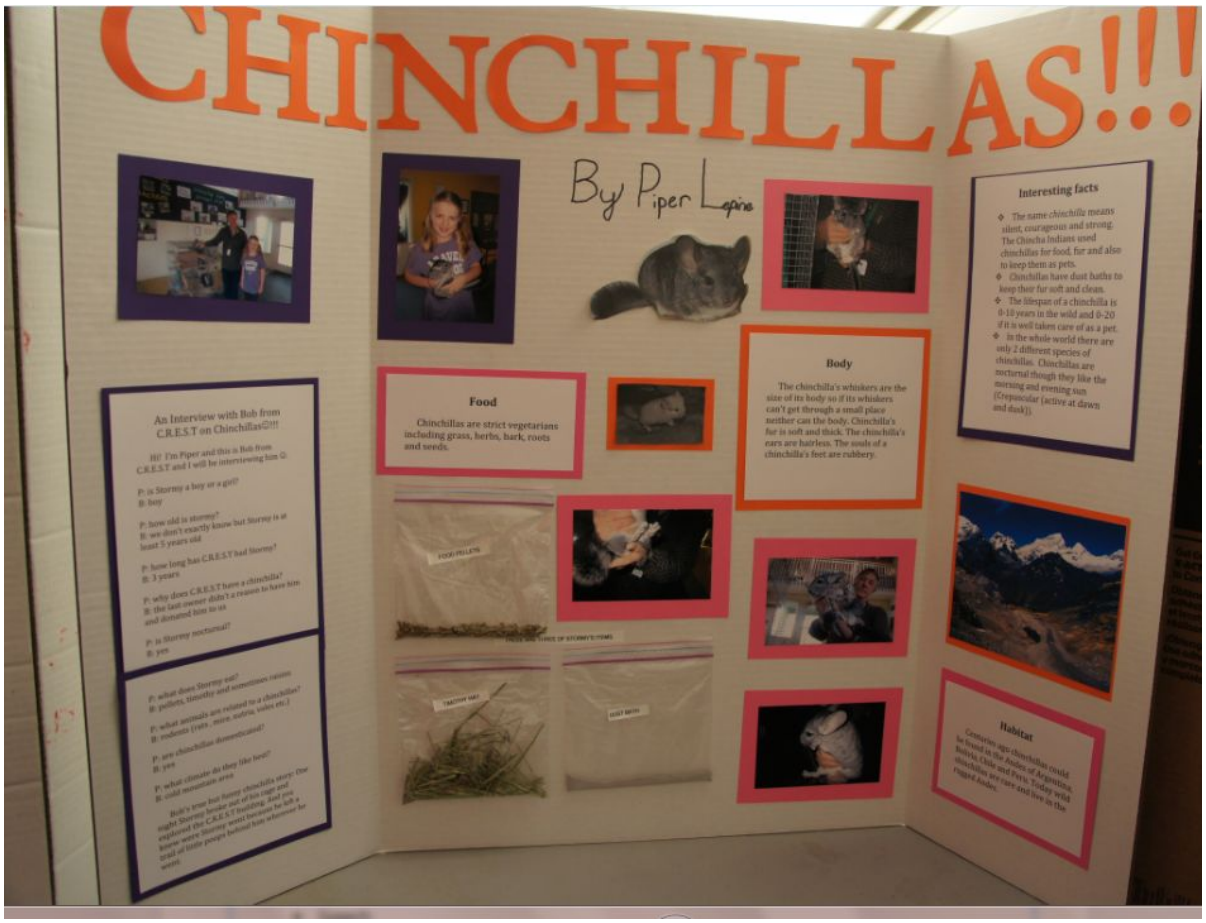
- Did you use science facts you know to help explain what you observed?
- What did your results tell you?
- Did anything unexpected happen?
- Was your hypothesis correct? Why or Why not?
- What would you change to make this experiment better?
- What other experiments and questions did this make you think of?



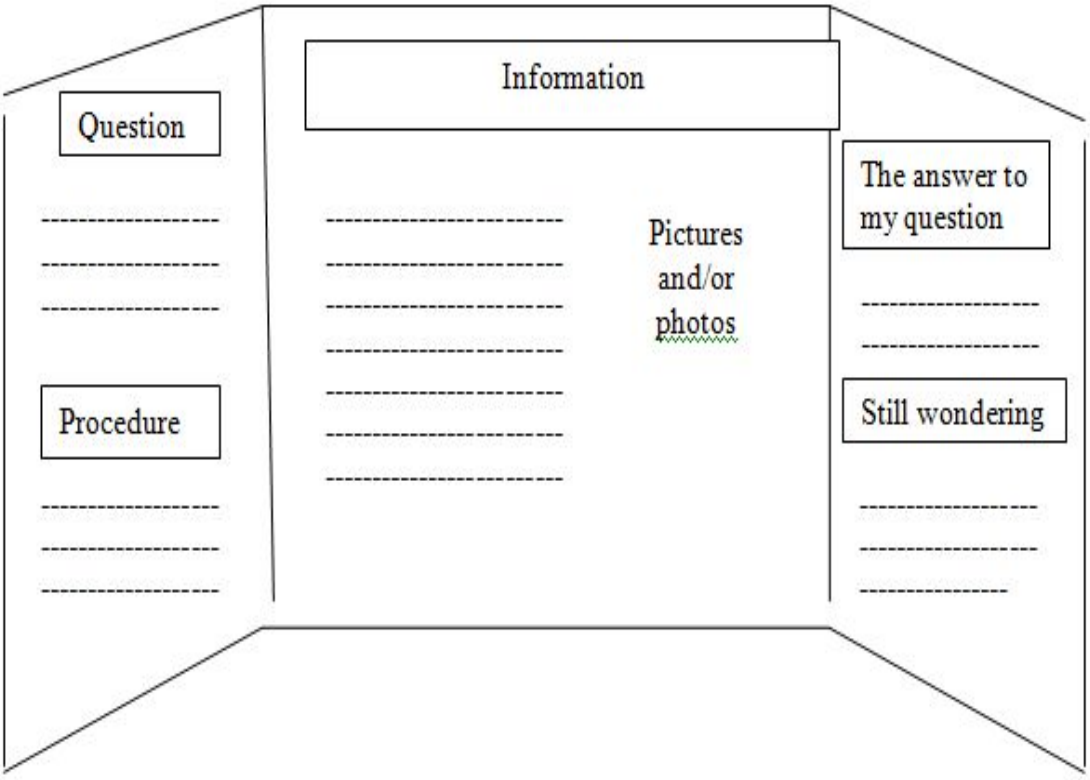
Steps in an Inquiry Project

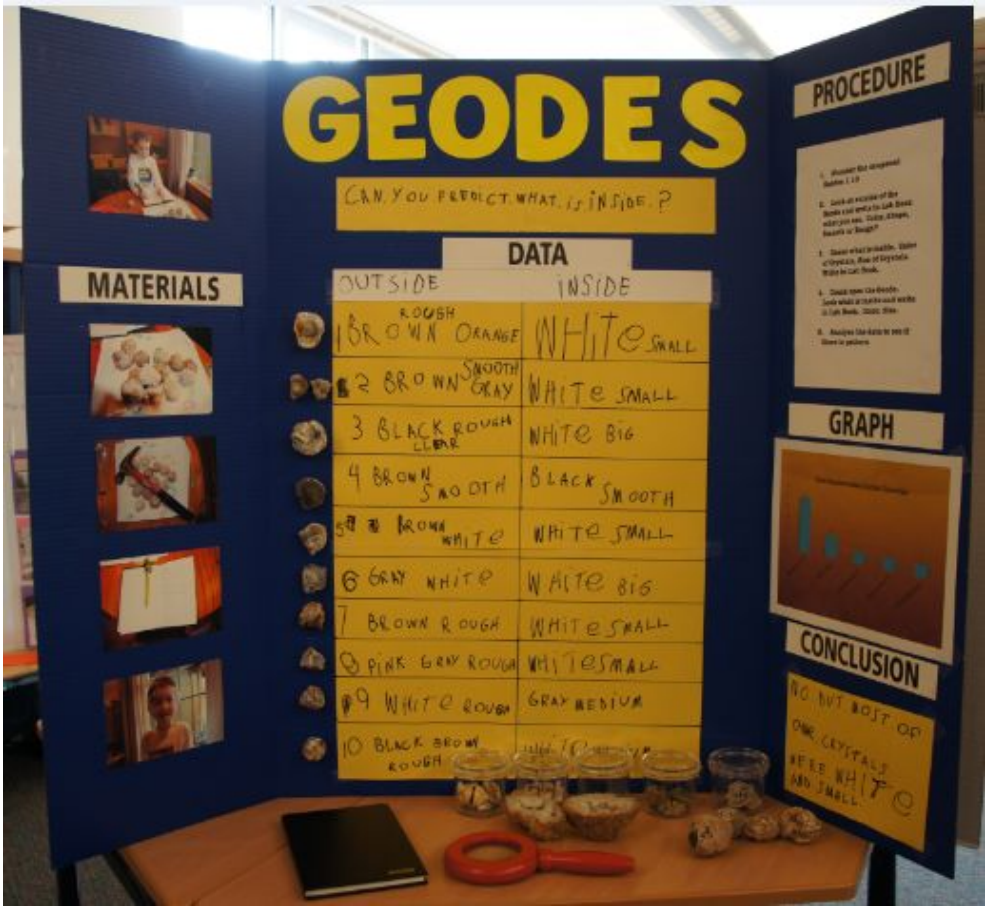
Rather than completing a Scientific Investigation, you may choose to complete an Inquiry Project. Read on to see how to do an Inquiry Project.

1. **Questioning and Wondering**
   - Choose a topic or area of interest, something that you wonder about. Do some beginning research.
2. **Create an inquiry question**
   - Your question should be broad enough to invite inquiry, yet not so broad that research will be overly challenging.
3. **Reading and Learning**
   - This is the time to dive into your research.
4. **Looking and Listening**
   - This is the time to observe, and talk with experts.
5. **Analyzing and Interpreting**
   - Review your research and summarize your findings. This is the time to determine the answer to your initial question.
6. **Sharing**
   - Share your findings; i.e. project board, iMovie, PowerPoint, oral presentation etc.
7. **Planning**
   - As a result of your findings, what are you still wondering about? What will you do next?



Sample Project Board





Science Fair Resources

If you are choosing a science project, there are many resources available to help you get started. Sunset School Library is a great research resource, as well as our local library. The Internet also has Science Fair project ideas. These sites may be useful:

- **The Internet Science Fair Project Resource Guide:** Good general information and lots of links to idea websites. http://www.ipl.org/div/projectguide/
- **Science Buddies**: Has a 40 question form that allows you to find an idea that matches your interest. Can search by time required and grade level. Great site! http://www.sciencebuddies.org/science-fair-projects/recommender_register.php
- **Crystal Clear Science Fair Projects**: Good ideas but a lot of their projects require you to buy stuff. http://www.crystal-clear-science-fair-projects.com/
- **Hour of Code:** The Science Fair is a great opportunity to explore coding! Here are some resources: https//code.org/learn

Sunset Primary Science & Inquiry Fair Registration Form

Date_____

Name_____

Topic_____

Question_____
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_____
_____
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Student Signature_____

Parent Signature_____

Please turn this registration form in to the office by April 23, 2018.