Rancho STEAM Showcase
This year's theme: *Sustainability*

Rancho's Science Fair is now the **STEAM (Science, Technology, Engineering, Art, Mathematics) Showcase** and will take place on **Wednesday, February 26, 2020** in the multi-purpose room from 6:00-7:00 pm. Students at all grade levels are encouraged to participate in investigating a question or phenomena related to the theme of SUSTAINABILITY.
Students may work alone or with a partner/group. Every student (or group of students working together) will receive ONE display board when the completed participation form (below) is returned to the office, however use of the display board is NOT required as projects may be submitted in one, or more, of the following formats:

*Performance/Live Demonstration (limit of 15 minutes)
*Digital display
*Interactive Installation
*Physical Display (2D or 3D)

Note: Students may **NOT** use any human or animal subjects in their investigations.

Questions? STEAM Showcase.Coordinators will be visiting classrooms to answer student questions on Jan. 16, and will be at Rancho's PTA meeting on Monday, Jan. 27 at 5:30 pm.

DUE DATE: Projects must be turned in to the Multi-purpose room afterschool on Tuesday, Feb. 25 OR before school on Wednesday, Feb. 26. Please arrive with enough time to submit and set up your presentation/display.

Projects submitted by the due date will receive a participation ribbon and feedback using the attached rubric. ALL projects are eligible to advance to the MARIN COUNTY ELEMENTARY STEAM Showcase, which runs from March 31- April 1, 2020 at the Marin County Office of Education in San Rafael. Projects will be chosen based on the attached evaluation rubric and alignment to this year's theme of SUSTAINABILITY.

---------- complete below and return to the office to receive a display board ----------

Rancho STEAM Showcase- Participation form
DUE by January 19, 2020

Student name _____ Grade/Teacher _____

(each student must submit their own participation form signed by a parent OR teacher)

Project mentor's signature (parent, teacher, or other) _____

Project Title or Description (You may change this later if your project changes)

_____

_____

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Helpful Hints to a Successful STEAM Showcase Project

The best projects are often the ones that spring from your own observations and curiosity. Sometimes the questions you have about how things work can develop into a great project. The time you invest in reading before you settle on a driving question can make a big difference in the quality of your project. Other people can be good sources of information, but don't allow them to make up the question that will be the focus of your project.

There are several different approaches to developing a STEAM project:

- Some projects attempt to discover a new relationship between two events or things - a relationship that has not been noticed before;
- Other projects attempt to test a new idea or product to see if it really works the way it is supposed to work, is it sustainable;
- School science investigations that don't work out or that one want to continue exploring can also be fertile ground for project ideas; or
- Projects can involve improving on an idea or way of doing something.

When you choose an investigation, you need to do the following:

1. Find out as much **information** about your topic as possible. Be **original**. Simply testing an old idea or law of science is a demonstration, not an investigation.

2. Create a clearly worded **driving question**.

3. Make a list of all the materials you will need—be very specific! Develop good **procedures** that really test or answer your question.

4. Make sure that the procedures contain a **control** to show that the result could only be produced when that one variable, as mentioned in your driving question, is changed.

5. Make sure the **procedures are explained** so well that a scientist who specializes in that area of science could also perform them. Be sure to write down everything you do, and the order in which you do it, so you can write it up accurately for your presentation.

6. Make sure that anything you put together **works well** and does not include expensive materials that are not normally available to students. Be sure to write down exactly what you observe—whether you are measuring height, weight, color change, pH change, etc. Make a chart! Plan to do your experiment, using exactly the same kind of materials and procedures, at least twice. If your results are similar, this shows that your experiment is reliable and believable. If your results are **not** similar, this lets you know that there may be a problem with your procedures—time to consult with someone who can help, like a parent or teacher.

7. Check your **arithmetic** and **facts**. Proof your **writing, grammar,** and **spelling**.

8. Write a **conclusion** that is supported by the results of your investigation.

9. Create a display/presentation that clearly explains and expresses your project. It should contain neat and legible labels and titles. Graphs and/or pictures can be helpful.

10. Write a **brief summary** (abstract) of 200 words or less describing the purpose (question or hypothesis), your method of solution (procedures), and significant conclusions of your project. Explain your results. What did you learn? What could you investigate next? Congratulate yourself for all your hard work.

The Evaluation rubric that will be used to provide project feedback is attached to this packet. Please review it to check that your project addresses/includes the required elements.

Questions? Email Mrs. Pack, jpack@nusd.org, speak with your teacher, or visit the Marin County Office of Education Science Fair website: https://www.marinschools.org/Page/423.

What should be in your Presentation

STEAM Showcase Presentation

Once you have conducted your investigation, it is time to think about how to best present your project. A display board will be provided to each participant/group who turns in a participation form, but projects may be submitted in one, or several, of the allowed formats:

*Performance/Live Demonstration (limit of 15 minutes)
*Digital display
*Interactive Installation
*Physical Display (2D or 3D)

Please put your name, room number, grade level, and teacher's name on the BACK of your project display.

What should be in your presentation?

- Title- give your project a short descriptive title
- Connection to the theme- Sustainability
- Purpose of investigation/Driving Question
- Process: Evidence of documentation, organization, and reflection of feedback received during the investigation (use photographs, video, diagrams, charts, or graphs to show what you did or observed)
- Conclusions- what did you learn from your investigation?
- Demonstration of relevant content understanding

Important things to remember:

- Your display should be neat, legible, and attractive. Use color, interesting lettering, whatever you think will grab people's attention and make your project easy to read and understand.
- Title each section of your project.
- Plan to use photos and/or diagrams, but make sure that **NO FACES APPEAR IN ANY PHOTOS.**
- No petri dishes, test tubes, food samples, or liquids should be in the exhibit. If gravel, sand/dirt, or plants are in the exhibit, they should be completely covered/enclosed and sealed securely.
- **DO NOT PUT YOUR NAME, GRADE LEVEL, ROOM NUMBER, OR TEACHER'S NAME ON THE FRONT OF YOUR PROJECT!**

Project Categories

Physical Sciences
Projects focus on physics, chemistry, earth science, astronomy, meteorology, climatology, and electricity. Research-oriented non-computer science engineering projects would also fit in this category.

Life Sciences
Projects' focus could include biology, bioengineering, genetic engineering and some population studies.

Math and Computers
Mathematics research, simulations and modeling, and computer research fit in this category. Just because a computer is used in a project does not mean it should be entered in this category.

Environmental Sciences
Projects using biological systems/organisms to study the impact of natural and human-made changes to the environment belong in this category.

Engineering
This category could include studies concerning the design, manufacture, and operation of structures and mechanisms, including characteristics of structures and materials (strength, flexibility, and dynamic response), and commercial product testing.

Science and Engineering Practices

Asking questions and defining problems

Developing and using models

Planning and carrying out investigations

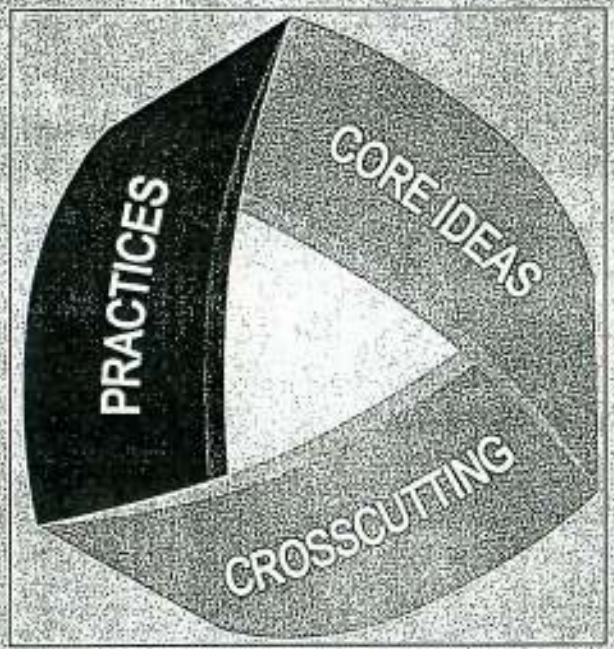
Analyzing and interpreting data

Using mathematics and computational thinking

Constructing explanations and designing solutions

Engaging in argument from evidence

Obtaining, evaluating, and communicating information



Crosscutting Concepts

Patterns

Cause and effect

Scale, proportion, and quantity

Systems and system models

Energy and matter

Structure and function

Stability and change

Sonoma County Office of Education