Science Fair Information

It's time to get Science Fair projects going again. The deadline to get them turned in to be eligible for the WCCUSD Science Fair is coming soon, so get them finished and turned in as soon as possible!

Science Fair tri-fold display boards may be obtained from your teacher, or students may purchase their own.

WHAT TO DO:

You will conduct an experiment to answer a testable question. Be careful that you are not just investigating a broad scientific concept, but actually testing the effect of a variable:

<u>NO</u>—not a testable question	<u>YES</u>—can be answered with an experiment
• Why does a volcano explode?	• Does adding more Mentos make a bigger explosion?
• What stages does a seed go through before becoming an adult plant?	• In which type of soil will tomato plants grow the tallest?
• How does a battery work?	• What effect does spending more on batteries have on battery life?
• Can you clean a penny with vinegar?	• Which antacid has the greatest effect on pH?

There are lots of ideas on the internet, but you have to be careful. Many have been done before, and many are just demonstrations, rather than testable questions.

The best thing to do is think about something you are interested in—animals? sports? a hobby? something else?—and think about what effect a change might have. (This will be the independent variable).

Then you'll need a way to **measure the effect of that change**. Think about things that you can measure—things like distance, height, temperature, time, etc. You'll be able to show the impact of the variable on a **graph**.

SECTIONS ON YOUR BOARD

Your display board should be organized into sections. Below are examples of what to include. Sometimes, you'll hear different names for these sections, like "Question" or "Problem" instead of "Purpose", or "Results" rather than "Data Analysis". But any of these are okay. Just make sure you are following the scientific method, and you'll be fine!

- TITLE—a catchy name for your project.
- PURPOSE—the question you want answered (or why you are doing this project).
  - *For example, "In which type of soil will a plant grow the tallest?"*
- HYPOTHESIS—predict a possible outcome for your experiment.
  - *For example, each of these is a*   - Soil A will grow the plant the tallest.
  - *possible outcome, and any of*   - Soil B will grow the plant the tallest.
  - *them would be acceptable*:   - All soils will grow the plants equally tall.
- MATERIALS—a list of specific supplies and amounts needed for your experiment.
  - *For example, "water" is NOT specific. "500mL of tap water" is more specific.*
- PROCEDURES—numbered, step-by-step, **specific** instructions.
  - *Be specific here, so that someone could repeat the project exactly as you did it, just by following your directions. For example, "Water the plants" is NOT specific. A more clear procedure might say something like "Pour 10mL of tap water into each pot every other day."*
- DATA ANALYSIS—your **results**: what happened in your test?
  - *Your experiment <u>must</u> have something to measure, and <u>must</u> include a graph!*
- CONCLUSION—wrap up your project.
  - o *Accept or reject your hypothesis.*
  - o *Answer the question from the "Purpose" section.*
  - o *Give possible explanations for your results.*
  - o *Evaluate your project—explain any difficulties you had, any improvements you might make, and/or what you might test next time.*

OTHER REMINDERS

- Be sure to **repeat your test several times**. More evidence makes results more convincing. For example, don't compare one plant in soil A to one plant in soil B. It would be far better to compare the results of 10 plants in soil A to 10 plants in soil B.
- If your hypothesis was rejected or "wrong", it doesn't mean the project was bad. On the contrary, most of real-world science experiments and engineering design is finding out what *doesn't* work. This result still has value. It's better to stick to the scientific method, practice good science, and take whatever the results are!
- **Make your board attractive** by using colored paper and pictures or photos. You may wish to include photos or sketches of your procedures, materials, or results. Type the information, and use a font that is an appropriate size and color for reading.