

FOURTH GRADE SCIENCE PROJECT SUGGESTIONS

THIS SHOULD SERVE AS A SOURCE OF IDEAS, BUT SHOULD NOT BE LIMITING IN ANY WAY.

ANYTHING YOUR STUDENT IS INTERESTED IN CAN BE USED AS THE BASIS FOR A SCIENCE PROJECT.

YOU NEED TO THINK OF A QUESTION, PREDICT THE ANSWER, MEASURE SOMETHING QUANTITATIVELY (NOT JUST “MORE” OR “FASTER”) AND PRESENT THE RESULTS.

THE EMPHASIS IS ON DESIGNING AN EXPERIMENT USING THE SCIENTIFIC METHOD.

IF YOU CHOOSE SOMETHING FROM A BOOK THAT DEMONSTRATES A SCIENTIFIC PRINCIPLE, YOU SHOULD FIGURE OUT HOW TO MAKE IT INTO AN ACTUAL EXPERIMENT. DO IT AT LEAST TWICE, ONCE HOW THE BOOK SAYS TO DO IT, AND THEN AGAIN WITH ONE VARIABLE CHANGED TO SEE HOW IT AFFECTS THE RESULT.

1. Rocks and Minerals

- a. Try a variation on the crystals we made in class (borax snowflake). Predict how the changes will affect the final result.
- b. Get small samples of various minerals that you don't care about keeping. Test what happens to them if soaked in vinegar, or water, or whatever.
- c. Read about Moh's Hardness Scale, and test your minerals and other items at home to rank them on this scale.

2. The Shape of the Land

- a. Make a model out of wet sand, or plaster, or perhaps clay, of a mountain or valley. Find some ways to see how water or wind can change the shape, either as gentle rain, flood, constant flow like a river, etc
- b. Look around the landscape in Saratoga, or wherever you go for vacation. Find examples of erosion. See if you can figure out why certain areas erode and others don't (soil vs rock, vegetation cover, steepness of slope, whatever)
- c. Build small structures from various materials such as brick, wood, stones, whatever and then subject them to an “earthquake”. See which structures hold up best; see if you can predict which is best.

3. Ecosystems and Food Chains

- a. Take four feet of string, and go to several different habitats around Saratoga and mark off one square foot. Explore that area, and catalog the creatures and plants that you find. See if you can predict what you find before you start.
- b. Set up a mini-ecosystem at home with small creatures such as roly-polys, crickets, snails, etc. See if you can figure out everything they need to survive and thrive, and sustain it for at least several weeks. **THIS WOULD NEED TO BE STARTED ASAP.**
- a. Observe the life cycle of some fairly rapidly cycling plant or animal (radishes, mealworms, brine shrimp, whatever strikes your fancy); see how temperature or amount of light, or how much water, affects the speed of the life cycle. You'll need to start this one very soon if you want it finished by early February.
- b. Test whether an animal (your pet, insects you catch or buy, your little sister.) has a color preference, and thereby proving if they can see color. Add different colors of food coloring to the same type and amount of food, and see if the animal consistently chooses a particular color or colors to eat first (you should do this at least 4-5 times to be sure it is consistent; use the same food without any added color as the control.
- c. Test whether a kind of insect/invertebrate (roly-polys, earwigs, snails, crickets or mealworms, for example) prefers light vs dark, by making one end of the habitat dark and one in the light (or do warm/cool, or two kinds of bedding, or whatever).

4. Electricity and Magnetism

- a. Using iron filings, magnets and tracing paper, draw the force lines you see with different configurations with the magnet; after you have done the first one with a single bar magnet as the control, try to predict what the force lines will look like with different shaped magnets or combinations of magnets.
- b. Use different materials to rub on balloons and try and generate static electricity; see if you can make the balloons repel or attract, and whether you can predict in advance which way the balloons will go with the different materials.
- c. Use a coil of wire and a moving magnet to produce electricity. Try different kinds of wire and see which works best.