FIFTH GRADE SCIENCE PROJECT SUGGESTIONS

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. **Circulation and Respiration**
    a. Measure your heart rate and respiratory rate (breaths per minute) before and after particular exercises, or measure them for different family members and see how they vary with age, weight or whatever. Use your imagination!

2. **Digestion and Excretion**
    a. Measure how much you drink in a day, and/or how much urine you make in a day. Do it for several days and see if it stays the same. (ask your mom before doing this one)
    b. Using iodine as a marker for starch, see how long your saliva takes to eliminate the starch in different foods such as bread, potatoes, crackers, etc

3. **Animals and Life cycles**
    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. **Astronomy/space**
    a. It would be very hard to do an actual experiment involving this topic.
    b. You can do some gravity experiments, such as measuring how fast things fall or how hard they hit the ground, or altering the center of gravity for something.
    c. You could test whether it is light enough to read a book outside by moonlight during different phases of the moon (only works if it isn't cloudy; wait long enough for your eyes to adapt to the dark).

5. **Matter and Energy**
    a. Measure the density (specific gravity) of liquids at home using a weighted straw and seeing how far down it floats in the liquid. Perhaps check the density of a salt solution at progressively stronger concentrations
    b. Make a mixture of a bunch of stuff from home and then figure out a method to separate them back out. Write up the method before you try it as your "question".
    c. Use a cabbage juice indicator to check the acidity/pH of liquids at home. Predict before you start which ones will turn pink or blue (your "hypothesis").
    d. See which liquids at home react with baking soda. Figure out a way to measure how much gas the reaction makes. Predict which will react.
    e. See which metals rust/otherwise react with vinegar (nails, screws, coins, etc). See if they need air to react by submerging them in the vinegar vs. putting them on a paper towel soaked in vinegar. You could also use lemon juice, rubbing alcohol, etc.
    f. Measure how much the freezing or boiling point of water is affected by specific amounts of salt. See if the amount of salt added correlates with how much the temperature changes.

6. **Water cycle and use of resources**
    a. Pollute some water by mixing in nasty stuff, then try to purify it. Try filtration, evaporation/distillation, adding activated charcoal or alum, whatever you like. Predict in advance what will work.

7. **Air pressure, weather**
    a. Test different airplane designs to see which flies the best. There are many ways to measure lift. Use air pressure to propel something and measure how much pressure it takes or how much you can generate.
    b. Measure the temperature, air pressure (with a barometer), humidity, and/or amount of rainfall at your house and compare them to the weather report on the TV or newspaper; do this over several weeks.

c. Use a rectangular tub of cold water with a Ziploc of ice at one end and a Ziploc of hot water at the other end. Your sink or bathtub would work if you promise to clean it out afterward, or any reasonable size plastic tub. Drip a small amount of food coloring at one end (or one color at each end) and watch the convection currents. Describe what happens to the color, and predict how long it will take for the water to be all one color. Do it several times. This is a model of deep ocean currents, and of many weather phenomena.