**Science Topics**

*These topics below can be used as a general guideline. To complete a research project you would need to answer a specific question concerning one of these topics.*

www.NFC-science.org http://www.all-science-fair-projects.com/

http://www.sciencebuddies.org/

The Causes of Good and/or Bad Posture?
What is the difference between Isotonic and Isometric Weight Training?
Homoeostatic Control, Negative Feedback Loops.
Sensor Receptors, the Body's Thermostat
Active and/or Passive Transport Systems of the Body
Athletic Injuries
BMI – is Body Mass Indicator a Good Tool to Measure a Person's Overall Health/Fitness?
Goals of Good Fitness
Healthy Skin
Body Dehydration
Classification of Burns
Osteoporosis
Vitamins and/or Minerals
Joint Movements of the Body
Muscle Contractions
Exercise Physiology
Aerobic Training
Muscle Atrophy
Attention Deficit Disorder
Improving Muscle Flexion and/or Extension
Motor Neurons
Hypothermia
Fatigue
Central Nervous System Disorders
Nerve Impulses
Parasympathetic and Sympathetic Pathways of the Nervous System
Asthma and other Breathing Disorders
The Senses
Color Blindness
Growth in Humans
Anemia
Conduction System of the Heart
Oxygen Debt

Understanding Blood Pressure
Allergies
Antibacterial Soap vs Regular Soap
Mechanics of Breathing
Taste Buds
Teeth
Nutrition
Metabolism
Body Fluids – Fluid Intake – Electrolytes in Body Fluids
Acid - Base Balance of the Body
Buffers - Controlling pH of Body Fluids

Biology Topics *(these are only a few ideas, check your textbook or the links given for more ideas)*

*Botany:*

- Design an experiment to experiment with leaf color pigments. (You might compare pigments of different species of leaves or leaves at different times of year.)
- How do plants react to more or less light? What effect does wind or pressure have on plants?
- What happens when different types of soil or fertilizers are used on the same type of plant?
- Try growing seeds from different fruit that you've eaten. Which ones grow best?
- How do heat and cold affect sprouting?
- How do different soil types affect the ability of roots to anchor the plant?
- Does light wavelength affect plant growth?
- What is the effect of acid rain on plant growth?
- Set up an experiment to measure the rate of photosynthesis and see the effects of temperature, light intensity, or concentration of $CO_2$.
- Design an experiment to discover the effects of abnormal radiation on plant growth, using irradiated seeds that are treated at different radiation levels.

***Human Body & Anatomy:***

- Test reflexes, hearing, lung capacity, or vision. Does one age group seem to have better results than another?
- Does your nose have anything to do with taste?
- How does age affect peripheral vision?
- How does the pH level of hair products affect hair quality? (Use pH strips for testing.)
- Can petting an animal lower your heart rate? Is there a difference between petting your own pet and petting an animal that you are not attached to?
- Does the heart rate of an animal decrease while it is being petted?
- Is there a difference between video games that make the player be physically active versus nonphysical video games on the player's heart rate or blood pressure?

*Soil, Water, Acid rain, and the Environment:*

- Do the organisms found at different levels of a pond differ significantly? You might try re-creating a pond "cross section" of life.
- Where do you find the most polluted water locally? What about water with the highest and lowest pH? (Use a water test kit.) Does this have an effect on the organisms (fish, insects, algae, protozoa, frogs, etc.) that live in or next to it?
- Investigate which pH and chemical levels are most common in your area. How do garden soils with different amounts of nitrogen, phosphorus, potash, or pH compare? (Use a soil analyzer.)
- Which de-icing agent used on roads in winter has the least negative environmental impact?
- You can make artificial acid rain by taking distilled water and slowly adding sulfuric acid (one drop at a time) until the pH of the water reads about 4.0.

- You may also be able to collect rain water and test its pH level to see if it is acidic enough (pH ~ 4.0) for your experiment.
- Do our soils show the effects of acid rain?
- Can a base such as limestone or limewater be used to protect plants from acid rain?
- Can an antacid tablet like Tums or Alka-seltzer be used to protect soils from acid rain?
- Does acid rain affect the algae and protozoa found in ponds? Do a comparative study with protozoa grown in distilled water versus protozoa found in a pond that might have been affected by acid rain.
- Does acid rain affect the growth of ferns or moss?