

CATEGORIES/IDEAS FOR SCIENCE FAIR PROJECTS

Mathematics and Computers

- Finding a practical application of the laws of triangles.
- Investigation of numeration systems with negative base.
- Do left-handed people perceive problems differently than right-handed people?

Microbiology

- What levels of bacteria are found in various sources of drinking water?
- Do environmental conditions create mutations in *Escherichia coli*?
- Do flies transmit bacteria from one area to another? From what media is transfer easiest?
- How do microscopic predators differ in their prey consumption?
- What populations are found in rain puddles?
- Under what conditions does mold grow fastest?

Zoology

- Do insects adapt to pesticides?
- Conduct ant behavioral studies.
- Can pheromones biologically control insects?
- Research the feeding behavior of flies.
- What are the effects of microwave radiation?
- What are the effects on the chromosomes of fruit flies?
- Conduct an analysis of the effects of soil chemicals on pill bugs.
- What are the reactions of worms to various surfaces?
- How fast is "at a snail's pace" on various surfaces?
- Conduct a study of look-alikes.
- Conduct regeneration experiments.
- Conduct an analysis of owl pellets for determining owl diets and mammal distribution.

Biochemistry

- Can pigments from lichens be extracted from dyes?
- Conduct an analysis of the pH of different kinds of soda.
- Design an experiment to separate the blood components from cow's blood.
- Can antibiotics be identified by paper chromatography?
- Can *Drosophila* become immune to pesticides?
- What esters are common in basic flavors?
- Can protein be broken down by mechanical shaking?

Chemistry

- What are some techniques of fractional distillation of oil samples?
- How much dissolved oxygen is present at various depths of a lake?
- What air pollutants are present in the air?
- Test the mineral concentrations in hard and soft water.
- Conduct an analysis of pollutants that are present in a river.
- Investigate the pH variations in soils.
- Can light energy influence chemical reactions?
- Is chemical energy storage the answer to our future local transportation needs?
- Design a study of acidity in different types and brands of milk.
- Conduct a comparison of nutrients found in common foods.

Earth and Space Science

- Can soil erosion be stopped in the richest agricultural county in the nation? Does the future of the world depend on it?
- Build your own seismograph and test the earth's activity.
- Conduct analysis of carbon monoxide, oxides of nitrogen, and hydrocarbons in our ambient air.
- Investigate the homing instincts of pigeons using celestial navigation.

Engineering

- When is it economically feasible to install a home solar hot water heater?
- Conduct experiments to determine the efficiency of commercially available insulation.
- How much air space maximizes insulation in various materials?
- Construct and test a working model of a home space heating unit.
- Survey and analyze home energy conservation techniques.
- Design and construct a battery-operated automobile.

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Botany

- How does mold growth affected by the amount of moisture?
- How does soil type affect plant growth?
- Does the use of insecticides or herbicides affect the growth of plants?
- Photosynthesis (can test many factors that affect photosynthesis, including the effects of light, colored cellophane, amount of starch produced, etc.).
- What are the effects of various chemicals on the growth rate of plants?
- Seed germination (how it is affected by temperature, depth of planting, moisture, and fertilizer?).
- What is the relationship between temperature and the rising time of yeast dough?
- How is a plant affected by a deficiency of various nutrients?
- Hydroponics: Can a plant be grown without soil? Will plants grow better in soil or water?
- What foods contain the most moisture? (using dehydration)
- What plants best prevent soil erosion?
- How do the moon phases affect plant germination?
- How fast do roots grow?
- What is the effect of chlorinated water on plant growth?
- Will frozen seeds sprout?
- How do the number of seeds produced by different plants compare?
- What can be done to increase the decomposing rate of plants?
- Do living plants give off moisture?
- Do living plants give off oxygen?
- Do onion root cells divide at certain times during a 24-hour period?
- Can water hyacinths remove nitrates from waste water?
- Are drip irrigation systems more efficient?
- What is the relation between cotton fiber length and their strength?
- Conduct a comparison between stored seed and seed germination.
- Conduct an analysis of lawn seed germination at winter, spring, summer, and fall temperature.
- Under what conditions and in what numbers do seeds from fruits and vegetables germinate? Is there a relationship between germination and the number of seeds in a fruit or vegetable?
- What percentage of the pumpkin seeds from a pumpkin germinate?
- What are the effects of temperatures on the germination of radish seeds?
- Why do pea seed roots grow down because of plant growth hormones (auxins)?
- Are natural fertilizers better and cheaper than chemical fertilizers?
- Are soils becoming salted or alkali?
- Conduct investigations into farming without soil.
- Bean plant growth in various nutrient deficient soils.
- What are the effects of various household chemicals on the growth of plants? Mix the chemicals with the soil.

Biological Science

- Effects of temperature on meal worm production.
- What kind of animal life can be found in one square meter of backyard soil?
- How do meal worms respond to light?
- How does an earthworm react to light and darkness?
- Do different kinds of caterpillars eat different amounts of food?
- Do mint plants repel insects?
- What color of flowers attracts hummingbirds best?
- What colors attract moths and other insects at night?
- Does temperature affect the flash rate of fireflies?
- Which grows faster, body hair or scalp hair?
- How do fingerprints differ?
- Do all people have the same normal body temperature?
- Are certain dominant traits exhibited in the same family?
- Who has bigger hands, boys or girls?
- How accurately can you tell the temperature of an object by touch?
- Who are generally taller-boys or girls?

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Medicine and Health

- Is there a relationship between a student eating a diet high in additives and his or her number of absences from school?
- How much sugar does the average student consume?
- What percent of salt in water is tasted? Sour? Sugar?
- What is the average number and distribution of raisins in loaves of raisin bread?
- What type of weight lifting increases muscle mass the fastest?
- What effect does exercise have on your reaction time?
- Are aerobic programs consistent in producing fitness?
- Do people who exercise get sick less often?
- Does practicing Kung Fu improve coordination?
- How do microwaves affect the genes of *Drosophila*?
- Do certain types of toothbrushes remove food from the mouth more effectively?
- How do teeth react to carbonated beverages?
- Does tobacco smoke hinder the growth of yeast?

Behavioral and Social Sciences

- Effects of loud music on hearing acuity.
- Long term retention: How well do students retain knowledge?
- Do rats ever display insight?
- How fast do earthworms learn directions?
- Can people identify different kinds of Kool Aid by taste alone (blindfolded)?
- How many people do not use their major appliances between noon and 6:00 p.m.?
- Survey several households to see if they are making an effort to conserve water.
- Timber production and sustained yield in a National Forest.
- Test of aerobics exercise to reduce stress.
- Survey of smog control removal from automobiles.
- How many trials are necessary for crickets to learn a simple maze?
- Do insects prefer certain colors?
- Does practice in learning to run a maze ensure speedier learning in running of other mazes?
- How long does it take an animal (i.e., rat, hamster, gerbil) to learn to run a maze?

Physics/Energy/Environment

- Which detergent breaks up oil the best?
- Which detergent makes the most bubbles?
- How does the wattage of a light bulb affect energy use?
- Which brand of glue holds two boards together best?
- Which brand of diaper holds more water?
- Which type of battery makes toys run longest?
- How does tire pressure affect how far a bicycle will coast?
- How does road surface affect the stopping distance of your bicycle?
- How is the frequency of pendulum swings affected by the length of the pendulum?
- What material conducts sound best—metal, water, wood?
- How does the shape of an object affect the time it takes to fall to the ground?
- How does the shape of an ice cube affect its melting time?
- How does the beginning temperature of water affect the time it takes to freeze?
- How does the thickness of a liquid affect evaporation rate?
- How does structure affect bridge strength?
- How does wheel size affect the speed of a skateboard?
- What form of yeast makes bread rise fastest?
- Does change in temperature affect the bounce of a ball?
- Which fabrics absorb dye best?
- How is water temperature affected by water depth?
- How does exposure to sunlight affect the size of an inflated balloon?
- How does wetting paper affect its strength?
- How is the amount of water that a sponge absorbs affected by the temperature of the liquid to be absorbed?
- How is the size of a baked cookie affected by substituting butter or margarine for shortening in the recipe?
- How does surface texture affect the bounce of a ball?
- What method of popping (microwave, oven stove top, etc.) pops the most popcorn?
- Does salt affect the freezing and boiling points of water?

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Physics/Energy/Environment (continued)

- Does solution concentration affect crystal formation?
- How are various terrains affected by erosion?
- How does acid rain affect crops?
- What type of material would cause a parachute to fall fastest?
- What is the best method of purification?
- What type of battery is longest lasting?
- Does size and shape affect how long candles burn?
- Is there a predictable manner in which numbers come up with dice?
- Is it possible to predict the direction of a resting pool ball hit by a moving pool ball? (Inertia)
- Which color absorbs more heat?
- How can levers and pulleys be used to do more work?
- How surface area affects the rate of evaporation?
- How does a length of wire in a circuit affect the brightness of the lights?
- What different materials conduct electricity the best?
- How is dissolving time affected by temperature of the liquid?
- What is the best angle for a solar collector?
- What materials are the best insulators?
- Compare various samples of soil for nitrogen, phosphorus, and pH.
- Which fabrics absorb moisture fastest?
- Does the moon rise every night at the same time and in the same location in the sky?
- How accurate are long-range weather forecasts?
- From which direction does the wind blow most frequently?
- What is the best shape for a kite?
- Which holds two materials together better – screw or nail?
- Do all objects fall at the same speed?
- How is the distance a cart rolls affected by the mass in the cart?
- How does the length of a vibrating body affect sound?
- How does the design of a paper airplane affect its flight?
- What is the insulating value of various materials or combination of materials.
- New uses for a static electricity generator.
- A comparison of efficiency.
- A new method of space heating.
- Does the pyramid change the growth of plants?
- A study of longevity between different brands of light bulbs.
- A comparison of falling objects.
- How does heat affect sound production? How do humidity and temperature affect the speed of sound in air?
- How is color perceived in two different wave lengths?
- How well do various materials conduct electricity?