**SCIENCE PROJECT TITLES**
(by category)

**BEHAVIORAL**
(Invertebrate Animal)

Behavior of crickets in a closed system.

The affect of humidity on the "singing" rate of crickets.

How does the intensity of light affect the behavior of crickets?

How do crickets respond to caffeine?

How does acceleration affect the behavior of crickets?

Responses of soil arthropods to light moisture and soil.

Chemical communication in earthworms.

How does different colored light affect the behavior of earthworms?

Reactions of mealworms to different types of surfaces.

How do different colors affect the behavior of mealworms?

Thigmotactic responses in crayfish.

How do different levels of salinity affect brine shrimp?

How do ultrasonic sounds affect mealworms?

Does Color affect the movement of crayfish?

How do magnetic fields affect the growth of tobacco hornworms?

Can land snails smell and hear?

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**BEHAVIORAL**
(Vertebrate Animal)

What is the effect of temperature on the respiration rate of goldfish?

Can you train a fish by sound?

What factors affect the ability of a rodent to negotiate a maze?

Wall-seeking behavior in mice.

How mice respond to being separated?

Color preferences in gerbils.

How does age affect learning abilities of hamsters?

What is the effect of height above ground on the attraction of birds to a feeder?

What color of birdfeeder will attract the most birds?

Light and its affect on the eating behavior of mice.

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**BEHAVIORAL**
(Human)

What is the affect of age on reaction time in humans?

What is the affect of gender on reaction time in 13 year olds?

What is the affect of left/right handedness in 14 year old females?

Does color affect memory?

The effect of written and verbal stimuli on learning.

How do learning styles affect memorization?

**BIOCHEMISTRY**

Which natural fruit juices contain the most Vitamin C?

What is the effect of processing on the Vitamin C content of fresh orange juices and
orange juice concentrates?

To what extent does temperature affect the Vitamin C content of citrus juice?

Do heat and light affect the Vitamin C content of juice?

Which type of packaging retains Vitamin C the best in orange juice?

How does the concentration of a solute affect the rate of osmosis through dialysis tubing?

How does the temperature of a solution affect the rate of osmosis through dialysis tubing?

What effects do heating and diluting have on the enzyme amylase?

Does storage temperature affect the acid content of fruit?

How does the presence of the ripening hormone ethylene affect the sugar content of apples?

How long does it take four different types of 100% pure fruit juice to ferment?

Can a working calorimeter be created by a middle school student?

The effects of ultraviolet radiation on yeast cell fermentation.

The effect of hydrogen ion content on natural and artificial pigment color.

The amount of BHT in Dry cereals.

Which foods contain the most carbohydrates?

What plant foods contain starch?

Which foods contain the most protein?

Which type of food contains most thermal energy?

Comparing the sugar content of different juices.

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**BOTANY**
(Plant Growth)

Which soil type is best for plant growth?

What is the effect of different soil mixtures on plant growth?

The effect of different fertilizers on plant growth.

Comparing the growth of plants in soil and hydroponically.

Comparing the application of fertilizer by surface application and through a drip irrigation
system.

The effect of photoperiodism on plants.

To what extent does the duration of light affect plant growth?

Do different kinds of lights affect the way plants grow?

How does the concentration of carbon dioxide in air affect the production of starch in plants?

What affect does the plant hormone gibberilic acid have on plant growth?

How does the color of light affect the growth of plants?

Is there a relationship between the length of stems and roots of grass?

To what extent do various concentrations of salt water affect plant growth?

What minerals are needed for plants to grow?

What is the best spacing for plants?

Monitoring the effect of a diurnal environment on plant growth.

How do physical vibrations affect plant growth?

What are the effects of growth hormones and fertilizers on hybrid poplar trees?

Does compost cause plants to grow faster than manufactured fertilizers?

How does chemical injection of flower bulbs affect their growth?

Can starch be decomposed by plant roots?

The effects of iron on plant growth.

What is the best method for propagating "spider plants"?

How does a magnetic field affect plant growth?

What is the effect of temperature on the ripening of apples?

Does light affect the ripening rate of apples?

How the storage temperature of apples affects crispness, starch and sugar levels.

Will apples ripen slower if isolated from each other?

Apple deterioration in aerobic and anaerobic conditions.

How does variation is subzero temperatures affect the percent of fruit tree bud damage?

How does the presence of light affect the rate of transpiration in corn seeds?

How much pressure do germinating seeds produce?

What substances are natural inhibitors of seed germination?

The effect of heat on seed viability.

The effect of mechanical impact on seed viability.

How does temperature affect seed germination?

Does the presence of light affect the germination rate of seeds?

How does exposure of seeds to X-ray radiation affect their rate of germination?

How does exposure of seeds to microwave radiation affect their rate of germination?

Does magnetism affect seed germination?

Does seed size affect the rate of germination?

To what extent does pH affect the germination of seeds?

What is the effect of planting depth on the germination of seeds?

What is the effect of detergent on the germination of seeds?

What effect do different kinds of fertilizer have on corn seeds?

How does temperature affect the growth of mold?

How does moisture affect the growth of bread mold?

Will the presence of preservatives affect the rate of mold growth on bread?

Is the growth of mold inhibited by the size of and combination of grains in types of bread?

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**BOTANY**
(Plant Behavior)

How does light intensity affect phototropism in plants?

Thigmotactic responses in plants

How does centripetal force affect plant growth?

**CHEMISTRY**

The flammability of various fabrics.

Making fabrics fire resistant.

Which brand of laundry detergent more effectively removes stains from white cotton fabric?

Which brand of bleach more effectively removes stains from white cotton fabric?

Evaluating natural enzymes as an alternative to conventional detergents in the removal of stains
from white cotton fabric.

A comparison of biodegradable detergents.

Is oil stain or paint more durable to weathering?

Does temperature affect crystal growth?

How does the concentration of solute affect the rate of crystal growth?

What is the effect of temperature on the evaporation rate of water?

What effect does heat have on the ability of water to dissolve different substances?

Does the type of solute affect the rate of evaporation of a solution?

The effects of different solutes on boiling point elevation of water.

How does the type and concentration of a salt affect the corrosion of iron and steel?

How does temperature affect the density of liquids?

How does the cooling effect of ice compare with that of ice water?

What substance will cause the most largest freezing point depression when added to melting ice?

Testing natural substances as biologically safe alternatives to conventional automotive antifreeze.

Which method of water purification most effectively removes solutes?

Does temperature affect the rate of solute movement that occurs during chromatography?

The absorption rate of different brands of paper towels.

The extraction of caffeine from beverages

How does the number of crosslinks in a polymer affect its elasticity?

Comparing elasticity of different polymers.

How does temperature affect elasticity of a rubber band?

Measuring the effect of temperature on the volume of different gases.

How does the amount of adhesion vary in different liquids?

How do different substances affect the adhesion of water?

Does temperature or pressure affect adhesion in water?

How do different substances affect the surface tension of water?

What types of liquids or solutions make the longest lasting bubbles?

How does water temperature affect the dissolving rate of seltzer tablets?

How does air pressure affect the dissolving rate of seltzer tablets?

The effect of temperature on the ability of a water to dissolve different salts.

What kinds of salts make the best electrolytes in a wet cell battery?

The conductance of various soluble compounds in water.

How does the concentration of acid affect the voltage of a wet cell battery?

How does temperature of solution affect the rate of electroplating?

Which pain reliever dissolves in simulated gastric fluid the fastest?

Comparing the pH of different antacids.

The solubility of metals in acid.

Which common beverage is most acidic?

Comparing the density and buoyancy of different objects.

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**COMPUTERS**

Design of robotic equipment.

Experimentation in artificial intelligence on the IBM PC using Turbo Pascal.

How does the accuracy of computerized color fruit sorters compare to human
labor in apple packing plants?

**EARTH SCIENCE**

What is the water holding capacity of three soil types?

Rate of seed germination in different soil types.

Which type of soil will eroded most easily by running water?

How does slope affect stream velocity?

What is the porosity of different types of soils.

Which type of soil absorbs the most heat from sunlight?

How does the amount of organic material mixed in three soil types affect their water holding capacity?

To what extent does humidity affect evaporation?

How well do different types of surfaces absorb the sun's energy?

Mineral content of drinking water.

How does salinity affect the mass of rocks?

How does natural reflectivity affect the surface temperature of the ground?

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**ENGINEERING**
(aerodynamics and fluid dynamics)

Which design of a mousetrap-powered car yields the greatest rolling distance?

Which propeller shape works the best?

How does the design of a windmill's blades affect it's power?

How does wing design affect lift?

What is the best design for reduced wing drag?

How does the shape of an airplane's fuselage affect drag?

Which position of a water wheel creates the most kinetic energy?

How do different designs affect the speed of a soap powered boat?

What is the best nose cone shape for and air-launched model rocket?

Determining viscosity from the free fall of a sphere.

Does the flow rate of water affect its pressure?

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**ENGINEERING**
(quality of materials)

What hair care products increase the tensile strength of hair?

Are composites stronger than monolithic laminates?

What factors affect the strength of wood?

Comparing the strength of solid and laminated wood beams.

Which brand of garbage bag can hold the most sand without tearing?

What material is best for road construction?

Which insulation works best?

Which material is the best home insulator?

Which plumbing material conducts the most heat to circulated water in a solar collector?

Which passive solar collector design absorbs the most heat?

What material conducts heat the best?

Which color of light produces the most electric energy from a solar cell?

Which metal wire has the most tensile strength?

Which nails have the best holding power in various types of wood?

Which fiber has the most tensile strength?

Which building material is most flammable?

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**ENGINEERING**
(structures)

Which beam design builds the strongest truss?

Which beam design supports the most stress?

Which truss design supports the most weight?

Which truss design supports the most compressional stress?

Which bridge design will support the most weight?

Which building design best withstands an earthquake?

Which folded paper structure will support the most stress?

In which position will an eggshell support the most weight?

Using polarized light to analyze stress in structures.

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**ENVIRONMENTAL**
(plants)

How does the environment affect the movement of water through plants?

The effects of electromagnetic fields on the germination rate of alfalfa seeds.

Measuring the effects of gasoline fumes on germinating seeds.

How does the concentration of horse manure affect the growth of grass?

The effect of acid precipitation on the germination and growth of seeds.

Comparing the nitrogen demand of grass cut with a mulching mower to
grass cut with conventional mowers that remove thatch.

How does the type of plant cover affect the surface temperature of the ground?

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**ENVIRONMENTAL**
(animals)

How does water quality affect the population of ciliates in a pond?

How does pH affect brine shrimp?

What is the effect of an oil spill on brine shrimp?

How do detergents affect brine shrimp?

What environmental factors will increase the heart rate of daphnia?

How does pH affect the regeneration rate of planaria?

How does water temperature affect the regeneration rate of planaria?

How does the concentration of dissolved oxygen affect the regeneration rate of planaria?

The effects of water pollution on snails.

Which herbs can be used as a pesticide to control mosquito larvae?

Using citrus peel as a natural pesticide to control mosquito larvae.

Developing insect pest lures.

Testing marigolds to control insect pests.

Surveying spider webs to determine the number and types of insects in the proximity of your home.

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**ENVIRONMENTAL**
(water quality)

Testing for chlorine in the Selah Ditch at three locations.

Testing domestic well water in the Yakima river flood plain for ammonia.

How does flow rate affect the concentration of dissolved oxygen in a stream or
river?

How does plant cover affect the concentration of dissolved oxygen in a stream or river?

How does flow rate affect the concentration of phosphates and nitrates in a stream or
river?

How does plant cover affect the concentration of phosphates and nitrates in a stream or river?

How does the level of phosphates upstream from Selah in the Yakima River compare to the downstream level?

Comparing the water quality of Wenas Creek in three locations.

Comparing the quality of City of Selah tapwater to well water in the surrounding county.

Does the Selah Wastewater Treatment Plant effluent affect the water quality of the Selah Ditch?

The effect of a heavy rain on the water quality of the Yakima River downstream from the
Selah storm drain outfall.

Temperature difference between lake surfaces and bottoms in winter.

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**ENVIRONMENTAL**
(misc. pollutants)

Which component of crude oil will oil-eating bacteria grow on more quickly?

What levels of radon gas are present in a sample of Selah homes?

The effects of lead arsenic contamination on the growth of plants.

The tolerance of plants to different ice-melting compounds.

Measuring particulate matter from burn barrels and wood stoves.

Electrostatic precipitation of dust particles.

Determine levels of contamination in Selah storm water ...

Do heavy metals pollute the water of Sand Creek?

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**ENVIRONMENTAL**
(materials and resources)

What is the best natural filter for ground water?

Which processed fruit waste produces the most thermal energy?

Determining the amount of daily unrecyclable household trash.

What color absorbs the most light energy in a passive solar collector?

Are stretched or unstretched rubber bands more sensitive to sunlight?

Does the amount of starch affect the strength of biodegradable packaging?

A comparison of the biodegradation of natural and synthetic packing material.

Which recycled paper is the strongest?

How does decomposition affect the strength of paper?

Comparing various natural fibers as insulating materials.

Comparing the decomposition rate of recycled paper to standard paper.

Developing a defense against iron corrosion.

Comparing the combustibility of different tree leaves.

Evaluating natural water proofing substances on wood.

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**ENVIRONMENTAL**
(soils)

Which irrigation method is more efficient and less erosive to soil?

Comparing the soil type to the dominant plant species on the L.T.Murray Wildlife Range.

Comparing the plant cover type and rodent burrow distribution on the L.T. Murray Wildlife Range.

Comparing the porosity of soils of the Selah foothills to the Yakima River floodplain.

Do different soil compositions help structures withstand an earthquake?

What factors increase the rate of decomposition of leaf litter?

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**HEALTH**

Can blood-sugar test strips be used to measure sugar content in various beverages?

Dissolution times of pain relievers: Trade vs Generic

Can toothpaste neutralize plaque acid?

Does exercise affect your reflexes?

How does music affect heart rate?

How do colors affect heart rate?

What activities affect your heart rate?

How does gender affect per cent of body fat?

What is the effect of caffeine on blood pressure?

What is the effect of exercise on blood pressure?

What is the effect of aerobic activity on respiration rate?

Which brand of diapers absorbs the most moisture?

To what extent does age affect the sensation of taste?

To what extent does age affect the sensation of temperature?

To what extent does age affect the sensation of smell?

How does the amount of light affect acuity of vision?

How does color affect perceived taste sensations of noncarbonated beverages?

Taste sensitivity of smokers and non-smokers.

How do people differ in the ability to match the pitch of two sounds?

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**MATHEMATICS**

Number series from repetitive figures.

Probability.

**MICROBIOLOGY**

How can the growth of iron oxidizing and reducing bacteria be controlled?

What factors affect the production of carbon dioxide in yeast?

What factors affect the growth of yeast?

The affect of temperature on the action of yeast.

How does the type of bread affect the growth rate of breadmold?

How does Vitamin E affect the growth of breadmold?

Which disinfectant is most effective in reducing the growth rate of bacteria?

Which antiseptic is most effective in reducing the growth rate of bacteria?

Which toothpaste is most effective in reducing the growth rate of bacteria?

An analysis of how various mouthwashes control bacteria.

What method most efficiently transmits bacteria from one surface to another?

Using plant extracts to control the growth of bacteria.

Does washing your hands affect the transmission rate of bacteria?

A comparison of different packaging methods and their relationships to bacterial counts
found on soft drink containers.

A comparison of washing techniques on table silverware to remove bacteria.

The effects of centrifugation and chemical application on penicillium and aspergillus cultures.

Do different colors of light affect bacterial growth?

The effect of ultraviolet light on bacteria.

Can trace amounts of heavy metals kill bacteria?

Which pole of a magnet will attract the most magnetotactic bacteria?

The effects of antibiotics on bacterial growth.

Will fungi inhibit bacterial growth?

The effects of freezing on bacteria.

Does garlic have antibacterial properties?

Using bacteria in hydrocarbon bioremediation.

The effects of automotive pollutants on pond water organisms.

The preference of pond organisms for light vs darkness.

The effect of light on reproductive growth of ciliates.

The effect of spices on bacterial growth.

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**PHYSICS**
(mechanics)

How is friction related to surface area and texture?

Does water temperature affect the flight of a water powered rocket?

How do streamer designs affect the free fall of a model rocket?

How do parachute designs affect the free fall of a model rocket?

How does the length of an arrow affect the distance that it will travel?

How does shape and size affect the free fall and impact of an object?

Which density of plastic bag has the best impact strength?

How is velocity and trajectory affected by the weight of a bullet?

The effect of arrow fletch length on trajectory of an arrow.

How does the mass of an arrow affect its penetrating power?

Analyzing factors that affect the periodicity of a pendulum.

How do obstacles affect wave motion?

Factors that affect the performance of a crystal radio.

How does the density of wood affect the temperature at which it will combust?

Which metal has the greatest heat capacity?

Measuring the heat capacity of different liquids.

Which metal conducts more heat?

Measuring the specific heat of various metals.

How does the amount of airspace affect the insulative quality of doublepane windows?

What species of wood yields the most thermal energy when combusted?

What is the effect of temperature on the volume of air?

Comparing the wattage of an incandescent light bulb to the amount of heat it emits.

Which fabrics are the best to wear to survive winter conditions?

The effect of color on water temperature.

How do different colors affect the absorption of heat from sunlight?

Comparing how the density of a liquid affects the refraction of light.

Comparing the heat transference of artificial light and sunlight.

What factors affect the pitch of a musical instrument?

How do different solids affect the transmission of sound?

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**PHYSICS**
(electricity and magnetism)

How does the number of coils in a step up transformer affect its ability to change the voltage of a circuit?

How does the number of wire coils affect the strength of an electromagnet?

How does temperature affect the strength of an electromagnet?

How does the type of metal that makes up the core of an electromagnet affect its magnetism?

How does the temperature of the core of an electromagnet affect its strength?

How does the thickness of copper wire affect the voltage, amperage and resistance in an electrical circuit?

How does the gauge of wire affect the resistance in a circuit?

The effect of temperature on the strength of a permanent magnet.

Which materials make the best terminals for a wet cell battery?

Which materials make the best resistor in a circuit?

Which home materials make the best capacitor dielectric?

Which type of wire produces the most thermoelectricity?

Which brand of "AA" batteries last the longest?

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**PHYSICS**
(high energy)

Analyzing the effects of X-ray radiation on the strength of different metals.

How does exposure of permanent magnets to X-ray radiation affect the polarity
and strength of a permanent magnet?

Analyzing the effects of X-ray radiation on the strength of different plastics.

How does exposure to radiation affect the germination and growth of seeds?

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**ZOOLOGY**
(invertebrate animals)

What environmental factors affect the regeneration of planaria?

What soil factors do earthworms prefer?

How does caffeine affect the heartbeat of daphnia?

What natural substances will kill mosquito larvae?

Testing the effectiveness of several natural insect control measures.

Which environmental conditions do "sow bugs" prefer?

What conditions are best for the growth of walking stick insects?

Which environmental conditions do mealworms prefer?

How does temperature affect the activity of mealworms?

What factors affect the pupating rate of house flies?

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