K-3 LEVEL PROJECTS

Observations:

Fingerprints
Shadows
Crystals
Properties of solids, liquids and gases
Objects that block and pass light
Gravity
Shapes of magnetic fields
Parts of a flame (candle observation)
Rocks and minerals
The moon
Planets you can see
Our sun
Spring constellations
Local weather
How to read a weather map
Clouds
All about horses (or dogs, frogs, fish, birds, etc.)
A beaver home
Local wildlife
How animals hide and defend
Animals tracks
Raising finches (or rabbits, gerbils, etc.)
Fish prints
What makes a bird a bird
The crayfish
All about crickets (or bees, beetles, ants, etc.)
Earthworms
Spider webs
Watching an ant colony
How insects change
Living things in my yard
Trees near my home
Leaf prints
Parts of a flower
Roots of different plants
Inside the egg
Teeth
Seashells

Collections:

Chemical elements (carbon, lead, iron, sulfur, etc.)
Solids, liquids and gases
Rocks
Rocks from two beaches (or areas)
Different varieties of sand
Different types of soil
Fossils
Bones
Seashells

Models and Demonstrations:

How a bicycle works
How a generator (or motor) works
Simple machines
Levers
Pulleys
Open and closed circuits
How a switch works
How fuses work
How a flashlight works
How light reflects
Mixing colors
How magnets work
An electromagnet
Friction
Newton's 3rd law
How thermometers work
Heat and air (convection mobile)
Does fire give off water?
Does fire use something in air?
Does air have weight?
Does air exert pressure?
Evaporation
How are sounds produced?
Why things float
Why elevators have counterweights
A boomerang can
How things move on movie film
Why the wind blows
What makes hail?
What is ground water?
Inside our earth (model)
The earth's surface features (model)
Volcanos (model)
Features of the sea floor (model)
Our solar system (model)
Galaxies and our milky way (model)
Optical illusions
How the ear works (model)
The ant (clay model)
How seeds travel
Do plants give off water?
Tree rings

Collections (cont.):

Leaves (indoor or outdoor plants)
Seeds
Bark rubbings
Insects
Feathers

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K-3 LEVEL PROJECTS

Experiments:

Magnetic and nonmagnetic materials
Which magnet is strongest?
Which materials conduct electricity best?
Which materials conduct heat best?
Sounds from different rubberbands (or glasses of water)
Which toy car rolls furthest?
Which paper towel absorbs the most water?
Will an ice cube melt faster when crushed up?
Do coins corrode more in salt or fresh water?
How vinegar affects egg shells
How a shadow changes throughout the day
Measuring rainfall with a rain gauge
Depth of snow at ten different locations
Testing a sundial with a clock
Which brand of raisin bran has the most raisins?
What a plant needs to grow
Do plants prefer tap water or distilled water?
How temperature affects plant growth
Do plants give off water?
In which soil do plants grow best?
Growing potatoes at different locations
How fast do kidney beans grow?
Do large apples have more seeds than small ones?
Do different kinds of apples have different amounts of seeds?
What conditions do pill bugs prefer (light or dark, moist or dry)?
Can an earthworm detect light and darkness?
How far does a mealworm (or snail) travel in one minute?
What is the best condition for the growth of mold?
Which bread molds most quickly?
Which color liquid do hummingbirds prefer?
What food does a hamster prefer?
Can people identify flavors of Kool-Aid when blindfolded?

4-6 LEVEL PROJECTS

Demonstrations:

How heat is transmitted
An energy-efficient home
What makes a hot air balloon rise?
Expansion of solids, liquids & gases when heated
How a thermostat works
How a toaster works
The steam engine
The periscope
Kaleidoscopes
How binoculars work
How a microscope works
How a telescope works
What makes rainbows?
Different types of mirrors
Lenses and what they do
How a camera works
How polaroid glasses work
What causes light to bend?
How photocells work
How a prism works
The pinhole camera
The Doppler effect
What causes echoes
How a record player works
How an electric motor works
How a generator works
Batteries, how they work
The telegraph
What is a transformer?
What is a transistor?
Electronic components and their functions
Hydroelectric power
The series circuit and the parallel circuit
How airplanes fly
How a wing works
Hero's engine
How rockets fly
Looping rollercoasters – how they work
How a canal lock works
Primitive clocks
Distillation
Solar still
Water filtration
pH and how to measure it
Acids, bases and pH
How elements combine to make compounds
Capillary action
Radioactivity and Geiger counters
The sextant (or quadrant)
What is density?
What is surface tension?
Weather forecasting
How a barometer works
Cloud chamber
Effects of air pressure
Fermentation
Osmosis
Phases of the moon (working model)
Eclipses
How a geyser works
Harvesting the wind with windmills
How clouds form
Different types of earthquake faults
Sedimentation
How a sundial works
How does the human heart work? (model)
The circulatory system
The ear
Tooth decay
Why a fish has fins
Bird wings, how they work
Photosynthesis
Hydroponics
The action of yeast in bread
How yogurt is made
How cheese is made
Paper recycling
Aluminum recycling
Glass recycling
Oil wells – how they work
The submarine

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4-6/JUNIOR HIGH LEVEL PROJECTS

Experiments: Physical Science

Which metals conduct heat best?
* Measuring the calories in a peanut
Which material makes the best heat insulator?
* The efficiency of airspace as an insulator
Which color of liquid absorbs the most heat?
Which color container absorbs the most heat?
Which color container cools off the quickest?
How temperature affects the height at which different balls bounce
* How heat affects recording tape
Do black bottom pools keep the water warmer?
How constant is the temperature in my refrigerator?
How accurate is the temperature knob on my oven?
The effects of temperature on the strength of dry cells
The effect of light on dyed materials
* Calculating liquid density using light refraction
Materials that absorb sound
String telephones: what materials work best in conducting sound
Conductivity of various liquids
* How temperature affects the amount of electricity given off by a solar cell
How increasing the number of batteries affects the speed of a motor
What is the voltage range of the GE-14 bulb?
* The strength of a magnet vs. distance
* Do magnetic fields affect the sound quality on a recording tape?
The effects of washing on dyed materials
* Which fabrics are most fire-resistant?
* Which toothpaste is most abrasive?
* The amount of dissolved salt in drinking water
Can saltwater be desalted by freezing?
Popcorn: A graphical analysis of pops per second
* Strength of different woods
Ink evaluation with paper chromatography
Splat – a study in droplet patterns
* Chlorine levels in our drinking water
The effects of swimming pool water (chlorine) on hair
* Testing sugar in soft drinks
* Comparison of vitamin A content in frozen, canned and fresh peas
* Which foods have starch (or sugar, fat, protein, etc.)?
* Testing various orange drinks for vitamin C
* How fire affects roofing materials
How well do various fabrics absorb dye?
* Who has greater body density, boys or girls?
* How strong is a spider web thread?
Think up your own special project idea
* How does the tail affect the flight of a kite?
* What shutter speed is needed to photograph a moving fan?
The velocity of water through different tubes (same size, different material)
The velocity of water through different tubes (same material, different sizes)
The velocity of different liquids through the same size tube
* Density of various liquids

* – Denotes more difficult projects

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Experiments continued:

Engineering

* Do oil additives reduce friction on engine parts?
* A frictionless magnetic bearing
* How many rotor blades give maximum lift for a helicopter?

Paper airplane performance

* Robots
* Using electromagnets to power a car
* Battle of the bridges
* Computer projects
* Testing a car headlight as a satellite dish antenna
* Storing the sun's energy
* Power from rising air
* Power from the waves
* Testing different water turbine blades

Earth Science

* Charting the apparent motion of Polaris

Composition of Hawaiian sand
Water retention of different soils
Using a computer for mineral identification
How much dust falls on your lawn in a month?
How clean is our air?
How acid is our rain?
Speed of clouds using photography
The effect of wave action on different rocks (using a rock tumbler)
Wave barriers
Using feathers to clean up oil spills
Terracing and how it affects erosion

* The effects of water on different types of wood

Consumer

Which firewood gives the most heat per dollar?

* Which solar panel is most efficient?

Can a roof overhang cut summer cooling costs?
A comparative study of various packing materials
How much money can a pool cover save?
Which candle is the best buy?

* Which light bulb is most efficient?

Are TV commercials louder than regular programming?
Think up your own special project
The frequency and length of TV commercials during a one-hour program
Which battery is the best buy?
How much does it really cost to run a refrigerator?
Which stain remover works best?
Which detergent removes grass stains best?
Which detergent cuts grease the best?
Which detergent has the longest-lasting suds?

* – Denotes more difficult projects

Experiments continued:

More Consumer projects

The effectiveness of pre-wash products
Waterproofing agents – which is best?
The effects of deodorants on clothes
Which paint protects wood the best?
The effectiveness of different wood preservatives
* Shampoo evaluation
* Water solubility of suntan lotions
* Meat, fat and moisture content of hot dogs
* Do sausages vary in fat and water content?
Which popcorn pops the most?
Up to bat – wood or aluminum?
Fishing lines take the strength test
* Sole traction – which sole is best?
* Skateboard wheels – which are best?
Leaky faucets – how much do they cost us?
Which uses more water, a shower or a bath?
Which container (or wrapping) preserves food best?
Which paper towel is most absorbent?
Which diaper is best?
Which lighter has the most fuel?
Comparison of locks – which is best?
Which nails have the best holding power?
* The best air pressure for an A.T.C. (3-wheeler)
How long are yellow lights at various intersections?
Do parking meters give us the right time?

Life Science

Does a magnetic field affect the growth of beans?
Does electricity affect the growth of beans?
Does temperature affect the growth of plants?
How do plants react to different kinds of music?
* How detergents affect the growth of plants
Do plants grow better with tap water or distilled water?
The effects of rootbounding on plant growth
Do roots always grow down?
Do mirrors affect the way plants grow?
* Does leaf surface area affect plant growth?
Leaf size vs. location
Effects of artificial vs. natural light on plants
Under which color celophane do plants grow best?
Can you give a plant too much fertilizer?
Testing different potting soils
Which mulch covering works best?
* Does the phase of the moon affect the germination of seeds?
Do seeds sprout better in cold or hot climates?
* How does gravity affect the growth of seeds?
* Does acid rain affect the germination of seeds?

* – Denotes more difficult projects

Experiments continued:

More Life Science projects

Under which thickness of plastic do radishes grow best?
How the amount of light affects the growth of marigolds
Do avocados ripen more evenly with the stems left on?
* Which banana has the most sugar – green, yellow or brown?
* Comparing the moisture content of five varieties of apples
Effects of the environment on popcorn (heat, cold, moisture, time, etc.)
Does aspirin prolong the life of cut carnations?
* How detergents affect the growth of algae in pond water
* A study of marine growth on various surfaces
How fast does a mealworm (or snail) travel?
The speed of snails on different surfaces
* Horsepower of snails
The effect of different metals on snails
Effects of household pesticides on earthworms
Do earthworms help plants to grow?
* Can insects pull more than their own body weight?
* Ant control – natural vs. chemical repellents
Do goldfish grow larger in a larger tank?
Fish feeding – the effects of light
* Can mice see colors?
* Can mice distinguish shapes (squares, circles, triangles – associate one with food)
* Hamster activity and the phases of the moon
* Can the color of unborn rabbits be predicted?
How many grams of food does a rabbit eat per day?
Chickens and colored corn – which will they eat?
* Will a chicken lay more eggs with rock music playing?
Do pyramids preserve food?
* How does our vision affect our taste?
Light vs. vision – which color is best?
Night vision and the effects of colored objects
* The effect of color on depth perception
Does a blindfolded person walk in a circle?
The relationship between age and response time
* Can you recognize your own profile?
Left-hand, right-hand transference using a "mirror tracing"
Reading and remembering with different colored paper – which works best?
Flexibility: boys vs. girls
Do adults know U.S. geography? (or math skills, science concepts, etc.)
How do people react when seeing a teenager shoplift?
* How teeth react to different liquids
* Do taste buds grow weaker as you get older?
* Effects of coffee on a person's steady hand
* Effects of caffeine on blood pressure
Hot tubs and their effect on blood pressure
* Effects of foul smells on blood pressure
* Tar and nicotine in five brands of cigarettes
Smoking vs. lung capacity
Lung power of different age groups

* – Denotes more difficult projects

IDEAS FOR SCIENCE FAIR PROJECTS

What is the best home insulator?
Regeneration in planaria.
Colors' effect on heat absorption.
Wing design for balsa planes.
What is the best chemical battery?
How can you prevent iron from rusting?
Electroplating.
Distillation of alcohol.
Building a homemade hygrometer.
Conductivity of various substances.
Comparison of reaction time.
Effects of temperature on density.
Effects of ultraviolet light on bacteria.
Kite design with respect to aerodynamics.
ph comparison of antacids.
What is the best design for reduced wind drag?
Does color affect memory?
What is the best smoke detection system?
Does sound affect plant growth?
Mineral content of drinking water.
Probability.
Percent of body fat.
Taste sensitivity of smokers and non-smokers.
Which bleach works best?
Testing for nutrients.
How does lack of sleep affect behavior?
Design of robotic equipment.
Testing for ESP.
Earthworm distribution in a field.
How different paints hold up to weathering.
Social behavior of ants.
Best nose cone shape for model rockets.
Is it possible to learn while sleeping?
Does temperature affect crystal growth?
Making fabrics fire resistant.
Getting the viscosity of a liquid using a sphere.
How acids affect metals.
Which detergent works best.
Designing a solar engine.
Which is better–front or rear wheel drive?
Does oil stain or oil paint provide better protection?
Does cigarette smoke affect house plants?
Solar distillation.
Porosity of soils.
Sugar content of food.
Effect of light on reproductive growth of paramecia.
Comparison of blood pressure variation.
Effects of fertilizer on earthworms.
Plant tolerance to salt.
Fat content of margarine.
What material is best for road construction?
How does television viewing affect behavior?
Are rats social animals?
How are seeds affected by radiation?
Suspension bridge design.
Flammability testing of household goods.
Color preference of gerbils.
Effects of junk food on mice.
Paper recycling.
Temperature's effect on seed germination.
Which soil type is best for plant growth?
Design of a color blindness test.
Purifying water.
Spider web construction.
Comparison of biodegradable detergents.
Airplane wing design for greatest lift.
Does magnetism affect seed germination?
Does TV change kids' moods?
Optical illusions.
Search for the best natural filter for ground water.
Desalting water.
What are the spectra of elements and compounds?

Displaying a Science Fair Project