



Switched-On
SCHOOLHOUSE®

2014 Science Supply List

Science 600

Table of Contents

UNIT 1: PLANT SYSTEMS	1
UNIT 2: BODY SYSTEMS	2
UNIT 3: PLANTS AND ANIMAL BEHAVIOR.....	3
UNIT 4: MOLECULAR GENETICS	4
UNIT 5: CHEMICAL STRUCTURE AND CHANGE	5
UNIT 6: LIGHT AND SOUND	6
UNIT 7: MOTION AND ITS MEASUREMENT	7
UNIT 8: SPACESHIP EARTH.....	8
UNIT 9: ASTRONOMY AND THE STARS	9
UNIT 10: THE EARTH AND THE UNIVERSE.....	9

UNIT 1: PLANT SYSTEMS

Assignment Title	Project Summary	Video Demo	Materials Needed
Experiment: Anacharis Photosynthesis	In this experiment, you will investigate the effect of light on photosynthesis	Yes	<ul style="list-style-type: none"> A few sprigs of Anacharis; these can be obtained from a local pet store that has fish and aquarium supplies Two large test tubes, about 6" long Two clear disposable plastic cups with lids, or small glass jars
Experiment: Seeds	In this experiment you will examine how water and light affect seed growth.	Yes	<ul style="list-style-type: none"> 4 kernels of corn or beans 4 paper towels 4 test tubes or baby food jars water
Experiment: Digestive Enzymes	In this experiment, you will investigate the effect of saliva enzymes on the digestion of starch.	Yes	<ul style="list-style-type: none"> soda crackers Benedict's solution 4 test tubes beaker or small saucepan burner; either a stove burner, an alcohol lamp, or a Bunsen burner
Experiment: Root Observation	In this experiment you will take a closer look at the root hairs of a plant.	Yes	<ul style="list-style-type: none"> 4 radish or corn seeds metric ruler 2 thumb tacks water hand lens 1 plastic bag scissors microscope 1 paper towel stapler microscope slide
Experiment: Celery	In this experiment you will watch the transport of water through a stem.	Yes	<ul style="list-style-type: none"> celery stalk with leaves food coloring (red or blue) dropper microscope microscope slide water tall baby-food jar or glass razor blades (single-edged) metric ruler
*Experiment: Growing Roots	In this experiment, you will observe the growth of a plant from a cutting	No	<ul style="list-style-type: none"> water stem cutting of growing plants tall baby-food jar
*Special Project	Special Project assignments are used by teachers to create their own projects if needed.	No	N/A

*indicates alternate project/experiments

UNIT 2: BODY SYSTEMS

Assignment Title	Project Summary	Video Demo	Materials Needed
Experiment: Digestion	In this experiment, you will observe the effect of rennin on digestion of milk.	Yes	<ul style="list-style-type: none"> water stove, hot plate, or alcohol burner 1 Rennet tablet or 1/2 g rennin Pyrex beaker (about 250 ml) 10 ml whole milk test tube and clamp
Experiment: Oil and Soap	In this experiment you will see how an emulsion is formed.	Yes	<ul style="list-style-type: none"> two test tubes with stoppers or two tall thin bottles (vials) with lids water 20 drops of cooking oil 4 drops of liquid soap
Experiment: Passing Food	In this experiment you will see how food can be passed through a membrane.	Yes	<ul style="list-style-type: none"> water honey starch masking tape glucose test strips 1 drop of iodine solution 2 dental rubber bands/small rubber bands 2 small baby-food jars/beakers/cups dialysis membrane or semi-permeable membrane (2 squares, 5 cm x 5 cm) 2 small bottles or test tubes that will fit easily inside the baby-food jars
Experiment: Pulse Rate	In this experiment, you will investigate the effect of exercise on pulse rate.	No	<ul style="list-style-type: none"> 2 friends
*Project: Heart	In this project, you will learn more about the heart. Choose a project, then select your materials.	No	<ul style="list-style-type: none"> a beef heart from a local meat market research resources. paper pencil bulletin board
Experiment: Carbon Dioxide	In this experiment you will see how much carbon dioxide is expelled by the lungs.	Yes	<ul style="list-style-type: none"> clear limewater - limewater needs to be prepared 24 hrs beforehand, see instructions below. quart jar (needed for limewater preparation) tablespoon CaO or lime (found in grocery stores, used for pickling) distilled water 2 soda straws hand air pump 2 baby-food jars
*Project: Lungs	In this project you will learn more about the lungs.	No	<ul style="list-style-type: none"> an animal lung from a local meat market hand lens paper poster
Experiment: Evaporation and Cooling	In this experiment, you will compare the rate of evaporation of water and alcohol		<ul style="list-style-type: none"> rubbing alcohol water two cotton balls blackboard two baby food jar lids a watch with a second hand
*Special Project	Special Project assignments are used by teachers to create their own projects if needed.	No	N/A

*indicates alternate project/experiments

UNIT 3: PLANTS AND ANIMAL BEHAVIOR

Assignment Title	Project Summary	Video Demo	Materials Needed
Report: The Eye	In this project, you will learn about the structure and function of the eye.	No	<ul style="list-style-type: none"> • paper • pencil
Report: The Ear	In this project, you will learn about the structure and function of the ear.	No	<ul style="list-style-type: none"> • paper • pencil
Report: Instincts	In this report, you will write about animal instincts.	No	<ul style="list-style-type: none"> • research resources
*Experiment: Response	In this experiment you will use conditioning to teach a response to a goldfish.	No	<ul style="list-style-type: none"> • several goldfish in bowls • fish food
*Experiment: Trial and Error	In this experiment you will observe how trial-and-error affects performance on a task.	No	<ul style="list-style-type: none"> • piece of card stock or heavy paper (10 cm x 10 cm) • scissors
*Report: Man's Influence	In this report, you will write about an extinct or endangered animal	No	<ul style="list-style-type: none"> • research resources
*Special Project	Special Project assignments are used by teachers to create their own projects if needed.	No	N/A

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UNIT 4: MOLECULAR GENETICS

Assignment Title	Project Summary	Video Demo	Materials Needed
*Project: Flower Structure	In this project, you will dissect and examine the structure of a flower.	No	<ul style="list-style-type: none"> magnifying glass toothpick fresh flower black paper or very dark material plastic knife
*Project: Lima Bean Embryo	In this project, you will dissect and examine the structure of a bean embryo.	No	<ul style="list-style-type: none"> lima beans soaked overnight in water a magnifying glass
*Project: Mendel's Discovery	In this project, you will use your knowledge of inheritance to predict pea plant traits.	No	<ul style="list-style-type: none"> 20 dried garden pea seeds
Experiment: Taste Gene Lab	In this experiment you will test whether you have a dominant or recessive gene for the chemical phenylthiocarbamide (PTC).	Yes	<ul style="list-style-type: none"> a small trash bag or a can lined with a plastic bag (This is used to spit out the PTC.) PTC taste paper strips a lifesaver mint (to get the taste out of your mouth after the experiment).
*Project: Traits	In this project, you will compare the frequency of dominant and recessive traits in a sample population.	No	<ul style="list-style-type: none"> 14 people to look at
*Experiment: Albinism	In this experiment you will test the frequency of albinism in corn and/or sorghum plants.	No	<ul style="list-style-type: none"> flat of soil or pots of soil seeds of corn, sorghum
*Report: Genetics	In this report you will investigate the benefits of genetic research.	No	<ul style="list-style-type: none"> research resources
*Project: Pea Pod	In this project, you will observe the size of peas in a pod.	No	<ul style="list-style-type: none"> 1 large, fully developed pea pod (not opened); Beans will work too but not as well. a ruler marked in millimeters
*Special Project	Special Project assignments are used by teachers to create their own projects if needed.	No	N/A

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UNIT 5: CHEMICAL STRUCTURE AND CHANGE

Assignment Title	Project Summary	Video Demo	Materials Needed
Experiment: Solid, Liquid, and Gas	In this experiment you will examine the properties of solids, liquids, and gasses.	Yes	<ul style="list-style-type: none"> a balloon a small block of wood (or a rock) a clean, square, plastic container or square baking dish a soda pop
Experiment: Copper Iodide	In this experiment you will cause a chemical change and make a compound.	Yes	<ul style="list-style-type: none"> a copper penny iodine solution from your medicine cabinet a cotton swab a small pan for heating the penny a hot plate or Bunsen burner for heating the penny
Experiment: Calcium Carbonate	In this experiment, you will create a compound through a chemical change.	Yes	<ul style="list-style-type: none"> a clear plastic disposable glass or a test tube a soda straw about 3 tablespoons of limewater
Project: Water Molecule Model	In this project you will create a visual representation of a water molecule.	No	<ul style="list-style-type: none"> 2 toothpicks 2 black styrofoam balls and 1 white one (construction paper may be used in place of styrofoam balls)
*Project: Chart and Diagram	In this project you will pictorially represent an atom of helium and an atom of lithium.	No	<ul style="list-style-type: none"> paper pencil
*Report: Chemical Discoveries	In this project, you will write about an important chemical discovery.	No	<ul style="list-style-type: none"> research resources
Experiment: Acid or Base?	In this experiment you will test for acids and bases using phenolphthalein.	Yes	<ul style="list-style-type: none"> Phenolphthalein solution 1/4 teaspoon of baking soda mixed in 1 tablespoon of water 1/4 teaspoon of household ammonia mixed in 1 tablespoon of water 1/4 cup of vinegar 2 clear plastic glasses a plastic spoon to stir the solution about 1 tablespoon of additional baking soda eye dropper
*Project: Chemical Symbols	In this project you will practice using chemical symbols.	No	<ul style="list-style-type: none"> a few friends
*Special Project	Special Project assignments are used by teachers to create their own projects if needed.	No	N/A

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UNIT 6: LIGHT AND SOUND

Assignment Title	Project Summary	Video Demo	Materials Needed
Experiment: Test Tube Tunes	In this experiment you will change the pitch of a sound by changing the volume of liquid in a test tube.	Yes	<ul style="list-style-type: none"> 8 test tubes or soda-pop bottles water
Project: Sound Vibrations	In this project you will use a tuning fork to see sound waves.	No	<ul style="list-style-type: none"> a tuning fork a bowl of water (preferably a plastic container)
Project: Light Waves	In this project you will observe how light is refracted.	No	<ul style="list-style-type: none"> a penny a short, opaque cup a tabletop water a partner
Project: Refracted Light	In this project, you will observe how refracted light can change the appearance of objects in water.	No	<ul style="list-style-type: none"> a glass $\frac{1}{2}$ full with water a coin of any type a pencil
Project: Color Spectrum	In this experiment you will use a mirror and water to separate the colors in sunlight.	No	<ul style="list-style-type: none"> 1 clear glass dish 1 small rectangular mirror water
*Project: Create a Rainbow	In this project you will make your own rainbow.	No	<ul style="list-style-type: none"> a clear drinking glass a white sheet of paper water
Project: Color Wheel	In this experiment you will investigate what happens when all the colors of the spectrum are viewed at once.	No	<ul style="list-style-type: none"> cardboard circle, about 5 inches in diameter white paper circle, the same size as the cardboard circle piece of string, about 4 feet long crayons: red, orange, yellow, green, blue, and violet glue or shellac, ruler, paste, and pencil
Experiment: Subtractive Colors	In this experiment, you will create different colors using paper and cellophane and understand that objects absorb all colors except the color you see	Yes	<ul style="list-style-type: none"> pieces of cloth: red, green, black, and white piece of red glass or red cellophane
*Experiment: Mixing Colored Lights	In this experiment you will see what happens when different colors are absorbed and reflected back to your eye.	No	<ul style="list-style-type: none"> 3 flashlights red, green and blue cellophane white wall or sheet of white paper
*Experiment: Mixing Colorants	In this experiment you will make new colors using the three primary colors, red, yellow, and blue.	No	<ul style="list-style-type: none"> red, yellow and blue dye or food coloring warm water 8 clear plastic cups
*Special Project	Special Project assignments are used by teachers to create their own projects if needed.	No	N/A

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UNIT 7: MOTION AND ITS MEASUREMENT

Assignment Title	Project Summary	Video Demo	Materials Needed
Experiment: Forces of Lifting and Pulling	In this experiment you will compare the amount of work done moving, lifting, and pulling a box.	No	<ul style="list-style-type: none"> 1 spring scale, with a hook (The type of scale used for weighing fish is most suitable.) A smaller spring scale may be used, but you will have to adjust the amount of weight in the box to less than a pound.
*Report: Horsepower and Watts	In this report you will learn more about James Watt or horsepower.	No	<ul style="list-style-type: none"> research resources
*Experiment: Your Horsepower	In this experiment you will measure the work done by climbing stairs. You will then use this measurement to figure out your horsepower.	No	<ul style="list-style-type: none"> a watch with a second hand, or a stopwatch access to a flight of stairs
Experiment: The Law of Inertia	In this experiment you will test Newton's first Law of Motion.	No	<ul style="list-style-type: none"> 1 quart jar (an old mayonnaise jar that can be thrown away) 1 square piece of cardboard large enough to cover the top of the jar 1 marble enough sand or dirt to make about 2 inches in the bottom of the jar (the sand keeps the jar from falling over when flicked or breaking when the marble drops into it)
*Special Project	Special Project assignments are used by teachers to create their own projects if needed.	No	N/A

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UNIT 8: SPACESHIP EARTH

Assignment Title	Project Summary	Video Demo	Materials Needed
*Experiment: Balloon Globe	In this experiment you will see how the earth's shape and axis affect the seasons.	No	<ul style="list-style-type: none"> • one round balloon filled with air • a flashlight (a small penlight works best) • a square-shaped object, about 4 or 5 inches square
Experiment: Observing Shadows	In this experiment you will see how the angles of sunlight change as the earth orbits the sun.	No	<ul style="list-style-type: none"> • a large piece of brown wrapping paper or newspaper (about 4 feet by 8 feet); can be taped together • a black or dark brown crayon • masking tape
Experiment: Eclipses	In this experiment you will simulate both a solar and lunar eclipse.	No	<ul style="list-style-type: none"> • A large ball about the size of a basketball to represent the earth • A strong light of about 100 watts or more • A small ball about the size of a tennis ball to represent the moon • A method for darkening the room
*Special Project	Special Project assignments are used by teachers to create their own projects if needed	No	N/A

*indicates alternate project/experiments

UNIT 9: ASTRONOMY AND THE STARS

Assignment Title	Project Summary	Video Demo	Materials Needed
*Report: Great Astronomers	In this report, you will learn about important astronomers and their discoveries.	No	<ul style="list-style-type: none"> research resources
*Project: The Spectroscope	In this project, you will construct a spectroscope.	Yes	<ul style="list-style-type: none"> piece of diffraction grating (NOTE: The diffraction grating used in making this spectroscope is the transmission type of diffraction grating.) cardboard cylinder from the inside of a roll of paper towels small ruler sheet of black construction paper scotch tape or masking tape
*Experiment: Spectrography	In this experiment you will use a spectroscope to view different spectra.	No	<ul style="list-style-type: none"> spectroscope lights of various types
*Experiment: Oil on Water	In this experiment you will use oil to make a spectrum.	No	<ul style="list-style-type: none"> medicine dropper water liquid black ink disposable, clear, plastic glass automotive motor oil tablespoon
*Project: Constellations	In this project you will learn the stars that make up common constellations.	No	<ul style="list-style-type: none"> research resources
*Special Project	Special Project assignments are used by teachers to create their own projects if needed.	No	N/A

*indicates alternate project/experiments

UNIT 10: THE EARTH AND THE UNIVERSE

Assignment Title	Project Summary	Video Demo	Materials Needed
*Special Project	Special Project assignments are used by teachers to create their own projects if needed.	No	N/A

*indicates alternate project/experiments