



**Switched-On**  
SCHOOLHOUSE

# 2015 Science Supply List

Science 600

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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"> <li>A few sprigs of Anacharis; these can be obtained from a local pet store that has fish and aquarium supplies</li> <li>Two large test tubes, about 6" long</li> <li>Two clear disposable plastic cups with lids, or small glass jars</li> </ul>
Experiment: Seeds	In this experiment you will examine how water and light affect seed growth.	Yes	<ul style="list-style-type: none"> <li>4 kernels of corn or beans</li> <li>4 paper towels</li> <li>4 test tubes or baby food jars</li> <li>water</li> </ul>
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"> <li>soda crackers</li> <li>Benedict's solution</li> <li>4 test tubes</li> <li>beaker or small saucepan</li> <li>burner; either a stove burner, an alcohol lamp, or a Bunsen burner</li> </ul>
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"> <li>4 radish or corn seeds</li> <li>metric ruler</li> <li>2 thumb tacks</li> <li>water</li> <li>hand lens</li> <li>1 plastic bag</li> <li>scissors</li> <li>microscope</li> <li>1 paper towel</li> <li>stapler</li> <li>microscope slide</li> </ul>
Experiment: Celery	In this experiment you will watch the transport of water through a stem.	Yes	<ul style="list-style-type: none"> <li>celery stalk with leaves</li> <li>food coloring (red or blue)</li> <li>dropper</li> <li>microscope</li> <li>microscope slide</li> <li>water</li> <li>tall baby-food jar or glass</li> <li>razor blades (single-edged)</li> <li>metric ruler</li> </ul>
*Experiment: Growing Roots	In this experiment, you will observe the growth of a plant from a cutting	No	<ul style="list-style-type: none"> <li>water</li> <li>stem cutting of growing plants</li> <li>tall baby-food jar</li> </ul>
*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"> <li>water</li> <li>stove, hot plate, or alcohol burner</li> <li>1 Rennet tablet or 1/2 g rennin</li> <li>Pyrex beaker (about 250 ml)</li> <li>10 ml whole milk</li> <li>test tube and clamp</li> </ul>
Experiment: Oil and Soap	In this experiment you will see how an emulsion is formed.	Yes	<ul style="list-style-type: none"> <li>two test tubes with stoppers or two tall thin bottles (vials) with lids</li> <li>water</li> <li>20 drops of cooking oil</li> <li>4 drops of liquid soap</li> </ul>
Experiment: Passing Food	In this experiment you will see how food can be passed through a membrane.	Yes	<ul style="list-style-type: none"> <li>water</li> <li>honey</li> <li>starch</li> <li>masking tape</li> <li>glucose test strips</li> <li>1 drop of iodine solution</li> <li>2 dental rubber bands/small rubber bands</li> <li>2 small baby-food jars/beakers/cups</li> <li>dialysis membrane or semi-permeable membrane (2 squares, 5 cm x 5 cm)</li> <li>2 small bottles or test tubes that will fit easily inside the baby-food jars</li> </ul>
Experiment: Pulse Rate	In this experiment, you will investigate the effect of exercise on pulse rate.	No	<ul style="list-style-type: none"> <li>2 friends</li> </ul>
*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"> <li>a beef heart from a local meat market</li> <li>research resources.</li> <li>paper</li> <li>pencil</li> <li>bulletin board</li> </ul>
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"> <li>clear limewater - limewater needs to be prepared 24 hrs beforehand, see instructions below.</li> <li>quart jar (needed for limewater preparation)</li> <li>tablespoon</li> <li>CaO or lime (found in grocery stores, used for pickling)</li> <li>distilled water</li> <li>2 soda straws</li> <li>hand air pump</li> <li>2 baby-food jars</li> </ul>
*Project: Lungs	In this project you will learn more about the lungs.	No	<ul style="list-style-type: none"> <li>an animal lung from a local meat market</li> <li>hand lens</li> <li>paper</li> <li>poster</li> </ul>
Experiment: Evaporation and Cooling	In this experiment, you will compare the rate of evaporation of water and alcohol		<ul style="list-style-type: none"> <li>rubbing alcohol</li> <li>water</li> <li>two cotton balls</li> <li>blackboard</li> <li>two baby food jar lids</li> <li>a watch with a second hand</li> </ul>
*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"> <li>paper</li> <li>pencil</li> </ul>
Report: The Ear	In this project, you will learn about the structure and function of the ear.	No	<ul style="list-style-type: none"> <li>paper</li> <li>pencil</li> </ul>
*Report: Instincts	In this report, you will write about animal instincts.	No	<ul style="list-style-type: none"> <li>research resources</li> </ul>
*Experiment: Response	In this experiment you will use conditioning to teach a response to a goldfish.	No	<ul style="list-style-type: none"> <li>several goldfish in bowls</li> <li>fish food</li> </ul>
*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"> <li>piece of card stock or heavy paper (10 cm x 10 cm)</li> <li>scissors</li> </ul>
*Report: Man's Influence	In this report, you will write about an extinct or endangered animal	No	<ul style="list-style-type: none"> <li>research resources</li> </ul>
*Special Project	Special Project assignments are used by teachers to create their own projects if needed.	No	N/A

\*indicates alternate project/experiments

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"> <li>magnifying glass</li> <li>toothpick</li> <li>fresh flower</li> <li>black paper or very dark material</li> <li>plastic knife</li> </ul>
*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"> <li>lima beans soaked overnight in water</li> <li>a magnifying glass</li> </ul>
*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"> <li>20 dried garden pea seeds</li> </ul>
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"> <li>a small trash bag or a can lined with a plastic bag (This is used to spit out the PTC.)</li> <li>PTC taste paper strips</li> <li>a lifesaver mint (to get the taste out of your mouth after the experiment).</li> </ul>
*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"> <li>14 people to look at</li> </ul>
*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"> <li>flat of soil or pots of soil</li> <li>seeds of corn, sorghum</li> </ul>
*Report: Genetics	In this report you will investigate the benefits of genetic research.	No	<ul style="list-style-type: none"> <li>research resources</li> </ul>
*Project: Pea Pod	In this project, you will observe the size of peas in a pod.	No	<ul style="list-style-type: none"> <li>1 large, fully developed pea pod (not opened); Beans will work too but not as well.</li> <li>a ruler marked in millimeters</li> </ul>
*Special Project	Special Project assignments are used by teachers to create their own projects if needed.	No	N/A

\*indicates alternate project/experiments

## 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"> <li>a balloon</li> <li>a small block of wood (or a rock)</li> <li>a clean, square, plastic container or square baking dish</li> <li>a soda pop</li> </ul>
Experiment: Copper Iodide	In this experiment you will cause a chemical change and make a compound.	Yes	<ul style="list-style-type: none"> <li>a copper penny</li> <li>iodine solution from your medicine cabinet</li> <li>a cotton swab</li> <li>a small pan for heating the penny</li> <li>a hot plate or Bunsen burner for heating the penny</li> </ul>
Experiment: Calcium Carbonate	In this experiment, you will create a compound through a chemical change.	Yes	<ul style="list-style-type: none"> <li>a clear plastic disposable glass or a test tube</li> <li>a soda straw</li> <li>about 3 tablespoons of limewater</li> </ul>
Project: Water Molecule Model	In this project you will create a visual representation of a water molecule.	No	<ul style="list-style-type: none"> <li>2 toothpicks</li> <li>2 black styrofoam balls and 1 white one</li> </ul>
*Project: Atomic Number	In this project you will practice atomic mass and atomic mass number calculations.	No	N/A
Project: Use the Periodic Table	In this project you will practice using chemical symbols for elements.	No	N/A
*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"> <li>paper</li> <li>pencil</li> </ul>
*Report: Chemical Discoveries	In this project, you will write about an important chemical discovery.	No	<ul style="list-style-type: none"> <li>research resources</li> </ul>
Experiment: Acid or Base?	In this experiment you will test for acids and bases using phenolphthalein.	Yes	<ul style="list-style-type: none"> <li>Phenolphthalein solution</li> <li>1/4 teaspoon of baking soda mixed in 1 tablespoon of water</li> <li>1/4 teaspoon of household ammonia mixed in 1 tablespoon of water</li> <li>1/4 cup of vinegar</li> <li>2 clear plastic glasses</li> <li>a plastic spoon to stir the solution</li> <li>about 1 tablespoon of additional baking soda</li> <li>eye dropper</li> </ul>
*Project: From Memory	At the start of this unit you learned that all matter was made by God. In this project you will review Bible verses from the Book of John and the Book of Hebrews.	No	<ul style="list-style-type: none"> <li>Bible</li> </ul>

*Project: Cause and Effect	Many cause and effect relationships are at work in chemistry. Something happens that brings about an effect. In the following exercise, you are to determine the cause and effect.	No	<ul style="list-style-type: none"> <li>research resources</li> </ul>
*Project: Chemical Symbols	In this project you will practice using chemical symbols.	No	<ul style="list-style-type: none"> <li>a few friends</li> </ul>
*Project: Discussion	You have learned a lot about chemistry and matter. In this project you will review what you know.	No	N/A
*Special Project	Special Project assignments are used by teachers to create their own projects if needed.	No	N/A

\*indicates alternate project/experiments



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"> <li>8 test tubes or soda-pop bottles</li> <li>water</li> </ul>
Project: Sound Vibrations	In this project you will use a tuning fork to see sound waves.	No	<ul style="list-style-type: none"> <li>a tuning fork</li> <li>a bowl of water (preferably a plastic container)</li> </ul>
Project: Light Waves	In this project you will observe how light is refracted.	No	<ul style="list-style-type: none"> <li>a penny</li> <li>a short, opaque cup</li> <li>a tabletop</li> <li>water</li> <li>a partner</li> </ul>
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"> <li>a glass ½ full with water</li> <li>a coin of any type</li> <li>a pencil</li> </ul>
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"> <li>1 clear glass dish</li> <li>water</li> <li>1 small rectangular mirror</li> </ul>
*Project: Create a Rainbow	In this project you will make your own rainbow.	No	<ul style="list-style-type: none"> <li>a clear drinking glass</li> <li>a white sheet of paper</li> <li>water</li> </ul>
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"> <li>cardboard circle, about 5 inches in diameter</li> <li>white paper circle, the same size as the cardboard circle</li> <li>piece of string, about 4 feet long</li> <li>crayons: red, orange, yellow, green, blue, and violet</li> <li>glue or shellac, ruler, paste, and pencil</li> </ul>
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"> <li>pieces of cloth: red, green, black, and white</li> <li>piece of red glass or red cellophane</li> </ul>
*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"> <li>3 flashlights</li> <li>red, green and blue cellophane</li> <li>white wall or sheet of white paper</li> </ul>
*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"> <li>red, yellow and blue dye or food coloring</li> <li>warm water</li> <li>8 clear plastic cups</li> </ul>
*Special Project	Special Project assignments are used by teachers to create their own projects if needed.	No	N/A

\*indicates alternate project/experiments

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"> <li>1 spring scale, with a hook (The type of scale used for weighing fish is most suitable.)</li> <li>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.</li> </ul>
*Project: Unscramble Activity	You have learned the definitions of several vocabulary words. In this project you will review these definitions.	No	N/A
*Report: Horsepower and Watts	In this report you will learn more about James Watt or horsepower.	No	<ul style="list-style-type: none"> <li>research resources</li> </ul>
*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"> <li>a watch with a second hand, or a stopwatch</li> <li>access to a flight of stairs</li> </ul>
Experiment: The Law of Inertia	In this experiment you will test Newton's first Law of Motion.	No	<ul style="list-style-type: none"> <li>1 quart jar (an old mayonnaise jar that can be thrown away)</li> <li>1 square piece of cardboard large enough to cover the top of the jar</li> <li>1 marble</li> <li>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)</li> </ul>
*Special Project	Special Project assignments are used by teachers to create their own projects if needed.	No	N/A

\*indicates alternate project/experiments

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"> <li>one round balloon filled with air</li> <li>a flashlight (a small penlight works best)</li> <li>a square-shaped object, about 4 or 5 inches square</li> </ul> <ul style="list-style-type: none"> <li>2 small circles of paper (to be used for the north and south poles)</li> <li>a small amount of glue</li> </ul>
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"> <li>a large piece of brown wrapping paper or newspaper (about 4 feet by 8 feet); can be taped together</li> </ul> <ul style="list-style-type: none"> <li>a black or dark brown crayon</li> <li>masking tape</li> </ul>
*Project: Fact or Opinion	In this project you will identify statements as fact or opinion.		<ul style="list-style-type: none"> <li>N/A</li> </ul>
Experiment: Eclipses	In this experiment you will simulate both a solar and lunar eclipse.	No	<ul style="list-style-type: none"> <li>A large ball about the size of a basketball to represent the earth</li> <li>A strong light of about 100 watts or more</li> </ul> <ul style="list-style-type: none"> <li>A small ball about the size of a tennis ball to represent the moon</li> <li>A method for darkening the room</li> </ul>
*Report: Planets	You have learned that our solar system consists of the sun, eight planets, a dwarf planet, and their respective moons. In this report you will learn more about each planet.	No	N/A
*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"> <li>research resources</li> </ul>
*Project: The Spectroscope	In this project, you will construct a spectroscope.	Yes	<ul style="list-style-type: none"> <li>piece of diffraction grating (NOTE: The diffraction grating used in making this spectroscope is the transmission type of diffraction grating.)</li> <li>cardboard cylinder from the inside of a roll of paper towels</li> <li>small ruler</li> <li>sheet of black construction paper</li> <li>scotch tape or masking tape</li> </ul>
*Experiment: Spectrography	In this experiment you will use a spectroscope to view different spectra.	No	<ul style="list-style-type: none"> <li>spectroscope</li> <li>lights of various types</li> </ul>
*Experiment: Oil on Water	In this experiment you will use oil to make a spectrum.	No	<ul style="list-style-type: none"> <li>medicine dropper</li> <li>water</li> <li>liquid black ink</li> <li>disposable, clear, plastic glass</li> <li>automotive motor oil</li> <li>tablespoon</li> </ul>
Project: Betelgeuse and Aldebaran	You have learned that Betelgeuse and Aldebaran are two bright stars in the Orion and Taurus constellations. In this project you will make new words from the letters in these star names.	No	N/A
*Project: Constellations	In this project you will learn the stars that make up common constellations.	No	<ul style="list-style-type: none"> <li>research resources</li> </ul>
*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
*Report: Biomes	You have learned that biomes are major ecological groupings of plants and animals. In this report you will review the characteristics of the six terrestrial biomes.	No	N/A
*Special Project	Special Project assignments are used by teachers to create their own projects if needed.	No	N/A

\*indicates alternate project/experiments