Switched-On SCHOOLHOUSE® 2012 EDITION

Supply List

Science 600

Released
4-1-12

Table of Contents

Please have a pencil, paper and access to a printer available for all projects by default.

UNIT 1: PLANT SYSTEMS

Assignment # and Title	Project Summary	Video Demo	Materials Needed	
3. Experiment: Anacharis Photosynthesis	In this experiment you will investigate the effect of light on photosynthesis.	☒**Yes** ☐ No	• A few sprigs of Anacharis • Two large test tubes, about 6" long	• Two clear disposable plastic cups with lids, or small glass jars
5. Experiment: Seeds	In this experiment you will examine how water and light affect seed growth.	☒**Yes** ☐ No	• 4 kernels of corn or beans • 4 paper towels	• 4 test tubes or baby food jars • water
7. Experiment: Digestive Enzymes	In this experiment you will investigate the effect of saliva enzymes on the digestion of starch.	☒**Yes** ☐ No	• soda crackers • Benedict's solution • 4 test tubes • beaker or small saucepan	• burner; either a stove burner, an alcohol lamp, or a Bunsen burner
12. Experiment: Root Observation	In this experiment you will examine root hairs on a sprouting seed.	☒**Yes** ☐ No	• 4 radish or corn seeds • metric ruler • 2 thumb tacks • water • hand lens	• 1 plastic bag • scissors • microscope • 1 paper towel • stapler • microscope slide
14. Experiment: Celery	In this experiment you will observe the transport of water in a celery stalk.	☒**Yes** ☐ No	• 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
17. Experiment: Growing Roots	In this experiment you will observe the growth of a plant from a cutting.	☐Yes ☒ **No**	• stem cutting of growing plants	• tall baby-food jar • water
19. Special Project	Special Project assignments are used by teachers to create their own projects if needed.	☐Yes ☒ **No**	N/A	

UNIT 2: BODY SYSTEMS

Assignment # and Title	Project Summary	Video Demo	Materials Needed
3. Experiment: Digestion	In this experiment you will observe the effect of rennin on digestion of milk.	☒**Yes** ☐ No	• stove, hot plate, or alcohol burner • 1 Rennet tablet or 1/2 g rennin • Pyrex beaker (about 250 ml) • water • 10 ml whole milk • test tube and clamp
5. Experiment: Oil and Soap	In this experiment you will create an emulsion using oil, water, and soap.	☒**Yes** ☐ No	• two test tubes with stoppers or two tall thin bottles (vials) with lids • 20 drops of cooking oil • 4 drops of liquid soap • water
6. Experiment: Passing Food	In this experiment you will see how food can be passed through a membrane.	☒**Yes** ☐ No	• honey • starch • masking tape • glucose test strips • 1 drop of iodine solution • dialysis membrane or semi-permeable membrane (2 squares, 5 cm x 5 cm) • 2 dental rubber bands/small rubber bands • 2 small baby-food jars/beakers/cups • 2 small bottles or test tubes that will fit easily inside the baby-food jars • water
9. Experiment: Pulse Rate	In this experiment you will investigate the effect of exercise on pulse rate.	☐Yes ☒ **No**	• a place where you can lay down and jog in place
10. Project: Heart	In this project you will examine and research the heart.	☐Yes ☒ **No**	• reference material (Please see this project for additional optional supplies.)
12. Experiment: Carbon Dioxide	In this experiment you will see how much carbon dioxide is expelled by the lungs.	☒**Yes** ☐ No	• 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
13. Project: Lungs	In this experiment you will examine and research the lungs.	☐Yes ☒ **No**	• reference material (Please see this project for additional optional supplies.)
14. Experiment: Evaporation and Cooling	In this experiment you will compare the rate of evaporation of water and alcohol.	☐Yes ☒ **No**	• rubbing alcohol • water • two cotton balls • two baby-food jar lids • a watch with second hand • blackboard
20. Special Project	Special Project assignments are used by teachers to create their own projects if needed.	☐Yes ☒ **No**	N/A

UNIT 3: PLANTS AND ANIMAL BEHAVIOR

Assignment # and Title	Project Summary	Video Demo	Materials Needed
2. Report: The Eye	In this project, you will learn about the structure and function of the eye.	☐Yes ☒ **No**	• reference material
3. Report: The Ear	In this project, you will learn about the structure and function of the ear.	☐Yes ☒ **No**	• reference material
6. Report: Instincts	In this report you will learn more about this inborn response.	☐Yes ☒ **No**	• reference material
7. Experiment: Response	In this experiment you will teach a response to a goldfish	☐Yes ☒ **No**	• several goldfish in bowls • fish food
8. Experiment: Trial and Error	In this experiment you will observe how trial-and-error affects performance on a task.	☐Yes ☒ **No**	• piece of card stock or heavy paper (10 cm x 10 cm) • scissors
17. Report: Man's Influence	In this report you will write about an extinct or endangered animal.	☐Yes ☒ **No**	• reference material
19. Special Project	Special Project assignments are used by teachers to create their own projects if needed.	☐Yes ☒ **No**	N/A

UNIT 4: MOLECULAR GENETICS

Assignment # and Title	Project Summary	Video Demo	Materials Needed
2. Project: Flower Structure	In this project you will dissect and examine the structure of a flower.	☐Yes ☒ **No**	• magnifying glass • black paper or very dark material • fresh flower • plastic knife • toothpick
4. Project: Lima Bean Embryo	In this project you will take a closer look at the embryo of a bean plant.	☐Yes ☒ **No**	• lima beans soaked overnight in water • a magnifying glass
7. Project: Mendel's Discovery	In this project you will use your knowledge of inheritance to predict pea plant traits.	☐Yes ☒ **No**	• 20 dried garden pea seeds
9. Experiment: Taste Gene Lab	In this experiment you will test whether you have a dominant or recessive gene for the chemical phenylthiocarbamide (PTC).	☒**Yes** ☐ No	• 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).
10. Project: Traits	In this project you will study dominance of different physical traits.	☐Yes ☒ **No**	• 15 people not related to you
13. Experiment: Albinos	In this experiment you will test the frequency of albinism in corn and/or sorghum plants.	☐Yes ☒ **No**	• flat of soil or pots of soil • seeds of corn, sorghum
14. Report: Genetics	In this report you will investigate the benefits of genetic research.	☐Yes ☒ **No**	• reference material
17. Project: Pea Pod	In this project you will observe the size of peas in a pod.	☐Yes ☒ **No**	• 1 large pea pod (not opened); Use only fully-developed pods. Beans will work but not as well. • a ruler marked in millimeters
20. Special Project	Special Project assignments are used by teachers to create their own projects if needed.	☐Yes ☒ **No**	N/A

UNIT 5: CHEMICAL STRUCTURE AND CHANGE

Assignment # and Title	Project Summary	Video Demo	Materials Needed
2. Experiment: Solid, Liquid, Gas	In this experiment you will examine the properties of solids, liquids, and gasses.	☒**Yes** ☐ No	• a balloon • a clean, square, plastic container or square baking dish • a small block of wood (or a rock) • a soda pop (save it to drink)
5. Experiment: Copper Iodide	In this experiment you will cause a chemical change and make a compound.	☒**Yes** ☐ No	• 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
6. Experiment: Calcium Carbonate	In this experiment, you will combine carbon dioxide with limewater (calcium hydroxide) to make a new compound called calcium carbonate.	☒**Yes** ☐ No	• about 3 tablespoons of limewater • a soda straw • a clear plastic disposable glass or a test tube
9. Project: Water Molecule Model	In this project you will create a visual representation of a water molecule.	☐Yes ☒ **No**	• 2 black styrofoam balls and 1 white one (construction paper may be used in place of styrofoam balls) • 2 toothpicks
11. Project: Atomic Number	In this project you will practice atomic mass and atomic mass number calculations.	☐Yes ☒ **No**	N/A
13. Project: Use the Periodic Table	In this project you will practice using chemical symbols for elements.	☐Yes ☒ **No**	N/A
16. Project: Chart and Diagram	In this project you will pictorially represent an atom of helium and an atom of lithium.	☐Yes ☒ **No**	N/A
17. Report: Chemical Discoveries	In this report you will learn about the work of other famous chemists.	☐Yes ☒ **No**	• reference material
19. Experiment: Acid or Base?	In this experiment you will test for acids and bases using phenolphthalein.	☒**Yes** ☐ No	• Phenolphthalein solution • 1/4 cup of vinegar • 1/4 teaspoon of baking soda mixed in 1 tablespoon of water • 1/4 teaspoon of household ammonia mixed in 1 tablespoon of water • 2 clear plastic glasses • a plastic spoon to stir the solution • about 1 tablespoon of additional baking soda • eye dropper
20. Project: From Memory	In this project you will review Bible verses from the Book of John and the Book of Hebrews.	☐Yes ☒ **No**	• bible
21. Project: Cause and Effect	In this project you will identify cause and effect in chemistry.	☐Yes ☒ **No**	N/A
22. Project: Chemical Symbols	In this project you will practice using chemical symbols.	☐Yes ☒ **No**	• people to play a game with
23. Project: Discussion	In this project you will discuss and answer questions about chemistry.	☐Yes ☒ **No**	N/A
25. Special Project	Special Project assignments are used by teachers to create their own projects if needed.	☐Yes ☒ **No**	N/A

UNIT 6: LIGHT AND SOUND

Assignment # and Title	Project Summary	Video Demo	Materials Needed	
2. 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** ☐ No	• 8 test tubes or soda-pop bottles	• water
3. Project: Sound Vibrations	In this project you will use a tuning fork to see sound waves.	☒**Yes** ☐ No	• a tuning fork	• a bowl of water (preferably a plastic container)
5. Project: Light Waves	In this project you will demonstrate refraction of light using simple materials.	☐Yes ☒ **No**	• a penny • a short, opaque cup	• a tabletop • water • a partner
6. Project: Refracted Light	In this experiment you will observe how refracted light can change the appearance of objects in water.	☐Yes ☒ **No**	• a glass 1/2 full of water	• a coin of any type • a pencil
9. Project: Color Spectrum	In this experiment you will use a mirror and water to separate the colors in sunlight.	☐Yes ☒ **No**	• 1 clear glass dish • water	• 1 small rectangular mirror
10. Project: Create a Rainbow	In this project you will make your own rainbow.	☐Yes ☒ **No**	• a clear drinking glass • water	• a white sheet of paper
13. Project: Color Wheel	In this experiment you will investigate what happens when all the colors of the spectrum are viewed at once.	☐Yes ☒ **No**	• 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
14. Experiment: Subtractive Colors	In this experiment you will use colored cellophane to find out happen if you look at an object through a piece of colored glass?	☒**Yes** ☐ No	• pieces of cloth: red, green, black, and white	• piece of red glass or red cellophane
15. Experiment: Mixing Colored Lights	In this experiment you will see what happens when different colors are absorbed and reflected back to your eye.	☐Yes ☒ **No**	• 3 flashlights • red, green, and blue cellophane	• white wall or a sheet of white paper
17. Experiment: Mixing Colorants	In this experiment you will make new colors using the three primary colors, red, yellow, and blue.	☐Yes ☒ **No**	• red, yellow, and blue dye or food coloring	• warm water • 8 clear plastic cups
19. Special Project	Special Project assignments are used by teachers to create their own projects if needed.	☐Yes ☒ **No**	N/A	

UNIT 7: MOTION AND ITS MEASUREMENT

Assignment # and Title	Project Summary	Video Demo	Materials Needed	
3. Experiment: Forces of Lifting and Pulling	In this experiment you will compare the amount of work done moving, lifting, and pulling a box.	☐Yes ☒ **No**	• 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.	• 1 heavy box filled with something to make it weigh about 3 pounds (The box may be filled with wood or rocks.) (If you do not have a larger spring scale then fill a box to make it weigh a little less than a pound.)
4. Project: Unscramble Activity	You have learned the definitions of several vocabulary words. In this project you will review these definitions.	☐Yes ☒ **No**	N/A	
7. Report: Horsepower and Watts	In this report you will learn more about James Watt or horsepower.	☐Yes ☒ **No**	• reference material	
8. 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.	☐Yes ☒ **No**	• a watch with a second hand, or a stopwatch	• access to a flight of stairs
10. Experiment: The Law of Inertia	In this experiment you will test Newton's first Law of Motion.	☐Yes ☒ **No**	• 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)
14. Special Project	Special Project assignments are used by teachers to create their own projects if needed.	☐Yes ☒ **No**	N/A	

UNIT 8: SPACESHIP EARTH

Assignment # and Title	Project Summary	Video Demo	Materials Needed	
2. Experiment: Balloon Globe	In this experiment you will see how the earth's shape and axis affect the seasons.	☐Yes ☒ **No**	• one round balloon filled with air • a flashlight (a small penlight works best) • a square-shaped object, about 4 or 5 inches square	• 2 small circles of paper (to be used for the north and south poles) • a small amount of glue
5. Experiment: Observing Shadows	In this experiment you will see how the angles of sunlight change as the earth orbits the sun.	☐Yes ☒ **No**	• 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
9. Project: Fact or Opinion	In this project you will identify statements as fact or opinion.	☐Yes ☒ **No**	N/A	
10. Experiment: Eclipses	In this experiment you will simulate both a solar and lunar eclipse.	☐Yes ☒ **No**	• A large ball about the size of a basketball to represent the earth • A small ball about the size of a tennis ball to represent the moon	• A strong light of about 100 watts or more • A method for darkening the room
13. Report: Planets	You have learned that the 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.	☐Yes ☒ **No**	• reference material	
16. Special Project	Special Project assignments are used by teachers to create their own projects if needed.	☐Yes ☒ **No**	N/A	

UNIT 9: ASTRONOMY AND THE STARS

Assignment # and Title	Project Summary	Video Demo	Materials Needed	
2. Report: Great Astronomers	In this report you will write a report about each of these scientists, including information from the chart below and summarizing your information in two paragraphs for each scientist.	☐Yes ☒ **No**	• reference material	
7. Project: The Spectroscope	In this project you will construct a spectroscope.	☒**Yes** ☐ No	• 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
8. Experiment: Spectrography	In this experiment you will use a spectroscope to view different spectra.	☐Yes ☒ **No**	• spectroscope	• lights of various types
9. Experiment: Oil on Water	In this experiment you will use oil to make a spectrum.	☐Yes ☒ **No**	• medicine dropper • water • disposable, clear, plastic glass	• liquid black ink • automotive motor oil • tablespoon
14. Project: Betelgeuse and Aldebaran	In this project you will make new words from the letters in these star names.	☐Yes ☒ **No**	N/A	
15. Project: Constellations	In this project you will learn the stars that make up common constellations.	☐Yes ☒ **No**	• reference material	• drawing papaer
17. Special Project	Special Project assignments are used by teachers to create their own projects if needed.	☐Yes ☒ **No**	N/A	

UNIT 10: THE EARTH AND THE UNIVERSE

Assignment # and Title	Project Summary	Video Demo	Materials Needed
9. Report: Biomes	In this report you will review the characteristics of the six terrestrial biomes.	☐Yes ☒ **No**	• reference material
21. Special Project	Special Project assignments are used by teachers to create their own projects if needed.	☐Yes ☒ **No**	N/A