



monarch

2018 - 2019 Science Supply List

Science 600

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UNIT 1: PLANT SYSTEMS

Assignment	Summary	Video Demo	Supplies
Experiment: Anacharis Photosynthesis	In this experiment, you will investigate the effect of light on photosynthesis	No	<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.	No	<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.	No	<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.	No	<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 or handheld magnifying glass • 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	Use this Special Project template to create your own assignment for this unit.	N/A	N/A

UNIT 2: BODY SYSTEMS

Assignment	Summary	Video Demo	Supplies
Experiment: Digestion	In this experiment, you will Observe the effect of rennin on digestion of milk.	Yes	<ul style="list-style-type: none"> • A tray • A clear bowl • Orange juice • Water • 2 crackers • A banana • A sealable plastic bag • A plastic cup • Half a pair of sheer nylon tights to represent the small intestine • A pair of scissors • Tape
Experiment: Oil and Soap	In this experiment you will see how an emulsion is formed.	Yes	<ul style="list-style-type: none"> • 2 clear bottles with at least 250 milliliters of liquid. • Vegetable oil • A clear jug with at least 500 milliliters of water • Food coloring of any color, except yellow • Dish washing liquid • And a graduated cylinder or measuring cup.

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 • 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
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 • paper • pencil • research resources
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 • dissecting tools • a hand lense

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 • two baby-food jar lids • a watch with second hand • blackboard
*Special Project	Use this Special Project template to create your own assignment for this unit.	N/A	N/A

UNIT 3: PLANT AND ANIMAL BEHAVIOR

Assignment	Summary	Video Demo	Supplies
Report: The Eye	In this project, you will learn about the structure and function of the eye.	No	<ul style="list-style-type: none"> • pencil • paper
Report: The Ear	In this project, you will learn about the structure and function of the ear.	No	<ul style="list-style-type: none"> • pencil • paper
*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	Use this Special Project template to create your own assignment for this unit.	N/A	N/A

UNIT 4: MOLECULAR GENETICS

Assignment	Summary	Video Demo	Supplies
*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 • black paper or very dark material • fresh flower • 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"> • magnifying glass • toothpick • black paper or very dark material • fresh flower • plastic knife
*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, who are not related to one another, to review
*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 pea pod (not opened); Use only fully-developed pods. Beans will work but not as well. • a ruler marked in millimeters
*Special Project	Use this Special Project template to create your own assignment for this unit.	N/A	N/A

UNIT 5: CHEMICAL STRUCTURE AND CHANGE

Assignment	Summary	Video Demo	Supplies
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 (save it to drink)
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 test tube • 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
*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"> • pencil • paper
*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"> •
*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"> • Bible

*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"> research resources
*Project: Chemical Symbols	In this project you will practice using chemical symbols.	No	<ul style="list-style-type: none"> a few friends
*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	Use this Special Project template to create your own assignment for this unit.	N/A	N/A

UNIT 6: LIGHT AND SOUND

Assignment	Summary	Video Demo	Supplies
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.	No	<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 1/2 full of 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 water 1 small rectangular mirror
*Project: Create a Rainbow	In this project you will make your own rainbow.	No	<ul style="list-style-type: none"> a clear drinking glass water a white sheet of paper

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	No	<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 a 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	Use this Special Project template to create your own assignment for this unit.	N/A	N/A

UNIT 7: MOTION AND ITS MEASUREMENT

Assignment	Summary	Video Demo	Supplies
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. 1 heavy box filled with something to make it weigh about 3 pounds (The box may be filled with wood or rocks.) <p>If you do not have a larger spring scale then fill a box to make it weigh a little less than a pound.</p>

*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"> 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	Use this Special Project template to create your own assignment for this unit.	N/A	N/A

UNIT 8: SPACESHIP EARTH

Assignment	Summary	Video Demo	Supplies
*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 2 small circles of paper (to be used for the north and south poles) a small amount of glue
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

*Project: Fact or Opinion	In this project you will identify statements as fact or opinion.	No	N/A
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 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
*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	<ul style="list-style-type: none"> research resources
*Special Project	Use this Special Project template to create your own assignment for this unit.	N/A	N/A

UNIT 9: ASTRONOMY AND THE STARS

Assignment	Summary	Video Demo	Supplies
*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"> cardboard cylinder from the inside of a roll of paper towels piece of diffraction grating 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: Betelgeuse and Aldebaran	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	• research resources
*Special Project	Use this Special Project template to create your own assignment for this unit.	N/A	N/A

UNIT 10: THE EARTH AND THE UNIVERSE

Assignment	Summary	Video Demo	Supplies
*Report: Biomes	in this report you will review the characteristics of the six terrestrial biomes.	No	N/A
*Special Project	Use this Special Project template to create your own assignment for this unit.	N/A	N/A

* indicates an alternative assignment