



2019-2020 Science Supply List

Biology

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UNIT 1: TAXONOMY: KEY TO ORGANIZATION

Assignment	Summary	Video Demo	Supplies
Experiment: Fruit	In this experiment, you will create and utilize a dichotomous key to classify a variety of fruits.	No	<ul style="list-style-type: none"> a variety of fruits
*Activity: Keying Plants	In this assignment, you will select ten flowers to make a dichotomous key.	No	Optional <ul style="list-style-type: none"> a microscope magnifying glass razor blade, tweezers dissecting needles.
*Activity: Keying Animals	In this assignment, you will select ten to twenty animals to construct a dichotomous key.	No	<ul style="list-style-type: none"> research resources
Project: Research	In this assignment, you will write a report on the origin of life.	No	<ul style="list-style-type: none"> research resources
*Project: Origins	In this assignment, you will choose one of three projects on origins to complete.	No	Depends upon the project chosen. <ul style="list-style-type: none"> paper pen stamped envelope or <ul style="list-style-type: none"> a recorded lecture or debate on the subject of origins or <ul style="list-style-type: none"> materials of your choice to help you design and construct an interest center or display on the subject of origins
*Special Project	Use this Special Project template to create your own assignment for this unit.	N/A	N/A

UNIT 2: CHEMISTRY OF LIFE

Assignment	Summary	Video Demo	Supplies
Experiment: Static Electricity	In this assignment, you will perform an experiment of ionic bonding.	Yes	<ul style="list-style-type: none"> • two inflated balloons • piece of material (nylon, wool, or fur) • thread • nylon stocking • string • piece of white paper
*Experiment: Temperature Control	In this experiment, you will investigate water as a temperature control.	Yes	<ul style="list-style-type: none"> • two flat aluminum cake pans (disposable) • a liter measure • sand • aluminum foil • thermometer
Experiment: Water Properties	In this investigation, you will observe what happens to two different solutes when added to water and then filtered.	Yes	<ul style="list-style-type: none"> • chalk • calcium hydroxide • filter paper • phenolphthalein • heat source • two Pyrex beakers
*Experiment: Indicators	In this experiment, you will determine acidity and basicity of common household products utilizing indicators.	Yes	<ul style="list-style-type: none"> • litmus paper • vinegar • bicarbonate of soda • fruit juice • tomato juice • other varied household liquids • soup

*Experiment: Starch	In this experiment, you will perform investigations for presence of starch or sugar.	Yes	<ul style="list-style-type: none"> • powdered starch • Glucose test strips. The kind that are used to test glucose in urine. • beakers, tumblers, or small disposable cups • iodine • fresh fruits and vegetables • fruit juices • processed food: soft drinks, diet soft drinks, salad dressings, baby food, vinegar, and sauces • sugar (Karo syrup)
*Experiment: Digestion	In this experiment, you will perform investigations to explore the action of enzymes on digestion.	Yes	<ul style="list-style-type: none"> • two jars with lids • crackers • diluted hydrochloric acid • cornstarch • ground beef (raw) • Glucose test strips • iodine
*Special Project	Use this Special Project template to create your own assignment for this unit.	N/A	N/A

UNIT 3: CELLS

Assignment	Summary	Video Demo	Supplies
Experiment: Introducing the Microscope	Write a 125-word summary of what you have learned in "Introducing the Microscope".	Yes	N/A
Experiment: Plant, Animal, and Algae Cells	In this project, you will observe an animal cell—a human cheek cell, a plant cell - Elodea, and two algae cells - Spirogyra and Chlamydomonas.	V-Lab	N/A

*Experiment: The Onion Cell	In this experiment, you will prepare and observe a slide of onion cells.	No	<ul style="list-style-type: none"> • microscope • single-edged razor blade or exacto knife • coverslip • medicine dropper • iodine stain • forceps • onion • slide (clear) • paper towel • water
Project: Virtual Lab - Osmosis	Analyze how different concentrations of solutes in a solution can affect organism's cells.	V-Lab	N/A
Experiment: Osmosis	In this experiment, you will perform an experiment that demonstrates osmosis.	No	<ul style="list-style-type: none"> • 3 eggs • 4 cups vinegar • 2 cups tap water • 2 cups corn syrup
*Experiment: Tissues	In this experiment, you will observe several types of tissue cells using a microscope.	Yes	<ul style="list-style-type: none"> • microscope • prepared slides of tissues
*Special Project	Use this Special Project template to create your own assignment for this unit.	N/A	N/A

UNIT 4: CELL DIVISION AND REPRODUCTION

Assignment	Summary	Video Demo	Supplies
Experiment: Mitosis	In this experiment, you will observe slides of onion root and whitefish blastula for mitosis.	Yes	<ul style="list-style-type: none"> • microscope • prepared slide of onion (<i>Allium</i>) root stained to show chromosomes • prepared slide of whitefish blastula stained to show chromosomes
*Experiment: Regeneration	In this experiment, you will perform an experiment of regeneration on flatworms.	Yes	<ul style="list-style-type: none"> • a small glass jar or a culture jar • a razor blade, a scalpel, or a very sharp knife • a dissection microscope or a good hand lens • eight or ten individual <i>Planaria</i> or flatworms • a small piece of fresh liver about 2 cm on a side placed in fresh water which is just the depth of the height of the liver • blunt ended tweezers or forceps
*Experiment: Bulb Structure	In this experiment, you will using an onion, make observations of a bulb.	No	<ul style="list-style-type: none"> • a hand lens or dissection microscope • a knife or razor blade • a fresh onion or some other kind of bulb
*Experiment: Cuttings	In this experiment, you will perform investigations of different types of cuttings.	No	<ul style="list-style-type: none"> • one glass jar of 16-ounce, or larger, size • two or more flower pots of 4-inch, or larger, diameter • rich loamy soil or potting mix • toothpicks • a sweet potato
*Experiment: Sexual Reproduction	In this experiment, you will make observations of an egg cell and a sperm cell using prepared slides.	Yes	<ul style="list-style-type: none"> • a compound microscope • one or more prepared slides of egg cells from an animal • one or more prepared slides of animal sperm, preferably from the same species as the slides of the egg cell
Experiment: Tissue Structure	In this experiment, you will observe different types of cells.	Yes	<ul style="list-style-type: none"> • microscope • prepared slide of muscle tissue • prepared slide of some internal organ such as the kidney, liver, or heart • prepared slide of erythrocytes, or leukocytes (from blood)
*Experiment: Ferns and Pines	In this experiment, you will prepare a slide of sporangia from a fern leaf and observe.	Yes	<ul style="list-style-type: none"> • hand lens or dissection microscope • forceps

			<ul style="list-style-type: none"> • microscope • medicine dropper • fern leaves with sori • clean glass slides • pine cone (green and unopened would be best) • coverslip
*Experiment: Flowers	In this experiment, you will examine a variety of flowers and identify the parts.	Yes	<ul style="list-style-type: none"> • microscope • razor blade or sharp knife • hand lens or dissection microscope • medicine dropper • microscope • clean glass slides • teasing needle • coverslips • several kinds of fresh flowers
*Special Project	Use this Special Project template to create your own assignment for this unit.	N/A	N/A

UNIT 5: GENETICS: GOD'S PLAN OF INHERITANCE

Assignment	Summary	Video Demo	Supplies
Experiment: Probability	In this experiment, you will perform an experiment on probability.	No	<ul style="list-style-type: none"> • 2 coins • box (cardboard shoebox is good)
Experiment: Molecular Genetics	In this experiment, you will perform an experiment on molecular genetics.	No	<ul style="list-style-type: none"> • 60 radish seeds • 2 petri dishes or flat covered containers • sand-peat mixture • medicine dropper • box to cover 1 petri dish
*Special Project	Use this Special Project template to create your own assignment for this unit.	N/A	N/A

UNIT 6: MICROBIOLOGY

Assignment	Summary	Video Demo	Supplies
Experiment: Fungus All Around (Part 1)	In this experiment, you will grow and observe a number of different fungi.	No	<ul style="list-style-type: none"> • a compound microscope or 5X or 10X hand lens • slice of hard cheese • 3 sealable plastic sandwich bags • slice of bread • sharp knife or razor blade • microscope slide • a flashlight or light source of some kind for observations
Experiment: Fungus All Around (Part 2)	In this experiment, you will grow and observe a number of different fungi.	Yes	<ul style="list-style-type: none"> • compound microscope • sugar • 5X or 10X hand lens • fresh whole mushroom • flashlight • depression slide • methylene blue stain • tweezers • medicine dropper • pin • cover slip • baker's yeast packet • cup or glass • sharp knife or razor blade • spoon

Experiment: Protozoan Culture	In this experiment, you will grow and observe a number of different protozoans taken from a "dirty" water source.	Yes	<ul style="list-style-type: none"> • 1 water collection container (quart jar) • "dirty" water source • 6 grains of rice • 1 tsp rich black soil (NOT potting soil) • 4 small glass jars (baby food jars) • handful of hay or grass clippings • pinch of hard-boiled egg yolk • cotton ball • medicine dropper • cover slips • microscope • depression slide • protozoan cultures
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Activity: Pathogenic Bacteria Report	Write a 500 word research report on a pathogenic bacterium that is not discussed in this unit.	No	<ul style="list-style-type: none"> • research resources
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*Experiment: Algae Observations	In this experiment, you will examine prepared slides of nostoc and spirogyra.	Yes	<ul style="list-style-type: none"> • a microscope with a high-power lens • a slide of nostoc • a slide of spirogyra • paper and pencil for sketches
*Special Project	Use this Special Project template to create your own assignment for this unit.	N/A	N/A

UNIT 7: PLANTS: GREEN FACTORIES

Assignment	Summary	Video Demo	Supplies
Experiment: Seeds	In this experiment, you will collect four different types of seeds and perform the investigation.	Yes	<ul style="list-style-type: none"> • four different types of seeds (at least one grass such as corn and one bean such as a pinto bean) --at least four seeds of each kind • magnifying glass (hand lens) • four Styrofoam cups • razor blade (single edge) • soil mixture: 2/3 potting soil and 1/3 sand • water
*Experiment: Terrarium	In this experiment, you will construct a terrarium	No	<ul style="list-style-type: none"> • Large glass or plexiglass container • washed gravel, sand and/or rock • aquarium charcoal • potting soil • A few assorted plants
*Special Project	Use this Special Project template to create your own assignment for this unit.	N/A	N/A

UNIT 8: HUMAN ANATOMY AND PHYSIOLOGY

Assignment	Summary	Video Demo	Supplies
Experiment: Heart Rate	In this experiment, you will perform and experiment on heart rate.	No	<ul style="list-style-type: none"> a partner to complete the experiment with you a clock with a second hand
*Experiment: Muscle Types	In this experiment, you will observe slides of the three muscle types.	Yes	<ul style="list-style-type: none"> microscope raw chicken leg blunt probe scissors prepared slides of smooth muscle, skeletal muscle, and cardiac muscle latex gloves
*Special Project	Use this Special Project template to create your own assignment for this unit.	N/A	N/A

UNIT 9: ECOLOGY, POLLUTION, AND ENERGY

Assignment	Summary	Video Demo	Supplies
Experiment: Habitats	In this experiment, you will select a habitat and set up a living community. Study your habitat for several weeks to observe and record any changes. In a 250 report, describe your habitat and answer the following questions.	No	<ul style="list-style-type: none"> gallon jar (or other large, glass container) Choose one habitat to visit: <ul style="list-style-type: none"> Freshwater aquarium Woodland terrarium Marine aquarium Desert terrarium Aqua-terrarium
*Experiment: Biomes	Explain what part of the ecosystem each living organism fulfills	No	<ul style="list-style-type: none"> research resources
*Experiment: Quadrats	In this experiment, you will choose a quadrat location and count and list different plant and animal species in the quadrat.	No	<ul style="list-style-type: none"> a quadrat in a location that represents your field study a meter stick large nails string or twine

*Experiment: Inventory	This activity will give you some experience in taking an inventory and in learning about the plants and animals of your area.	No	• nearby plants and animals to observe
*Special Project	Use this Special Project template to create your own assignment for this unit.	N/A	N/A

UNIT 10: PRINCIPLES AND APPLICATIONS OF BIOLOGY

Assignment	Summary	Video Demo	Supplies
*Special Project	Use this Special Project template to create your own assignment for this unit.	N/A	N/A

* indicates an alternative assignment