Switched-On SCHOOLHOUSE® 2012 EDITION

Supply List

Biology

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

UNIT 1: TAXONOMY: KEY TO ORGANIZATION

Assignment # and Title	Project Summary	Video Demo	Materials Needed
8. Experiment: Fruit	In this experiment, you will create and utilize a dichotomous key to classify a variety of fruits.	☐Yes ☒ **No**	• reference materials
9. Activity: Keying Plants	In this assignment, you will select ten flowers to make a dichotomous key.	☐Yes ☒ **No**	(Optional) • Microscope • magnifying glass • razor blade • tweezers • dissecting needles
10. Activity: Keying Animals	In this assignment, you will select ten to twenty animals to construct a dichotomous key.	☐Yes ☒ **No**	• related pictures
15. Project: Research	In this assignment, you will write a report on the origin of life.	☐Yes ☒ **No**	• reference materials
16. Project: Origins	In this assignment, you will choose one of three projects on origins to complete.	☐Yes ☒ **No**	• related materials
18. Special Project	Special Project assignments are used by teachers to create their own projects if needed.	☐Yes ☒ **No**	N/A

UNIT 2: CHEMISTRY OF LIFE

Assignment # and Title	Project Summary	Video Demo	Materials Needed	
4. Experiment: Static Electricity	In this assignment, you will perform an experiment of ionic bonding.	☒**Yes** ☐ No	• two inflated balloons • piece of material (nylon, wool, or fur)	• thread • nylon stocking • string • piece of white paper
6. Experiment: Temperature Control	In this experiment, you will investigate water as a temperature control.	☐Yes ☒ **No**	• two flat aluminum cake pans (disposable) • a liter measure	• sand • aluminum foil • thermometer
8. Experiment: Water Properties	In this experiment, you will investigate water as a solvent.	☒**Yes** ☐ No	• chalk • calcium hydroxide • filter paper	• phenolphthalein • heat source • two Pyrex beakers
9. Experiment: Indicators	In this experiment, you will determine acidity and basicity of common household products utilizing indicators.	☐Yes ☒ **No**	• litmus paper • vinegar • bicarbonate of soda • fruit juice	• tomato juice • other varied household liquids • soup
15. Experiment: Starch	In this experiment, you will perform investigations for presence of starch or sugar.	☐Yes ☒ **No**	• powdered starch • Glucose test strips • beakers or tumblers	• iodine • several fruits and vegetables • sugar (Karo syrup)
20. Experiment: Digestion	In this experiment, you will perform investigations to explore the action of enzymes on digestion	☒**Yes** ☐ No	• two jars with lids • crackers • diluted hydrochloric acid	• cornstarch • ground beef (raw) • Glucose test strips • iodine
22. Special Project	Special Project assignments are used by teachers to create their own projects if needed.	☐Yes ☒ **No**	N/A	

UNIT 3: CELLS

Assignment # and Title	Project Summary	Video Demo	Materials Needed	
3. Experiment: Microscope	In this experiment, you will learn how to prepare a wet-mount slide and observe that slide using the microscope.	☐Yes ☒ **No**	• Compound Microscope • Newspaper • Microscope slide • Scissors	• Cover slip • Medicine Dropper • Pin • Water
4. Experiment: Cheek Cells	In this experiment, you will prepare and observe a slide of cheek cells	☒**Yes** ☐ No	• microscope • medicine dropper • water	• methylene blue stain • toothpick • slide • coverslip
5. Experiment: Onion Cells	In this experiment, you will prepare and observe a slide of onion cells.	☐Yes ☒ **No**	• microscope • single-edged razor blade or exacto knife • coverslip • medicine dropper	• iodine stain • forceps • onion • slide (clear) • paper towel • water
9. Experiment: Osmosis	In this assignment, you will perform an experiment about osmosis.	☐Yes ☒ **No**	• 3 eggs • 4 cups vinegar	• 2 cups tap water • 2 cups corn syrup
14. Experiment: Tissues	In this experiment, you will observe several types of tissue cells using a microscope.	☒**Yes** ☐ No	• powdered starch • Glucose test strips • beakers or tumblers	• iodine • several fruits and vegetables • sugar (Karo syrup)
16. Special Project	Special Project assignments are used by teachers to create their own projects if needed.	☐Yes ☒ **No**	N/A	

UNIT 4: CELL DIVISION AND REPRODUCTION

Assignment # and Title	Project Summary	Video Demo	Materials Needed	
4. Experiment: Mitosis	In this experiment, you will observe slides of onion root and roundworm for mitosis.	☒**Yes** ☐ No	• microscope • prepared slide of onion (Allium) root stained to show chromosomes	• prepared slide of roundworm stained to show chromosomes
7. Experiment: Regeneration	In this assignment, you will perform an experiment of regeneration on flatworms.	☐Yes ☒ **No**	• 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 Planaria 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
9. Experiment: Bulb Structure	In this experiment, you will make observations of a bulb using an onion.	☐Yes ☒ **No**	• a hand lens or dissection microscope • a knife or razor blade	• a fresh onion or some other kind of bulb
11. Experiment: Cuttings	In this experiment, you will perform investigations of different types of cuttings.	☐Yes ☒ **No**	• 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
15. Experiment: Sexual Reproduction	In this experiment, you will make observations of an egg cell and a sperm cell using prepared slides.	☒**Yes** ☐ No	• 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
18. Experiment: Tissue Structure	In this experiment, you will observe different types of cells.	☒**Yes** ☐ No	• 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)	• cheek cells (from you) • medicine dropper • methylene blue stain • toothpick • clean glass slide • coverslip
23. Experiment: Ferns and Pines	In this experiment, you will prepare a slide of sporangia from a fern leaf and observe.	☐Yes ☒ **No**	• hand lens or dissection microscope • forceps • microscope • medicine dropper • coverslip	• fern leaves with sori • clean glass slides • pine cone (green and unopened would be best)

UNIT 4: CELL DIVISION AND REPRODUCTION (CONT.)

Assignment # and Title	Project Summary	Video Demo	Materials Needed
24. Experiment: Flowers	In this experiment, you will examine a variety of flowers and identify the parts.	☐Yes ☒ **No**	• 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
26. Special Project	Special Project assignments are used by teachers to create their own projects if needed.	☐Yes ☒ **No**	N/A

UNIT 5: GENETICS: GOD'S PLAN OF INHERITANCE

Assignment # and Title	Project Summary	Video Demo	Materials Needed
3. Experiment: Probability	In this assignment, you will perform an experiment on probability.	☐Yes ☒ **No**	• 2 coins • box (cardboard shoebox is good)
12. Experiment: Molecular Genetics	In this assignment, you will perform an experiment on molecular genetics.	☐Yes ☒ **No**	• 60 radish seeds • 2 petri dishes or flat covered containers • sand-peat mixture • medicine dropper • box to cover 1 petri dish
18. Special Project	Special Project assignments are used by teachers to create their own projects if needed.	☐Yes ☒ **No**	N/A

UNIT 6: MICROBIOLOGY

Assignment # and Title	Project Summary	Video Demo	Materials Needed
3. Experiment: Fungus All Around (Part 1)	In this experiment, you will grow and observe a number of different fungi.	☐Yes ☒ **No**	• 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
4. Experiment: Fungus All Around (Part 2)	In this experiment, you will grow and observe a number of different fungi.	☐Yes ☒ **No**	• 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
7. Experiment: Protozoan Culture	In this experiment, you will grow and observe a number of different protozoans taken from a “dirty” water source.	☐Yes ☒ **No**	• 1 water collection container (quart jar) • "dirty" water source • 1 tsp rich black soil (NOT potting soil) • 6 grains of rice • 4 small glass jars (baby food jars) • handful of hay or grass clippings • pinch of hard-boiled egg yolk
13. Activity: Pathogenic Bacteria Report	In this assignment, you will write a report on a pathogenic bacterium that is not discussed in this unit.	☐Yes ☒ **No**	• reference materials
16. Experiment: Algae Observations	In this experiment, you will examine prepared slides of nostoc and spirogyra.	☐Yes ☒ **No**	• a prepared slide of nostoc (cyanobacteria) • a prepared slide of spirogyra (green algae) • microscope
18. Special Project	Special Project assignments are used by teachers to create their own projects if needed.	☐Yes ☒ **No**	N/A

UNIT 7: PLANTS: GREEN FACTORIES

Assignment # and Title	Project Summary	Video Demo	Materials Needed	
6. Experiment: Seeds	In this experiment, you will collect four different types of seeds and perform the investigation.	☒**Yes** ☐ No	• 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
11. Experiment: Terrarium	In this experiment, you will construct a terrarium.	☐Yes ☒ **No**	• Large glass or plexiglass container • washed gravel, sand and/or rock	• aquarium charcoal • potting soil • a few assorted plants
16. Special Project	Special Project assignments are used by teachers to create their own projects if needed.	☐Yes ☒ **No**	N/A	

UNIT 8: HUMAN ANATOMY AND PHYSIOLOGY

Assignment # and Title	Project Summary	Video Demo	Materials Needed	
6. Experiment: Heart Rate	In this assignment, you will perform and experiment on heart rate.	☒**Yes** ☐ No	N/A	
10. Experiment: Muscle Types	In this experiment, you will observe slides of the three muscle types.	☐Yes ☒ **No**	• microscope • raw chicken leg • blunt probe • scissors	• prepared slides of smooth muscle, skeletal muscle, and cardiac muscle • latex gloves
19. Special Project	Special Project assignments are used by teachers to create their own projects if needed.	☐Yes ☒ **No**	N/A	

UNIT 9: ECOLOGY, POLLUTION, AND ENERGY

Assignment # and Title	Project Summary	Video Demo	Materials Needed
7. Experiment: Habitats	In this experiment, you will select a habitat and set up a living community.	☐Yes ☒ **No**	• gallon jar (or other large, glass container)
8. Experiment: Biomes	In this experiment, you will explain what part of the ecosystem each living organism fulfills.	☐Yes ☒ **No**	N/A
9. Experiment: Quadrats	In this experiment, you will choose a quadrat location and count and list different plant and animal species in the quadrat.	☐Yes ☒ **No**	• string or twine • large nails • meter stick
10. Experiment: Inventory	In this experiment, you will take an inventory of all the plants and animals in a designated area.	☐Yes ☒ **No**	N/A
16. Essay: Stewardship	In this assignment, you will locate Bible verses associated with our stewardship of the earth and rewrite each Bible verse using one's own interpretation.	☐Yes ☒ **No**	• reference materials
18. Special Project	Special Project assignments are used by teachers to create their own projects if needed.	☐Yes ☒ **No**	N/A

UNIT 10: PRINCIPLES AND APPLICATIONS OF BIOLOGY

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