Biology Lab Experiment Materials

Equipment and materials are categorized below as “**Required**” (mandatory purchase), “**Virtual** (online/video provided) **/ Worksheet**”, and “**Optional**” supplies (not mandatory, but fun). The goal of labs is to offer hands-on experiences as well as online, virtual activities. Labs are meant to be predictive, interactive, engaging, educational, and fun.

* Eye protection (safety glasses or goggles) is recommended for some labs.
* You can use “substitute” equipment as long as it uses METRIC measurements.
* **“Required” items must be obtained.**
* “Virtual/Worksheet” is based on videos and worksheets that are provided.
* “Optional” is up to you.

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| **Unit of Biology** | **Lab Title/Topic** | **Supplies** |
| **Required** | **Virtual/Worksheet** | **Optional** |
| Introduction to Biology | Compound Microscope |  | Video Link | Compound Microscope |
| Introduction to Biology | Microscopic Field | * Metric Ruler
* Calculator
 |  | Compound Microscope |
| Biochemistry | Chemistry Overview |  | * Video Links
* PHET Simulation
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| Biochemistry | Biomolecules | * Marsh Mellows
* Toothpicks
* Colored Markers
* Raisins
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| **Unit of Biology** | **Lab Title/Topic** | **Required** | **Virtual/Hands On** | **Optional** |
| **Cell & Cell Organelles** | **LAB REPORT****Osmosis in an Egg** | * **3 Eggs IN THEIR SHELLS**
* **Masking Tape**
* **Marker**
* **Distilled Water**
* **CLEAR Sugar Syrup (e.g. Karo) Vinegar**
* **Clear Cups or Jars Metric Measuring Tape**
* **Paper Towels**
* **Paper**
* **Pencil**
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| Cell & Cell Organelles | Study of the Onion Cell |  | Worksheet with images | * Compound Microscope
* Onion skin
* Microscope slide
* Cover slip
* Toothpick
* Alcohol
* Lens paper
* Gentian violet stain
* Paper towel
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| Metabolism & Enzymes | Enzymes in Pineapple | * 1 envelope Knox
* Gelatin
* Marking Pen
* Masking Tape
* 4 test tubes
* 10 – 1ml pipettes
* Spoon
* Apple juice
* Pineapple juice
* 10 ml graduated cyl
* 100 ml grad cylinder
* Metric cup
* Stove or Hot Plate
* Bleach
* Vinegar
 |  | * Test Tube Rack
* Hot Plate
* goggles
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| **Unit of Biology** | **Lab Title/Topic** | **Required** | **Virtual/Hands On** | **Optional** |
| Photosynthesis | Study of the Cell (Elodea) |  | Video Link | * Compound Microscope
* Elodea Leaf
* Iodine stain
* Paper Towel
* Alcohol
* Microscope slides
* Cover slips
* Lens Paper
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| **Photosynthesis****HONORS** | **Pigments in Photosynthesis** |  | **Video Link** | * **Green & Red Leaves**
* **Metric ruler**
* **2 – 500 ml beakers**
* **Plastic Wrap**
* **Filter Paper**
* **Rubbing alcohol**
* **Graduated cylinder**
* **Pencil**
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| **Unit of Biology** | **Lab Title/Topic** | **Required** | **Virtual/Hands On** | **Optional** |
| Cellular Respiration | Alcohol Fermentation in Yeast |  | Video for worksheet completion and data collection | * + 4 12-ounce bottles (see image)
	+ 4 packets of Active Dry Yeast (bread maker yeast) (2 ¼ teaspoons) (Make sure that the yeast has not reached its expiration date)
	+ Thermometer (⁰ C)
	+ Funnel (if needed, make your own out of a coffee filter by cutting a small hole.)
	+ Water Balloons that fit snugly on your test tubes (4)
	+ Metric Ruler and String
	+ 6 teaspoons of sugar (sucrose)
	+ Hot plate or stove
	+ 250 ml Warm Tap Water for each bottle (1 L total)
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| Cellular Respiration | Cellular Respiration Simulation |  | Video Links for worksheet completion  |  |
| Mitosis | Mitosis in Cheek Cells |  | Video link for worksheet completion  |  |
| Meiosis | Meiosis Simulation |  | Video link for worksheet completion |  |

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| **Unit of Biology** | **Lab Title/Topic** | **Required** | **Virtual/Hands On** | **Optional** |
| DNA, RNA | DNA Extraction Lab |  | Video links for worksheet completion | * Alcohol
* Split peas
* Detergent
* Meat tenderizer
* Metric cup
* Blender
* Strainer
* Stirring spoons
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| Protein Synthesis | Protein Synthesis |  | Class Notes for worksheet completion  |  |
| Genetics | Monohybrid Cross Segregation Lab | * 2 Brown paper bags
* 1 bag white beans
* 1 bag red beans
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| Genetics | Build a Body Lab | Quarter (coin) |  |  |
| Genetics | Human Blood Typing |  | Video links for worksheet completion |  |
| Semester Break |

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| **Unit of Biology** | **Lab Title/Topic** | **Required** | **Virtual/Hands On** | **Optional** |
| Genetic Variations Human Genetics | Genetics with a Smile |  | Worksheet |  |
| Genetic Variations Human Genetics | Hereditary Traits |  | Worksheet |  |
| **Genetic Variations Human Genetics** | **Bug Karyotype** | * **Scissors**
* **Glue**
 | **Worksheet** |  |
| Creation Evolution Fossils | Fossil Identification |  | Worksheet |  |
| Classification Viruses Bacteria Protists Fungi | 6 Kingdom & Viruses Lab |  | Worksheet  |  |
| Classification Viruses Bacteria Protists Fungi | Classification Viruses Bacteria Protists Fungi |  | Video for worksheet completion |  |
| Plants | Tree Identification |  | Worksheet & Dichotomous Key (provided) |  |
| **Plants****HONORS** | **Seed Germination** | * **Egg carton**
* **Lettuce or Turnip Seeds**
* **Potting Soil**
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| Animals | Recognizing Symmetry |  | Worksheet |  |
| Animals | 3 Kingdom Classification |  | * Worksheet
* Dichotomous Key
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| Animals | Frog Dissection | **HONORS must have Frog Dissection Kit** | Video Links & Worksheet | Frog Dissection Kit |

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| **Unit of Biology** | **Lab Title/Topic** | **Required** | **Virtual/Hands On** | **Optional** |
| Ecology | Creating an Antarctic Food Web |  | Worksheet |  |
| Ecology | Pyramid & Biomass |  | Worksheet |  |
| Ecology | Population Growth |  | Video for worksheet completion  |  |
| Ecology | Fish Management: Sampling | * Coffee Can (container)
* 400-500 pieces of paper squares
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| Human Anatomy & Physiology | Bones, Muscles, Skin Anatomy |  | Video Links for worksheet |  |
| Human Anatomy & Physiology | Circulation, Rest & Exercise | * Stop Watch
* 14-18 inch “Step” (chair, bleacher)
 |  | Sphygmomanometer |
| Human Anatomy & Physiology | Identify The Systems (Endocrine, Immune, Digestive, Excretory) |  | Worksheet |  |