

Physical Science Lab Experiment Materials

Equipment and materials are categorized below as “**Required**” (mandatory purchase), “**Virtual** (online/video provided) / **household items** (needed for labs)”, and “**Optional**” supplies (not mandatory, but fun). The goal of labs is to offer hands-on experiences as well as online, virtual activities. Some labs will be performed during class sessions, but most outside of class. Labs are meant to be predictive, interactive, engaging, educational, and fun.

- Eye protection (safety glasses or goggles) is required for some labs.
- You can use “substitute” equipment as long as it uses METRIC measurements.
- **“Required” items must be obtained (see suggestions at end of document).**
- “Hands On” uses household items that should be obtained if possible.
- “Virtual” is based on videos that are provided for data collection.
- “Optional” is up to you.

Unit of Physical Science	Lab Title/Topic	Supplies		
		Required	Virtual/Hands On	Optional
Science Skills Ch 1	Accuracy Precision		Video for data collection	<ul style="list-style-type: none"> • 100 ml Grad Cylinder • 100 ml Beaker • 1 L Plastic Cube
Science Skills Ch 1	Metric Measurement		Video for data collection	<ul style="list-style-type: none"> • Meter stick • Bar Magnet • Mass Scale • 100 ml grad cylinder
States of Matter	LAB REPORT Density	<ul style="list-style-type: none"> • Mass balance • 100 ml plastic grad cylinder • 10 Copper Coins 	<ul style="list-style-type: none"> • Vegetable Oil (20 ml) • Metric ruler • Wood block 2x4x3” • Food coloring 	
States of Matter	Phys/Chem Changes		Video for Phys/Chem changes for data collection	

Unit of Physical Science	Lab Title/Topic	Required	Virtual/Hands On	Optional
Properties of Matter	Heating Curve of Water	<ul style="list-style-type: none"> • Celsius thermometer • Safety goggles 	<ul style="list-style-type: none"> • A small glass container (250 ml) ... safe for boiling water. • Ice (preferably crushed) • Hot plate / stove / heat source • Plastic stirring rod 	video
Atomic Structure	Electrostatic Forces		Video / PHET Simulation for data collection	<ul style="list-style-type: none"> • Plastic / black comb • Paper punches from hole punch • Balloons (small, large) • Wool cloth or sweater • Acrylic tape • Silk cloth • Wool cloth/sweater • Styrofoam
Gas Laws	Gas Laws		Video for worksheet completion and data collection	
Periodic Table	Top Secret Agent			
Chemical Bonding	Movement of Charge		<ul style="list-style-type: none"> • 8 ½ x 11” paper • Marking Pen • Post It Notes 	<ul style="list-style-type: none"> • Colored paper • Small Yellow Post It Notes

Unit of Physical Science	Lab Title/Topic	Required	Virtual/Hands On	Optional
Chemical Reactions	LAB REPORT Types of Chemical Reactions		Video for worksheet completion and data collection	
Chemical Reactions	Redox Simulation		Video / PHET Simulation for worksheet completion	
Chemical Reactions	Stressing Equilibrium		Video for worksheet completion and data collection	
Solutions	Solubility of Solids versus Temperature		<ul style="list-style-type: none"> • 250 ml beaker or cup • ½ Teaspoon of Hot Cocoa mix • Hot Plate or stove 	
Solutions	Solubility of Gases versus Temperature		Video for worksheet completion and data collection	<ul style="list-style-type: none"> • 2 - 250 ml beakers • 12 oz. Root Beer or Cola • Hot Plate/stove • 2 Large Test Tubes • Ice • Tongs • Test Tube Rack • 2 1-holed Rubber Stoppers (#4) • 100 ml Grad Cylinder

Unit of Physical Science	Lab Title/Topic	Required	Virtual/Hands On	Optional
Solutions	Ice Cream Freezing Point Depression			<ul style="list-style-type: none"> • ½ Cup Whole Milk or half & half cream • 4 Cups Crushed Ice • ½ Teaspoon Vanilla Extract • 1 Tablespoon Sucrose (table sugar) • 4 Tablespoons Rock salt, NaCl • 2 Zip-lock Freezer Bags (quart size) • 1 Zip-lock Freezer bag (gallon size) • Gloves • Paper towels
Acids & Bases	Acid Base Simulation		Video for worksheet completion and data collection	
Carbon Chemistry	Carbon Compounds		<ul style="list-style-type: none"> • Marshmallows • Toothpicks • Raisins 	
Nuclear Chemistry	Half Life & Radioactivity		<ul style="list-style-type: none"> • Pennies or M & M 	
Semester Break				

Unit of Physical Science	Lab Title/Topic	Required	Virtual/Hands On	Optional
Force & Motion	LAB REPORT Speed	<ul style="list-style-type: none"> • Stop watch (tenths units) 	<ul style="list-style-type: none"> • 1 m track/board or 2"x4"x4' • Manilla folder • Tape • Meter stick • Steel ball or Marble 	
Motion	Free Fall			<ul style="list-style-type: none"> • Stop Watch • Ball (Tennis)
Newton's Laws of Motion	Newton's 1 st & 2 nd Laws		<ul style="list-style-type: none"> • Coin • 3 x 5 index card • Small non-glass cup • 3 eggs • Pan/stove to hard-boil eggs 	
Newton's Laws of Motion	Momentum & Collisions		Video for worksheet completion and data collection	
Energy	Kinetic & Potential Energy		Video for worksheet completion and data collection	<ul style="list-style-type: none"> • 200 g weight • 2 m length of string • Timer • Tennis Ball • Mass balance
Heat	Specific Heat	<ul style="list-style-type: none"> • Celsius thermometer 	<ul style="list-style-type: none"> • 10 oz Styrofoam cup • Tongs • Heat source • 2-3" Metal bolt 	video

Unit of Physical Science	Lab Title/Topic	Required	Virtual/Hands On	Optional
Heat	Convection		<ul style="list-style-type: none"> • Ice Cube Tray • Food Coloring • Table Salt • 2 - 250 ml Beakers / Glasses 	
Work & Machines	Simple Machines		Video for worksheet completion and data collection	<ul style="list-style-type: none"> • Make shift Pulley stand • Wood block • Spring scale (200 g or 500 g) • Board: inclined plane • Meter stick • 2 single pulleys • Pulley stand
Electricity	Circuits		Video / PHET Simulation for worksheet completion and data collection	<ul style="list-style-type: none"> • 3 Switches • 1-Battery (adjust voltage) <ul style="list-style-type: none"> ▪ 6 Light Bulbs ▪ Wire ▪ Non-contact ammeter ▪ Voltmeter

Unit of Physical Science	Lab Title/Topic	Required	Virtual/Hands On	Optional
Sound	Properties of Sound		<ul style="list-style-type: none"> • Plastic Wrap • Scissors • Tape or large Rubber Band • Candle w/ stand • Match • Large Pot • Wooden spoon • Large bowl • Rice • Plastic 1-liter or 2-liter bottle (e.g. soda pop) 	
Light	LAB REPORT Reflection & Refraction		Video for worksheet completion and data collection	
Light & Color	Color Simulation		Video for worksheet completion and data collection	
Student Projects based on Motion, Newton’s Laws, Electricity, Sound, or Light		Student’s choice		

See next page for suggestions on **REQUIRED** supplies.

Required Equipment / Supplies

You must have these items, but you may purchase them where you like. Here are some suggestions and approximate costs:

Mass scale ([Amazon.com ... B07XYN4T55 ... Digital Kitchen Scale, Stainless Food Weigh Scale Grams, Mini Pocket Scale 500g x 0.01g, Small Jewelry Scale with Automatic Shutdown ... \\$15](#))

100 ml plastic grad cylinder ([Carolina.com ... #721613 ... \\$2.10](#))

Celsius Thermometer ([Carolina.com ... #959877 ... Student Thermometer Low Range \\$3](#))

250 ml Glass Beaker/cup ([Carolina.com ... #959877 ... Student Thermometer Low Range \\$10](#))

Stop watch (0.1 s) ... (Cell phone, tablet, computer. [Amazon.com ... B085DG3NHG ... Digital Stopwatch Timer ... \\$6](#))

10 Copper Coins (*pennies or whatever type of COPPER money you have*) ... *people should have these.*

Safety goggles ([Carolina.com ... #972160 ... \\$3](#))