



2010-2011 Science Lab List

Chemistry

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CHEMISTRY (2010): UNIT 1 - MEASUREMENT AND ANALYSIS

Assignment Number	Assignment Title	Project Summary and Supply List	Video Demo
2	Report: Metric System	Your goal for this assignment is to prepare a detailed report on the history of the metric system in America. Supply List: N/A	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
8	Project: Measuring Length with Precision	Supply List: <ul style="list-style-type: none">• metric ruler	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
9	Experiment: Masses	Supply List: <ul style="list-style-type: none">• centigram balance• various small objects	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
20	Special Project	Special Project assignments are used by teachers to create their own projects if needed.	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No

CHEMISTRY (2010): UNIT 2 - STARTING THE INVESTIGATION: HOW TO IDENTIFY ELEMENTS, COMPOUNDS, AND MIXTURES

Assignment Number	Assignment Title	Project Summary and Supply List	Video Demo
4	Experiment: Observation of a Phase Change	Supply List: <ul style="list-style-type: none"> • test tube with 12-15 grams paradichlorobenzene (PDCB) (moth crystals) • three Pyrex beakers the same size, 150 mL to 500 mL range • two 250 mL Pyrex beakers • two thermometers • beaker stand • water • heat source • three dye tablets or egg-coloring tablets • iodine crystals (optional) 	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
5	Experiment: Salt and Sand	Your goal for this assignment is to make a mixture of salt and sand and then devise a way to separate them into the original sample of pure salt and pure sand. Supply List: <ul style="list-style-type: none"> • pure white sand • ½ sand and ½ salt mixture • pure salt • filter funnel • filter paper or heavy paper hand towel 	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
8	Report: Density	Supply List: N/A	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
10	Experiment: Using the Tyndall Effect to Identify Colloids	Supply List: <ul style="list-style-type: none"> • 3 clear glasses with smooth sides • laser pointer or flashlight • red Jell-O® • red food coloring • sugar • water 	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
12	Special Project	Special Project assignments are used by teachers to create their own projects if needed.	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No

CHEMISTRY (2010): UNIT 3 - EXPLORING LAWS FOR GASES AND CONSERVATION OF MASS

Assignment Number	Assignment Title	Project Summary and Supply List	Video Demo
3	Project: Graphing Kinetic Energy	Supply List: N/A	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
8	Experiment: Finding Absolute Zero Experimentally	Supply List: <ul style="list-style-type: none"> • 250 mL Erlenmeyer flask • wire gauze • short piece of plastic tube • rubber stop, 1-hole to fit flask • water • beaker to fit flask • ice 	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
9	Project: Absolute Zero - Real or Theoretical?	Supply List: N/A	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
16	Essay: Biography	Your goal for this assignment is to write a biography of one or more of the following scientists: Robert Boyle, Lord Kelvin (William Thomson), or James Maxwell. Supply List: N/A	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
22	Special Project	Special Project assignments are used by teachers to create their own projects if needed.	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No

CHEMISTRY (2010): UNIT 4 - THE DISCOVERY OF ATOMS: NATURE'S BUILDING BLOCKS

Assignment Number	Assignment Title	Project Summary and Supply List	Video Demo
2	Experiment: Physical Properties of Elements	Your goal for this assignment is to explore some of the physical properties of some common elements. Supply List: N/A	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
3	Experiment: Chemical Properties of Some Metals	Your goal for this assignment is to test certain metals for their ability to burn. Supply List: <ul style="list-style-type: none"> • tin can lid with 4 indentations • support stand and ring • Bunsen burner or propane burner • samples of iron, copper, magnesium, and lead 	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
13	Report: Fission Reactors	Your goal for this assignment is to write a report on some of the pros and cons of this method of energy production. Supply List: N/A	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
15	Special Project	Special Project assignments are used by teachers to create their own projects if needed.	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No

CHEMISTRY (2010): UNIT 5 - MOLECULAR STRUCTURE

Assignment Number	Assignment Title	Project Summary and Supply List	Video Demo
9	Experiment: Demonstrating Polar Properties	Your goal for this assignment is to demonstrate a difference between the properties of polar and nonpolar substances Supply List: <ul style="list-style-type: none">• acetate (overhead transparency material)• vinyl strip• woolen cloth• slow, steady stream of water from a faucet• tissue paper	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
11	Special Project	Special Project assignments are used by teachers to create their own projects if needed.	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No

CHEMISTRY (2010): UNIT 6 - SEMESTER REVIEW AND TEST

Assignment Number	Assignment Title	Project Summary and Supply List
N/A	N/A	N/A

CHEMISTRY (2010): UNIT 7 - CHEMICAL REACTIONS, RATES, AND EQUILIBRIUM

Assignment Number	Assignment Title	Project Summary and Supply List	Video Demo	
2	Experiment: Observing Chemical Changes	Supply List: <ul style="list-style-type: none"> 0.01 M NaCl solution, table salt = 0.58 g/L of solution 0.01 M K₂CrO₄ solution, = 1.94 g/L of solution; solid can be purchased at drug, hobby, or photo supply store 	<ul style="list-style-type: none"> 0.01 M AgNO₃ solution, 1.7 g/L of solution or a diluted solution; solution can be purchased at a local drug or photo supply store several small test tubes several eye droppers, one for each solution goggles 	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
3	Experiment: Chemical Reactions	Supply List: <ul style="list-style-type: none"> 0.01 M acidified iron (II) sulfate, FeSO₄ - 1.52 g/liter of solution and 1 mL concentrated HCl; solid FeSO₄ can be purchased at drug or hobby store. WEAR GOGGLES WHEN HANDLING CONCENTRATED HCl AND WORK IN A WELL VENTILATED AREA. 0.01 M potassium permanganate, KMnO₄ - 1.58 g/liter of solution; solid KMnO₄ can be purchased at drug, hobby, or chemical supply store 	<ul style="list-style-type: none"> 0.01 M NaCl solution - 0.58g/liter of solution; table salt 0.01 M ammonium nitrate, NH₄NO₃ - 0.80 g/liter of solution; solid ammonium nitrate can be purchased at drug or fertilizer store several test tubes or baby-food jars several medicine (eye) droppers graduated cylinders or marked disposable pipettes 	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
4	Experiment: Ammonium Nitrate	Supply List: <ul style="list-style-type: none"> solid sodium hydroxide, NaOH - lye, can be purchased in grocery store solid ammonium nitrate, NH₄NO₃, can be purchased from a drug or fertilizer store concentrated hydrochloric acid, HCl phenolphthalein solution (or other indicator) - can be purchased from a hobby shop 	<ul style="list-style-type: none"> thermometer to fit test tubes forceps (tweezers) water test tubes with stoppers graduated cylinders or marked disposable pipettes goggles 	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
9	Experiment: Affect of Solution Concentration on Reaction Rate	Supply List: <ul style="list-style-type: none"> chalk crumbs or dust 0.1 M HCl - see previous experiment clean test tubes (5) 	<ul style="list-style-type: none"> metric balance weighing paper goggles 	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
13	Activity: Exploring Factors that Affect Equilibrium	Supply List: N/A		<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
16	Special Project	Special Project assignments are used by teachers to create their own projects if needed.		<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No

CHEMISTRY (2010): UNIT 8 - EQUILIBRIUM SYSTEMS

Assignment Number	Assignment Title	Project Summary and Supply List	Video Demo
8	Experiment: Solubility Trends	Supply List: <ul style="list-style-type: none"> • rock salt (water softener crystals) • glycerin • water • 2 baby-food jars with lids <ul style="list-style-type: none"> • rubbing alcohol (isopropyl alcohol) • stirring rod • test tubes 	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
12	Experiment: Acid Strength	Supply List: <ul style="list-style-type: none"> • distilled water • 0.1 M HCl (8.3 mL concentrated HCl per 1 L of solution) • 0.001 M HCl (1 mL 0.1 M HCl per 100 mL of solution) • 0.00001 M HCl (1 mL 0.001 M HCl per 100 mL of solution) <ul style="list-style-type: none"> • marble, limestone, or chalk chips • pipette (glass with suction bulb or disposable) • 4 test tubes • goggles 	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
21	Special Project	Special Project assignments are used by teachers to create their own projects if needed.	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No

CHEMISTRY (2010): UNIT 9 - CARBON CHEMISTRY: HYDROCARBONS

Assignment Number	Assignment Title	Project Summary and Supply List	Video Demo
3	Experiment: Volatility	Your goal for this assignment is to study the volatility of a number of organic compounds. Supply List: <ul style="list-style-type: none">• acetone - available in the paint department of stores• isopropyl alcohol - 90% rubbing alcohol available at drug stores• mineral oil• water• 4 test tubes or other equal size glass containers• grease marker or masking tape• ruler• goggles	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
11	Special Project	Special Project assignments are used by teachers to create their own projects if needed.	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No

CHEMISTRY (2010): UNIT 10 - CARBON CHEMISTRY: FUNCTIONAL GROUPS

Assignment Number	Assignment Title	Project Summary and Supply List	Video Demo
10	Experiment: Preparation of a Polymer	Your goal for this assignment is to prepare and explore some of the properties of a unique polymer. Supply List: <ul style="list-style-type: none">• 3 small beakers• stirring rod• polyvinyl alcohol• borax• food coloring (optional)• goggles	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
12	Special Project	Special Project assignments are used by teachers to create their own projects if needed.	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No

CHEMISTRY (2010): UNIT 11 - CHEMISTRY REVIEW

<i>Assignment Number</i>	<i>Assignment Title</i>	<i>Project Summary and Supply List</i>
N/A	N/A	N/A

CHEMISTRY (2010): UNIT 12 - SEMESTER REVIEW AND TEST

<i>Assignment Number</i>	<i>Assignment Title</i>	<i>Project Summary and Supply List</i>
N/A	N/A	N/A

CHEMISTRY (2010): UNIT 13 - FINAL EXAM (2010): UNIT 13 - FINAL EXAM

<i>Assignment Number</i>	<i>Assignment Title</i>	<i>Project Summary and Supply List</i>
N/A	N/A	N/A