



**46150 – Laboratory Equipment Set  
For Alpha-Omega Grade 11**

<b>Item</b>	<b>Quantity</b>	<b>Item Number</b>
3" Nail	8	40826
Acetate Strips (Transparency)	2	46160
Acetic Acid, glacial, 50 ml	1	46167
Alcohol Burner (fuel not included)	1	50551
Ammonium Nitrate, 5 g	1	46156
Ascorbic Acid (Vitamin C tablets), 2-pk	1	41028
Battery Holder, D-cell	1	45051
Battery, D-size	2	40229-ba
Beaker, glass, 250 ml	3	50653
Beaker, glass, 600 ml	1	50656
Borax, 1 Tbsp	1	40337-2
Boyles Law Apparatus	1	45047
Bulb Socket	1	40540
Bulb, screw base, 1.5-volt	1	40539
Calcium Chloride, 10 g	1	51754
Calcium Hydroxide (limewater), 40 ml	1	51734-40
Chalk (5pk)	1	40284-5
Clamp, burette	1	50545
Cloth Gauze (cheesecloth), 9"x9"	1	40459
Concave Slide Set, glass	1	40036
Copper, granular, 2 g	1	46158-2
Dye Tablet	1	46151
Effervescent Tablets, 2-pk	1	40272
Electrodes, set of 6	1	50039-6
Filter Paper, 12.5 dia., 10-pk	1	50712
Flask, Erlenmeyer, 250 ml	2	50663
Forceps (Tweezers)	1	50416
Gloves (Set of 5 pairs)	1	40348-5
Glycerin (glycerol), 30 ml	1	46152
Grad. Cylinder, glass, 10 ml	1	50641
Grad. Cylinder, glass, 100 ml	1	50644
Grape Drink Mix	1	40526
Hand Lens (Economy Magnifier)	1	64008
Household Ammonia, 50 ml	1	45055
Hydrochloric Acid, 100 ml	1	45128-1m
Iron II (ferrous) Sulfate, 3 g	1	46162
Iron III (ferric) Chloride, 5 g	1	46168
Iron, granular, 2 g	1	46158-1
Large Balloon	1	40220-lg
Lead, shot, 5 g	1	46158-3
Lithium Chloride, 2 g	1	45030

Magnesium Ribbon, 5 in	1	45039-5in
Matches, box	1	41122
Measuring Tape	1	40225
Milk of Magnesia	1	46111-15
Modeling Clay	1	40555
Nichrome Wire with Handle	1	46169
Nylon Casting Line, small roll	1	46181
Paradichlorobenzene, 15 g	1	46153
pH Papers, 1-14 range, 100-pk	1	50529
Phenolphthalein Solution	1	51735
Pipet (Eyedropper), 4-pk	1	50669
Plastic Funnel	1	50707
Potassium Chloride, 2 g	1	45032
Potassium Chromate, 3 g	1	46163
Potassium Permanganate, 3 g	1	46164
Ring Stand with Base	1	50540
Ring Support, 3" diameter	1	50541
Rock Salt, 1 Tbsp	1	40280-1
Round Beads, blue, small (10pk)	1	40645
Rubber Stopper, #00, solid	6	51620
Rubber Stopper, #4, one-hole	1	50621
Ruler, 30 cm	1	40333
Safety Goggles	1	50681
Sand, pure white, 1 cup	1	40456-ws
Silver Nitrate, 3 g	1	46165
Slinky, metal	1	50071
Sodium Hydroxide, 6M, 30 ml	1	45129-6m
Sodium Hydroxide, 40g.	1	45129-40g
Spectroscope	1	46161
Square Beads, small (20pk)	1	46166-1
Stirring Rod, glass	1	50711
Straw	1	40288-1g
Strontium Chloride, 2g	1	45033
Styrofoam Ball, 2" diameter	1	40231-2d
Sulfur, powdered, 2g	1	45036
Sulfuric Acid, 3M, 70 ml	1	45130-1
Tea Light Candle	1	40738
Test Tube Brush	1	50713
Test Tube Rack, 6 holes	1	50561
Test Tube, 25x150mm	1	50605
Test Tubes, 15x125 mm, set of 6	1	50709
Thermometer, Celsius, 12"	2	50630
Triangle, clay	1	45057
Tube, 20 mm glass, 12" long	1	46154
Tube, 5 mm glass, 3" long	2	46155
Tubing, 4.8 mm rubber, 2' long	1	45046
Vinyl Strips	2	46159
Washing Soda, 1 Tbsp	1	40347-2
Watch Glass, 100 mm diameter	1	46157
Wire Gauze, Ceramic Center, 4"	1	50546
Wire, insulated copper, 2.5 ft.	1	40538-2.5
Zinc, powdered, 10 g	1	45035-10



**46150 – Laboratory Equipment Guide  
For Alpha-Omega Grade 11**

**Page 8: Practice Measuring Length**

<b>In Your Kit:</b>	<b>You Provide:</b>
Ruler	<i>None</i>

**Page 11: Practice Measuring Volume**

<b>In Your Kit:</b>	<b>You Provide:</b>
Graduated cylinder, 10ml Graduated cylinder, 100 ml Beaker, 250 ml Erlenmeyer flask, 250 ml	Water

**Page 13: Practice Measuring Mass**

<b>In Your Kit:</b>	<b>You Provide:</b>
<i>None</i>	Various small objects Laboratory Balance ( <i>If you need to purchase a Balance, please contact Nature's Workshop, Plus!</i> )

**Page 18: Test a Hypothesis**

<b>In Your Kit:</b>	<b>You Provide:</b>
2 Erlenmeyer flasks Candle Limewater Beaker, 250 ml Straw Matches	<i>None</i>

**Page 5: Test Materials for Conductivity**

<b>In Your Kit:</b>	<b>You Provide:</b>
Battery Battery holder Mini light bulb and socket Wires Samples of Aluminum, Lead, Zinc, Carbon, Iron, Copper, and Powdered sulfur	<i>None</i>

**UN  
IT 1**

**UN  
IT 2**

### Page 12: Investigate a Physical Property of Compounds

In Your Kit:	You Provide:
Test tube Paradichlorobenzene 2 Beakers, 250 ml Alcohol lamp and stand 2 Thermometers Dye tablet Safety goggles	Water Fuel for Alcohol Burner (Lamp)

### Page 20: Filter a Mixture

In Your Kit:	You Provide:
Pure white sand ( <i>save ½ cup for later use</i> ) Filter funnel Filter paper Clay triangle Support stand and ring	Pure salt Water

### Page 29: Investigate Suspensions, Colloids, and Solutions

In Your Kit:	You Provide:
<i>None</i>	Vegetable oil, Vinegar, Water, Egg, Salt, Canned whipped topping, Canned shaving foam, Sugar, Mustard, Homogenized milk, Sour milk, 1-2-3 Jello, Blender, Bowl, Baby food jars

### Page 33: Practice Chromatography

In Your Kit:	You Provide:
Pure white sand Grape powdered drink mix Cloth gauze Graduated cylinder, 100 ml Clear glass tube, 20 mm diameter, 12" Clear glass tube, 5 mm diameter, 3" Burette clamp Ring stand Modeling Clay ( <i>Use a small piece at the base of the 20 mm tube to seal it off. This works in place of a rubber stopper.</i> )	15 Baby food jars

### Page 12: Demonstrate Boyle's Law

In Your Kit:	You Provide:
Boyle's Law Apparatus (includes syringe, stopper, base, and top)	Masses of equal weight (food cans, books, etc.)

### Page 20: Demonstrate Charles' Law

In Your Kit:	You Provide:
Balloon Celsius thermometer Measuring tape	<i>None</i>

### Page 46: Investigate Conservation of Mass

In Your Kit:	You Provide:
Watch glass Beaker, 600 ml Beaker, 250 ml pH Paper Sodium hydroxide Powdered zinc Alcohol lamp and stand Sulfuric acid Safety goggles Gloves	Ice Balance Fuel for Alcohol Burner (Lamp)

### Page 5: Observe Elements

In Your Kit:	You Provide:
Samples of pure elements: Sulfur powder, Magnesium ribbon, Iron, Copper, Lead	Reference Textbook

### Page 6: Test Elements

In Your Kit:	You Provide:
Support stand and ring Alcohol Burner Wire Gauze Sample of Iron, Copper, Magnesium, and Lead	Tin can lid with 4 indentations Fuel for Alcohol Burner (Lamp)

### Page 7: Experiment with Electric Charge

In Your Kit:	You Provide:
2 Vinyl strips 2 Acetate strips (Transparency) Nylon string	Masking tape

### Page 23: Observe Wave Motion

In Your Kit:	You Provide:
Slinky	<i>None</i>

### Page 25: Operate a Spectroscope

In Your Kit:	You Provide:
Alcohol Burner Nichrome wire with handle Hand spectroscope Solid samples of chemicals: Potassium, Calcium Strontium, and Lithium chlorides	Several clean, dry jar lids Sodium chloride (table salt) Water Fuel for Alcohol Burner (Lamp)

Safety goggles	
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### Page 30: Create a Model of Molecular Shape

In Your Kit:	You Provide:
Large Styrofoam Ball 8 Nails	None

### Page 2: Investigate Solid Formation

In Your Kit:	You Provide:
Potassium chromate Silver nitrate Small test tubes Medicine droppers Safety goggles	Sodium chloride (table salt)

### Page 3: Investigate Color Change

In Your Kit:	You Provide:
Iron (II) sulfate Hydrochloric acid Potassium permanganate Ammonium nitrate Test tubes Medicine droppers Safety goggles	None

### Page 5: Investigate Gas Formation

In Your Kit:	You Provide:
Hydrochloric acid ( <i>enough to make 50 ml of each type of solution</i> ) Glacial acetic acid Chalk Test tubes Safety goggles	None

### Page 6: Investigate Enthalpy

In Your Kit:	You Provide:
Sodium hydroxide 40 g Ammonium nitrate Hydrochloric acid Phenolphthalein Thermometer Forceps (Tweezers) Test tubes Rubber stoppers Safety goggles	Water

### Page 27: Predict Factors that Affect Reaction Time

In Your Kit:	You Provide:

20 Square beads 10 Round beads Chalk .1 M HCl ( <i>Already made; See pg. 5</i> ) Safety goggles	Large fruit jar
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### Page 30: Demonstrate How Temperature Affects Reaction Time

In Your Kit:	You Provide:
Effervescent tablets Thermometer Beakers	Jar and beads from previous investigation Water

### Page 37: Investigate Catalysts

In Your Kit:	You Provide:
Graduated cylinder, 100 ml Large test tube Rubber stopper, one-hole Flexible rubber tubing	Hydrogen peroxide Small pieces of liver, raw meat, or fresh pineapple

### Page 18: Investigate Factors Affecting Rate of Dissolving/Dissociation

In Your Kit:	You Provide:
Rock salt Test tubes Glycerin Stirring rod	Water Rubbing alcohol 2 Baby food jars with lids

### Page 27: Compare and Contrast Hard and Soft Water

In Your Kit:	You Provide:
Test tubes Calcium chloride Microscope slides, concave Dropper Ammonia Milk of Magnesia Borax Washing soda Ferric chloride Potassium chloride Potassium chromate Alcohol Burner Support stand and ring Wire Gauze Graduated cylinder, 10 ml	Distilled water or Rain water Well (tap) water (hard water) Soft water (from household water softener) Liquid soap (not detergent) Sodium chloride (table salt) Microscope ( <i>If you need to purchase a microscope, please contact Nature's Workshop, Plus!</i> )

### Page 34: Experiment with Acids and Reaction Time

In Your Kit:	You Provide:
Hydrochloric acid Chalk Test tubes	Distilled water

### Page 61: Study Applications of Redox Chemistry, Part 1

In Your Kit:	You Provide:
Powdered sulfur	Shiny silver (coin, tableware)

### Page 61: Study Applications of Redox Chemistry, Part 2

In Your Kit:	You Provide:
Alcohol Burner Support stand and ring Wire Gauze	Aluminum pan Baking soda Tarnished silver Water Fuel for Alcohol Burner (Lamp)

### Page 62: Study Applications of Redox Chemistry, Part 3

In Your Kit:	You Provide:
Vitamin C tablets Test tubes Rubber stoppers	Fresh apple Boiled water Tap water Juice known to contain Vitamin C

There are no experiments in these units.







## **PRECAUTIONS AND FIRST AID INFORMATION**

### Acetic Acid, Glacial

**Warning:** Avoid contact with eyes, skin and clothing.

**First Aid Information:** Flush eyes with plenty of water for at least 15 minutes. Flush skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes. Cover the irritated skin with an emollient. Wash clothing before reuse. If inhaled, remove to fresh air. If swallowed, do NOT induce vomiting unless directed to do so by medical personnel. Get medical attention immediately.

### Ammonium Nitrate

**Warning:** Avoid contact with eyes, skin and clothing.

**First Aid Information:** Flush eyes with plenty of water for at least 15 minutes. Flush skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes. Cover the irritated skin with an emollient. Wash clothing before reuse. If inhaled, remove to fresh air. If swallowed, do NOT induce vomiting unless directed to do so by medical personnel. Get medical attention immediately.

### Ascorbic Acid

**Warning:** May cause irritation. Avoid contact with eyes, skin and clothing.

**First Aid Information:** Flush eyes with plenty of water for at least 15 minutes. Flush skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes. Cover the irritated skin with an emollient. Wash clothing before reuse. If inhaled, remove to fresh air. If swallowed, do NOT induce vomiting unless directed to do so by medical personnel. Seek medical attention.

### Calcium Chloride

**Warning:** Avoid contact with eyes, skin and clothing. Avoid breathing dust.

**First Aid Information:** Immediately rinse eyes or skin with water for fifteen minutes. If swallowed, induce vomiting. If inhaled, remove to fresh air.

### Lime Water-

**Warning:** Causes eye irritation. May be harmful if swallowed.

**First Aid Information:** Immediately rinse eyes with water for fifteen minutes. If swallowed and the person is conscious, give large amounts of milk or water.

### Glycerin (Glycerol)

**Warning:** Avoid contact with eyes, skin and clothing

**First Aid Information:** In case of contact, immediately flush eyes or skin with plenty of water for at least 15 minutes. If inhaled, remove to fresh air. Do NOT induce vomiting unless directed to do so by medical personnel.

Hydrochloric acid, 37%

**Warning:** Very hazardous in case of skin contact.

**First Aid Information:** Flush eyes and skin with plenty of water for at least 15 minutes. If inhaled, remove to fresh air. If swallowed, do not induce vomiting unless directed to do so by medical personnel.

Iron- 40 mesh

**Warning:** Avoid Dusting. May become explosive when dispersed in air. Harmful by inhalation.

**First Aid Information:** In case of contact with eyes, rinse immediately with plenty of water and seek medical advice. After contact with skin, take off immediately all contaminated clothing, and wash immediately with plenty of water. If swallowed, do not induce vomiting- rinse mouth with water (only if the person is conscious). In case of accident by inhalation: remove casualty to fresh air and keep at rest.

Iron II (ferrous) Sulfate

**Warning:** May cause eye and skin irritation. Harmful if swallowed.

**First Aid Information:** Flush eyes with plenty of water for at least 15 minutes. In case of contact, flush skin with plenty of water. Remove contaminated clothing and shoes. If swallowed, do not induce vomiting unless directed to do so by medical personnel. If inhaled, remove to fresh air. Get medical aid.

Iron III (ferric) Chloride

**First Aid Information:** Flush eyes for 15 minutes with plenty of water. Flush skin with water. Remove contaminated clothing; wash before reuse. If inhaled, remove to fresh air. DO NOT INDUCE VOMITING! Give large quantities of water, then an antacid. Call a physician.

Lead Shot

**Warning:** Harmful if swallowed. Avoid contact with eyes, skin, and clothes. Wash thoroughly after handling. Keep container closed.

**First Aid Information:** If swallowed, contact a physician.

Lithium Chloride

**Warning:** Harmful if swallowed or inhaled. Skin irritation may be severe.

**First Aid Information:** Immediately flush eyes with plenty of water for at least 15 minutes. Wipe off excess material from skin then immediately flush skin with plenty of water for at least 15 minutes. If swallowed, induce vomiting immediately as directed by medical personnel.

Magnesium Ribbon

**Warning:** Danger! Flammable solid. Highly water reactive. Keep containers tightly closed. Protect containers from physical damage. Store away from water or locations where water might be used to extinguish a fire. Keep away from all sources of ignition, flames, and moisture. Use adequate ventilation at all times. Wear protective gloves and goggles or face shield.

**First Aid Information:** Immediately flush eyes with plenty of water for at least 15 minutes. Wipe off excess material from skin then immediately flush skin with plenty of water for at least 15 minutes. If swallowed, induce vomiting immediately as directed by medical personnel.

P-dichlorobenzene

**Warning:** *May be fatal if inhaled, swallowed or absorbed thru the skin Avoid all contact. Use with adequate ventilation. Wash thoroughly after use. Keep container closed.*

**First Aid Information:** *Call a physician. In case of contact, immediately flush skin with water for at least 15 minutes while removing contaminated clothing and shoes. Thoroughly clean clothing and shoes before reuse. Wash eyes with plenty of water for at least 15 minutes, lifting lids occasionally. If swallowed, induce vomiting immediately after giving two glasses of water.*

Potassium Chloride

**Warning:** *May be harmful if swallowed. May cause irritation to skin, eyes, and respiratory tract.*

**First Aid Information:** *Immediately flush eyes with plenty of water for at least 15 minutes. Wash **skin** with soap and water for at least 15 minutes. If swallowed, induce vomiting immediately as directed by medical personnel.*

Potassium Chromate

**Warning:** *Very hazardous in case of eyes or skin contact.*

**First Aid Information:** *Flush eyes and/or skin with plenty of water for at least 15 minutes.*

*Wash with a disinfectant soap and cover contaminated skin with an anti-bacterial cream. Seek immediate medical attention.*

Potassium Permanganate

**Warning:** *Very hazardous in case of eyes or skin contact.*

**First Aid Information:** *Flush eyes and/or skin with plenty of water for at least 15 minutes.*

*Wash with a disinfectant soap and cover contaminated skin with an anti-bacterial cream. Seek immediate medical attention.*

Silver Nitrate

**Warning:** *Intense or continued but not chronic exposure could cause temporary incapacitation or possible residual injury.*

**First Aid Information:** *Inhalation: Remove to fresh air. Crystals will sting the nasal passages. Get medical attention as soon as possible. If swallowed, do not induce vomiting. Give a quantity of salt water. The salt water and/or stomach acid will immediately form Silver Chloride, which is much less harmful. Get medical attention immediately if the quantity ingested is more than a gram. If exposed, rub skin with table salt and a little water. Skin will probably turn dark when exposed to sunlight. Stain will vanish in a few weeks. Immediately flush eyes with plenty of distilled water. The salt in tears will form white Silver Chloride immediately. This Silver Chloride may attach to the eye. Get medical attention immediately.*

Sodium Hydroxide 6M

**Warning:** *Poison! Corrosive. May be fatal if swallowed. Harmful if inhaled. Causes burns to any area of contact. Reacts with water, acids, and other materials.*

**First Aid Information:** *Immediately flush eyes with plenty of water for at least 15 minutes. In case of contact, immediately flush skin with plenty of water for at least 15 minutes while removing contaminated clothing and*

shoes. If swallowed, do not induce vomiting. Give large quantities of water or milk. Get medical attention immediately.

#### Strontium Chloride

**Warning:** May be harmful if swallowed or inhaled. May cause irritation to skin, eyes, and respiratory tract.

**First Aid Information:** Immediately flush eyes with plenty of water for at least 15 minutes. Wash skin with soap and water for at least 15 minutes. If swallowed and the person is conscious, give large amounts of milk or water. Do not induce vomiting.

#### Sulfur

**Warning:** Flammable solid. Dust may form flammable or explosive mixture with air. May be harmful if swallowed or inhaled. Causes eye irritation. May cause irritation to skin and respiratory tract.

**First Aid Information:** Immediately flush eyes with plenty of water for at least 15 minutes. Wipe off excess material from skin then immediately flush skin with plenty of water for at least 15 minutes. If swallowed, induce vomiting immediately as directed by medical personnel.

#### Sulfuric Acid 3M Solution

**Warning:** Risk of serious damage to eyes. Irritating to eyes, respiratory system and skin. Harmful if inhaled or swallowed.

**First Aid Information:** In case of contact with eyes, rinse immediately with plenty of water and seek medical advice. After contact with skin, wash immediately with plenty of ... (Water, unless specified as water-reactive). If swallowed, do not induce vomiting; seek medical advice immediately and show this container.

#### Zinc Powder

**Warning:** Harmful if swallowed or inhaled. May cause irritation to skin, eyes, and respiratory tract. May form combustible dust concentrations in air. Water reactive. May affect the gum tissue, central nervous system, kidneys, blood, and reproductive system (lead component).

**First Aid Information:** Immediately flush eyes with plenty of water for at least 15 minutes. Wipe off excess material from skin then immediately flush skin with plenty of water for at least 15 minutes. If swallowed, induce vomiting immediately as directed by medical personnel.