DIVE Chemistry
Lab Instructions & Supply List by Lab

IMPORTANT: Follow the instructions on page 2 for every lab.

Using your lab supplies? Follow the instructions in this document on which labs to attempt hands-on, supplies needed, etc.

The **Lab Kit DIVE Chemistry** can be purchased at Nature's Workshop Plus. Except for the items on page 2, the lab kit contains all the equipment to do 21 of the 28 labs.These are the best college preparatory labs, NOT the safest labs. Please take the necessary safety precautions when completing all lab activities. FAQs: Lab Supplies & Kits

A complete list of all items included in the lab kit is posted here: List of All Lab Kit Items

Instructions for Labs Not Completed Hands-On

Labs 1, 5, 6, 14, 17, 25, 26 and 28

These labs require very expensive equipment or chemicals that are restricted by Federal Law. To complete these labs:

1. Watch the video lab and fill in the corresponding Lab Activity pages in the Lab Workbook..
2. Grade and correct the lab activity sheets using the video solutions at the end of the video lab.
3. A completion grade is recommended. If the lab is completed and corrected, a grade of 100 is awarded. Learn More

How to Complete Hands-On Labs (Handwritten lab procedures)

Labs 2, 3, 4, 8, 7, 9, 10, 11, 12, 13, 15, 16, 18, 19, 20, 21, 22, 23, 24, 27, 29.

1. Important: Do not use the supply list in the lab workbook. Find the lab in the Chart on page 3.
2. Read the special instructions and gather the supplies listed there.
3. Watch the video lab. Do not complete the lab activity page or use the supplies, yet.
4. Do the lab hands-on while filling out the lab activity pages in the DIVE Lab Workbook.
5. Grade and correct the lab pages by watching the video solutions at the end of the video lab.
6. A completion grade is recommended for labs. This means if all of the work is completed, graded, and corrected, a 100 is awarded. Learn More

Supplies You Provide

Quantities listed are more than enough to repeat the experiment, if needed.

- **10 Pennies - 1 of them should be pre-1982**
- **Acetone** - available at local hardware stores. Follow safety instructions shown on label and use in a well-ventilated area. Purchase 1 quart to complete the labs in this kit.
- Bucket (2 Gallon or larger)
- Baking Soda (1 tablespoon)
- Clorox Bleach - regular (½ cup)
- Corn Starch (1 tablespoon)
- Detergent - Laundry detergent. Can be liquid or powder. (1 tablespoon)
- Distilled Water (1 gallon)
- Epsom salt (2 tablespoons)
- Ethanol (2 tablespoons) - Called “denatured alcohol” at hardware stores. Usually comes in a quart-sized container.
- Ice (2 ice cube trays or 24 cubes)
- Lard (½ cup)
- Long handled Lighter (in place of striker)
- **Muriatic Acid** - (same as Hydrochloric Acid) **Do not use low fume.** Available at local hardware stores. Muriatic Acid (**HCl) is harmful!** Follow safety instructions shown on label and use in a well-ventilated area. Purchase 1 quart to complete the labs in this kit.
- Salt (¼ cup)
- Sand Paper(¼ sheet of medium or fine-grained)
- Storage Containers (4, quart or liter sized, plastic or glass with leak-proof lids. Used water bottles work well because all they have had in them is water. RINSE 3 times with a small amount (¼ cup) of distilled water to remove any minerals or other additives).
- Vinegar- 2 different brands (½ cup each)

Questions? FAQs: Lab Supplies & Kits

Scroll to next page to Lab Supplies by Lab

Important: Instructions & Lab Supplies by Lab

Lab #	Supplies In Kit	Supplies You Provide
2	**Lab Kit Supplies:** Pocket Rocket Burner Digital Pocket Scale (Balance)* Small Cup, 3 oz (Weighing Dish) Metal Ring Ring Stand with Base Wire Gauze w/Ceramic Center Clay Triangle Filter Paper Funnel Beaker, 150ml Graduated Cylinder, 10ml Evaporating Dish Watch Glass Crucible Tongs Stopwatch Spatula Safety Goggles Sand	**You Provide** Lighter or Match (replaces Sparker) Salt Warm Water **Special Instructions:** *The balance in the video lab measures to two decimal places. The scale(balance) in the lab kit measures to one decimal place. This is sufficient. Weigh and record your measurements using one decimal place.
3	**Lab Kit Supplies:** Burner Small Cups, 3 oz (Weighing Dish) Beaker, 150ml Graduated Cylinder, 10ml Spatula Test Tubes Test Tube Rack Test Tube Brush Bar Magnet Mortal & Pestle Safety Goggles Sulfur Iron Filing Tube Erlenmeyer Flask, 250ml Iron (II) Sulfide	**You Provide** Match (replaces Sparker) Water Muriatic Acid (Hydrochloric Acid)* **Special Instructions:** *Follow the video lab instructions to make the solution. **HCl is harmful**! Follow safety instructions shown on label and use in a well-ventilated area.
4	**Lab Kit Supplies:** Digital Pocket Scale (Balance) Caliper Ruler Graduated Cylinder, 10ml Graduated Cylinder 100ml Iron Bolt (irregular-shaped iron object)	**You Provide** 10 Pennies (try to get at least 1 pre-1982) Water
6	*None*	**You Provide**

		Microsoft Excel, Google Sheets, Numbbers
7	**Lab Kit Supplies:** Periodic Table	*None*
8	**Lab Kit Supplies:** Burner Spatula Small Cups, 3oz (Weighing Dish) Test Tubes Test Tube Rack Digital Multimeter Safety Goggles Iron Filing Tube Mothballs Two 6" pieces of un-coated copper wiring Two alligator clips.	**You Provide** Match (replaces Sparker) Salt Acetone* *Acetone is harmful! Read safety warning on label and use in well ventilated area. See purchase info above.
9	**Lab Kit Supplies:** Molecular Model Kit	*None*
10	**Lab Kit Supplies:** Burner Spatula Digital Pocket Scale (Balance) Crucible* and Cover Crucible Tongs Ring Stand with Base Metal Ring Clay Triangle Stopwatch Periodic Table Safety Goggles Magnesium Ribbon	**You Provide** Match (replaces Sparker) Distilled Water Sand Paper **Do NOT reuse the crucible.*
11	**Lab Kit Supplies:** Burner Spatula Beakers (250 ml and 150ml) Crucible and Cover Crucible Tongs Ring Stand with Base Metal Ring Clay Triangle Filter Paper Graduated Cylinder, 10ml and 100ml Erlenmeyer Flask 250ml* Funnel Glass Stir Rod Stopwatch Safety Goggles Copper Pellets **Sodium Hydroxide, 6M, 5ml***	**You Provide:** Match (replaces Sparker) Storage Containers **Special Instructions: *Read All Below*** *Follow the video lab instructions to make the **Sodium Hydroxide** solution in the Erlenmeyer flask. Use only the specified amount. Reserve the remaining Sodium Hydroxide for use in future labs. *If the clay triangle does not fit on the crucible properly, you can use pliers to adjust the wires in the clay triangle to get the perfect fit. **If your kit only contains 1 crucible, please contact Nature's Workshop Plus.*

	Sulfuric Acid, 6M, 5ml	
12	**Lab Kit Supplies:** Burner Spatula Digital Pocket Scale (Balance) Small Cups, 3oz (Weighing Dish) Dropper Pipette (Eyedropper) Evaporating Dish Watch Glass Crucible Tongs Ring Stand with Base Metal Ring Wire Gauze w/Ceramic Center Stopwatch Periodic Table Safety Goggles Erlenmeyer Flask, 250ml	**You Provide:** Match (replaces Sparker) Baking Soda Distilled Water Muriatic Acid (Hydrochloric Acid, 6M)* **Special Instructions:** *Follow the video lab instructions to make the solution. **HCl is harmful**! Follow safety instructions shown on label and use in a well-ventilated area.
13	**Boyle's Law Apparatus** **You do NOT need the following items: Use the instructions to the right to complete the experiment without them:** Digimano Pressure Meter (not needed) Rubber Tubing (not needed) Barometer (not needed)	**You Provide:** 2-Gallon Bucket or Large Container **You Provide** Microsoft Excel or Calculator Air Water **Follow these steps:** 1. Set up Boyle's Apparatus as shown in video lab. 2. Slowly fill the bucket with water until the syringe compresses to the 50 mL mark. Make sure to measure the volume of water required. 3. Keep track of the water volume and record the volume in the middle column of the table, titled Meter Pressure. Ignore the last column titled Meter+Atmospheric Pressure. 4. Continue adding water and record the total volume when the syringe reaches 45 mL, 40 mL, then 35 mL, etc. For example, if it took 1 L of water to reach 50 mL on the syringe, and 0.5 L more to reach 45 mL, then record 1+0.5=1.5 L. 5. Notice,as you add water, you are increasing the pressure on the syringe, which, according to Boyle's Law, results in a decrease in gas volume inside the syringe.
15	**Lab Kit Supplies:** Burner	**You Provide** Match (replaces Sparker)

	Glass Stir Rod Ring Stand with Base Metal Ring Wire Gauze w/Ceramic Center Beaker, 250ml Graduated Cylinder, 100ml Styrofoam Cups Thermometer Safety Goggles	Water Ice
16	**Lab Kit Supplies:** Burner Digital Pocket Scale (Balance) Spatula Small Cups, 3oz (Weighing Dish) Ring Stand with Base Metal Ring Clay Triangle Crucible Tongs Stopwatch Safety Goggles	**You Provide** Match (replaces Sparker) Epsom Salt
18	Digital Pocket Scale (Balance) Small Cups, 3oz (Weighing Dish) Mortar and Pestle Thermometer Styrofoam Cups Graduated Cylinder, 100ml Glass Stir Rod Cardboard square to cover foam cup Safety Goggles Potassium Nitrate, 5g Magnesium Ribbon, 5in ***Sodium Hydroxide, 1M, 35ml*** ***Erlenmeyer Flask, 250ml***	**You Provide** Distilled Water Muriatic Acid (Hydrochloric Acid, 1M)** **Special Instructions:** ***Sodium Hydroxide Solution** Follow the video lab instructions to make the solution in the Erlenmeyer flask. Use only the amount specified. Reserve the remaining Sodium Hydroxide for use in future labs. ****Hydrochloric Acid Solution** Follow the video lab instructions to make the solution. **HCl is harmful**! Follow safety instructions shown on label and use in a well-ventilated area. **CRC Handbook - Not Required** The CRC Handbook of Chemistry and Physics is not required, but it is good for students to know about.
19	**Lab Kit Supplies:** Digital Pocket Scale (Balance) Small Cups, 3oz (Weighing Dish) Spatula Thermometer Test Tubes Test Tube Rack	**You Provide** Distilled Water Warm Water Ice Muriatic Acid (Hydrochloric Acid)** **Special Instructions:**

	Graduated Cylinder, 10ml Stopwatch Styrofoam Cups Safety Goggles Erlenmeyer Flask, 250ml* **Sodium Thiosulfate, 15g*** (Save for Lab 24) Wash Bottle	***Sodium Thiosulfate Solution:** Follow the instructions in the video lab to make the solution. Make **ONLY** **HALF** of the Sodium Thiosulfate solution so it will fit in your 250 ml flask. Save this solution for Lab 24. ****Hydrochloric Acid Solution** Follow the video lab instructions to make the solution. **HCl is harmful**! Follow safety instructions shown on label and use in a well-ventilated area.
20	**Lab Kit Supplies:** Burner Digital Pocket Scale (Balance) Spatula Small Cups, 3oz (Weighing Dishes) **6 Test Tubes*** Test Tube Rack Graduated Cylinder, 100ml Erlenmeyer Flask, 250ml **2 Eyedroppers (Dropper Pipettes)*** Safety Goggles Iron Chloride, 0.25M, 30ml Potassium Thiocyanate(KSCN), 0.25M, 30ml Potassium Chloride, 20g	**You Provide** Match (replaces Sparker) **Special Instructions:** *There are only 6 Test Tubes and 2 Eyedroppers included in the kit. **Break the experiment up into parts to complete using this number of supplies.**
21	**Lab Kit Supplies:** **6 Test Tubes*** Test Tube Rack Graduated Cylinder, 100ml Graduated Cylinder, 10ml **2 Eye Droppers (for Dropper Pipettes)*** Safety Goggles Erlenmeyer Flask, 250ml Thymol Blue, 15ml Methyl Orange, 15ml Methyl Red, 15ml	**You Provide** Vinegar Distilled Water Muriatic Acid (for Hydrochloric Acid)** **Special Instructions 1:** ***The kit has 6 Test Tubes & 2 eye droppers.** Break the experiment up into three parts **Part 1** is the Thymol Blue Test **Part 2** is the Methyl Orange Test **Part 3** is the Methyl Red Test **Special Instructions 2:** **Follow the video lab instructions to make the solution. HCl is harmful! Follow safety instructions shown on label and use in a well-ventilated area.
22	**Lab Kit Supplies:** Digital Pocket Scale (Balance) Spatula Small Cups, 3oz (Weighing Dish) Erlenmeyer Flask, 250ml* Buret, 50 ml Buret Clamp	**You Provide** Distilled Water **Special Instructions:** ***Sodium Hydroxide.** Follow the video lab instructions to make the Sodium Hydroxide solution in the Erlenmeyer flask. Use only the

	Graduated Cylinder, 100ml Ring Stand with Base Dropper Pipettes (Eyedroppers) Safety Goggles Potassium Hydrogen Phthalate (Primary Standard, Reagent Grade, F.W= 204.22), 1g *Sodium Hydroxide, 0.1M, 100ml* *Phenolphthalein Solution, 10ml* Wash Bottle	amount specified. Reserve the remaining Sodium Hydroxide for use in future labs. ***Phenolphthalein Solution** Important: Save for use in Lab 23
23	**Lab Kit Supplies:** Erlenmeyer Flask, 250ml* Buret, 50 ml (2) Buret Clamps Graduated Cylinder, 100ml Ring Stand with Base Dropper Pipettes (Eyedroppers) Safety Goggles Wash Bottles Funnel *Sodium Hydroxide, 0.1M, 100ml* *Phenolphthalein Solution, 10 ml (From Lab 22)	**You Provide** 2 Brands of Vinegar Distilled Water **Special Instructions:** ***Sodium Hydroxide:**Follow the video lab instructions to make the Sodium Hydroxide solution in the Erlenmeyer flask. Reserve the remaining Sodium Hydroxide for use in future labs ***Phenolphthalein Solution, 10 ml:** From Lab 22
24	**Lab Kit Supplies:** Digital Pocket Scale (for Balance) Spatula Small Cups, 3oz (for Weighing Dish) Erlenmeyer Flask, 250ml Buret, 50ml Buret Clamp Graduated Cylinder, 100ml Graduated Cylinder, 10ml Ring Stand with Base Dropper Pipettes (Eyedroppers) Safety Goggles Wash Bottle Funnel ***Sodium Thiosulfate, 15**g (From Lab 19) Glacial Acetic Acid, 5ml Potassium Iodide (KI), 2g	**You Provide** Clorox Regular Bleach Distilled Water Corn Starch (5g) for 5% Solution
27	**Lab Kit Supplies:** Digital Pocket Scale (Balance) Spatula Small Cups, 3oz (Weighing Dish) Beakers, 250 ml and 150ml Graduated Cylinder, 100ml Graduated Cylinder, 10ml Ring Stand with Base	**You Provide** Lard Ethanol (local hardware store) Laundry Detergent Mineral Oil Distilled Water Ice Salt (NaCl)

	Glass Stir Rod Burner Metal Ring Wire Gauze w/Ceramic Center Test Tubes Test Tube Racks **Sodium Hydroxide, 6M, 20 ml*** Erlenmeyer Flask, 250ml*	**Special Instructions:** *Follow the video lab instructions to make the **Sodium Hydroxide** solution in the Erlenmeyer flask.
29	**Lab Kit Supplies:** **None**	**You Provide:** **Scientific or Graphing Calculator**