

DIVE Integrated Chemistry & Physics

Lab Instructions & Supply List by Lab

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

Using or creating your own lab kit? Click Here: [Comprehensive List of All Lab Kit Supplies](#)

The Lab Kit for DIVE Integrated Chemistry & Physics can be purchased at [Nature's Workshop Plus](#). Except for the items below, the lab kit contains all the equipment and supplies to do 21 of the 28 labs. Dr. Shormann chose the best college preparatory labs, NOT the safest labs. Please take the necessary **safety precautions** when completing all lab activities. [FAQs: Lab Supplies & Kits](#)

Required Supplies Not Included in the DIVE Lab Kit

<ul style="list-style-type: none"> • 2 tsp Sugar • 1 pint White Vinegar • 3 tsp Baking soda • Calculator (regular) • 3 tbsp Table Salt • 1 gallon Distilled Water • Oven Mitt • Measuring Spoon • 2 cups Crushed Ice • 1 Coat Hanger • 2 Sheets Ruled or Copy Paper • Marker • 2 ft String or Fishing Line • 1 oz Weight (bolt, pen, fishing weight, etc.) • 5 Heavy Books (use as weight) • 2 Forks • Scissors or Knife • Bucket and Cans (5-10 soup or similar cans, use as weights) 	<ul style="list-style-type: none"> • 1-2 oz Wood Glue • Stove or Hot Plate • Empty Plastic Water Bottle with Cap, ½ to 1 Liter size • 2 Qt Metal Cooking Pot • 2 L Soda Bottle • Paper Towel • Oven • Freezer • 2-3 ft Scotch Tape • Scissors • Meter Stick • Spreadsheet Application* • 1 MSR IsoPro Fuel, 8 oz Can** <p>Optional Supplies: For Part 2 of Lab 28: To complete this part of the lab, an Optics Kit can be purchased from Nature's Workshop, Plus (item #45060). Alternatively, the student can watch the video for this part of the lab.</p>
--	--

* **Spreadsheet Application:** Microsoft Excel, Apple Numbers, Google Sheets (free) and Openoffice (free at www.openoffice.org)

****Fuel for the Pocket Rocket** (used in place of the bunsen burner). It can be purchased locally at outdoor stores like Academy, REI, Dick's Sporting Goods, Cabelas, etc., for around \$5-10. You can also purchase online, but it requires special shipping that can cost over \$30.

Video Only Lab Instructions

for Labs 8, 9, 10, 11, 16, 17, & 27

These labs require very expensive equipment or chemicals that are restricted by Federal Law. While they cannot be completed hands-on, these video labs teach important concepts your student needs to know.

Follow these steps to complete the video only labs:

1. Watch the video lab and fill in the corresponding activity pages in the DIVE Lab Workbook.
2. Grade and correct the lab activity sheets using the video solutions at the end of the video lab.
3. If the lab is completed and corrected, a grade of 100 is awarded. For details, see Labs in the DIVE Teacher Guide.

HANDS-ON Lab Instructions for

1, 2, 3, 4, 5, 6, 7, 12, 13, 14, 15, 18, 19, 20, 21, 22, 23, 24, 25, 26, & 28

Follow Dr. Shormann's instructions carefully. If the experiment doesn't work, it's okay! You are learning important skills, which take time and practice to develop.

1. **Important:** Do not use the supply list in the lab workbook.
2. Before attempting the lab hands-on, watch the video lab (but don't fill in lab manual).
3. Find the lab in the chart below (page 3). Read the Special Instructions and gather the supplies listed there.
4. Complete the lab hands-on while watching the video lab again. This time, fill in the DIVE Lab Workbook pages. Pause and rewind the video as needed.
5. Watch the video solutions at the end of the video lab and correct missed problems.
6. For detailed instructions and grading, see the Labs sections in the DIVE Teacher Guide.

If you have any issues with the Lab Kit, contact [Nature's Workshop](#)

Special Instructions & Supply List by Lab

Lab	Special Instructions	Supplies in the Lab Kit	You Provide
1	<p>Part 1: Follow the steps under Hands-On Labs on page 2.</p> <p>Part 2 Cannot be completed Hands-On. Follow the steps under Video Only Labs on page 3 of this guide.</p>	Pocket Rocket (for butane burner) Digital Pocket Scale Weighing Dish	3g Sugar
2	<p>Part 1: Follow the steps under Hands-On Labs on page 2.</p> <p>Part 2 Cannot be completed Hands-On. Follow the steps under Video Only Labs on page 3 of this guide.</p>	None	100 M&Ms Spreadsheet Application
3	<p>ALL: Follow the steps under Hands-On Labs on page 2 of this guide.</p>	Digital Pocket Scale 250 ml Erlenmeyer Flask 100 ml Graduated Cylinder Safety Goggles Weighing Dish Balloon Chemical Scoop	50 mL Vinegar 10 g Baking Soda
4	<p>Part 1 & 2 (except Temperature section): Follow the steps under Hands-On Labs on page 2.</p> <p>Temperature Section in Part 2: Cannot be completed Hands-On. Follow the steps under Video Only Labs.</p>	Caliper Wooden Block (for eraser) 100 ml Graduated Cylinder Metric Ruler	Calculator 5 pennies (use for identical masses in the Measuring Mass section)
5	<p>ALL: Follow the steps under Hands-On Labs on page 2 of this guide.</p>	Pocket Rocket Burner 250 ml Beaker 10 ml Graduated Cylinder Aluminum Foil - 1ft Epsom Salt - 50g Household Ammonia - 50ml	1 tsp Sugar 1 tsp Baking Soda 30 mL Vinegar
6	<p>Follow the steps under Hands-On Labs on page 2 of this guide.</p> <p>Part 1: Not an experiment. Fill in the chart while watching the video.</p> <p>Part 2: Hands-on experiment</p>	<p>Part 2 Supplies in Kit:</p> Pocket Rocket Burner Safety Goggles Iron Ring & Ring Stand Wire Gauze & Clay Triangle 100ml Beaker Funnel Filter Paper - 9cm Bar Magnet Set (Alnico 1) Stirring Rod Iron Filings Tube	1 tsp Table Salt (Part 2) Periodic Table (Part 1)

Lab	Special Instructions	Supplies in the Lab Kit	You Provide
7	<p>Table 1: Follow the steps under Hands-On Labs on page 2.</p> <p>Sketch Spectra: Cannot be completed Hands-On. Follow the steps under Video Only Labs.</p>	Pocket Rocket Burner Safety Goggles 100ml Beaker (substituted for 150ml Beaker) Chemical Scoop Long Wooden Splints - 7 Calcium CHloride - 2g Copper Chloride - 2g Lithium Chloride - 2g Manganese Chloride -2g Potassium Chloride - 2g Strontium Chloride - 2g	Distilled Water ¼ tsp Table Salt
8	Cannot be completed Hands-On. Follow the Video Only steps on page 2.		
9	Cannot be completed Hands-On. Follow the Video Only steps on page 2.		
10	Cannot be completed Hands-On. Follow the Video Only steps on page 2.		
11	Cannot be completed Hands-On. Follow the Video Only steps on page 2.		
12	<p>All (except the Lead Nitrate & Potassium Chromate): Follow the steps under Hands-On Labs on page 2.</p> <p>Lead Nitrate & Potassium Chromate: Cannot be completed Hands-On. Follow the steps under Video Only Labs on page 2.</p>	Digital Pocket Scale Ring Stand & Iron Ring Wire Gauze Pocket Rocket Burner 250 ml Beaker Chemical Scoop Safety Goggles Crucible Tongs Test Tubes - 2 9v Battery Zinc Powder - 3g Sulfur - 2g Copper Sulfate - 13g Potassium Hydroxide - 2g Magnesium Ribbon - 5in Weighing Dishes - 4	Distilled Water Oven Mitt

Lab	Special Instructions	Supplies in the Lab Kit	You Provide
13	<p>Part 1: Cannot be completed Hands-On. Follow the steps under Video Only Labs on page 2.</p> <p>Part 2: Follow the steps under Hands-On Labs on page 2.</p>	Pocket Rocket Burner Ring Stand Iron Ring Wire Gauze 250ml Beaker 100ml Beaker Safety Goggles Stirring Rod Styrofoam Cups - 2	Regular Calculator Periodic Table Measuring Spoon 2 tbsp Table Salt Distilled Water 2 cups Crushed Ice
14	<p>All: Follow the steps under Hands-On Labs on page 2.</p>	25 ml Erlenmeyer Flask 100 ml Graduated Cylinder Ring Stand Funnel Safety Goggles 50ml Burettes - 2 Burette Clamp Eye Dropper Phenolphthalein - 10ml Sodium Hydroxide (NaOH) - 2g	100 mL Vinegar Distilled Water
15	<p>Part 1: If you do not immediately know the answer to these questions, fast forward, and write the answer provided. DO NOT spend time searching your textbook or the Internet for the answers.</p> <p>All: Follow the steps under Hands-On Labs on page 2.</p>	Ruler (Straight Edge) Foam Block	Coat Hanger 1 Ruled or Copy Paper Tape (Masking or Scotch) Marker String or Fishing Line Weight (something small to tie to end of string so it will hang straight) 2 Forks
16	<p>Cannot be completed Hands-On. Follow the Video Only steps on page 2.</p>		
17	<p>Cannot be completed Hands-On. Follow the Video Only steps on page 2.</p>		
18	<p>Cannot be completed Hands-On. Follow the Video Only steps on page 2.</p>		
19	<p>Part 1: Follow the steps under Hands-On Labs on page 1.</p> <p>Part 2 Cannot be completed Hands-On. Follow the steps under Video Only Labs on page 2.</p>	Wooden Block Long Wooden Splints - 20 Rope or Fishing Line, 50 lb test or greater, 3ft	Scissors or Knife Bucket and Cans (5-10 soup or similar cans, use as weights) Wood Glue

Lab	Special Instructions	Supplies in the Lab Kit	You Provide
20	<p>Part 1 & 2: Follow the steps under Hands-On Labs on page 2.</p> <p>Part 3 cannot be completed hands-on. Follow the Video Only steps on page 2.</p>	250ml Erlenmeyer Flask 250ml Beaker 150ml Beaker Matches Water Balloon Rubber Tubing - 1ft Cartesian Diver Kit	Stove or Hot Plate Empty Plastic Water Bottle with Cap, ½ - 1 Liter size 1000 ml Beaker or 2 Qt Metal Cooking Pot 2L Soda Bottle Paper Towel
21	<p>All: Follow the steps under Hands-On Labs on page 2.</p> <p>Important Instructions: This kit does not have a pressure meter. To complete this lab without a pressure meter, follow the instructions in the Boyle's Law Kit.</p>	Thermometer Boyle's Law Apparatus	Oven Freezer Heavy Books as weights Spreadsheet Application
22	All: Follow the steps under Hands-On Labs on page 2.	Digital Pocket Scale 250ml Beaker 100 ml Graduated Cylinder Thermometer Crucible Tongs Aluminum, Brass, Steel (for 3 metals of similar mass) 3 Styrofoam Cups	Water
23	All: Follow the steps under Hands-On Labs on page 2.	Chemical Scoop Plastic Rod Wool Square Plastic Comb Balloon	8-10 inches Scotch Tape (make sure and use Scotch Tape) 1 sheet Ruled or Copy Paper Scissors
24	All: Follow the steps under Hands-On Labs on page 2.	Magnetic Compass Insulated Copper Wire - 2.5ft D-Cell Batteries - 4 Battery Holders - 4 Miniature Lamp Bases - 4 Miniature 6v Lamps - 4	Tape (Masking or Scotch Tape) Microsoft
25	All: Follow the steps under Hands-On Labs on page 2.	Bar Magnet Set (Alnico 1) Iron Filings Tube Cardstock Paper - 1 sheet D-cell batteries - 3 Battery Holders - 3 Insulated Copper Wire - 5ft Sandpaper 3" Iron Bolt 100 Paper Clips (substituted for iron finishing nails)	Spreadsheet Application (Microsoft Excel, Apple Numbers, Google Sheets, etc.)

Lab	Special Instructions	Supplies in the Lab Kit	You Provide
26	All: Follow the steps under Hands-On Labs on page 2.	Sound Resonating Tube 288 Hz Tuning Fork, slinky	Meter Stick
27	Cannot be completed Hands-On. Follow the steps under Video Only Labs on page 2.		
28	Part 1: Hands-On Follow the steps under Hands-On Labs on page 2. Part 2: If you purchased the optional Optics Kit (see page 2), complete this part hands-on. If you did not purchase the Optics Kit, this part cannot be completed hands-on. Follow the steps under Video Only Labs on page 2.	Large Mirror Pins - 6 Protractor	