

## Chem 11 Lab Needs 2020

Following the list below is a more detailed list by lab with pictures of products. You can Google any of these products and you will find them listed for mail order on Amazon or in store or mail order from various general retailers like Target or Walmart (Walmart has free to home shipping on all orders now) or drugstores like CVS, Rite-Aid or Walgreens. Other places are hardware stores like Ace or Tru Value and home improvement stores like Lowe's or Home Depot or Harbor Freight. Do not wait until the last minute to get materials. If you choose to wait, that is on you. Remember the 6 P's. Proper Preparation Prevents Pretty Poor Performance.

Product	Labs	Vendor or online	Approx. \$
Computer and Digital camera	All	Should already have	
<b>** American Weigh Scales AWS-201-BLK Digital Personal Nutrition Scale</b> (Google the bold) or other jeweler <u>scales which must weight to 0.01 g &amp; have 200g maximum</u> <b>GET ASAP!</b>	Many	Amazon, Walmart, etc – <b>GET IMMEDIATELY!</b>	\$12
<b>** ThermoPro TP02S Instant Read Digital Meat Cooking Thermometer</b> (Google the bold) or others <u>wide range (-50°C to 300°C)</u> digital thermometers in various stores <b>GET ASAP!</b>	1	Amazon, Walmart, Grocery stores etc. - <b>GET IMMEDIATELY!</b>	\$ 8
** Chemical splash goggles	All	Lowe's or Home Depot	\$3.00
Disposable gloves Vinyl, latex or nitrile (optional)	All	Various	\$5.00
Measuring spoons	Many	Various grocers, Walmart	\$1.00
120 milliliter glass (Pyrex) measuring cup. Various	Many	Winco or various grocers	\$2.56
Small clear cups or jars	Many	Should already have	
Distilled water	Many	Various grocers	\$0.79
String or thick thread	Many		
Epsom salt unscented. Various grocers, drug and dept. stores \$3-\$5	1, 3, 4, 12	Walmart or various	\$4.00
table salt bulk or free packets at fast food places	1, 9, 12	Winco - bulk	\$0.10
table sugar bulk or free packets at coffee places	1, 10,12	Winco - bulk	\$0.10
Alum (spice section)	1	Winco or various grocers	\$3.54
Borax Various stores	1, 9	Winco or various	\$3.97
Al foil	1,4	Should already have	
Oven	2,3	Should already have	
Cornstarch Various grocers	3, 5,12	Winco - bulk	\$0.10
Baking soda (sodium bicarbonate) Various grocers	3,4,5,12	Winco - bulk	\$0.10
White vinegar 1quart or smaller	4, 5,12	Winco or various	\$1.22
Sodium carbonate made in experiment 3	4, 5,12		
White vinegar	3, 5, 6, 11, 12	Various grocers	\$2
Rubbing alcohol 70% isopropyl alcohol unscented	3, 5, 9	Walmart or various	\$1.50
Ammonia cleaning solution unscented	5, 11	Winco or various	\$0.98
Head of red (purple) cabbage (cabbage juice indicator)	5, 12	Grocery - produce	??
Tetra Beta Safe in pet fish section. Or other dechlorinating solution. <b>Must have sodium thiosulfate.</b> Read ingredients! <b>GET ASAP!</b>	6	Walmart, Aquarium stores. <b>GET IMMEDIATELY!</b>	\$3.24

Jungle Clear Water in pet fish section or order online. Must contain potassium permanganate, read ingredients <b>GET ASAP!</b>	6	Walmart. GET IMMEDIATELY!	\$2.88
Tincture of Iodine (Not decolorized!!!) May have to order online. <b>GET ASAP!</b>	6, 8, 12	Walgreens, CVS, etc.	\$4.99
Decolorized iodine May have to order online. <b>GET ASAP!</b>	6, 8	Walmart , Walgreens, etc	\$3.24
3% hydrogen peroxide	6, 8	Walmart or various	\$1.00
New shiny penny dated later than 1982 with a file mark (prepare first week)	6	You figure this out ☺	\$0.01
1 galvanized nail HG (Hot dip Galvanized not electrogalvanized)	6	single available at hardware store.	\$0.10
Nail polish remover, <b>non acetone</b> 10oz	7	Walmart and others	\$1.48
Rusty nail (prepare first week)	8		
Potato	8	Grocery - produce	\$1.00
Elmer's white glue (no other brand!) 4 oz	9	Walmart, Home depot,etc	\$1.99
nail polish remover, <b>100% acetone</b> 6oz	9	Walmart and others OR Hardware/Home Improvement	\$0.96
Or acetone in solvent can (1 quart)			
Dry yeast (various grocers)	10	Winco or various grocers	\$0.78
2 Styrofoam cups	11	Wherever	??
Kellogg's All Bran Complete Wheat Flaked No substitutions! (OPTIONAL ACTIVITY)	Optiona 1	Winco only or Walmart online	\$3.58
Neodymium Rare-Earth Magnet (or other very strong magnet) (OPTIONAL ACTIVITY)	Optiona 1	Home Depot, hardware, Harbor Freight	\$4.00
Blender or food processor	Optiona 1	Should already have	
<b>Lab Manual provide at no cost!</b>			
Approximate Total Cost if you have to buy everything			About \$66
			\$86 w/ optional material

\*\* means that these items **may** be provided to students at the ACE office.

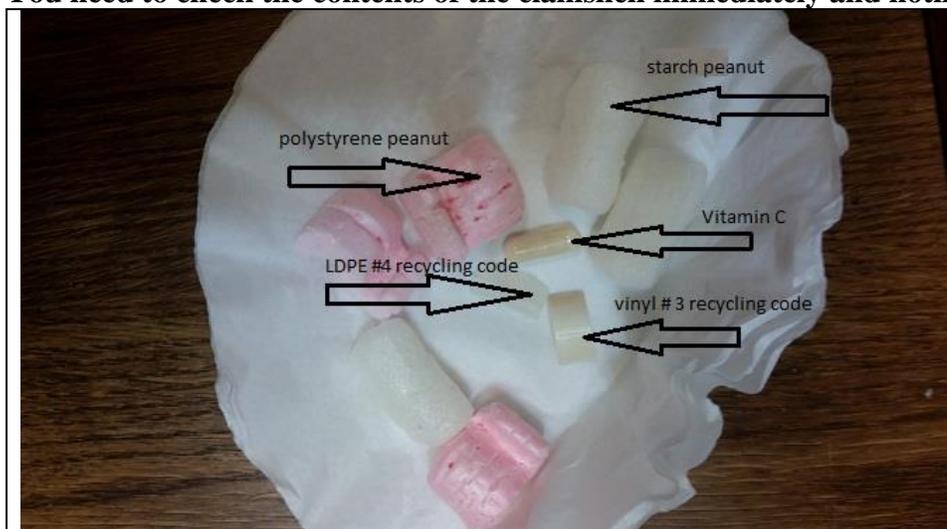
The items in the Clam Shell are provided by Shasta College. Please check to make sure you have all of these items ASAP. **Your clamshell also has an identification number on it.** You will need to put that on your **Labs 7 and 12 reports so be sure to record it and keep it.**

Shasta College Provides:

- 5 coffee filters, (Lab 1)
- 5 chromatography papers: 2 with 4 black dots, 1 with 4 blue dots, 1 with 4 green dots and 1 with 1 black dot (the unknown), (Lab 7)
- cold pack, (Lab 11)
- 9V battery, (Lab 3)
- one diaper, (Lab 9)
- Packets of dextrose , lactose, maltodextrin and maltose (Lab 10)
- Packets calcium chloride; calcium sulfate; calcium carbonate, and citric acid. (Lab 3, 5, 12)
- Vitamin C capsule, (Lab 6)

- polymer numbers 3 and 4, and 6. 6 is the clamshell (keep the clamshell!) (Lab 9)
- 3 starch and 3 polystyrene packing peanuts (Lab 9 )
- Four unknown white solids in small zip lock bags with numbers on them (Lab 12)
- 4 Plastic droppers

**You need to check the contents of the clamshell immediately and notify me if you are missing anything.**



Here is a picture of the items wrapped in the coffee filters in the clamshell.

### Materials Needed by Lab Activity

#### Needed for all labs:

1. Disposable gloves, vinyl, latex or nitrile.
2. Digital camera.
3. Small jars or cups and stir sticks



Chemical Splash Safety Goggles found at Lowe's or Home Depot or Harbor Freight.



Small cups or jars. Stir sticks found at coffee kiosks. Small cups at Walmart if needed.

### Lab 1: Crystals lab:

1. Distilled water ( $H_2O$ ),
2. Small measuring cup with marks in milliliters (mL),
3. Measuring spoon set
4. Digital thermometer (at right recommend ThermoPro TP02S Instant Read Digital Meat Cooking Thermometer found at Walmart or Amazon order ASAP free deliver to store) or any digital thermometer which reads in Celsius between  $-50^{\circ}C$  and  $300^{\circ}C$
5. **Alum** (potassium aluminum sulfate,  $KAl(SO_4)_2$ ) in the spice section of grocery stores,
6. **Epsom salts** (magnesium sulfate heptahydrate,  $MgSO_4 \cdot 7H_2O$ ,
7. **non-iodized table salt** (sodium chloride,  $NaCl$ ),
8. **Borax**,
9. Regular table **sugar** (sucrose),
10. Five Coffee filters for filtering (**Provided**)
11. String or thick thread



### Lab 2: Water in hydrate lab: aluminum foil, electronic balance, Epsom salt and oven



### Lab 3 Reaction of Sodium Bicarbonate: aluminum foil, electronic balance, Baking soda and oven

### Lab 4: Solubility & Electrolyte

1. 9 volt battery (**Provided**),
2. distilled water,
3. table salt,
4. table sugar (sucrose,  $C_{12}H_{22}O_{11}$ ),
5. Epsom salts,
6. baking soda sodium bicarbonate ( $NaHCO_3$ ),
7. sodium carbonate ( $Na_2CO_3$ ), made in lab 3
8. Corn starch,
9. White vinegar (5% acetic acid  $CH_3CO_2H$  in water),
10. Rubbing alcohol (70% isopropyl alcohol,  $C_4H_{10}O$ , in water).
11. From the clamshell calcium chloride ( $CaCl_2$ ), calcium sulfate ( $CaSO_4$ ), calcium carbonate ( $CaCO_3$ ), and citric acid ( $C_6H_8O_7$ ).

### Lab 5: pH lab:

1. Head of red (purple) cabbage and knife to cut cabbage,

2. Stove and pot to boil cabbage OR blender and cheese cloth
3. Plastic container to store cabbage juice extract (old 12 ounce water or soda bottles work great).
4. Household Ammonia (NH<sub>3</sub>),
5. Materials used in Solubility and Electrolyte lab

### Lab 6: Redox lab:

1. New penny,
2. File,
3. galvanized nail HG (Hot dip not electrogalvanized) single available at hardware store.
4. Vinegar,
5. Tincture (colored) iodine (I<sub>2</sub>) at CVS, Walgreens or Amazon, GET ASAP
6. Decolorize iodine at above and Walmart. GET ASAP
7. 3% hydrogen peroxide (H<sub>2</sub>O<sub>2</sub>).
8. Vitamin C capsule (**Provided**)
9. The two following in aquarium fish supplies (I found at Walmart)

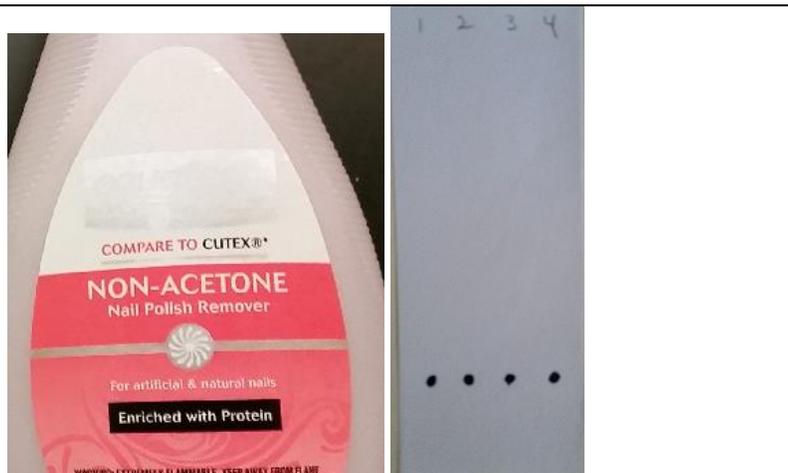
Tetra BettaSafe must contain sodium thiosulfate - look on back for ingredient (Na<sub>2</sub>S<sub>2</sub>O<sub>3</sub>). Get or order from Walmart ASAP

Jungle Clear Water must contain potassium permanganate (KMnO<sub>4</sub>) look on back for ingredient. Get or order from Walmart ASAP



### Lab 7: Chromatography Lab:

1. **Provided:** Five papers: two with 4 black pen dots (one shown at the right), one with 4 green dots, one with 4 blue dots and one with one black dot which is the Unknown sample to identify. Be sure to write down your unknown number.
2. **Non-acetone** nail polish remover.
3. Small glass jar



<b>Lab 8: Catalysts lab:</b> 1. rusty nail, 2. potato and cheese cloth or small piece of liver, 3. corn starch,	4. tincture of iodine, 5. decolorized iodine, 6. 3% hydrogen peroxide
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<b>Lab 9: Polymer lab:</b> 1. non-acetone nail polish remover, 2. 100% acetone nail polish remover or acetone from the hardware store, 3. Elmer's All Purpose Glue (not school glue or other glues), 4. Borax, 5. one disposable diaper <b>Provided</b> , 6. Table salt, 7. Isopropyl (rubbing) alcohol, 8. Samples of recycling code polymers 1-6 (Numbers 3, 4 and 6 the clamshell <b>Provided</b> ), 9. Oven. 10. Food color and permanent marker's optional for more fun.
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<b>Lab 10: Fermentation lab:</b> 1. Table sugar, 2. Cornstarch, 3. Dry yeast packet at grocery store. 4. Maltose, dextrose, lactose and maltodextrins in the clamshell. ( <b>Provided</b> )
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<b>Lab 11: Thermochemistry lab:</b> 1. Balance, 2. Thermometer, 3. Styrofoam cups, 4. Equate instant cold compress <b>Provided</b> 5. White Vinegar 6. Household ammonia.
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**Lab 12: Unknowns lab: Provided** unknowns, 9 volt battery(**Provided**). And materials you have used previously: distilled water, sucrose, starch, sodium chloride, sodium bicarbonate, sodium carbonate, calcium chloride, calcium sulfate, calcium carbonate, white vinegar, colored tincture of iodine, cabbage juice indicator.

**OPTIONAL LAB : Fe in cereal lab:**

1. aluminum foil,
2. Jeweler or nutritional electronic balance measuring to 0.01 gram with 200g maximum. At right from Amazon: American Weigh Scales AWS-201-BLK Digital Personal Nutrition Scale, Pocket Size, Black.
3. Kellogg's All Bran **Complete** Wheat Flakes cereal **No Substitutions!!** (Winco or order from Walmart),
4. Extra strong magnets (**Rare earth Neodymium best there are others than pictured**),
5. Blender or food processor,
6. Thin walled clear plastic cup or container (Winco olive bar containers are great) OR shallow plastic container and Ziplock bags

