Attachment D (Chemistry)

RETAIN ORIGINAL ON SITE

2011-2012 Williams Settlement Recommended Materials List

**Chemistry**

The essential items needed to teach UC “D” Laboratory Science Chemistry 1,2 is based on an understanding that a minimum of 20% of the instructional minutes must be dedicated to hands-on laboratory experiences. These laboratory experiences may be drawn directly from the proposed adoption *CA Prentice Hall Chemistry*, the District Core Labs to be developed and revised through the District professional learning community Course-Alike meetings, or through site-based curriculum development efforts.

To determine whether or not your school site meets Williams Settlement sufficiency, **please perform an inventory of the listed laboratory items and indicate quantities of each item available at your site.**

The core lab materials lists are provided as a reference, but do not define the *specific* required materials since individual school sites may be able to offer an equivalent experience for the topic with different materials.

The following items are also listed on the Sample Chemistry by Core Lab document for your reference.

**BASIC LABORATORY EQUIPMENT**

ALL of the following materials should be available at the school site for Chemistry teachers, although items may be shared between teachers. Sites may replace or substitute materials with comparable items.

**Recommended site quantities:** Demo=1-2 items; Group=10 items; Class=40 items

| **Quantity (see note)** | **Description** | **Used in Core Lab #** | **Amount Available**  **(@ your site)** |
| --- | --- | --- | --- |
| Class | APRON | 3, 5, 9 |  |
| Group | BALANCE, electronic (recommended), or centigram | 1, 3, 9, 11, 17, 20 |  |
| Class | BEAKER, borosilicate, 50 mL | 4, 17 |  |
| Class | BEAKER, borosilicate, 150 mL | 2, 5, 8 |  |
| Class | BEAKER, borosilicate, 250 mL | 2, 11, 14, 17, 20 |  |
| Class | BEAKER, borosilicate, 400, 500 or 600 mL | 13, 14, 17 |  |
| Group | BOTTLE, plastic, 250 mL | 20 |  |
| Group | BUNSEN BURNER, Tirrill burners, natural gas | 2, 4, 9, 16, 17, 20 |  |
| Group | BURNER CONNECTOR TUBING, 1 m | 2, 4, 9, 16, 17, 20 |  |
| Class | CLAMP, Utility | 9, 13, 14, 17, 18 |  |
| Group | COBALT-BLUE GLASS | 4 |  |
| Demo | CONDUCTIVITY APPARATUS | 5 |  |
| Demo | ELECTROLYSIS APPARATUS | 9 |  |
| Class | FLASK, Erlenmeyer, 250 mL, stopper 6 | 14 |  |
| Group | FORCEPS | 16 |  |
| Group | FUNNEL, short stem, polypropylene, 100 mm | 14 |  |
| Group | GAS COLLECTION TUBE | 13 |  |
| Group | GLASS-MARKING PENCIL | 11, 16 |  |
| Class | GLASS STIR ROD, 5 mm x 200 mm\* | 8, 10, 11, 15, 17 |  |
| Group | GLASS TUBE, bent at a 90º angle in the middle | 9 |  |
| Class | GOGGLES, plastic, chemical resistant with vents | 1-20 (all) |  |
| Demo | GOGGLE CABINET, ultraviolet sanitizer | 1-20 (all) |  |
| Class | GRADUATED CYLINDER, borosilicate, 10 mL, plastic base | 14, 15, 20 |  |
| Class | GRADUATED CYLINDER, borosilicate, 25 mL, plastic base & guard | 1, 13 |  |
| Class | GRADUATED CYLINDER, borosilicate, 50 mL, plastic base & guard | 11, 14 |  |
| Class | GRADUATED CYLINDER, borosilicate, 100 mL, plastic base & guard | 3, 17, 20 |  |
| Demo | HEAT LAMP, or drying oven | 11, 19 |  |
| Group | HOT/STIR PLATES | 2 |  |
| Group | IRON NAILS, large | 11 |  |
| Demo | METAL CUTTER | 20 |  |
| Group | METAL SAMPLES\* | 1, 17 |  |
| Group | MOLECULAR MODELS\* | 6 |  |
| Group | RING STAND, 6” x 9” base, 24” support rod | 9, 13, 17, 18, 20 |  |
| Group | RING SUPPORT, with clamp, 4” diameter | 9, 13, 17, 18, 20 |  |

**BASIC LABORATORY EQUIPMENT (continued):**

|  |  |  |  |
| --- | --- | --- | --- |
| **Quantity (see note)** | **Description** | **Used in Core Lab #** | **Amount Available**  **(@ your site)** |
| Class | SCOOP, stainless steel without handle, 6 1/2” | 4 |  |
| Class | SPATULA, micro | 14, 16 |  |
| Demo | STOPPER, 1-hole | 9, 13 |  |
| Group | STRIKER | 2, (4, 9, 16, 18, 20) |  |
| Class | TEST TUBE, 13 x 100 mm, capacity 9 ml, small\* | 4, 10, 15, 16 |  |
| Class | TEST TUBE, 25 x 150 mm, capacity 27 ml, medium\* | 9, 20 |  |
| Class | TEST TUBE, 25 x 200 mm, capacity 55 ml, large\* | 9, 17 |  |
| Group | TEST TUBE HOLDER, opens to 25 mm | 16 |  |
| Group | TEST TUBE RACK, polyethelene, holds 12 test tubes, 5 pins | 4, 9, 15, 16, 20 |  |
| TWO Groups | Thermometer, alcohol, -20 to 110C | 8, 17, 18, 20 |  |
| Group | TONGS | 2, 9, 11, 20 |  |
| Group | WASH BOTTLE, polyethelene, 250 mL, narrow mouth | 5, 10, 11, 15 |  |
| Group | WELL PLATES, 15 wells | 10 |  |
| Class | WATER MODELS (Available for check-out from HSIS | 7 |  |
| Group | WIRE GAUZE, with ceramic fiber center, 5” x 5” | 17, 20 |  |

**CONSUMABLE MATERIALS**

The following materials are *consumable* and should be reviewed annually and maintained in sufficient quantities to support *all* sections of Chemistry for the academic year. Sites may replace or substitute materials with comparable items.

**Recommended site quantities:** Demo=1-2 items; Group=10 items; Class=40 items

| **Quantity (see note)** | **Description** | **Used in Core Lab #** | **Amount Available**  **(@ your site)** |
| --- | --- | --- | --- |
| Demo | ALUMINUM FOIL, roll\* | 8, 18, 20 |  |
| Demo | CHEETOS, bag | 18 |  |
| Demo | DETERGENT WITH ENZYMES, i.e. Tide | 19 |  |
| Demo | DETERGENT WITHOUT ENZYMES, i.e. Woolite | 19 |  |
| Demo | DISPOSABLE PIPET, Beral/Transfer, box | 9, 10, 12, 14, 15, 16, 20 |  |
| Demo | FLINT, pack (re-fill for Striker) | 2, 4, 9, 16, 18, 20 |  |
| Demo | FOAM CUP, box | 17 |  |
| Class | GLOVES (optional) | 11, 20 |  |
| Demo | LITMUS PAPER, blue and red, roll | 15, 16 |  |
| Group | pH PAPER, strips, 0-14 range | 15, 16 |  |
| Group | PLASTIC SPOON | 8 |  |
| Demo | STEEL WOOL\* | 11, 20 |  |
| Demo | THREAD, spool | 13 |  |
| Group | T-SHIRT OR COTTON FABRIC | 19 |  |
| Demo | WOOD SPLINTS, box\* | 9, 16, 20 |  |
| Group | ZIPLOC BAGS (Available from HSIS) | 19 |  |

\*: These items were submitted for order from Fisher Scientific as part of the 2009-10 chemistry textbook adoption.

**CLASS III CHEMICALS**

APPROVED FOR STUDENT USAGE (As of Dec. 3, 2003)

The following materials are *consumable* and should be reviewed annually and maintained in sufficient quantities to support *all* sections of Chemistry for the academic year. Sites may replace or substitute materials with comparable items.

**Recommended site quantities:** Demo=1-2 items; Group=10 items; Class=40 items

| **Quantity (see note)** | **Description** | **Used in Core Lab #** | **Amount Available**  **(@ your site)** |
| --- | --- | --- | --- |
| Demo | AgNO3\* | 10 |  |
| Demo | AlCl3\* | 10 |  |
| Demo | Al2(SO4)3\* | 10 |  |
| Demo | BaCl2\* | 10 |  |
| Demo | BROMTHYMOL BLUE\* | 15 |  |
| Demo | CaCl2\* | 20 |  |
| Demo | CaCO3\* | 16 |  |
| Demo | CaO\* | 9 |  |
| Demo | COPPER WIRE, roll\* | 16 |  |
| Demo | CuCl2\* | 8, 11 |  |
| Demo | CuSO4\* | 9 |  |
| Demo | ETHANOIC ACID (6M)\* | 5, 15 |  |
| Demo | ETHANOL\* | 5 |  |
| Demo | FeCl3 | 20 |  |
| Demo | GLACIAL ETHANOIC ACID\* | 5 |  |
| Demo | 3% H2O2\* | 9, 20 |  |
| Demo | HCl (6M)\* | 4, 5, 9, 13, 15, 20 |  |
| Demo | IRON, filings\* | 9 |  |
| Demo | IRON WIRE, or small nails | 16 |  |
| Demo | KCl\* | 10 |  |
| Demo | K2CrO4\* | 10 |  |
| Demo | KEROSENE\* | 5 |  |
| Demo | KI\* | 9 |  |
| Demo | LEAD, Pb, Shot\* | 3, 17 |  |
| Demo | LITMUS SOLUTION/PAPER\* | 15 |  |
| Demo | METHYL RED\* | 15 |  |
| Demo | MgCl2\* | 10 |  |
| Demo | MgSO4\* | 10 |  |
| Demo | MnCl2\* | 20 |  |
| Demo | NaCl\* | 5, 20 |  |
| Demo | NaCrO4\* | 10 |  |
| Demo | NaHCO3\* | 9, 16 |  |
| Demo | NaOH (3M)\* | 2, 5, 10, 15 |  |
| Demo | Na2SO4\* | 10 |  |

**CLASS III CHEMICALS (continued):**

|  |  |  |  |
| --- | --- | --- | --- |
| **Quantity (see note)** | **Description** | **Used in Core Lab #** | **Amount Available**  **(@ your site)** |
| Demo | NH3 (6M)\* | 5, 15 |  |
| Demo | PHENOLPHTHALEIN SOLUTION\* | 15 |  |
| Demo | PLATINUM WIRE, or Nichrome\* | 4 |  |
| Demo | SILICON, Si\* | 3 |  |
| Demo | SUCROSE\* | 5, 14 |  |
| Demo | TIN, Sn\* | 3 |  |
| Demo | ZINC, Zn, strips and/or filings | 2, 16, 20 |  |

**Recommended site quantities:** Demo=1-2 items; Group=10 items; Class=40 items

\*: These items were submitted for order from Fisher Scientific as part of the 2009-10 chemistry textbook adoption.

**CLASS II CHEMICALS**

**RESTRICTED USAGE ITEMS** (As approved Dec. 3, 2003)

Class II chemicals are to be used only for demonstration purposes, prepared and presented only by instructors who are familiar with their hazardous properties. These chemicals should be secured when not in use and are not to be retained longer than one (1) year from the date of purchase. Quantities should be kept to a minimum. http://www.sandi.net/risk/class2\_chemicals.pdf

The following materials are *consumable* and should be reviewed annually and maintained in sufficient quantities to support *all* sections of Chemistry for the academic year. Sites may replace or substitute materials with comparable items.

**Recommended site quantities:** Demo=1-2 items; Group=10 items; Class=40 items

| **Quantity (see note)** | **Description** | **Used in Core Lab #** | **Amount Available**  **(@ your site)** |
| --- | --- | --- | --- |
| Demo | Ba(NO3)2 | 4, 10 |  |
| Demo | Ca(NO3)2 | 4 |  |
| Demo | Cu(NO3)2 | 4 |  |
| Demo | Fe(NO3)3 | 20 |  |
| Demo | KNO3 | 4, 20 |  |
| Demo | LiNO3 | 4 |  |
| Demo | MAGNESIUM TURNINGS/RIBBON | 9 (turnings), 13 & 16 (ribbon) |  |
| Demo | Mg(NO3)2 | 10 |  |
| Demo | NaNO3 | 4 |  |
| Demo | Pb(NO3)2 | 8, 11 |  |
| Demo | Sr(NO3)2 | 4 |  |
| Demo | ZINC DUST | 20 |  |

**OTHER RECOMMENDED EQUIPMENT**

**The following items are NOT used in the Chemistry Core Labs but are necessary for demos, storage, lab prep, etc.** These materials are recommended but not essential, and should be purchased by the site over time in order to build a basic Chemistry program.

**Recommended site quantities:** Demo=1-2 items; Group=10 items; Class=40 items

|  |  |  |
| --- | --- | --- |
| **Quantity (see note)** | **Description** | **Amount Available**  **(@ your site)** |
| Demo | BEAKER, borosilicate, 1000 mL |  |
| Demo | BEAKER, borosilicate, 2000 mL |  |
| Group | BOTTLE AND CYLINDER BRUSH, 50 cm long |  |
| TWO Group | BURET |  |
| TWO Group | BURET CLAMP |  |
| Group | CRUCIBLE AND COVER, porcelain high form, 30 mL |  |
| Group | CLAY TRIANGLE |  |
| Demo | DROPPER BOTTLE, plastic, opaque and tinted, box |  |
| Demo | FILTER PAPER, box |  |
| Group | FLASK, Erlenmeyer, 50 mL, stopper 1 |  |
| Group | FLASK, Erlenmeyer, 125 mL, stopper 5 |  |
| Group | FLASK, Erlenmeyer, 500 mL, stopper 7 |  |
| Demo | FLASK, Erlenmeyer, 1000 mL, stopper 9 |  |
| Demo | FLASK, Erlenmeyer, 2000 mL, stopper 10 |  |
| Group | FLASK, filtering with side ram, 500 mL |  |
| Demo | FLASK, Volumetric, 100 mL |  |
| Demo | FLASK, Volumetric, 500 mL |  |
| Demo | FLASK, Volumetric, 1000 mL |  |
| Group | FUNNEL, Buchner, polypropylene, 5.5 ca, with support collar/stopper |  |
| Demo | FUNNEL, long stem, polypropylene, 65 mm |  |
| Group | FUNNEL, short stem, polypropylene, 100 mm |  |
| Group | FUNNEL, short stem, polypropylene, 75 mm |  |
| Group | GRADUATED CYLINDER, borosilicate, 1000 mL, hex base, plastic guard |  |
| Group | MORTAR AND PESTLE |  |
| Demo | PARAFILM, 4” wide roll |  |
| Group | STIRRING MAGNETS |  |
| Demo | STOPPER, # 00, 2 hole, 1 lb |  |
| Demo | STOPPER, # 2, solid, 1 lb |  |
| Group | STORAGE BOTTLES, glass w/ cork & polypro; clear & tinted; 250, 500 & 1000 mL |  |
| Group | WATCH GLASS |  |

**SCHOOL:** **DATE:**

**PRINCIPAL:** **SIGNATURE:**