**Crystallization Parts 1 and 2 p. 43-44**

**Part 1**

* Resorcinol
* Anthracene
* Benzoic acid
* 4-amino-1-naphthalenesulfonic acid, sodium salt
* Toluene
* Ligroin

**Part 2**

* Methanol
* Ethanol
* Acetone
* Acetic acid
* Phthalic acid
* Boiling stick
* Hot plate
* Ice

**Me**

**lting Points, Boiling Points, and Refractive Indices p. 54-62**

**Melting Points**

**Part 1-2**

* Naphthalene
* Urea
* Sulfanilamide
* 4-toluic acid
* Anthracene
* Caffeine
* Melting point apparatus
* Melting point capillaries

**Part 3**

* Cinnamic acid

**Part 4**

* Unknowns (just make two or three vials for students to choose from)
* Benzophenone
* Maleic anhydride
* 4-nitrotoluene
* Naphthalene
* Acetanilide
* Benzoic acid
* Urea
* Salicylic acid
* Sulfanilimide
* Succinic acid
* 3,5-dinitrobenzoic acid
* P-terphenyl

**Boiling Points**

* Boiling chips
* Any alcohols or hydrocarbons for finding boiling point

**Refractive Indices**

* Wooden splints
* Refractometers

**Distillation p. 70-74**

**Part 1**

* Ice
* Boiling chips
* Sand

**Part 2**

* Keck clamps
* Vacuum grease
* Cyclohexane
* Toluene
* Ethanol

**Part 3**

* Glass wool
* Aluminum foil

**Part 4**

* Unknowns (mix two solvents below, boiling points must differ by more than 20⁰C, make one or two unknowns)
* Acetone bp 56.5⁰C
* Methanol bp 64.7⁰C
* Hexane bp 68.8⁰C
* 1-butanol bp 117.2⁰C
* 2-methyl-2-propanol bp 82.2⁰C
* Water bp 100.0⁰C
* Toluene bp 110.6⁰C

**Extraction p. 114-121**

**Part 1**

* 4-t-butylphenol AKA (phenol)
* T-butyl methyl ether
* 3M sodium bicarbonate
* 1.5M sodium hydroxide
* Saturated sodium chloride
* Anhydrous calcium chloride
* Concentrated hydrochloric acid
* Ice
* Boiling stick
* Methanol
* Ethanol
* Sodium carbonate
* Melting point apparatus
* Melting point capillaries

**Part 2**

* Naphthalene
* 4-chloroaniline

**Part 3**

* Tea bags
* Sodium carbonate solid
* Dichloromethane
* Anhydrous calcium chloride
* Boiling stick
* Acetone
* Ligroin
* Salicylic acid

**Part 5**

* Petroleum ether

**The SN2 Reaction: 1-bromobutane p. 222-223**

* Sodium bromide solid
* N-butyl alcohol
* Ice
* Concentrated sulfuric acid
* Sodium bisulfite solid
* 3M sodium hydroxide
* Anhydrous calcium chloride
* Boiling chips

**Alkanes and Alkenes p. 237-243**

**Part 1**

* 1-chlorobutane
* Sulfuryl chloride
* 2,2’-azobis-(2-methylpropionitrile) AKA 2,2-azobisisobutyronitrile
* Boiling chips
* 0.5M sodium bicarbonate
* Anhydrous calcium carbonate
* Sodium carbonate

**Part 3**

* Purified ligroin
* Unpurified ligroin
* Cyclohexene
* 3% bromine in dichloromethane
* 3% bromine in water
* 1% potassium permanganate
* 10% sulfuric acid
* Concentrated sulfuric acid
* Pyridinium bromide perbromide
* Acetic acid
* N-bromosuccinimide
* Dioxane
* Ice
* Put out as many of these below as you have:
* Camphene
* Pinene
* Paraffin oil
* Gasoline
* Cyclohexane
* Rubber cement

**Alkenes from Alcohols p. 246-248**

* Cyclohexanol
* 85% phosphoric acid
* Boiling chips
* Ice
* Toluene
* Saturated sodium chloride
* Anhydrous calcium chloride
* Cotton

**Oxidation of Cyclohexanol and Cyclohexanone p. 266-272**

**Part 1**

* Sodium dichromate dehydrate
* Acetic acid
* Ice
* Cyclohexanol
* Boiling chips
* Sodium chloride solid
* Ether
* 3M sodium hydroxide
* Saturated sodium chloride
* Anhydrous calcium chloride
* Sodium bisulfite
* Dilute hydrochloric acid

**Part 2**

* Bleach (not scented)
* Saturated sodium bisulfite
* Thymol blue indicator
* 6M sodium hydroxide

**Part 3**

* Cyclohexanone
* Potassium permanganate solid
* Decolorizing charcoal
* Concentrated hydrochloric acid
* Sodium carbonate