



Honors Integrated Physics & Chemistry Supply List

Note: Common supplies such as pens, paper, water, etc. have been omitted from this list but are given within Ignitia. If any supplies are unobtainable or unaffordable, please inform the instructor. Though supply lists are given for each experiment, every experiment includes an online demonstration that can be used to collect data; in other words, students are **not** required to complete these assignments as hands-on experiments but can instead use the online demonstration to complete the assignments.

The following items will be needed throughout the entire course:

- Access to research materials (internet, local library, etc.)
- A metric ruler and a meter stick
- Measuring tape
- Scissors and tape
- A scientific calculator ([here](#) is an excellent one)
- A centigram balance ([centigram scale](#) can be used as alternative)
- Graphing paper
- A stopwatch and a timer (smartphone app is OK)
- Test tubes (like [these](#))
- 90% isopropyl alcohol
- A [graduated cylinder](#)
- A pair of [goggles](#)

Semester A

Experiment: Making Observations (Unit 1)

- A bowl of peanuts in their shells (Note: if allergic to peanuts substitute with another nut such as pistachios, walnuts, or almonds)
- Various measuring tools (metric rulers, string, etc.)
- Paper and pencil

Experiment: Determining Density (Unit 1)

- A few coins (pennies, nickels, and quarters work best)

Experiment: Atomic Structure (Unit 2)

- A large box (at least 40 to 50 cm along all sides)
- A small block of wood (around 6 to 8 cm along all sides)
- 100 marbles or pellets (airsoft pellets work well)

Experiment: Separating a Mixture (Unit 2)

- A mixture containing salt, iron filings, sand, gravel, and raisins
- Screens
- A funnel
- Filter paper
- Beakers
- [A ring stand and a ring](#)
- A magnet

Experiment: Chemical Changes (Unit 3)

- Small utility candle and holder
- Matches
- Three small sheets of paper
- A watch glass or crucible
- Three test tubes
- Table salt (NaCl)
- Calcium chloride (CaCl₂)
- Baking soda (NaHCO₃)
- Vinegar (HC₂H₃O₂)

Experiment: Half-Life (Unit 3)

- 100 pennies
- A resealable plastic bag or clean plastic box with lid
- A sheet of wax paper, approximately 30 cm x 30 cm
- A plastic knife
- Cup
- Graph paper

Experiment: Comparing Hardness and Density of Solids (Unit 4)

- No additional supplies needed

Experiment: Viscosity (Unit 4)

- Four 100 mL graduated cylinders or 4 small clear glass or plastic cups
- At least 4 identical marbles.
- Stopwatch or watch with second hand
- Marker to mark the cylinders or cups
- Spoon or forceps to retrieve marbles
- Several test liquids (e.g., water, ketchup, honey, olive oil, molasses, syrup, heavy cream, vegetable oil)
- Microwave

- Thermometer
- Beaker or measuring cup

Experiment: Motion Graphs (Unit 5)

- A battery-powered toy car
- Meter stick or tape measure
- Masking or duct tape

Project: Virtual Lab - Newton's Laws (Unit 5)

- No additional supplies needed

Semester B

Experiment: Potential and Kinetic Energy (Unit 1)

- Cardboard tube split in half length wise
- Box
- Four marbles of different masses
- Book

Experiment: Inclined Planes (Unit 1)

- A smooth board
- A smooth block or other object to drag up the plane (approximately 200 to 500 grams)
- A spring scale (calibrated in newtons)
- String
- Books or blocks to support the inclined plane

Experiment: Insulators (Unit 2)

- A large Styrofoam cup
- A small Styrofoam cup
- A flat piece of Styrofoam
- A thermometer
- Hot water
- Heat source for heating water
- At least two insulating materials (shredded newspaper, sheets of newspaper, bits of cloth, small Styrofoam peanuts, bubble wrap, feathers, aluminum foil, saw dust, etc.)

Experiment: Heat and Expansion (Unit 2)

- Clear plastic bottle with screw-top cap
- Clear drinking straw
- Putty or caulk
- Grease pencil
- Food coloring
- Metric ruler with millimeter divisions

- Lamp with no shade and an incandescent light bulb

Experiment: Electrostatic Investigations (Unit 3)

- No additional supplies needed

Experiment: Changing the Speed of a Wave (Unit 4)

- No additional supplies needed

Experiment: Law of Reflection (Unit 4)

- No additional supplies needed

Experiment: Kepler's Second Law (Unit 5)

- No additional supplies needed