ENLIGHTIUM ACADEMY

High School Science Supply List

PHYSICAL SCIENCE

The following materials will be needed throughout the course (including the Honors course):

Access to research materials (internet, local library, etc.)
A metric/imperial ruler
A stopwatch or a timer (smartphone app is OK)
Word processing program. Examples include
Microsoft Word© (purchase required, but often included with PC computers)
Apple Pages© (available free on most Macbook computers)
OpenOffice Writer© (open-source program available for free, PC and Macbook)
Google Docs as a browser alternative
Spreadsheet processing program. Examples include
Microsoft Excel© (purchase required, but often included with PC computers, also available for Macbooks)
Apple Numbers© (available on most Macbook computers)
OpenOffice Calc© (open-source program available for free, PC and Macbook)
Google Sheets as a browser alternative
Access to a computer with Adobe Flash
Access to a printer

Semester A

Unit 1

Assignment 1.6: Project: Identifying Variables and Writing Hypotheses
No additional materials needed

Unit 2

Assignment 2.2: Experiment: Exercising Methods of Measurement
One regular-shaped object (cube or rectangular prism)
One irregular-shaped object (such as a rock)
Kitchen balance
Ruler (inches)
Large liquid measuring cup or pitcher (units of cups and ounces)
Latex Balloon
String

HONORS PHYSICAL SCIENCE

Semester A

Unit 1

Assignment 1.4: Essay: Mendel
No extra materials needed

Assignment 1.7: Project: Identifying Variables and Writing Hypotheses
No additional materials needed

Unit 2

Assignment 2.2: Experiment: Exercising Methods of Measurement
One regular-shaped object (cube or rectangular prism)
One irregular-shaped object (such as a rock)
Kitchen balance
Ruler (inches)
Large liquid measuring cup or pitcher (units of cups and ounces)
Latex Balloon
String
Possibly a pitcher or bucket

Unit 3

Assignment 3.4: Experiment Forms of Change
Table sugar
Glass or beaker
Shallow dish
Spoon

Assignment 3.10: Experiment: Red Cabbage Indicator
One head of red cabbage (green cabbage will NOT work)
Large kitchen knife and cutting board
Large stock pot
Stove or other controlled heating surface
A pitcher or large bowl
A strainer or colander
Clear cups (plastic or glass)
Measuring spoons (Tablespoon, ½ teaspoon, ¼ teaspoon)
Tape and marker

PHYSICAL SCIENCE

Possibly a pitcher or bucket

Unit 3

Assignment 3.9: Experiment: Red Cabbage Indicator

One head of red cabbage (green cabbage will NOT work)
Large kitchen knife and cutting board
Large stock pot
Stove or other controlled heating surface
A pitcher or large bowl
A strainer or colander
Clear cups (plastic or glass)
Measuring spoons (Tablespoon, ½ teaspoon, ¼ teaspoon)
Tape and marker
At least five of the following liquids
Water, Lemon Juice, Milk, Baking soda dissolved in water, Vinegar, Antacid (either dissolve an alka-seltzer tablet in water, or grind up a "Tums" tablet and dissolve in water), Green tea, Coffee or black tea, Simple syrup (table sugar dissolved in water)

Unit 4

Assignment 4.4: Project: Food Record and Essay

No additional materials needed

Semester B

Unit 1

Assignment 1.9: Project: Create a Project (Types of Energy)

Supplies depend on what product students choose to create; options will include creating a children's book, essay, speech, song, etc.
Might require audio or recording devices. Message the instructor in the helpbox if you need more guidance.

Unit 2

Assignment 2.8: Essay: Solar Energy

No extra materials needed

Unit 3

Assignment 3.9: Experiment: Measuring Work and Power

Bathroom Scale
Meter stick or tape measure
Stopwatch
Weights (or a heavy book)
Stairs

HONORS PHYSICAL SCIENCE

At least five of the following liquids

Water, Lemon Juice, Milk, Baking soda dissolved in water, Vinegar, Antacid (either dissolve an alka-seltzer tablet in water, or grind up a "Tums" tablet and dissolve in water), Green tea, Coffee or black tea, Simple syrup (table sugar dissolved in water)

Unit 4

Assignment 4.9: Project: Create a Project (Types of Energy)

Supplies depend on what product students choose to create; options will include creating a children's book, essay, speech, song, etc.
Might require audio or recording devices. Message the instructor in the helpbox if you need more guidance.

Unit 5

Assignment 5.2 Experiment: Magnetism

Two bar magnets
One horseshoe magnet
Iron filings
Sheet of glass or plastic

Assignment 5.9: Essay: Solar Energy

No extra materials needed

Semester B

Unit 1

Assignment 1.2: Essay: Scientists

No extra materials needed

Assignment 1.9: Experiment: Measuring Work and Power

Bathroom Scale
Meter stick or tape measure
Stopwatch
Weights (or a heavy book)
Stairs

Unit 2

Assignment 2.3: Experiment: Calculating the Coefficient of Friction

Two small books (similar size and weight preferable)
Tape
String or twine (about 2 feet long)
Small bag/container (either plastic or cloth)
Kitchen balance
Extra weights (coins, small rocks, etc.)
Two elevated flat surfaces made of different materials

PHYSICAL SCIENCE

Unit 4

Assignment 4.3: Experiment: Calculating the Coefficient of Friction

Two small books (similar size and weight preferable)
Tape
String or twine (about 2 feet long)
Small bag/container (either plastic or cloth)
Kitchen balance
Extra weights (coins, small rocks, etc.)
Two elevated flat surfaces made of different materials

HONORS PHYSICAL SCIENCE

Unit 3

Assignment 3.9: Project: Create a Project (Plants)

Supplies depend on what product students choose to create; options will include creating a children's book, essay, speech, song, etc.
Might require audio or recording devices. Message the instructor in the helpbox if you need more guidance.

Unit 4

Assignment 4.4: Project: Food Record and Essay

No additional materials needed

BIOLOGY

The following materials will be needed throughout the course (including the Honors course):

Access to research materials (internet, local library, etc.)
A metric/imperial ruler
A stopwatch or a timer (smartphone app is OK)
Word processing program. Examples include
Microsoft Word© (purchase required, but often included with PC computers)
Apple Pages© (available free on most Macbook computers)
OpenOffice Writer© (open-source program available for free, PC and Macbook)
Google Docs as a browser alternative
Spreadsheet processing program. Examples include
Microsoft Excel© (purchase required, but often included with PC computers, also available for Macbooks)
Apple Numbers© (available on most Macbook computers)
OpenOffice Calc© (open-source program available for free, PC and Macbook)
Google Sheets as a browser alternative
Access to a computer with Adobe Flash
Access to a printer

Semester A

Unit 1

Assignment 1.13: Project: Create a Product (Taxonomy)
Supplies depend on what product students choose to create; options will include creating a children's book, essay, speech, song, etc.
Might require audio or recording devices. Message the instructor in the helpbox if you need more guidance.

Unit 2

Assignment 2.16: Experiment: Protein Denaturation
Four eggs
Two cups of milk (preferably whole/full cream, or made from powdered milk)
Your own hair from a hairbrush or comb
Small saucepan
Mixing bowl
Baking tray or cookie sheet
Aluminum foil
Candy thermometer or cooking/meat thermometer
Stove/oven (with oven mitts/pot holders)

Unit 3

Assignment 3.11: Experiment: Osmosis Activities
Three large eggs (+one or more extras)

HONORS BIOLOGY

Semester A

Unit 1

Assignment 1.8: Project Dichotomous Key
No extra supplies needed
Having five or more types of fruit to manipulate and observe might be useful

Assignment 1.14: Project: Create a Product (Taxonomy)
Supplies depend on what product students choose to create; options will include creating a children's book, essay, speech, song, etc.
Might require audio or recording devices. Message the instructor in the helpbox if you need more guidance.

Unit 2

Assignment 2.4: Experiment: Static Electricity
Two inflated latex balloons
Piece of nylon (a old nylon stocking will work)
Piece of wool (a sweater will work) or fur
Thread

Assignment 2.17: Experiment: Protein Denaturation
Four eggs
Two cups of milk (preferably whole/full cream, or made from powdered milk)
Your own hair from a hairbrush or comb
Small saucepan
Mixing bowl
Baking tray or cookie sheet
Aluminum foil
Candy thermometer or cooking/meat thermometer
Stove/oven (with oven mitts/pot holders)

Unit 3

Assignment 3.3: Experiment: Introducing the Microscope
No extra supplies needed - virtual project
If you have a physical microscope available, you can use it instead

Assignment 3.4 Experiment: Plant, Animal, and Algae Cells
No extra supplies needed - virtual project
If you have a physical microscope available, you can use it instead

Assignment 3.8: Experiment: Osmosis Activities
Three large eggs (+1 or more extras)
White vinegar (cheap vinegar will do)
Three large cups
One plate

BIOLOGY

White vinegar (cheap vinegar will do)
Three large cups
One plate
Large slotted spoon
Tap water
Corn syrup
Liquid measuring devices: cups and tablespoons
Kitchen balance

Unit 4

Assignment 4.4 Experiment: Mitosis
Microscope
Prepared slides of onion (Allium) root and whitefish blastula stained to show chromosomes
*If you do not have access to these materials or they are not budget friendly, please message the instructor. The images needed to complete the project can be provided to the student.

Semester B

Unit 1

Assignment 1.16: Experiment: Exploring Molecular Genetics
100 radish seeds
Potting soil (One-lb bag)
Ten small plates or tins
Microwave
Microwave safe plate
Water and a dropper (or spray bottle)
Sunny windowsill or table
Marker and tape
Large cardboard box

Unit 2

Assignment 2.13: Report: Microbial Pathogens
No additional supplies needed
Test tubes or tall, thin glasses
Large glass bowl
Sodium bicarbonate (baking soda)
Paper clips
Thermometer

Unit 3

Assignment 3.14: Experiment: Photosynthesis
Elodea (an aquatic plant available at most pet, aquarium, garden stores)
Online source here
Other aquatic plants may work as an alternative to Elodea. Message instructor for advice if you cannot acquire Elodea at your location
Lamp
Knife or scissors
Kitchen scale

HONORS BIOLOGY

Large slotted spoon
Tap water
Corn syrup
Liquid measuring devices: cups and tablespoons
Kitchen balance

Unit 4

Assignment 4.4 Experiment: Mitosis
Microscope
Prepared slides of onion (Allium) root and whitefish blastula stained to show chromosomes
*If you do not have access to these materials or they are not budget friendly, please message the instructor. The images needed to complete the project can be provided to the student.

Assignment 4.12: Experiment: Sexual Reproduction
Microscope
Prepared slides of animal egg and sperm cells
Possible online source here
*If you do not have access to these materials or they are not budget friendly, please message the instructor. The images needed to complete the project can be provided to the student.

Assignment 4.15: Experiment: Tissue Structure
Microscope
Prepared slides of muscle tissue, an internal organ tissue, and blood cells
Option 1
Option 2
*If you do not have access to these materials or they are not budget friendly, please message the instructor. The images needed to complete the project can be provided to the student.

Unit 5

Assignment 5.3: Experiment: Probability
Two coins
Box (shoebox will work)

Assignment 5.12: Experiment: Exploring Molecular Genetics
100 radish seeds
Potting soil (1-lb bag)
Ten small plates or tins
Microwave
Microwave safe plate
Water and a dropper (or spray bottle)
Sunny windowsill or table
Marker and tape
Large cardboard box

BIOLOGY

Unit 4

Assignment 4.17: Project: Chicken Wing Dissection

Raw chicken wing
Dissecting scissors (small, sharp scissors or kitchen shears will work)
Online source for dissecting kit (10$) - not necessary but has many of the appropriate materials
Forceps or large tweezers
Blunt probe (wooden skewer or dull wooden pencil will work)
Cutting board
Gloves, goggles, apron

HONORS BIOLOGY

Semester B

Unit 1

Assignment 1.3 Experiment: Fungus All Around (Part 1)

Compound microscope or 5X or 10X hand lens
Slice of hard cheese
3 sealable plastic sandwich bags
Slice of bread
Sharp knife or razor blade
Microscope slide with coverslip
Flashlight or light source to examine samples
*If you do not have access to these materials or they are not budget friendly, please inform the instructor.

Unit 2

Assignment 2.9: Experiment: Photosynthesis

Elodea (an aquatic plant available at most pet, aquarium, garden stores)
Online source here
Other aquatic plants may work as an alternative to Elodea. Message instructor for advice if you cannot acquire Elodea at your location
Test tubes or tall, thin glasses
Large glass bowl
Sodium bicarbonate (baking soda)
Paper clips
Thermometer
Lamp
Knife or scissors
Kitchen scale

Assignment 2.15: Project: Create a Product (Plants)

Supplies depend on what product students choose to create; options will include creating a children's book, essay, speech, song, etc.
Might require audio or recording devices. Message the instructor in the helpbox if you need more guidance.

Unit 3

Assignment 3.6: Experiment: Heart Rate (Unit 3)

A partner
Stopwatch (phone app will work)

Assignment 3.10: Project: Chicken Wing Dissection

Raw chicken wing
Dissecting scissors (small, sharp scissors or kitchen shears will work)
Online source for dissecting kit (10$) - not necessary but has many of the appropriate materials
Forceps or large tweezers
Blunt probe (wooden skewer or dull wooden pencil will work)

HONORS BIOLOGY

Cutting board
Gloves, goggles, apron

Unit 4

Assignment 4.7: Experiment: Quadrants
String or twine
Large nails or stakes
Meter stick

Unit 5

Assignment 5.10: Project: Create a Product (Principles of Biology)
Supplies depend on what product students choose to create; options will include creating a children's book, essay, speech, song, etc.
Might require audio or recording devices. Message the instructor in the helpbox if you need more guidance.

CHEMISTRY

The following items will be needed throughout the course (including the Honors course):
Access to research materials (internet, local library, etc.)
A metric ruler
A stopwatch or a timer (smartphone app is OK)
Microsoft© Excel© (or a similar program)
Microsoft © Word © (or a similar program)
Access to a computer with Adobe Flash

Semester A
Experiment: Observations, Measurements, and Analysis (Unit 1)
Three objects from around home

Experiment: Identifying Types of Mixtures (Unit 2)
Three clear glasses with smooth sides
A laser pointer or flashlight
Red Jell-O
Red food coloring
Sugar (white)

Experiment: Demonstrating the Gas Laws (Unit 3)
Stove top
Three soda pop cans (empty)
Tablespoon
Tongs
Gloves
Bowl
Cold water and ice

Experiment: Choose a Product (Discovery of Atoms) (Unit 4)
Supplies depend on what product students choose to create; options will include creating a children's book, essay, experiment, video, song, etc.

Semester B
Project: Modeling Chemical Bonding (Unit 1)
Access to printer (to print downloadable document)
Scissors
Pushpins
Bulletin board
***If you do not have push pins and a bulletin board, you may use something else to represent the electrons (e.g., small rocks, coins, round candy, chocolate chips, etc.).

Experiment: Measuring Chemical Reaction Rates (Unit 2)
Baking soda
Vinegar
Four plastic, water bottles (must all be same size)

HONORS CHEMISTRY

Semester A
Experiment: Observations, Measurements, and Analysis (Unit 1)
Three objects from around home

Experiment: Identifying Types of Mixtures (Unit 2)
Three clear glasses with smooth sides
A laser pointer or flashlight
Red Jell-O
Red food coloring
Sugar (white)

Experiment: Demonstrating the Gas Laws (Unit 3)
Stove top
Three soda pop cans (empty)
Tablespoon
Tongs
Gloves
Bowl
Cold water and ice

Experiment: Choose a Product (Discovery of Atoms) (Unit 4)
Supplies depend on what product students choose to create; options will include creating a children's book, essay, experiment, video, song, etc.

Project: Modeling Chemical Bonding (Unit 5)
Access to printer (to print downloadable document)
Scissors
Pushpins
Bulletin board
***If you do not have push pins and a bulletin board, you may use something else to represent the electrons (e.g., small rocks, coins, round candy, chocolate chips, etc.).

Semester B
Experiment: Measuring Chemical Reaction Rates (Unit 1)
Baking soda
Vinegar
Four plastic, water bottles (must all be same size)
Funnel
Teaspoon
Tablespoon
Four balloons (same size)
Food coloring (optional)
Piece of string (at least 12-inches long)
Ruler or meter stick

CHEMISTRY

Funnel
Teaspoon
Tablespoon
Four balloons (same size)
Food coloring (optional)
Piece of string (at least 12-inches long)
Ruler or meter stick

Experiment: Cabbage Indicator (Unit 3)
One head of red cabbage
Cutting board
Knife
Large pot
Bowl
Colander (recommended)
White plate or bowl (recommended)
Porous white paper or cardstock
Scissors
Dixie cups (recommended)
Eight household substance to test pH of

Experiment: Choose a Product (Final Chem Project) (Unit 4)
Supplies depend on what product students choose to create; options will include creating a children's book, essay, experiment, video, song, etc.

HONORS CHEMISTRY

Experiment: Cabbage Indicator (Unit 2)
One head of red cabbage
Cutting board
Knife
Large pot
Bowl
Colander (recommended)
White plate or bowl (recommended)
Porous white paper or cardstock
Scissors
Dixie cups (recommended)
Eight household substance to test pH of

Experiment: Volatility (Unit 3)
Acetone
Isopropyl alcohol
Mineral oil
Water
Four test tubes or other equal size glass containers
Grease marker or masking tape
Goggles
*Note: The liquids can be substituted if they are inaccessible.

Experiment: Preparation of a Polymer (Unit 4)
Three small beakers or glass containers
Stirring rod or similar item
Polyvinyl alcohol
Borax
Food coloring (optional)

*No experiments are assigned in Unit 5 because it is a review unit.

PHYSICS

The following items will be needed throughout the entire course (including the Honors course):
Access to research materials (internet, local library, etc.)
A metric ruler
A stopwatch or a timer (smartphone app is OK)
Microsoft© Excel© (or a similar program)
Microsoft © Word © (or a similar program)
Access to a computer with Adobe Flash

Semester 1
Experiment: Vectors (Unit 1)
No additional supplies needed

Experiment: Collisions (Unit 2)
Access to a computer with Adobe Flash
Four marbles (must be same size)
Small, paper cup
Scissors
Meter stick (preferably) or yard stick
Three - four cm thick book
Food or postage scale (optional)

Experiment: Latent Heat (Unit 3)
Two styrofoam coffee cups (8-oz)
Thermometer
Small piece of cardboard (to cover top of coffee cup)
Small piece of metal (i.e. bolt, nut, etc.)
Access to freezer
Measuring cup
Food or postage scale (if available)

Experiment: Choose a Product (Waves) (Unit 4)
Supplies depend on what product students choose to create; options will include creating a children's book, essay, experiment, video, song, etc.

Semester 2
Experiment: Pinhole Camera (Unit 1)
Small, cardboard box (i.e. shoe box)
Flat, black paint
Scissors or X-acto knife
Aluminum foil
Wax paper
Needle or pin
Tape (i.e. electrical, duck, or masking)
Lamp with removable shade
Object to view (i.e. tree, vehicle, etc.)

Experiment: Building an Electroscope (Unit 2)
Clear, glass jar
Jar lid (or piece of plastic to cover jar opening)
Electrical tape

HONORS PHYSICS

Semester 1
Experiment: Vectors (Unit 1)
No additional supplies needed

Experiment: Collisions (Unit 2)
Access to a computer with Adobe Flash
Four marbles (must be same size)
Small, paper cup
Scissors
Meter stick (preferably) or yard stick
Three - four cm thick book
Food or postage scale (optional)

Experiment: Latent Heat (Unit 3)
Two styrofoam coffee cups (8-oz)
Thermometer
Small piece of cardboard (to cover top of coffee cup)
Small piece of metal (i.e. bolt, nut, etc.)
Access to freezer
Measuring cup
Food or postage scale (if available)

Experiment: Choose a Product (Waves) (Unit 4)
Supplies depend on what product students choose to create; options will include creating a children's book, essay, experiment, video, song, etc.

Experiment: Pinhole Camera (Unit 5)
Small, cardboard box (i.e. shoe box)
Flat, black paint
Scissors or X-acto knife
Aluminum foil
Wax paper
Needle or pin
Tape (i.e. electrical, duck, or masking)
Lamp with removable shade
Object to view (i.e. tree, vehicle, etc.)

Semester 2
Experiment: Building an Electroscope (Unit 1)
Clear, glass jar
Jar lid (or piece of plastic to cover jar opening)
Electrical tape
Ten-inch piece of copper wire (14-gauge or more)
Straw
Scissors
Glue gun or liquid glue
Aluminum foil
Balloon
Wool sock
Other items that hold charge (i.e. shoes with rubber soles)

PHYSICS

Ten-inch piece of copper wire (14-gauge or more)
Straw
Scissors
Glue gun or liquid glue
Aluminum foil
Balloon
Wool sock
Other items that hold charge (i.e. shoes with rubber soles)

Experiment: Creating Circuits (Unit 3)
No additional supplies needed

Experiment: Choose a Product (Magnetism) (Unit 4)
Supplies depend on what product students choose to create; options will include creating a children's book, essay, experiment, video, song, etc.

HONORS PHYSICS

Experiment: Creating Circuits (Unit 2)
No additional supplies needed

Experiment: Choose a Product (Magnetism) (Unit 3)
Supplies depend on what product students choose to create; options will include creating a children's book, essay, experiment, video, song, etc.

Experiment:
Choose a Product (Atoms) (Unit 4)
Supplies depend on what product students choose to create; options will include creating a children's book, essay, experiment, video, song, etc.

*No projects in Unit 5, which is a review unit.

INTEGRATED PHYSICS AND CHEMISTRY

The following items will be needed throughout the entire course (including the Honors 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)

HONORS INTEGRATED PHYSICS AND CHEMISTRY

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

INTEGRATED PHYSICS AND CHEMISTRY

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 four 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

Semester B
Experiment: Motion Graphs (Unit 1)
A battery-powered toy car
Meter stick or tape measure
Masking or duct tape

Experiment: Potential and Kinetic Energy (Unit 2)
Cardboard tube split in half lengthwise
Box
Four marbles of different masses
Book

Experiment: Inclined Planes (Unit 2)
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 3)
A large Styrofoam cup
A small Styrofoam cup
A flat piece of Styrofoam

HONORS INTEGRATED PHYSICS AND CHEMISTRY

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

Semester B
Experiment: Potential and Kinetic Energy (Unit 1)
Cardboard tube split in half lengthwise
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

INTEGRATED PHYSICS AND CHEMISTRY

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 3)
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

HONORS INTEGRATED PHYSICS AND CHEMISTRY

Lamp with no shade and an incandescent light bulb

EARTH SCIENCE

Project: Soil Particles
1 ½ cups potting soil
½ cup of sand
Two wide-mouthed juice bottles with lids
Masking tape
A spoon

Project: Water Purification
One cup of dirt
A small glass
A large glass bowl
A clear plastic wrap
A small, round rock
Sunshine (check the weather, plan ahead)

Project: Greenhouse Effect
Two shoe boxes or any other boxes that are similar in size
Clear plastic wrap or a pane of glass
Two thermometers for measuring air temperatures
Two lamps (if performing without sunlight)

Project: Newton's Law
A bucket with a handle

BIOL1040 ENVIRONMENTAL SCIENCE (3 NNU credits)

Principles of Environmental Science: Inquiry & Applications*

AP CHEMISTRY

Chemistry by Zumdahl and Zumdahl*
Principles of Chemistry Lab Kit
Cracking the AP Chemistry Exam (Recommended)
ChemConnections Activity Workbook (Recommended)

AP BIOLOGY

Biology by Campbell*
Principles of Biology Lab Kit
Barron's AP Biology, 6th edition (Recommended)

*Enlightium Academy will assist the family in the purchase of this textbook. Families can choose to purchase the book on their own and Enlightium can apply a credit to the tuition for the price of the book within the price range on EA's required purchases list