



# Switched-On

SCHOOLHOUSE® 2012 EDITION

## Supply List

Physics

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**Please have a pencil, paper and access to a printer available for all projects by default.**

**UNIT 1: KINEMATICS**

Assignment # and Title	Project Summary	Video Demo	Materials Needed
3. Experiment: Making a Soda Straw Balance	In this experiment, you will learn to use materials from around the house to make a fairly accurate instrument.	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	<ul style="list-style-type: none"> <li>• 1 screw</li> <li>• 1 paper straw</li> <li>• 2 microscope slides</li> <li>• 1 needle</li> <li>• 1 ruler</li> </ul> <ul style="list-style-type: none"> <li>• 1 razor blade or scissors</li> <li>• 1 small wood block</li> <li>• 1 tongue depressor</li> <li>• 1 clothespin</li> </ul>
4. Experiment: Making a Simple Model of the Solar System	In this experiment, you will learn that a simple model for the solar system can be made by using a roll of adding machine tape and a ruler or meter stick.	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	<ul style="list-style-type: none"> <li>• 1 roll of adding machine tape</li> <li>• 1 ruler or meter stick</li> </ul>
7. Experiment: Oleic Acid	In this experiment, you will gain more experience in using scientific notation through determining the size of a molecule by means of measuring the thickness of a molecular layer.	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	<ul style="list-style-type: none"> <li>• 100 mL graduated cylinder</li> <li>• 50 mL graduated cylinder</li> </ul> <ul style="list-style-type: none"> <li>• large tray (or ripple tank)</li> <li>• 2 eye droppers</li> <li>• talcum powder</li> <li>• oleic acid</li> <li>• alcohol</li> <li>• meter stick</li> </ul>
10. Project: Tutorial for Making a Scatter Plot Using an Electronic Spreadsheet Program	In this project, you will be designing a scatter plot (a type of line graph) based on information given to you in a data table.	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	<ul style="list-style-type: none"> <li>• Microsoft® Excel®</li> </ul>
13. Experiment: Determining Reaction Time	In this experiment, you will determine your reaction time for catching a free falling object.	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	<ul style="list-style-type: none"> <li>• a partner</li> <li>• metric ruler or meter stick</li> </ul>
18. Special Project	Special Project assignments are used by teachers to create their own projects if needed.	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	N/A

**UNIT 2: DYNAMICS**

Assignment # and Title	Project Summary	Video Demo	Materials Needed
2. Report: Isaac Newton	In this assignment, you will prepare a report on the life of Sir Isaac Newton, his accomplishments, discoveries, books written, and honors received.	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	<ul style="list-style-type: none"> <li>Reference materials</li> </ul>
7. Experiment: Circular Motion	In this experiment, you will perform an investigation of uniform circular motion.	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	<ul style="list-style-type: none"> <li>glass or plastic tube (the barrel of a used stick pen can be used for this part)</li> <li>string</li> <li>2 stoppers</li> <li>alligator clip</li> <li>paper clip</li> <li>10 washers</li> <li>stopwatch</li> </ul>
10. Experiment: Explosion	In this experiment, you will perform an investigation into the conservation of momentum in an explosion.	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	<ul style="list-style-type: none"> <li>2 carts (one with a spring)</li> <li>2 clamps</li> <li>table, 1 1/2 m. long</li> <li>2 boards</li> <li>meter stick</li> <li>assorted standard masses</li> </ul>
13. Report: Solar System	In this assignment, you will briefly outline the chronological development of our solar system.	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	<ul style="list-style-type: none"> <li>Reference materials</li> </ul>
14. Experiment: Kepler's Law	In this experiment, you will perform an investigation of Kepler's Second Law.	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	<ul style="list-style-type: none"> <li>Sharp pencil</li> <li>Small ruler</li> </ul>
16. Special Project	Special Project assignments are used by teachers to create their own projects if needed.	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	N/A

**UNIT 3: WORK AND ENERGY**

Assignment # and Title	Project Summary	Video Demo	Materials Needed
2. Report: Nuclear Energy	In this assignment, you will present an unbiased report on the pros and cons of nuclear power plants.	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	<ul style="list-style-type: none"> <li>Reference materials</li> </ul>
6. Experiment: Simple Machines	In this experiment, you will use a lever as a simple machine, and calculate its mechanical advantage and efficiency.	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	<ul style="list-style-type: none"> <li>glass or plastic tube (the barrel of a used stick pen can be used for this part)</li> <li>string</li> <li>2 stoppers</li> <li>alligator clip</li> <li>paper clip</li> <li>10 washers</li> <li>stopwatch</li> </ul>
10. Experiment: Latent Heat	In this experiment, you will determine an experimental value for the latent heat of fusion of water.	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	<ul style="list-style-type: none"> <li>aluminum calorimeter (or an aluminum tumbler and a Styrofoam cup)</li> <li>analytical balance</li> <li>paper towel</li> <li>crushed ice</li> <li>Celsius thermometer</li> <li>cardboard lid</li> </ul>
13. Special Project	Special Project assignments are used by teachers to create their own projects if needed.	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	N/A

**UNIT 4: INTRODUCTION TO WAVES**

Assignment # and Title	Project Summary	Video Demo	Materials Needed
2. Experiment: Wave Speeds	In this experiment, you will perform an investigation of the effect of the medium on wave speeds.	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	<ul style="list-style-type: none"> <li>Slinky®</li> <li>Stopwatch or sweep second hand</li> <li>Meter stick</li> </ul>
3. Experiment: Pulses	In this experiment, you will perform an investigation of pulses.	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	<ul style="list-style-type: none"> <li>Slinky®</li> </ul>
6. Experiment: Waves	In this experiment, you will observe the reflection of waves from a barrier in a ripple tank.	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	<ul style="list-style-type: none"> <li>ripple tank with dampers</li> <li>high intensity light source</li> <li>white paper</li> <li>protractor</li> <li>electrical wave generator</li> <li>paraffin blocks</li> <li>thick wooden dowel</li> </ul>
7. Experiment: Bending Waves	In this experiment, you will observe the bending of waves across the boundary between "different media".	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	<ul style="list-style-type: none"> <li>ripple tank</li> <li>light source</li> <li>white paper</li> <li>wave generator</li> <li>glass plate</li> <li>washers</li> <li>paraffin blocks</li> </ul>
10. Experiment: Doppler Effect	In this experiment, you will observe the Doppler effect with water waves.	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	<ul style="list-style-type: none"> <li>ripple tank</li> <li>light source</li> <li>white paper</li> <li>wave generator</li> </ul>
12. Special Project	Special Project assignments are used by teachers to create their own projects if needed.	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	N/A

**UNIT 5: LIGHT**

Assignment # and Title	Project Summary	Video Demo	Materials Needed
3. Experiment: Light Angles	In this experiment, you will study the angles that light makes as it is incident on a mirror.	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	<ul style="list-style-type: none"> <li>small purse-sized rectangular or square mirror</li> <li>pencil</li> <li>flashlight</li> <li>sheet of paper</li> <li>ruler</li> <li>protractor</li> <li>ball bearing</li> </ul>
4. Experiment: Water Refraction	In this experiment, you will examine the refraction of light through water.	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	<ul style="list-style-type: none"> <li>semicircular plastic dish</li> <li>ruler</li> <li>protractor</li> <li>15 pins</li> <li>sheet of graph paper</li> <li>corrugated cardboard</li> </ul>
7. Experiment: Convergence	In this experiment, you will observe convergence of waves, using a ripple tank.	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	<ul style="list-style-type: none"> <li>ripple tank</li> <li>rubber hose</li> <li>wooden dowel</li> <li>light source</li> </ul>
11. Experiment: Light Observations	In this experiment, you will observe light through a single narrow slit and measure the width of the slit and the frequency of light.	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	<ul style="list-style-type: none"> <li>razor blade</li> <li>lamp</li> <li>red filter</li> <li>blue filter</li> <li>meter stick</li> <li>stand</li> <li>liquid graphite</li> <li>2 glass slides</li> </ul>
13. Special Project	Special Project assignments are used by teachers to create their own projects if needed.	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	N/A

**UNIT 6: SEMESTER REVIEW AND EXAM**

Assignment # and Title	Project Summary	Video Demo	Materials Needed
N/A	N/A	N/A	N/A

**UNIT 7: STATIC ELECTRICITY**

Assignment # and Title	Project Summary	Video Demo	Materials Needed
3. Experiment: Static Electricity	In this experiment, you will witness the transfer of electrons from one object to another for yourself.	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	<ul style="list-style-type: none"> <li>• glass wand</li> <li>• Bakelite (or hard rubber) wand</li> <li>• silk cloth</li> <li>• stand</li> </ul> <ul style="list-style-type: none"> <li>• pith ball</li> <li>• silk thread</li> <li>• wool cloth (or cat's fur)</li> </ul>
11. Special Project	Special Project assignments are used by teachers to create their own projects if needed.	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	N/A

**UNIT 8: ELECTRIC CURRENTS**

Assignment # and Title	Project Summary	Video Demo	Materials Needed
2. Project: Research and Report	In this assignment, you will write a report on all four men who contributed to the development of electrical theory.	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	<ul style="list-style-type: none"> <li>• Reference materials</li> </ul>
10. Special Project	Special Project assignments are used by teachers to create their own projects if needed.	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	N/A

**UNIT 9: MAGNETISM**

Assignment # and Title	Project Summary	Video Demo	Materials Needed
2. Experiment: Magnetic Fields	In this experiment you will be able to answer three questions about magnetic field lines.	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	<ul style="list-style-type: none"> <li>• 2 bar magnets</li> <li>• 3 sheets of stiff cardboard</li> <li>• iron filings</li> </ul>
6. Experiment: Magnetic Fields	In this experiment, you will determine the shape of the magnetic field around a long, straight wire.	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	<ul style="list-style-type: none"> <li>• copper wire, about 1 m long</li> <li>• small porcelain lamp socket and bulb</li> </ul> <ul style="list-style-type: none"> <li>• wire cutter or 8-inch scissors</li> <li>• drycell</li> <li>• compass</li> </ul>
11. Special Project	Special Project assignments are used by teachers to create their own projects if needed.	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	N/A

**UNIT 10: ATOMIC AND NUCLEAR PHYSICS**

Assignment # and Title	Project Summary	Video Demo	Materials Needed
2. Report: Early Atomic Physics	In this assignment, you will research and describe the impact of early atomic theorists on the development of society, economics and technology.	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	<ul style="list-style-type: none"> <li>Reference materials</li> </ul>
12. Special Project	Special Project assignments are used by teachers to create their own projects if needed.	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	N/A

**UNIT 11: REVIEW**

Assignment # and Title	Project Summary	Video Demo	Materials Needed
17. Special Project	Special Project assignments are used by teachers to create their own projects if needed.	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	N/A

**UNIT 12: SEMESTER REVIEW AND EXAM**

Assignment # and Title	Project Summary	Video Demo	Materials Needed
N/A	N/A	N/A	N/A

**UNIT 13: FINAL EXAM**

Assignment # and Title	Project Summary	Video Demo	Materials Needed
N/A	N/A	N/A	N/A