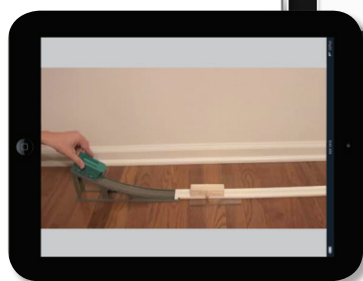
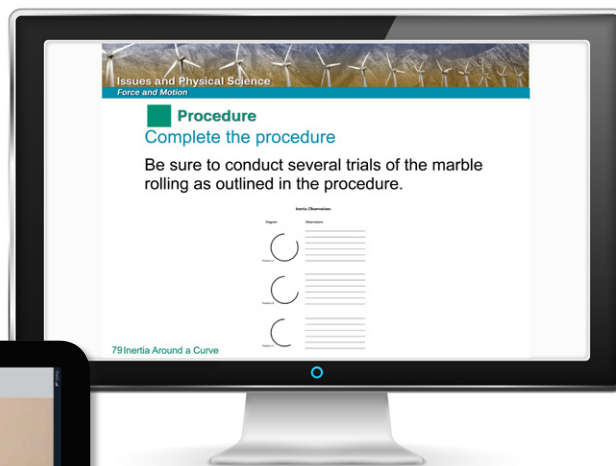


All students need to develop an understanding of science and technology to make informed personal and community decisions. Using **ISSUES AND PHYSICAL SCIENCE**, students learn how to gather and interpret scientific evidence about issues of interest to them and their community. As a result, they begin to appreciate the power and also some of the limitations of science. They also begin to recognize that science is much more than a set of answers to be learned, but rather, a way of asking questions.

Issues and Physical Science may be purchased as a full-year, discipline-based program in one hard bound book or as units to create a customized scope and sequence (on the following pages).

ACCESS TO MY LAB-AIDS ONLINE BOOKSHELF

- LABsent sheets & videos for absent students
- Editable PowerPoints for each lesson
- ExamView
- Spanish text and student sheets
- Online Student and Teacher books
- Supplemental Resources
- And more



- STEM LITERACY
- REFILLABLE SPANISH
- HALF KIT

ISSUES AND PHYSICAL SCIENCE FULL-YEAR PROGRAM	ITEM NO.	PRICE
COMPLETE EQUIPMENT PACKAGE (materials for up to 5 classes of 32 students, mobile storage cart, TE/TR DVD, My Lab-Aids Bookshelf for one teacher, includes 7-year online access to: online Teacher's Edition and Resources, online Student Book in English/Spanish (E/S), student sheets (E/S), visual aids (E/S), PowerPoints, ExamView, LABsent, and supplemental resources)	IAPS-2000	\$9,795.00
MY LAB-AIDS BOOKSHELF FOR STUDENTS (access to online English and Spanish student books, LABsent, student sheets, resource supplements; 7 years)	IAPS-20LSP-7	\$89.00
STUDENT BOOK (hardcover)	IAPS-2SB	\$89.00
TEACHER'S EDITION AND RESOURCES (printed copy)	IAPS-2TETR	\$192.50
SCIENCE LAB NOTEBOOK (bulk pricing up to 55% off)	SLN-1	\$8.95
Small class sizes for 5 sections of 16 students might consider our COMPLETE EQUIPMENT PACKAGE FOR 16 STUDENTS PER CLASS	IAPS-2H-2000	\$5,545.00

For custom orders and standards correlations by state please see the "Your State" page on lab-aids.com to contact your state's Science Curriculum Sales Specialist.



PROGRAM COMPONENTS

Individual components combine to form a complete learning system.

- Student book that seamlessly integrates investigations, labs, and readings into the context of the issue's storyline
- Equipment to carry out each embedded activity for 5 classes of 32 students (in groups of four, pairs or individuals)
- *My Lab-Aids* online student and teacher bookshelf portals
- Student Science Lab notebook

Materials needed for embedded labs and activities are part of the Complete Equipment Package

Physical and Chemical Properties of Materials • Activity 14

MATERIALS

For each group of four students

- 1 9-oz. plastic cup
- 1 stir stick
- 1 glass scratch plate
- 1 battery harness and light bulb
- 1 9-volt battery
- 1 dropper bottle of 1M hydrochloric acid
- 1 strip each of:
 - aluminum
 - copper
 - iron
 - formica plastic
 - polystyrene plastic
- 1 piece of ceramic tile
- 1 piece of wood
- 1 glass rod
- 1 piece of granite
- 1 piece of limestone
- 1 small carbon rod
- water
- paper towels

For each student

- 1 pair of safety goggles

SAFETY

Wear safety eyewear. If a material does not bend easily, do not use more force because you could break or tear it. Watch out for sharp edges.

PROCEDURE

1. Review how to test the properties of materials by examining the table, "Testing Physical and Chemical Properties," on the next page.
2. You will test the properties of 11 materials. Make a data table in your science notebook to record your observations.
3. Put the materials you have tested into groups based on their properties. Each group must have one, two, or more properties in common. Record your groupings in your science notebook.

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Activity 14 • Physical and Chemical Properties of Materials

PHYSICAL PROPERTIES		
Properties	Procedure	Interpreting Test Results
Color	<ol style="list-style-type: none"> 1. Observe the object material. 2. Record its color. 	Describe your observations in detail.
Light transmission	<ol style="list-style-type: none"> 1. Hold the material above some printed material, such as the facing page. 2. Observe and record whether you can: <ul style="list-style-type: none"> • see print clearly through the material. • see the print, but it is blurry. • not see the print. 	It is TRANSPARENT if you can see through it clearly. It is TRANSLUCENT if the print is blurry. It is OPAQUE if you cannot see through it at all.
Luster	<ol style="list-style-type: none"> 1. Hold the material near a good source of light. 2. Observe how well light reflects off your material. 3. Record whether it is very shiny, somewhat shiny, or not shiny. 	It is BRILLIANT if it reflects a lot of light and is very shiny. It is GLASSY if it reflects some light and is somewhat shiny. It is DULL if it does not reflect any light and is not shiny.
Texture	<ol style="list-style-type: none"> 1. Feel the material. 2. Record how it feels. 	Describe your observations in detail. Words like <i>smooth</i> , <i>rough</i> , <i>grainy</i> , and others can be used to describe the texture of a material.
Flexibility	<ol style="list-style-type: none"> 1. Try to bend the material gently. 2. Record how easily it bends. 	If it does not bend, it is NOT FLEXIBLE . If it bends slightly, it is SOMEWHAT FLEXIBLE . If it bends easily, it is VERY FLEXIBLE .
Hardness relative to glass	<ol style="list-style-type: none"> 1. Gently press the material across the surface of a glass scratch plate. 2. If a mark appears, see if you can rub it away. 3. Record your observations. 	If a scratch appears that is not easily rubbed away, the material is HARDER THAN GLASS . If no scratch appears, or if the scratch is easily rubbed away, the material is SOFTER THAN GLASS .

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