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).
**PHYSICAL PROPERTIES**

<table>
<thead>
<tr>
<th>Properties</th>
<th>Procedure</th>
</tr>
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</table>
| **Color**  | 1. Observe the object material.  
2. Record its color.  
3. Describe your observations in detail. |

*Describe your observations in detail.*

| **Light transmission** | 1. Hold the material above some printed material, such as the facing page.  
2. Observe and record whether you can:  
• 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** | 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** | 1. Feel the material.  
2. Record how it feels.  
3. Describe your observations in detail.  

Words like smooth, rough, grainy, and others can be used to describe the texture of a material. |

| **Flexibility** | 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** | 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**. |

**SAFETY**

When handling materials, be careful not to break or damage the materials. Be sure not to injure yourself or others. Watch out for sharp edges. **Wear safety eyewear.**

**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 your materials into groups based on their properties. Each group must have one, two, or more properties in common. Record your groupings in your science notebook.  

**MATERIALS**

For each group of four students:

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

For each student:

- pair of safety goggles

**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**