Pearson Custom for School Science
Featuring labs drawn from Pearson’s research-based Interactive Science program

Developing supplemental lab material for middle school science classes on your own can be an expensive and time-consuming process. The result? Less time spent on quality teaching.

Building your own science lab manuals is an effective and affordable way to bring interactive learning experiences into your curriculum. With more than 1,000 labs to choose from across 12 neatly-organized modules, Pearson gives you high-quality content up-front, so you need only think about which labs will be most meaningful in your classroom.

With Pearson Custom for School Science, the emphasis is on hands-on, interactive and engaging learning experiences, and on providing the most stimulating learning environment possible for your students. Build unique lab manuals for your middle school science class that complement the engaging content found in the Pearson Interactive Science program.

How Does Pearson Custom for School Science Work?

With Pearson Custom for School Science, you can build your lab manual in just 3 easy steps:

1. PREPARE
   Browse through the Pearson Custom Library, which features more than 1,000 Pearson Interactive Science labs, easily searchable by Module, Chapter, or Lab Type. Then select which content you’d like to include and upload it into your document. You will even have the option to select which cover to include on your perfect-bound manual.

2. CONFIRM
   Review your customized content, ensuring everything is in the right order and meets the needs of your class, before confirming that you are satisfied with your lab manual.

3. PRODUCE
   Once you have confirmed your selections, you will receive your custom ISBN. This is the ISBN you will use to place your order. Once your order is placed, Pearson handles the remainder of the process.

Design Your Own Science Lab Manuals with Pearson Custom for School Science
Why Use *Pearson Custom for School Science*?

**SAVE TIME**
With three simple steps, we’ve provided a streamlined, time-efficient way for you to build, and instantly preview your lab manuals. Pearson provides you with premium content that’s easily-searchable, and customizable to the needs of your class.

**DO IT YOUR WAY**
From selecting your content and cover design, to choosing how you would like to bind your manual, you maintain control of the process. If you’re unsure how your lab manual will look, Pearson allows you to instantly preview your custom manual.

**CONTROL COSTS**
Creating custom lab manuals for the topics you want allows you to keep costs in check.

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**In-Class Lab Support for Teachers**
For extra tips and information on using your lab manual and implementing lab activities into your classes, Pearson offers convenient Teacher Notes for each lab included in the manual you publish. These are available to view or download online.

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### Teacher Notes

#### How Do Living Things Vary?

**Group Size:** Individuals or pairs  
**Class Time:** 15 minutes  
**Alternative Materials:** Leave or dried pine boughs can be used in place of sunflower seeds. Scissors and scissors can be used in place of hand lenses.

**Procedure Tips**
1. Because the sunflower seeds look very similar, be sure students take data on each seed in an organized manner so that they do not lose track of seeds. Consider having students tape or glue each seed onto the fist column of their data table after they have observed it.
2. Tell students that differences among the seeds in their samples may be slight and hard to detect. Advise them to examine the seeds carefully.

**Sample Data**
Students will find that seeds in their samples differ in size, shape, color, and number of stripes. See the sample data table.

**Answers**
1. Look for answers that include specific traits that are different among the seeds and specific traits that are similar. For example, all of the seeds had the same shape, but none of the seeds had the same number of stripes.
2. Sample Answer: To group the seeds, choose a trait that some seeds share, such as a certain length, and group them together. Seeds of other lengths would be likewise grouped in other groups.

<table>
<thead>
<tr>
<th>Seed #</th>
<th>Length</th>
<th>Width</th>
<th>Shape</th>
<th>Color</th>
<th>Number of Stripes</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>15 mm</td>
<td>6 mm</td>
<td>oval</td>
<td>Black</td>
<td>10</td>
</tr>
<tr>
<td>2</td>
<td>16 mm</td>
<td>7 mm</td>
<td>oval</td>
<td>Black</td>
<td>12</td>
</tr>
</tbody>
</table>

*Use this space for planning and ideas.*
Pearson Custom for School Science lab manuals are designed to safely guide you through the process of scientific inquiry with your class, from start to finish. Each lab contains a materials list, as well as an optional Laboratory Safety Rules section, which includes:

- A Laboratory Safety Contract for each student to sign
- A list of Safety Symbols to help with recognition of potential hazards in the lab environment
- A laboratory safety skills Checkup and Assessment

Lab Types

Pearson Custom for School Science lab manuals cover a diverse array of modules and learning areas, catered to suit various learning styles. Teacher Notes are available online to guide you through the lab process, and keep you on track as you lead your students to scientific discovery.

Manuals feature:

- **Inquiry Warm-Ups**: Short, focused, hands-on activities that focus on one specific skill related to the scientific process, and are designed to spark the curiosity of students.
- **Quick Labs**: Engaging, 20-minute, hands-on segments in which students use basic laboratory equipment and materials to develop one or more skills related to the scientific process.
- **Lab Investigations**: Longer (full class period or more) investigations that include directed inquiries and open inquiries, as well as pre-lab and post-lab activities, which often require students to answer specific questions and report on their findings. These investigations focus on two or more skills related to the scientific process.
Student Safety Test: Recognizing Laboratory Safety

Pre-Lab Discussion
An important part of your study of science will be working in a laboratory. In the laboratory, you and your classmates will learn about the natural world by conducting experiments. Working directly with household objects, laboratory equipment, and even living things will help you to better understand the concepts you read about in your textbook or in class. Most of the laboratory work you will do is quite safe. However, some laboratory equipment, chemicals, and specimens can be dangerous if handled improperly. Laboratory accidents do not just happen. They are caused by carelessness, improper handling of equipment, or inappropriate behavior.
In this investigation, you will learn how to prevent accidents and thus work safely in a laboratory. You will review some safety guidelines and become acquainted with the location and proper use of safety equipment in your classroom laboratory.

Problem
What are the proper practices for working safely in a science laboratory?

Materials (per group)
Science textbook
Laboratory safety equipment (for demonstration)

Procedure
Part 1. Reviewing Laboratory Safety Rules and Symbols
1. Carefully read the list of laboratory safety rules.
2. Special symbols are used throughout this resource to call attention to investigations that require extra caution. Use the previous pages as a reference to describe what each symbol means in numbers 1 through 8 in Part 1 under Observations.

Part 2. Location of Safety Equipment in Your Science Laboratory
1. The teacher will point out the location of the safety equipment in your classroom laboratory. Pay special attention to instructions for using such equipment as fire extinguishers, eyewash fountains, fire blankets, safety showers, and items in first-aid kits. Use the space provided in Part 2 under Observations to list the location of all safety equipment in your laboratory.
How Do Living Things Vary?
Variety exists in populations of daffodils, bluebirds, and even amoebas. In this activity, you will investigate how a population of living organisms can vary, even when they appear to be identical at first glance.

**Materials**
- 10 sunflower seeds
- ruler
- hand lens

**Procedure**
1. In this activity, you will make observations of 10 sunflower seeds. On a separate paper, make a data table that will hold all of the observations outlined in Steps 2 and 3.
2. Use a ruler to measure and record the length and width of each sunflower seed.
3. Use a hand lens to record the shape, color, and number of stripes for each sunflower seed.

**Think It Over**
1. In what ways are the seeds in your sample different from one another? In what ways are they similar?

2. How could you group the seeds based on their similarities and differences?

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Bird Beak Adaptations
An adaptation is a trait that increases an organism’s ability to survive and reproduce. In this activity, you will model and compare different types of bird beaks in order to make inferences about the birds’ habitats.

**Materials**
- paper plate
- plastic cup
- raisins
- birdseed
- paper clips
- forceps
- cloth/wool
- stopwatch

**Procedure**
1. Scatter a small amount of birdseed on a paper plate. Scatter some raisins on the plate to represent insects.
2. Obtain a variety of objects such as paper clips, hair clips, and cloth/wool. Pick one object to use as a “beak.”
3. Have your partner time you for 10 seconds while you pick up as many seeds as you can with your “beak” and drop them into a cup.
4. Now see how many “insects” you can pick up and drop into a cup in 10 seconds using the same “beak.”
5. Choose a different “beak” and repeat Steps 3 and 4.

**Thinking It Over**
1. Before you started the activity, what type of beak did you think would work well for seeds? For insects?

2. When would a beak that is good at picking up insects be considered an adaptation?

3. What can you infer about a bird’s habitat given the shape of its beak? Give an example:
Part 1: A White Sand Environment

1. One student should choose construction paper of one color and make 50 "mouse" cards, as described in Table 1. The second student should choose a different color of construction paper and make 25 "event" cards, as described in Table 2. The third student should record all the data in the data table.

<table>
<thead>
<tr>
<th>Table 1: Mouse Cards</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number</td>
</tr>
<tr>
<td>--------</td>
</tr>
<tr>
<td>25</td>
</tr>
<tr>
<td>25</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Table 2: Event Cards</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number</td>
</tr>
<tr>
<td>--------</td>
</tr>
<tr>
<td>4</td>
</tr>
<tr>
<td>1</td>
</tr>
<tr>
<td>1</td>
</tr>
<tr>
<td>18</td>
</tr>
</tbody>
</table>

Data Table

<table>
<thead>
<tr>
<th>Type of Environment</th>
</tr>
</thead>
<tbody>
<tr>
<td>White Mice</td>
</tr>
<tr>
<td>Brown Mice</td>
</tr>
<tr>
<td>White Mice</td>
</tr>
<tr>
<td>Brown Mice</td>
</tr>
</tbody>
</table>

2. Mix up the mouse cards.

3. Begin by using the cards to model what might happen to a group of mice in an environment of white sand dunes. Record the environment in the data table.

4. Randomly choose two mouse cards. Allele pair WW and Ww produce a white mouse. Allele pair WW produces a brown mouse. Record the color of the mouse with a tally mark in the data table under "Population" for generation one.

5. Randomly choose an event card. An "S" card means the mouse survives. A "D" or a "P" card means the mouse dies. A "C" card means the mouse dies if its color contrasts with the white sand dunes. (Only brown mice will die when a "C" card is drawn.) Record each death with a tally mark in the data table.

6. If the mouse lives, put the two mouse cards in a "live mice" pile. If the mouse dies, put the card in a "dead mice" pile. Put the event card at the bottom of its pack.

7. Repeat Steps 4 through 6 with the remaining mouse cards to study what happens to the first generation of mice. Record your results.

8. Leave the dead mice cards untouched. Mix up the cards from the live mice pile. Mix up the event cards.

9. Repeat Steps 4 through 8 for the second generation. Then repeat Steps 4 through 7 for the third generation.

Part 2: A Forest Floor Environment

10. Predict how the data would differ if the mice in this model lived on a dark brown forest floor.

11. Make a new copy of the data table. Then use the cards to test your prediction. Remember that a "C" card now means that any mouse with white fur will die.
TOPICS

Pearson Custom for School Science lab manuals compliment the Interactive Science program as well as any middle school science program. They are designed around the following, middle-school appropriate subject areas:

Astronomy and Space
Cells and Heredity
Earth's Structure
Earth's Surface
Ecology and the Environment
Forces and Energy
Human Body Systems
Introduction to Chemistry
Science and Technology
Sound and Light
The Diversity of Life
Water and the Atmosphere
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