INTRODUCTION
In 1967, an earthquake with a magnitude of 6.6 hit Caracas, Venezuela. This earthquake caused $50 million in property damage. Many houses and high-rise buildings were damaged or totally destroyed. In 1985, a strong earthquake struck Mexico City. It caused massive property damage and 9500 deaths. What did these two earthquakes have in common? Both Caracas and Mexico City are built on soft lakebed sediments rather than on packed soil or hard rock.

How do buildings built on loose soil respond to ground shaking? In this lesson, you will design and conduct an experiment to answer this question. Your teacher will use the report of your work in this experiment to assess what you have learned about earthquakes. You will also answer a series of questions that cover the information presented in Lessons 10 through 16.

OBJECTIVES FOR THIS LESSON
Design and conduct an experiment to investigate the effect of loose soil versus packed soil on the way model buildings respond to shaking.

Review and reinforce concepts and skills from Part 2: Earthquakes.

Use knowledge and data interpretation skills to answer questions.
Getting Started

1. Listen as your teacher tells about the assessment.

2. The assessment will have two parts: Part A is a performance-based assessment and Part B is a set of multiple-choice questions.

Assessment Part A

PROCEDURE

1. Your teacher will distribute Inquiry Master 17.1a: Earthquakes Performance-Based Assessment (Part A) to each pair of students. Do not write on this master. It will be used by other classes.

2. Your teacher will give you your own copy of Student Sheet 17.1a: Earthquakes Performance-Based Assessment Planning and Observation Sheet (Part A). Record your plan for the experiment on the first page of this sheet before beginning the lab. You will record your observations and conclusions on the other pages.

MATERIALS FOR LESSON 17

For you

<table>
<thead>
<tr>
<th>Quantity</th>
<th>Description</th>
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<tbody>
<tr>
<td>1</td>
<td>copy of Student Sheet 17.1a: Earthquakes Performance-Based Assessment Planning and Observation Sheet (Part A)</td>
</tr>
<tr>
<td>1</td>
<td>copy of Inquiry Master 17.1b: Earthquakes Written Assessment (Part B)</td>
</tr>
<tr>
<td>1</td>
<td>copy of Student Sheet 17.1b: Earthquakes Written Assessment Answer Sheet (Part B)</td>
</tr>
</tbody>
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For you and your partner

<table>
<thead>
<tr>
<th>Quantity</th>
<th>Description</th>
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<tbody>
<tr>
<td>1</td>
<td>copy of Inquiry Master 17.1a: Earthquakes Performance-Based Assessment (Part A)</td>
</tr>
<tr>
<td>2</td>
<td>medium-sized plastic cups</td>
</tr>
<tr>
<td>1</td>
<td>large plastic cup of sand, with lid</td>
</tr>
<tr>
<td>1</td>
<td>small cup of diluted glue, with lid</td>
</tr>
<tr>
<td>6</td>
<td>pennies</td>
</tr>
<tr>
<td>1</td>
<td>measuring spoon</td>
</tr>
<tr>
<td></td>
<td>Paper towels</td>
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3. Your teacher will show you one set of materials. Although you will share a set of materials with another student, you will complete the written portion of the assessment individually.

4. Discuss with your teacher how you will be assessed on your work in this lesson.

5. Collect your materials. Check them against the materials list to make certain you have everything before you begin.

6. Complete Part A of the assessment. Give the inquiry master and the student sheet to your teacher when you are finished.

7. Clean up by doing the following:
   A. Pour the dry sand back into the large plastic cup.
   B. Pour your sand-and-glue mixture into the large container your teacher has set out.
   C. Top off the large plastic cup with new dry sand from the distribution center.
   D. Refill your small cup with diluted glue. Replace the lid.
   E. Wipe off the pennies and empty plastic cups with the paper towels.
Assessment Part B

1. Your teacher will give you one copy of Inquiry Master 17.1b: Earthquakes Written Assessment (Part B) and an answer sheet. Read the inquiry master. Discuss with the class what you will need to do to complete Part B of the assessment.

2. Begin Part B of the assessment. Write your answers on the answer sheet.

3. When you are finished, turn in Inquiry Master 17.1b and the answer sheet. If you finish your work early, look through Part 3: Volcanoes.

Reflecting on What You’ve Done

1. Review with your teacher your responses to the assessment questions.

2. Add any other ideas or questions you may have about earthquakes to your group’s concept map and brainstorming list from Lesson 1.