Introduction

This section contains a set of sample Earth science investigations that are suitable for various age levels. Each investigation comes with a materials list, directions, tips on preparation, safety information and handouts for students. There are additional investigations on the AAPG YEA web site, as well as the AGI Education and Outreach web sites at Earth Science Week investigations and K-5 GeoSource investigations. AGI will continue to develop activities for this handbook, which you can download from the AGI’s professional development web site and add to this web site. Here is a table of the current Investigations that we have on sample. Check back for more updates!

<table>
<thead>
<tr>
<th>Investigation</th>
<th>Grade Level</th>
<th>Lesson Time</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dinosaur Footprints</td>
<td>3, 4, 5, 6, 7, 8, 9</td>
<td>45 minutes</td>
</tr>
<tr>
<td>Identifying Minerals</td>
<td>3, 4, 5, 6</td>
<td>45 minutes</td>
</tr>
<tr>
<td>Ancient Environments</td>
<td>5, 6, 7, 8</td>
<td>45 minutes</td>
</tr>
<tr>
<td>Earthquake Waves</td>
<td>4, 5, 6, 7, 8</td>
<td>35 minutes</td>
</tr>
<tr>
<td>Locating an Earthquake's Epicenter</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Use Earthquake data to find the epicenter of an earthquake by applying their seismic knowledge and mathematical skills.
Testing Soil Samples
Using indicator solutions to find the pH and concentrations of nitrates, phosphates and potassium in three soil samples.

Cookie Grid Survey
Using buried cookie bits as an analogy for one method paleontologists use in finding and sorting potential fossils.

How Does the Rock Cycle Work
Examine how heat and pressure affect rocks by making observations of crayon shavings that are placed under heat and pressure.

Dinosaur Evolution
Using images and or dinosaur models to identify key features of each dinosaur and being able to explain how that attribute is an adaptation to their environment.

Soil Detective Challenge
Investigate the properties and origins of soil by making and recording observations on different soil samples.

Thinking About Systems
Understand how systems work by examining objects that work as a system.

Introduction to Earth Systems
Students will be able to make connections between the different spheres of the Earth system by observing their outdoors and categorizing their observations.

**Building and Testing Earthquake Resistant Structures**

Build models of structures and simulating earthquakes on them to examine how different magnitudes of earthquakes affect structures in different ways.

**Modelling Convection**

Understanding how convection moves many Earth processes by simulating the convection process with beets and water.