

## 7.2.4 e4 Sorting Earth's Materials Narrative

<b>Time:</b> 25-35 minutes	<b>Anchor Phenomena:</b> Seismic waves move in interesting ways through the Earth.
<b>Big Idea:</b> Earth's materials sort by density. Observing density gives us a better understanding of how the layers separate and why the seismic waves move differently.	
<b>CCCs</b> <u>Structure and Function</u> , <u>Patterns</u>	<b>Practices</b> <b>Ask Questions, Construct an Explanation, Develop Models</b>

### EPISODE SNAPSHOT

Students research the density of materials found in Earth's interior and determine which layer these would be found.

### GATHERING

Students are presented with samples of different Earth materials: metals like iron, zinc, tin, aluminum, and copper; and rocks such as basalt, granite, and slate. They calculate the density of these materials and compare those densities to the densities of Earth's layers.

### REASONING

Using their density information, students must determine which layers of the earth each of the Earth materials would be found. They must also compare the densities of those rocks found in the crust to the materials normally found deeper in the earth.

### COMMUNICATE

Students answer questions about these rocks and will use this information and understanding in the next episode when they create a scale model of the Earth.

### LAB SETUP

If possible, provide a set of rocks and metals for each lab station, as well as the materials needed to perform water displacement and measure mass. If you do not have enough of these materials, the metals and rocks can be divided up by stations and groups can move from station to station to measure each one.

Before having students start the lab, make sure they have an understanding of measuring mass and performing water displacement.

<b>Assessment:</b> Students should be able to place materials in the proper layers of the earth based on their density.	<b>Materials, resources, handouts, etc.</b> <ul style="list-style-type: none"> <li>• <a href="#">7.2.4 e4 Sorting Earth's Materials</a></li> <li>• Rock samples that can have their volume determined by water displacement: basalt, granite, slate</li> <li>• Metal samples that can have their volume determined by ruler measurement or water displacement: iron, zinc, tin, aluminum, copper</li> <li>• Rulers</li> <li>• Water displacement materials, depending on method.</li> </ul>
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