

## **Relative Ages of Delaware's Rocks**

**Category : Classroom Activities**

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In this activity students will reconstruct a geologic column for the rocks and sediments found in Delaware.

**Topic – Determining Relative Age**    **Objectives:** Students will use geologic information discovered from various locations of a particular state to determine the state's geologic column (a chronologically ordered list of rock layers). Students will use "state expert" research or website references to discover clues to how various rock layers formed, and infer from these clues the past environments present in that state.    **Bellwork:** Students will play the "Where Am I" game for one of the locations in the following activity.    **Lesson Introduction:** Review with students the basic historical geology principles such as Superposition, Uniform Processes, Inclusion, Cross-cutting Relationships, and Original Horizontality. Make sure students are also familiar with various types of Unconformities and the problems they create when trying to reconstruct the geologic history of an area.    **Activity One:** Make a "sandwich" using various edible "rock layers". Make sure the different edible layers are different colors (food coloring works wonders). Use this to review the principles of Original Horizontality and Superposition.    **Activity Two:** Using the research done by the "state experts" and / or website data posted from Randy and Sheri's discoveries, construct rock outcrops from three or four different sites. Make note of any rock layers containing fossils or other special characteristics. Locate these outcrops on a map of the state being studied. (AFTER MR. STEELE'S CLASS COMPLETES THIS LESSON THERE WILL BE A SAMPLE TO USE AS A GUIDE). BELOW IS A ROUGH EXAMPLE OF WHAT THE OUTCROPS MIGHT LOOK LIKE:

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Have students cut strips of white paper to represent each of the rock layers in each of the map outcrops. Each should be labeled with a letter and with the correct rock symbol (dots for sandstone, dashes for shale, circles and dots for conglomerates or breccias, bricks for precipitates, triangles for igneous, and #8776; for metamorphic).    **Activity Three:** Have students separate rock layers where there has been erosion (producing an unconformity) – shown in the diagrams by curvy lines. Without changing the order of the rock layers, and only moving them apart at unconformities, students should move the rock layers of each column up or down until they get the same symbol going all the way across horizontally.    **Activity Four:** Make a "geologic column" encompassing all locations for the entire state. Do this by listing the rock layers from top (youngest) to bottom (oldest). Rock layers at the same level are the same age. If any fossils exist at any elevation, make a note of that as well.    **Activity Five:** Using the information from the treckusa website, or provided by the "state experts," write a series of paragraphs describing the geologic history the state being studied. Start with the oldest environment found in your rock record and end with the present (surface) geology.    **Activity Six:** Review by giving students a diagram with labeled rock layers and asking them to list the rock layers in order from oldest to youngest. Be sure to include inclusions, faults, and intrusions in the diagram. undefinedundefinedundefined

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