
**River in a box: sedimentary geology
with modified Hele-Shaw cells**

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There are many challenges in teaching sedimentary geology. As geologists we sometimes forget how foreign many of the concepts are to the non-expert: principles of superposition and geologic time, weathering, erosion, transportation, deposition, and reworking. But such concepts are vital to understand if we want to explain petroleum basins or offshore geology.

How then can we introduce these concepts before resorting to textbooks, photographs or computer models? How can we build on common-sense intuitive understanding about moving water and the sedimentary patterns observable all around us in rocks, the landscape, and on the beach? One teaching tool that can help comes in the form of a plexiglass box with ports to allow inflow and outflow of sediment-laden water.

The design is based on a laboratory apparatus known as the Hele-Shaw cell whose construction and use is uncomplicated and which can be readily used in a classroom with groups of 2–5 students. Using the cells, we have been able to explore concepts and processes that are relevant to a river delta, a petroleum basin or an oceanic margin. What's more, the Hele-Shaw cell shows us a slice of the sediments in depth and how they were constructed and modified through time (which is a terrific aid for geologic understanding).

The cells have been used in EdGEO teacher's workshops, classroom visits, and university geology labs. Some of the phenomena one can demonstrate are: angle of repose, sorting, erosion, deposition, aggradation, progradation, porosity/permeability, slope instability and sediment mass failures, and even salt tectonics. During this presentation we will demonstrate some of these applications.
