



## **Earth's structure: learning from text, learning from discussion, learning from practical activity.**

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A good comprehension of Earth's structure in students is crucial for further understanding of Earth dynamics (including earthquakes, volcanic activity and plate tectonics). The development of a mental model about Earth structure can be difficult for 13-years old students: it is not easy to visualize the real dimensions of the Earth and it is not possible to study its interior through direct experiences. Some students may also present alternative ideas (e.g. liquid mantle; Clark et al., 2011).

How can a good mental model be constructed? What role can text reading play? What are the difficulties that the pupils encounter? How can we change some of the students' misconceptions?

We choose to investigate different didactic approaches: learning from text, class discussion and practical activity (building a physical model of Earth's structure). In the first activity students are asked to produce a drawing of the Earth's structure after reading a text without images. This activity is followed by a lesson in which the drawings are discussed: students are invited to motivate their choices and to reflect on the relative thickness of the various layers and on the criteria that allow us to define them. At this point of the activity, some of the students are evaluated with a test while others take the test after making a 3D physical model.

In this presentation we discuss some ideas on what students actually learn from these different activities and which other factors influence the learning process in students.

### References

Clark J.S., Libarkin J.C., Kortz K.M. & Jordan S.C.; 2011. Alternative Conceptions of Plate Tectonics Held by Nonscience Undergraduates, *Journal of Geoscience Education*, 59, 251–262