

Examples of learning activities for Earth and Space Sciences in the new Italian National curriculum

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In the last few years, starting from 2010, science curricula were changed dramatically in the secondary Italian school as consequence of a radical law reform. In particular, Earth Science and Astronomy subjects have been shifted from the last to the previous school years; in addition, these subjects have been integrated with other natural sciences learning, such as biology and chemistry.

As a consequence, Italian teachers felt forced to totally revise their teaching methods for all of these disciplines. The most demanding need was adapting content to younger learners, as those of the first years are, who usually do have neither pre-knowledge in physics nor high level maths skills. Secondly, content learning was progressively driven toward a greater attention to environmental issues in order to raise more awareness in learners about global changes as examples of fragile equilibrium of our planet.

In this work some examples of activities are shown, to introduce students to some astronomical phenomena in a simpler way, which play a key role in influencing other Earth's events, in order to make pupils more conscious about how and to what extent our planet depends on space, at different time scales. The activities range from moon motions affecting tides, to secondary Earth motions, which are responsible for climate changes, to the possibility to find life forms in other parts of the Universe, to the possibility for humans to live in the space for future space missions. Students are involved in hands-on inquiry-based laboratories that scaffold both theoretic knowledge and practical skills for a deeper understanding of cause-effect relationships existing in the Earth.