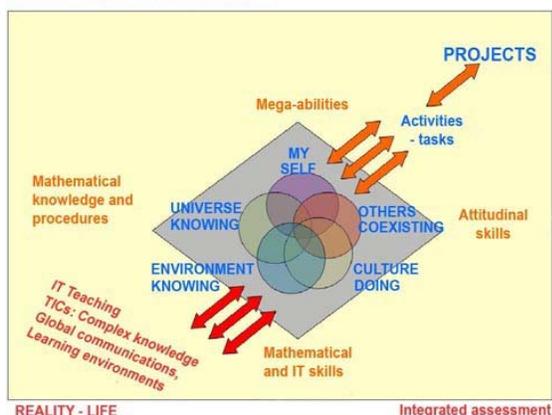


## MATHEMATICAL EDUCATION BY PROJECTS WITH TECHNOLOGICAL BACKUP

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CIEAEM 2007, Hungary

**Basis.** We propose that for the 21<sup>st</sup> century, the centre of mathematical activity in the secondary school should be **education** with an **integrated humanistic focus**, based on concepts that affirm that educational aims involve favouring the light of intelligence, peace of the heart and strength of will (LUX, PAX, VIS, BENM) and based on the pillars indicated by UNESCO in the Delors report<sup>1</sup> so that the learning process has as its central points: the self, co-existing, doing and knowing. (Summarised in Campos y Navarro, 2001). Moreover, it has to relate to information technology teaching, which supports the building of complex mathematical knowledge, facilitates global communication and work in virtual learning environments.

MODEL OF MATHEMATICS TEACHING



**The model:** We have derived a teaching of mathematics that presupposes that the aim of learning is to know and respect oneself, others, culture and social output, the environment and the universe; that the content to be learned is those aspects of mathematics that enable the creation of models, problem solving, and the development of mathematical and attitudinal skills and mega-abilities necessary for the life of the adolescent; the 'how' of learning is by projects and didactic situations; 'what with' is reality itself and the application of communications and information technologies and the focus of assessment carries with it new focuses and strategies. This focus links mathematics teaching with IT Teaching.

**The proposal** consists of **projects** being worked on with regard to 1) Who are we? My world, Map of my Self, Beyond the school, 2) We live in a community, A world of communication, Co-existing in globalisation, 3) The world of art, The world of science and technology, work and technology, 4) We look after the environment, The world in which we live, The future of the environment, 5) The universe, our great dwelling place, The world of the future, Different universes? Along with knowledge, procedures and specific skills for the learning of mathematics, are included the information technologies that refer to research, problem solving, reading and informative skills and critical thought. The attitudinal skills such as creativity, communication, collaboration, co-existence with change, exploration and sustained decision making that apply laterally to the other skills. The office IT tools and functions of Microsoft Office, with special attention to the development of Excel projects, the use of free software: Logo, JClic, Cmap Tools; on the Internet making use of the environments of Google with Blogger, Picasa, GoogleEarth, Documents and Spreadsheets, Desktop and Videos; from Yahoo use is made of Groups, Free Server, Ask, Answer and Discover, and working especially with the contributions of Wikipedia.

**Experience.** We have drawn up teaching strategies for all the aforementioned projects and skills, CDs with support tutorials for the computing tools, mathematics projects integrated with the other assignments of the Excel study plan, image gallery and a virtual environment with the possibility of forums, chat-rooms, links, groups and suggestions for the teacher and links for downloading free software and entering the environments of Google, Yahoo and Wikipedia. All this is presented on the Poster.

<sup>1</sup> UNESCO. "Education Holds a Treasure" Report of the International Commission on Education for the 21<sup>st</sup> Century. Jaques Delors. London (ISBN 92-3-103274-7)