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Information and communication technologies in tomorrow‘s digital classroom

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Education has to respond to the new challenges and opportunities offered by the 21-th Century as well as to the main trend in the world community development related to a creation of Knowledge Society. Implementation of ICT at school is a priority of the Global education and helps to develop the four pillars of learning - learning to know, learning to do, learning to be and learning to live together. Digital competence of the students is also a part of the European Union key competences. The essential elements in geographical study are: spatial analysis, with an emphasis on location; ecological analysis, with an emphasis on people-environment relationships; and regional analysis, with an emphasis on areal differentiation. Modern geography is best characterized as the study of distributions and relationships among different natural and social patterns of distributions. Viewing the world from a spatial perspective and employing a holistic approach are important characteristics of contemporary and future Geography learning. Using innovative methods for presenting the global aspects of distribution patterns and their changes is a priority of teaching geosciences at our school. The use of geo-media in classroom helps learners develop their ICT competences. Geolocalised information is used everywhere in society and it is therefore essential for students to learn how to use different forms of geographic media Geo-media is now being used in scientific researches and reasoning. One of the geo-media tools that I use in my classes is Google Earth for presenting different geographic processes and phenomena like visualization of current global weather conditions, global warming, deforestation areas, earthquake areas, etc. Using Geographic Information systems for presenting and studying geographical processes is also one way to identify, analyze, and understand the locations. Our school is a part of digital-earth.eu network which is under development now. The European Centers of Excellence at national level promote innovative approaches of teaching and learning environments including the active use of geo-media and GIS is started to develop. The main objectives of the Bulgarian Center of Excellence are to create in collaboration with teachers and ESRI organization learning materials for school education. Students learn how to use ArcGIS in order to create their own interactive maps related to the Bulgarian geography education. They have already used ArcGIS software to study and analyze changes in the Bulgarian geographical location, boundaries and border controls, as well as Pan European transport corridors and define positive and negative aspects of crossroad location of Bulgaria. There is also available software about the Bulgarian water resources as well as about the Bulgarian population and its demographic characteristics. During the classes students create their own map according to given tasks, analyze maps elicit certain information for decision making and in that way they develop their spatial thinking skills.
Interdisciplinary approach in teaching geosciences at comprehensive school by using ICT is another innovative method that can be used in the classroom. Chemistry and geography as geosciences have common objects of investigation - minerals, rocks and ores as raw materials for industry. Subject objectives for both disciplines can be achieved in a binary lesson. Students make their own preliminary web-based investigation and in the classroom they discuss characteristics of a certain metallic ores, their global distribution and local deposits, their significance for economic development and environmental issues related to their extraction.
Implementation of ICT in tomorrow‘s digital classroom will help students to understand the complexity of the world around us, show them different examples of our changing planet and develop their spatial thinking knowledge.