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From Antiquity to Tommorrow's Classroom

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Explanation: We did our presentation on the basis of four ancient elements: fire (energy and climate change), air (measurements of soot), water and earth (soil and waterbodies as components of ecosystems). All these four projects make use of outdoor learning opportunities and group work; thus students' cooperation and presentation skills are developed and improved.

* Climate Change
Purpose – to examine the causes of climate change and its impact on the people and the economy of Estonia. The emphasis is on the fact that climate change can be slowed by changing the behaviour of an individual.

Methods, activities, results - students will be divided into groups. As an example, one group conducts polls on parents' opinion of the climate changes and changes in their consumption habits during their lifetime, etc. Other groups will examine the climate changes within a bigger picture, track the ecological footprint and energy consumption in the schoolhouse. Another group will explore how each of us can reduce our personal impact on climate change.

The results obtained by the groups will currently be displayed on school billboards in the form of figures, tables, comic strips etc. The research project will end with a conference where different groups of students present their work to the school audience using appropriate computer-based facilities. The project will be completed with a joint work by all groups who will make a sculpture from industrial waste.
* Measurements of soot
Students measured NO_2, O_3, NH3, SO_2, black carbon and different elements. This gave them knowledge about the effects of intensive agriculture and wastewater management, big cities and highways, use of high - sulfur fuel oil, and biomass burning in households.
All the gathered data can be compared with the results obtained by other schools who participatied in this project. This means that students can think about why their neighbourhood air pollution levels differ from the cities or villages from the other part of Estonia.
* Soil and Waterbodies as Components of Ecosystems
Both these projects – soil and waterbodies – involve meeting with scientists, practical investigation into these ecosystems and laboratory work at school, students' written studies and reports presented at a conference.
The above mentioned projects were conducted under the supervision of young academics working at Estonian University of Life Sciences and the Museum of Soils in Tartu, as well as and the Limnology Centre at lake Võrtsjärv.
Samples of soils were collected from Viljandi and some fields in the county to determine the texture , pH level, carbonates, content of organic matter, N-P-K level; conductivity and chemical absorption were studied also. In conclusion the soils in the town were in good condition, fertile, mostly sandy loam and lightly acid. As an outcome suggestions were given for garden projects.
In the Limnology Centre at lake Võrtsjärv water samples were taken and conclusions drawn on the condition and hydrochemical characteristics and of the ecosystem of Estonia's second largest lake.