

# NETBOOK EDUCATION PROJECT

"Water as a resource to know and respect."

1CLSA - ITIS "Cardano" – Pavia

2010-2011

## Description

As the title suggests this is a highly interdisciplinary project involving Science, Biology, Mathematics, History, Geography, English, Italian literature and of course ICT. The ultimate goal of the project is to make students aware of the value of water as a resource, to make students reflect about waste and how to best use this resource that will become increasingly valuable in the near future. Students will be engaged in this Internet research using various search engines employing the Action/Research methodology . The work will be based on collaboration and cooperation in the diagram and model provided by Johnson & Johnson. Students will use multimedia laboratories, the IWB and cooperate using the school e-learning platform, e-mail and Skype. The expected results (which will be posted on the school web site) will be on the following searches: water in human history - water and work - water in the Italian and foreign literature - water and environment - saving energy and water use - the future.

## Pathway

The project will be divided in the following pathway that provides for the involvement of these disciplines: Science, Mathematics, Italian / History and English. Especially the English language is transversal to the different subjects and it will be the teacher of foreign languages who will work with colleagues and provide materials in English according to the proven CLIL methodology. A crucial role is played by the use of communication and information technologies. Internet, Wiki, Blogs and dedicated sites will be used under the supervision of the ICT coordinator.

At the end of the pathway a CD with all materials produced is expected to be published.

In the meantime a Wiki has been opened:

<http://1clsacardanopv.wikispaces.com/>

All the materials produced by the students, through Google docs, are being uploaded here.

## CLIL

CLIL plays a very important role in this project. Content and Language Integrated Learning (CLIL) is a way of approaching foreign language instruction through subject-oriented teaching. Some of the materials searched through the Internet will be in English and students will be asked to edit and revise the materials found using the foreign language. By challenging the students in this way, we will be able to help them build confidence in their skills and provide reasons for learning the content and improve the foreign language level

# Content to be developed

## SCIENCE

As part of Earth Sciences, the theme "Water and the environment" will be dealt with.

In particular, the following aspects will be taken into account:

- Water as a molecule
- The hydrosphere and the water cycle - changes in state, permeability of rocks, groundwater, rivers, movement of surface water, river erosion, lakes, glaciers (moving, erosion).
- The hydrogeological risk in Italy, floods in Italy.

## MATHEMATICS

- Analysis of commercial mineral waters: study of the percentages and ratios of dissolved substances in them; graphic representations through charts and histograms.
- The aqueduct: analysis of the size of the pipes; formula that expresses the flow of a conduit: a study of the formula with varying sizes and deduction of the links between the variables: graph sizes directly or inversely proportional.
- Continuity equation for pipes of various sizes analyzed from THE geometrical point of view.
- The principle of communicating vessels, and Archimedes' principle: equations and inequalities. The flotation of bodies linked to the geometric shape.

## HISTORY

WATER: Health and Wellness

The project will consist of two modules:

1 ° The water source of life in the Ancient World: Aqueduct  
Water: the religious life, an element of purification.

2 ° The cult of water: a source of wealth  
Wellness in the past only for the rich classes  
Baths yesterday and today: benefits of the sea and springs of mineral water

## ITALIAN

The interdisciplinary work proposed will focus on "water" indicating some of the possible and most common meanings (water as a symbolic element, landscape .. ) and some of the most common functions (water as a metaphor, water in the idioms, rhetorical expressions ..). The followings are the fields to be explored:

1. The concept of water in "The Betrothed": meanings, functions and themes.
2. The concept of water in the epics: the Iliad and Odyssey

### The teaching team:

Giuseppina Bertoni (English)

Annalisa Bonato (Italian)

Concetta Distefano (History)

Elena Mognaschi (Mathematics)

Silvana Olivieri (Science and Biology)