

CONCEPT MAPS TO STUDY THE GEOGRAPHIC ENVIRONMENT

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Abstract. The proposed educational model comes from a multi-year experimentation that refers to the geography curricular program addressed to the students from the second biennium of the elementary school (9-10 years old). The teachers took advantage of the methodological lines of a science innovative project that identifies the student as a protagonist during his learning process, through the problem solving method that includes the phases of exploration-invention-discovery. The concept maps were, during the years, placed across the path developing it and becoming a meta-cognitive tool for the students. The use of “key-words” and “link-words” has helped the transformation of the knowledge in skill and the generalization of the concepts. The beginning point has been the everyday life of the students with some educational trips around the territory, enriched by the presence of an environmental expert and by the organization of some activities, using the cooperative method, to promote the motivation and prepare the children for an accurate and conscious observation. The material and the data collected are reported in class and re-elaborated together, first for a global vision of all the aspects of the territory (landscape). Follows an analytical approach of study and research, to catch the typical elements of each geographical environment and their relationships. The elaboration of the “geographical knowledge” is linked to the “scientific-biological knowledge” and the “historic-knowledge”. The students are constantly stimulated to the construction of connections cause-effect and space-time.

1 Introduction

The students, that have experimented this project, live in a seaside resort in the region of Marche (Italy), where the basic geographical environments (rivers, mountains, hills, plains and the sea) are present.

The geographical element, that allows to catch the communion of the environments, is the landscape, as part of the territory seen from the top. The accurate observation of the landscape creates curiosity and stimulates questions that we can only answer by intuition and through our studying. On the basis of that, we give emphasis to the geographical space not as static, but as a developing element.

Developing the skill of observing a landscape allows students to become aware of its importance, because of its historical uniqueness and that the actions occurring in the present, will have effects in the future. Our sense of belonging to a territorial system will make us more responsible towards the environment and the living people.

2 Objectives

The educational-didactic project aims the following objectives:

- Consolidating the concept of “territorial-landscape system”, its elements and dynamics.
- Acquire the skill to analyze and discover the inner and external relationships with other systems.
- Discover the man-to-environment connection and point out positive and negative aids.
- Establish man’s responsibility towards himself.
- Sharing sustainable method.

3 Operative Phases

3.1 Exploration

For the realization of the educational-didactic project these are the operative phases:

It is the most involving time for the students, both emotionally and intellectually; for this reason, it has to be prepared accurately by the teachers with the cooperation of an expert.

The exploration has been done under two different approaches in two different trips:

- The landscape: the students have been taken to the hills, on a tactical position that gave the possibility to catch the view of the full extension of the valley, from the sea to the mountain, passing through the city, the land crossed by the river and the hills. The guided observation takes to the analysis of the basic geographical elements and stimulates reflections on why and how they were modified through the years. Thanks to this activity the children, that often “see but do not observe”, had been led to reflect on the features. In class, with

the support of photos, the landscape has been represented with graphic-pictorial process, chosen by the teacher.

- The specific geographical environment (for example: hills, sea, ...), on the territorial range, represents a significant goal. During the trip the children observe the particular elements, collect materials, are involved in sensorial activities, organized in small co-operative groups, actually they look like real “explorers”.

3.2 In Class

The teacher organizes the lessons that are useful to resume the data taken from the experiences and develop them according to the following levels:

- Geological aspect: environment origins according to the Earth history.
- Atmospheric conditions: arrangement of the territory on the climatic area of reference.
- Abiotic elements: the “geography words” are used to describe what the students have observed.
- Biotic elements: flora and fauna.
- Detailed study: with the support of pictures (also from some satellites), and/or videos, maps and specific texts, it’s possible to proceed to the generalization with a particular attention to Italy.

In this phase some drawings, descriptive texts, charts, diagrams, plans and geographic maps are produced. The use of an appropriate and specific vocabulary provides an educational and didactic stimulus, re-elaborated and generalized according to the experience, assuming a didactical and educational value.

3.3 The Concept Map

Through this didactic methodology, the “concept map” is used to make up the significant learning process which involves the emotional apparatus and works on the cognitive one, enriching the latter. The elaboration starts from some key-words referred to: description, origin, biotic and abiotic elements, anthropic ones too. Through some key-questions we move to the link-words.

Here are some examples:

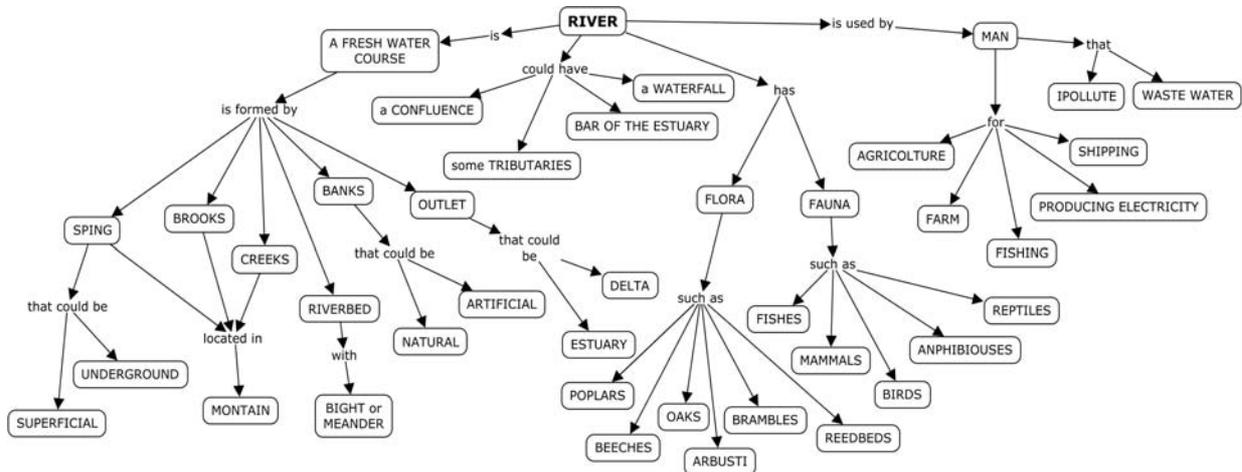


Figure 1. The resuming map of the geographical environment RIVER.

For example, in Figure1, the concept map is used for the final synthesis of the environment. It results particularly functional for the re-elaboration and for the individual studied, also for a long time.

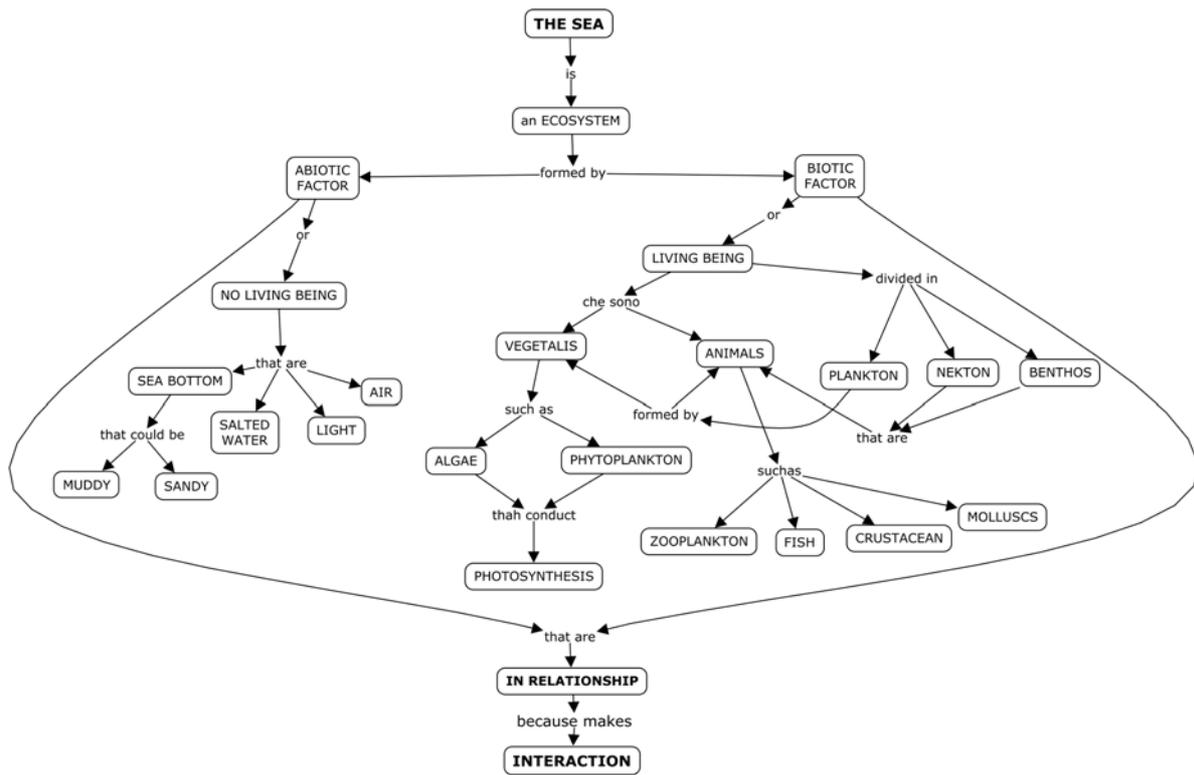


Figure 2. Geographic-scientific map of the SEA.

In the example of Figure 2, the concept map has an inter-disciplinary value. The hierarchy of the concepts highlights “the ecosystem”, a biological nucleus, that is better called like the chlorophyllian photosynthesis. The “geography words” in the map are functional to the analysis of the macro-concept “sea-ecosystem”.

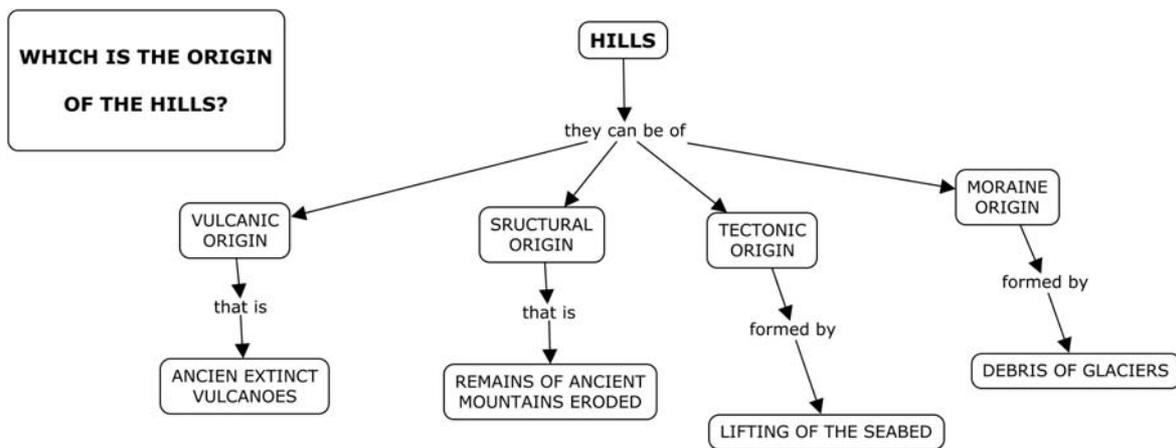


Figure 3. Map with a stimulating question about the origin of the HILLS

In the example of the Figure 3, the map is used to study a topic segment, as it is shown by the stimulating question.

Control and documentation of the learnings:

CHECK ON THE STUDIED ENVIRONMENT	
1° Level: Knowledge \ skills	Checking method
Geological aspect Abiotic elements Biotic elements: flora e fauna Anthropic elements	Oral exposition , with the support of a geographic map, pictures, diagrams, maps ... Structured tests Participation to the activities and conversations: interventions in terms of analysis, reflection e critic
2° Level: Competence	Checking method
The landscape analysis	In a real context the student individuates the features that characterize the environment and picks up the main transformations made by the man, expressing himself using a specific language

4 Summary

The didactic scheme was experimented by the students of the school fourth grade classes, since the academic year 2000-'01 until the 2015, it has involved over 690 students, that have made more than 2500 concept maps, using paper and/or the CmapTools software.

According to the “national information for the elementary school and first level of educational system curriculum” (2012) it’s possible to declare that the proposed model puts the student “at the center of the educational action in all of its aspects: cognitive, emotional, relational...” and results to be a project “not for abstract individuals, but for people who live here and now, that discuss over specific existential questions, that look for meaningful horizons”. The knowledge of the territory, as it was realized, generates the transmission of the traditions and the national memories, enriches the experience and stimulates the curiosity. In the end, helping to the formation of the European citizens and members of the world, the school become “the place that combines the present reality to the past and the future”, in the twine between memory and project.

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