



Cap sur l'école inclusive
en Europe



Best practice

Learning through scientific experiments

Section of the Module / E

Contact : AURORA LEFTER



School : **C.S.E.I. « Elena Doamna » FOCȘANI, ROMANIA**

Website : www.cseielenadoamna.ro

1 Context

During the primary grades (I - IV) of C.S.E.I. "Elena Doamna" FOCȘANI, the scientific experiment is used as a method of learning, consolidation and evaluation of knowledge. Having an active character because it is a provocative observation, the scientific experiment is very useful with S.E.N. The student becomes a practitioner by observing and can check the assumptions he makes before starting the scientific experiment. He can check the phenomena that are happening around him and can influence his life. The spirit of observation, curiosity and the desire to know are just some of the conditions that support learning by using the scientific experience. The scientific experiment can create favorable emotional states, lead students to use lived experiences and other activities.

2 Objectives.

The scientific experiment in the laboratory has several objectives:

- puts students in a position to provoke and produce phenomena and experimental processes;
- determines the training of work skills with the equipment specific to science by acquiring and applying appropriate methods and techniques;
- ensures the discovery, deepening and verification of knowledge by students;
- emphasizes the formative nature of education by developing students' investigative and observational minds, flexible, fluid, original thinking.

The use of the experimental method in the study of science is important in contributing to the formation and development of student personality.

3 Development of the " Good practice".

- Scientific experiments of an application nature were carried out, aiming at the experimental confirmation of the knowledge acquired previously. The experiment was done individually by each

student, supervised by the teacher, following the following steps:

- to present or update theoretical knowledge;
- to present work tasks;
- to organize student activity: group them together, distribute kits / materials;
- to execute the experimental activity by the students under the direction of the teacher;
- to record the results;
- to comment and draw conclusions.

The experiments focused on the following themes:

| Theme | Description of the scientific experiment | No.of hours |
|--|--|-------------|
| Water | <ul style="list-style-type: none">- it is a liquid body- the properties of water- the states of aggregation- the evaporation, boiling, condensation- the water circuit in nature | 3 h |
| Air | <ul style="list-style-type: none">- it is a gaseous body- the properties of the air- the movement of the air | 2 h |
| Mixtures and separation of mixtures | <ul style="list-style-type: none">- decantation- filtering- crystallization- soluble / insoluble substances | 2 h |
| Reactions of plants to environmental changes | <ul style="list-style-type: none">- the influence of water on plant life- the influence of temperature on plant life- the influence of light on plant life | 3 h |

The professor provided a favorable climate for critical and creative reasoning through activities including:

- ensuring the use of a vocabulary specific to critical thinking
- involving students in the simulation or role play related to the proposed themes
- offering students debates by which they supported their ideas
- basing on the presentation of real and experimental objectives instead of long informative texts.

4/Evaluation of the activity

Classroom science experiments have attracted students to learning and research. They were curious to know how certain phenomena were occurring, and the fact that they could participate gave them an active and dynamic role. The learning was focused on the students, participating in their own training.

The experiential learning method involved thinking processes, helped students to interpret, infer, analyze, compare results, generalize or transfer new knowledge to other learning contexts. The scientific experience had a formative value because it developed the spirit of observation and investigation, the ability to understand phenomena, to process and interpret the results, aroused interest in knowledge. The students worked in the laboratory, which transformed them from spectators into actors of scientific activity, into direct contact with reality, learning through discovery.

The joy of success achieved by completing a work assignment has led to greater self-confidence by providing students with the right self-assessment criteria necessary to compete with others. Learning by the scientific experimental method involved the study of student activity, the establishment of new teacher-student relationships, the disappearance of communication barriers and of the feeling of "fear" towards the teacher.

5/Limits.

The use of the scientific experiment method is conditioned by the existence of an appropriate school space (the school laboratory) and adequate teaching facilities (laboratory equipment, kits, assemblies, etc.) to be used at the school. every hour of science. The fact that the classes take place in class, the experiments do not take place when the student contacts the theoretical aspects, but only during the hours of experimentation. The lack of specialized laboratory staff and the large number of students made the experiments last longer, with some students becoming restless and anxious.

6/Perspectives.

During the primary classes, doing monthly science experiments and recording all the observations in the observation tables or the defined grids before starting the experiments - all that has become a rule. Using scientific experience as a means of exploring reality, an active attitude towards the environment has been formed. Curiosity and the desire to know are the conditions that underlie experiential learning. They can use their life experience gained during these lessons in other activities or areas of interest.