

The learning of concepts and strategies to achieve it

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Mathematics is a language which requires the dominion of all of its elements in order to have an effective communication and understanding of the mathematical content.

In Mathematics concepts are used constantly



When formal concepts are learnt at school, it is a duty of the teacher to give the appropriate conditions to make the student learn in the best way and optimizing resources.

The best thing to do is to have strategies designed for learning concepts, in order to assure the achievement of objectives and the making of necessary activities that favor the incorporation of this new content to the knowledge of students.

It is important to have enough knowledge, throughout the communication process, in order to locate in the adequate context.

On the contrary, there is a risk to listen ideas that might be expressed on a language different than their own.

It is necessary to have communication abilities not only to use the mother language but also to use mathematical language

Abilities of the usage of language in the different modalities which are required; they could be written in words, written in symbols, spoken, or merely mathematical.

In all the previous modalities there is an intervention of “the elements that many understand as the basic components of thought: the concepts” (Martínez, 2006, p. 1)

According with Vygotsky, there are two types of concepts: the spontaneous and the scientific.

Mathematics is a science full of connections between its contents and its concepts “are dynamic, since they’re being progressively configured by the one that learns”
(Sardina s.f. p. 9)

Students easily forget and mix concepts, therefore the necessity of formalizing its teaching, with the intention of making students appropriate them, understand them, utilize them adequately, not only in their vocabulary but also in another contexts.

Concepts are rules of classification or categorization, so clearly defined that allow to easily decide if an element belongs or doesn't belongs to a category.

When planning how to work with a concept with students, one of the determinant variables is educative level.

When a student has a greater knowledge, it is easier to make him or her work in an deductive way, which is, in case of the concepts, use them and apply them.

The student that understands a concept must be capable of demonstrating it. In order to do so, students could do:


- 1) Application
- 2) Problem solution
- 3) Classification
- 4) Distinction
- 5) Transference

Strategies for learning concepts:

- Model of acquisition of concepts

- Conceptual maps and schemes.

- Activities that demand specific mental processes.



Presentation of examples
Analysis of hypothesis
Closing
Application

Evaluation of the understanding of concepts



- Research and determination of new examples of the concept.
- Identification of the characteristics of the concept
- Establishment of relations between this concept and others.
- Definition of the concept.

Characteristics of a good definition:

- 1) Brief but complete
- 2) Written in a positive way
- 3) Must be referred to the defined object and only to it.
- 4) The defined word must be excluded from the definition.
- 5) Avoid using synonyms.

The concepts are steps that allow students to move forward towards a real consolidation of knowledge, thus it is important to dedicate special attention in order to make them achieve a successful learning of mathematical concepts.

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