SCIENCE

OF TEACHING SCIENCE

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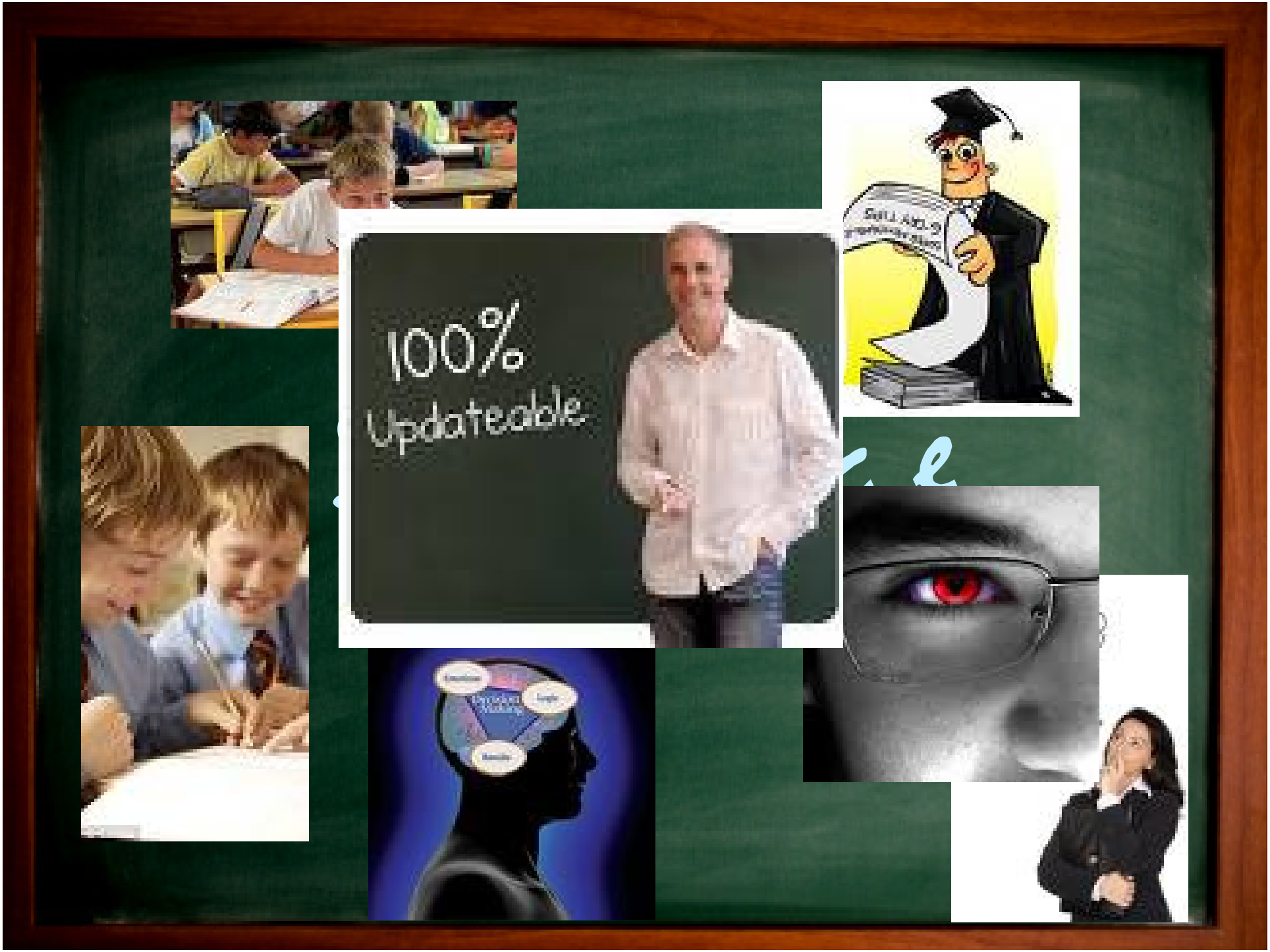
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The optimum selection of the teaching methods and the correct use of the adopted strategies involve:

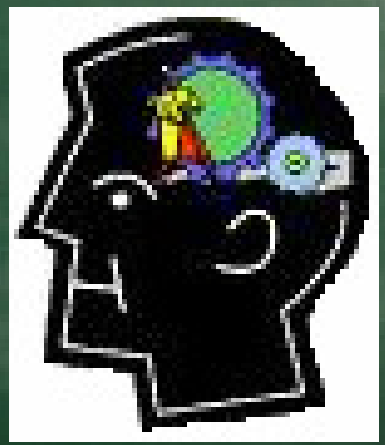
- making the pupils more active, more sensible, controlling their attention ;
- knowing thoroughly the personality of students
- turning to good account the pupils practical experience;
- making use of the examples offered by everyday life;
- structuring the contents of the information taught around some fundamentle concepts
- using mostly the method of teaching based on questions asked to the students;
- using teaching aids that could create the relation between words and images, the computer making it easier to draw the essence and create concepts;
- making the best of the time destined to teaching

What is active learning?

A learning process tailored to the interests, level of understanding and development of the participants in the process.

What are the results generated by active learning ?

- Participative behaviour ;
- Creative thinking ;
- Applied learning ;
- Knowledge building.



Methods of preferential teaching when studying sciences

- *The experiment*
- *Problem creation*
- *The eurystic approach*
- *Learning through discovery*
- *Modelling*
- *The use of algorithms*

The experiment

- the pupils actively participate in the laboratory experiments , acquiring practical skills;
- the pupils learn how to handle laboratory instruments and reactives, to make laboratory operations;
- the pupils acquire the feeling of personal responsibility for the operation they have to perform, they acquire the teamwork skill;
- it help the pupils to acquire scientific research methods;
- it develops the perceptive faculty and the euristic type thinking.

The experiment

1. the preparation stage - it lies in getting the students familiar with the problems of the experiment, establishing the theoretical motivation, the material conditions, formulating certain hypotheses, elaborating an experimental plan and setting the order of the operations that are to be performed.
2. the performing stage - lies in making the experiment, directly observing the phenomenon and interpretating these observations;
3. the evaluation stage - lies in formulating the conclusions based on interpretating the observations, argumenting and confronting them with the hypotheses.

Problem creation develops the operating schemes of divergent thinking, trains the creative skills , providing at the same time , an intrinsec motivation for learning.

The pupil is asked to analyse the problem-situation as well as fiind a solution, an answer to the problem created.

In order to acquire a problem created character, a theme has to determine a reaction of surprise or amazing.

Experience has shown that every day problems or those that influence professionaly activities can determine the sponteneous interest of the pupils.

The eurystic approach has been known since ancient times as being the way of discovering truth. The euristyc approach to teaching-learning process supposes moments of uncertain, search, but also a selection of possibilities, the choice of the ways that prove to be the best.

The pupil engages himself/herself in a task of knowledge, of solving a problem for which he/she has not enough experience, incomplet information for the moment. The proces of learning advances along the way of personal "research".

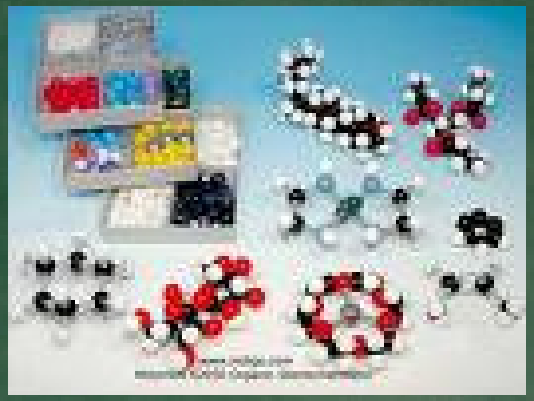
Learning through discovery is a way of work through which the pupils are asked to discover the truth going again on the road of elaborating knowledge through their own, independent activity .

The discovery takes place in a problem environment. It has several stages:

- the confrontation with problem situation which should trigger the process of research,
-the act of discovery, when the pupil perceives the organization of facts, understand the causes,
- verbalise generalisations,
- the practice of that has been discovered.

Modelling is the method of studying natural phenomena with the help of ideal or materials models.

It is based on the analogy between the model and the system it represents.



Analogy refers to the form, structure, the operation, as a whole or of some parts of the system. Applying the model, knowledge becomes easier, faster and more substantial.

The use of algorithms

Using the algorithms in the teaching-learning process supposed going over a set of operations in an approximately constant order.

The way in which the knowledge of the pupils is structured reveals a unity, a continuity between the algorithmic and the eurystic process. Once a working algorithm is acquired, it is then permanently restructured because, later, through personal research, the pupil simplifies the procedure, discovering more subtle ways of solving the problem.

Conclusions

In school information is transmitted through examples, facts, models, figures,etc.

During the teaching process the teacher should have the students deal activities in which they should be involved physically, mentally and socially, activities that should draw the essential and develop it in notions, judgement, reasoning in practical exercises, in individual study.


Thank
you!