

EU Erasmus+
A Comenius
School Partnerships
Project



Greener World

Methodology Booklet

«Methods that teachers use to make science education more attractive for the students»

This Project is Supported by European Union Erasmus+ Program



Teachers try to find particular characteristics in students... They observe these four characteristics. This starts in primary schools.



Not compulsory but stimulated!



Ministry of Education encourages students to take part in science based project competition. These projects are not compulsory but teachers and students are highly encouraged to take part in. Projects are evaluated by a jury composed of professors from universities and some project deserves to compete in regional level and then national level. At the end, there are awards for students as well as their teachers.



2

In Turkey for instance **TUBITAK** (THE SCIENTIFIC AND TECHNOLOGICAL RESEARCH COUNCIL OF TURKEY)

Projects:

In secondary schools, teachers encourage students to do projects in several subjects such as: Maths, Chemistry, Physics, Biology and Geography, etc. Most of the time subjects, related with science are more interesting for the students because they can use the laboratory and explore new things.



Not compulsory but stimulated!



The idea is nearly the same and the projects are assessed in the same way.

Teachers, in the school, try to encourage students to take part in this competition and they start to work in the laboratory or in a class after the school classes in the afternoon.

The deadline is the beginning of February every year and they announce the results in April.



3

Students go and see the projects in Project exhibitions in regional level.



4

Seminars:

Teachers usually direct the students to science education by inviting people from different professions and arranging a mini seminar. Sometimes some professors come to school from universities to tell about how to be a science man or woman.



5

Trips:

Teachers in our school sometimes arrange trips to science olympics organised by universities. Students are highly motivated through these trips because they see how other people succeed in scientific fields.



6

Competitions in the school:

Teachers organise competitions in the school and at the end of the competition there is always special awards for the students.





Teaching Methods

- Teachers' lesson
- Students groups
- Lab Experience
- (for foreigners) Peers from the same country already included help and give **MOTIVATION**
the experience of "*Who made it*" -





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Teaching Methods:



- making experiments in different situation
- visiting museums and doing workshop
- Making the students realize that science is usefull in everyday life





Teaching Maths



~~Not a teacher~~
~~you are~~

Mathematics can also be taught by means of experience, practical examples. So, the definition can be used later on, when the profundity of the concept has already been acquired.

~~Not a teacher~~
~~you are~~
~~Not a teacher~~





- It is important to give the students real material on which to build the learning objectives
- Teachers do not build, and indeed, it is necessary to prepare the building materials, so that each pupil can find the material which fits him the best
- It is important to limit as much as possible the stress of certain topics, using material objects which can be held in the hand in order to build the material that the student needs, and at this point, will not be forgotten



School trips to places of natural interest to study biology and physics



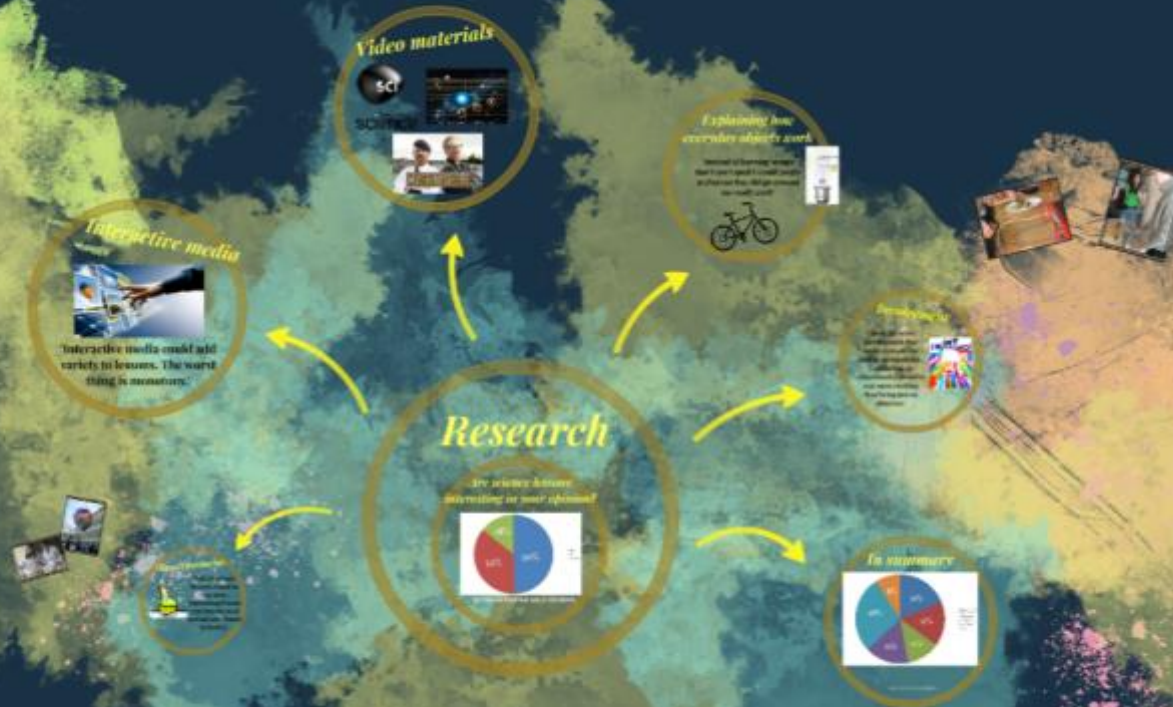


La CONCA di GOVERNOLO



Students learn the
systems of dams and
dikes

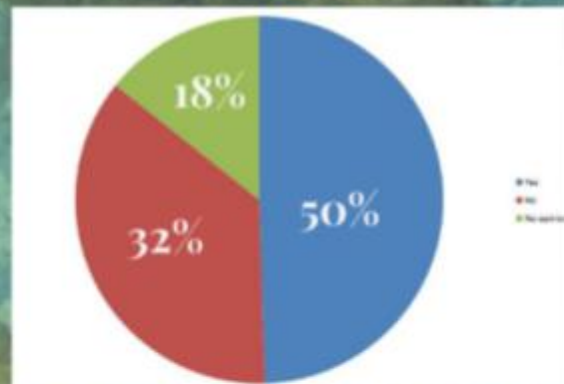




*How to make science classes
more interesting?*

Research

*Are science lessons
interesting in your opinion?*



survey carried out on 50 students

More experiments



'I think science lessons would be way more interesting if more experiments were carried out. Theory is boring.'

Interactive media



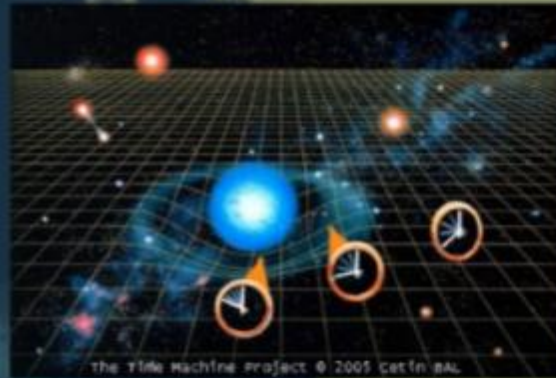
'Interactive media could add variety to lessons. The worst thing is monotony.'



Video materials



Discovery
science



Explaining how everyday objects work

*'Instead of learning names
that I can't spell I would prefer
to find out how things around
me really work'*

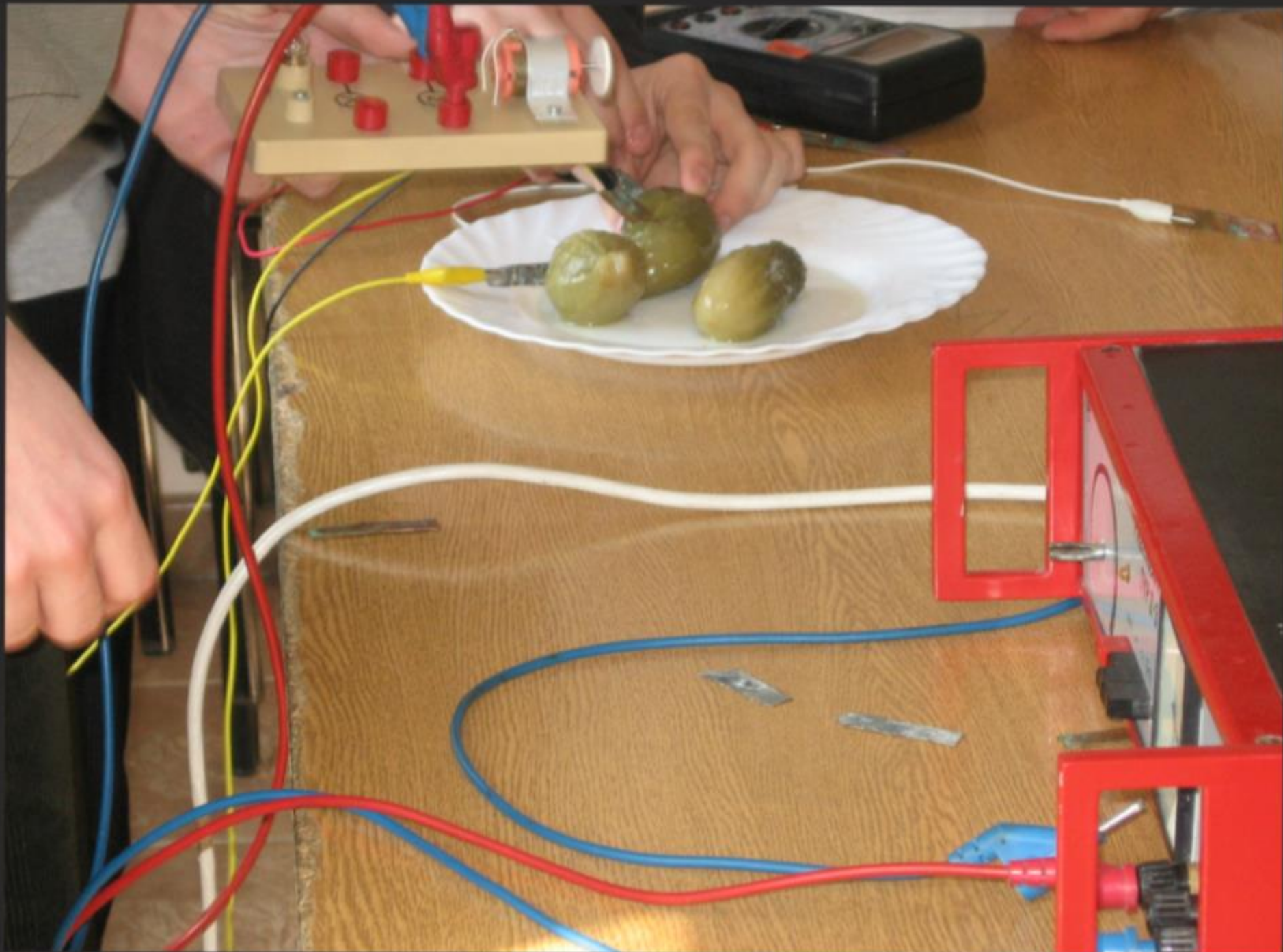


Involvement

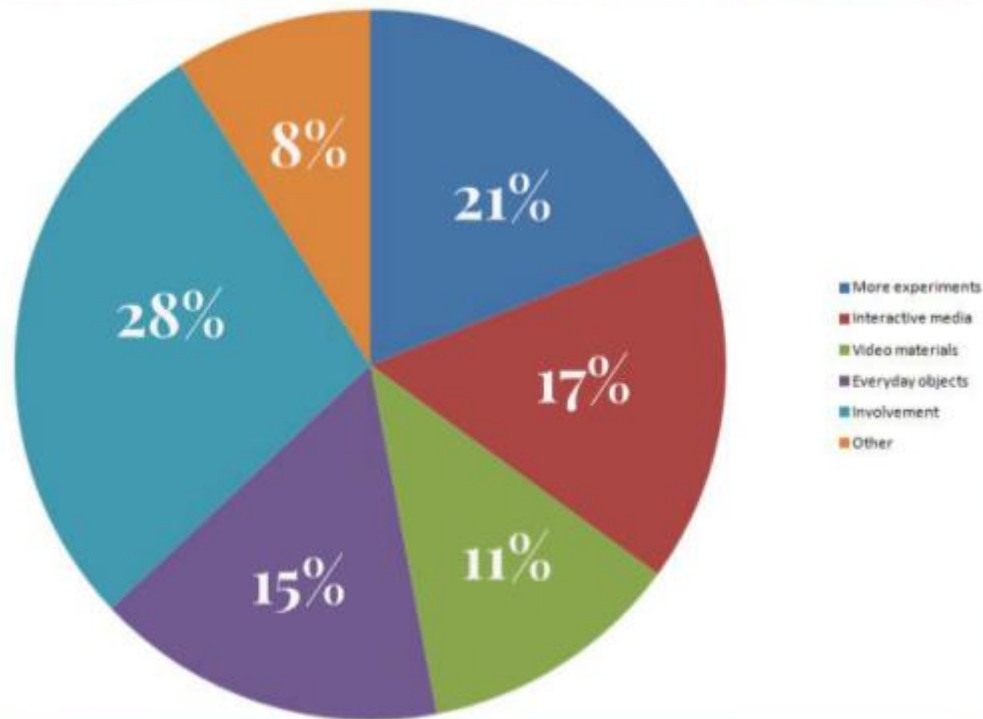
'I think it's active participation that makes lessons fun and understandable.

Conducting an experiment yourself is way more exciting than being just an observer.'





In summary



survey carried on 50 students



In Slovakia



Education and Culture DG

Lifelong Learning Programme



Three methods of modern laboratories

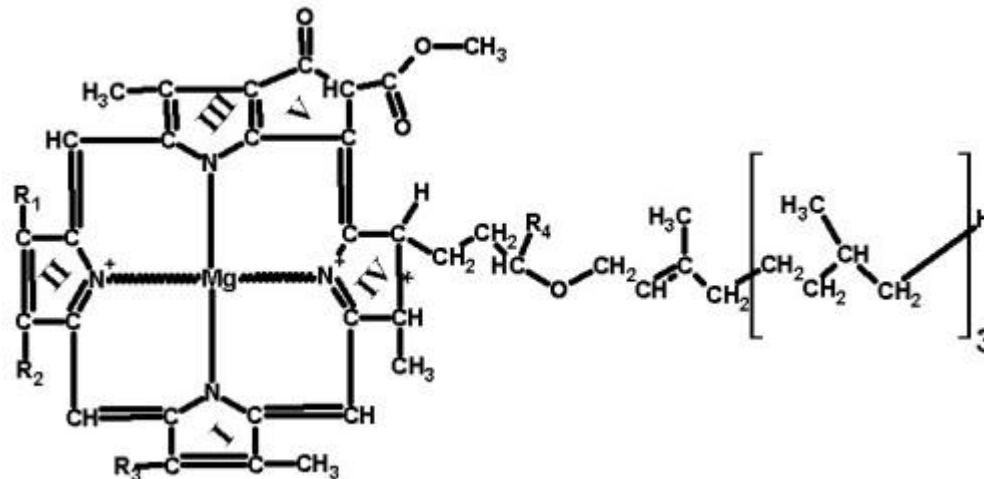
1/ CHROMATOGRAPHY

Why are leaves green ?

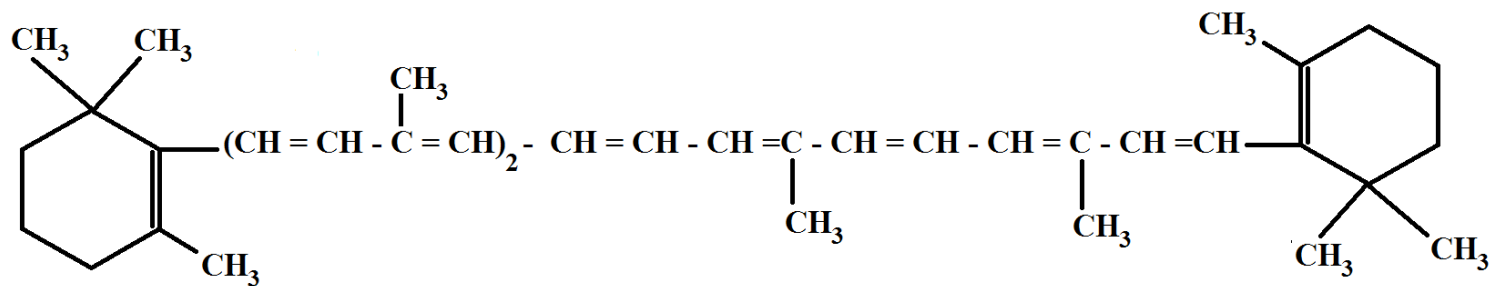


Why do leaves get yellow or green in autumn?





- Karotenes** – yellow and orange dyes



- **Xanthophylls** - yellow dyes look like karotenes but they are more polar
- There exists about 600 kinds of xanthophylls, well known is lutein

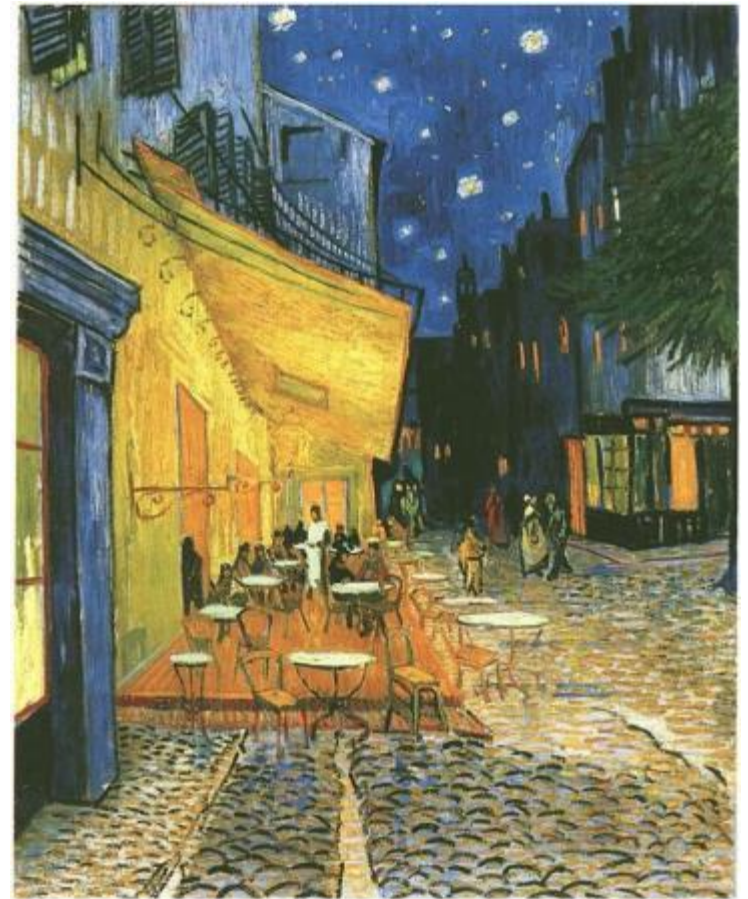


VINCENT VAN GOGH'S PAINTINGS



Paintings and crystals

HOW CRYSTAL ARISES



YELLOW PIGMENT



Painters often prepared paints on their own.

An oil paint comprises pigment – yellow powder and oil which after a certain time gets dry – it stiffens up.

By melding different paints on the palette they prepared different shades



What do the flowers in the pictures have in common?



To be an Entrepreneur

- An entrepreneur is an individual who does not expect things to happen, but is a proactive person who makes things happen.
- An entrepreneur is highly motivated, has good ideas and knows how to implement them in order to achieve his goals.
- An entrepreneur is someone who is not afraid to start a bold project. Someone who believes in his/her potential, has leadership skills and can work in a team.



- An entrepreneur knows that a failure is just an opportunity to learn and be better.
- In our school students are challenged to be entrepreneurs.
- Our goal is to foster the interest of scientific research on students.



In addition to the mandatory and traditional presentation of a project previously developed by the students, the school promotes the exchange of experiences among young people, usually aged between 16 and 18 and studying several scientific areas/fields with the goal of promoting cooperation and exchange between young scientists and guiding them towards a future career in science and technology.



These meetings give the students the opportunity to compete with the best of their peers, to compare ideas, to meet other contestants with similar abilities and interests, as well as to be guided by some of the most prominent scientists in Europe.

