



## Questionnaire for Teachers

*This questionnaire is aimed at gathering the opinions of the virtual lab beneficiaries concerning several different aspects of their activity / preferences in order to better define the features the Virtual Lab should have in terms of ICT, scientific contents and educational methodology.*

### I. Personal data

1. Name: \_\_\_\_\_

2. Country: \_\_\_\_\_

3. Gender: Male Female

4. Years of teaching experience: \_\_\_\_\_

5. Subject(s) taught: \_\_\_\_\_

6. Type of current school: upper secondary          lower secondary

7. Experience in using on-line resources for teaching and learning:

not at all      little      average      much      very much

### II. Content & Pedagogic Approach & Tools

**1. Which kind of topics in science education would you consider to be more appealing for students? (e.g. traditional or basic subjects, problems of global importance or scale, topics oriented towards high technologies and innovation, subjects of special importance for human life or improvement of the human condition, topics significant for business applications or future development, other, etc.)**

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**2. Which of the extracurricular topics should be integrated with science topics?**

**What kind of extracurricular subjects would you consider to be important and/or innovative? ( e.g. relevant to the connections between science and business applications, such as electronics, energy sources/fuels, modern anti-corrosive coatings, biotechnological instruments etc. ? ). How would you improve the balance between the different topics in science teaching?**

		Strongly Agree	Agree	Disagree
a.	Optical instruments and how they work			
b.	The use of lasers			

c.	How CDs and DVDs store and play sound and image			
d.	Organic and ecological farming without use of pesticides and artificial fertilizers			
e.	How radios and TVs work			
f.	How mobile phones can send and receive messages			
g.	Life and death and human soul			
h.	Why we can see the rainbow			
i.	The ozone layer and how it may be affected by humans			
j.	How technology helps us to handle waste, garbage and sewage			
k.	How energy can be saved or used in a more effective way			
l.	How gene technology prevent diseases /базисни/			
m.	Very recent inventions and discoveries in science and technology			
n.	Nanotechnology and its uses			
<b>Other :</b> .....				

**3. Do you have any knowledge about nanotechnology? YES NO**

<b>If yes, which of the curriculum topics are related with nanotechnology?</b>		<b>YES</b>	<b>NO</b>	<b>NOT SURE</b>
a.	Chemicals, their properties and how they react			
b.	Parts of human body and how the systems work			
c.	Structure of DNA, genetic studies, heredity and how genes influence how we develop reproduction in humans			
d.	How plants and animals grow and reproduce			
e.	How people, animals, plants and the environment depend on each other			
f.	Atom, molecules and chemical bonding			
g.	Light and its nature			
h.	Radioactivity and its effects			
i.	The nature of sound and its properties			
j.	Velocity and the relationship between velocity, time and road			
k.	The structure of cell, mitosis and meiosis			
l.	Simple machines and how they ease our lives			
m.	Electricity and its properties			
n.	Optics and how they are used in our daily lives			

o.	Structure of Earth and how earthquakes happen			
p.	Clouds, rain and the weather			
r.	Sustainable energy and its sources			
s.	heat and temperature			
t.	Technology and its interaction with science			
<b>Other:</b> .....				

**4. Which science topics do you think that should be supported with experiments for a meaningful and permanent learning?**

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**5. Science education should involve the following;**

		Strongly Agree	Agree	Disagree
a.	Make pupils aware of the unlimited aspects of science			
b.	Be able to use scientific equipment skillfully			
c.	Be able to demonstrate experiments			
d.	Use information technology			
e.	Expect pupils to use the proper terminology correctly			
f.	Link new science learning to everyday experiences			
g.	Help pupils to understand the importance of science in modern business applications			
h.	Encourage pupils to try out their own ideas in experiments			
i.	Teach pupils to understand science concepts			
j.	Frequently revise previous learning			
k.	Show how classroom learning relates to phenomena in outside world and everyday life			
l.	Explain to pupils how to use the scientific knowledge and why their science activity is important,			
m.	Help pupils become aware of the benefits and misuses of science			
n.	Relate each new idea (concept) to ones the pupils have already learnt			
o.	Use visits to industry to support science learning			
p.	Use field trips to support science learning			

r.	Develop a personal interest in science (e.g. find new and exciting scientific topics to enrich their understanding of new horizons)			
s.	Enable the pupils to integrate with everyday lives and problems of global importance, scientific/technological achievements			
t.	Raise awareness related to the nanotechnology by introducing short talks at the last 10 minutes of learning unit			
u.	Offer short reports on modern achievements in science at the micro- and nano-level to be added to every learning unit			
<b>Other :</b> .....				

**6. The most effective ways to teach a particular scientific topic in a modern way generally would be:**

	1 Disagree	2 Doubtful about it	3 Agree	4 Strongly agree
Formal lessons				
Reading textbooks				
Watching clips and documentaries				
Interactive computer based tools				
Direct experiments using measuring equipment				
Pre-recorded or filmed experiments with explanations				
Less structured experiments				
Other (please specify)				

**7. Please, rate the importance of the following tools for an online virtual lab:**

	1 Disagree	2 Doubtful about it	3 Agree	4 Strongly agree
Texts				
Images				

Video				
Simulations				
Interactive simulations				
Procedures to carry out experiments with the students				
Resource library				
Other (please specify)				

**8. What type of lab approach you prefer?**

	1 Disagree	2 Doubtful about it	3 Agree	4 Strongly agree
Cook-book type laboratory activities (step-by step instructions) to verify scientific facts.				
Inquiry-based laboratory activities (students decide how to conduct the activity, and have to explore in order to figure out how the world works).				

**9. What do you think that the appropriate activities in a laboratory would be;**

	1 Disagree	2 Doubtful about it	3 Agree	4 Strongly agree
Students should get involved with scientifically oriented questions.				
Students should have (be provided with) the ability to determine what data allows them to develop and evaluate scientific explanations.				
Students should have (be provided with) the ability to formulate their own explanations from the evidence they have obtained.				
Students should have (be provided with) the ability to expand upon their findings and relate those findings to similar situations.				
Students should have (be provided with) the ability to communicate their experimental findings to others in class via written laboratory reports.				
Students should be able to have access to experiments on-line which cannot be done in a laboratory				

10. If you were to create your own laboratory, the students should be able to:

	1 Disagree	2 Doubtful about it	3 Agree	4 Strongly agree
Make observations.				
Pose questions.				
Have access to an e-Library (other sources of information).				
Plan investigations.				
Reviewing what is already known in light of experimental evidence.				
Use (virtual) tools to gather, analyze and interpret data.				
Propose answers, explanations, and predictions.				
Communicate the results.				
Identify assumptions.				
Use critical and logical thinking.				
Consider alternative explanations.				

11. How well are you able to manage with using ICT tools for teaching Science topics?

- poor
  average
  good
  excellent

12. To what extent do you implement ready-made ICT tools for teaching Science topics?

- never
  sometimes
  often
  always

13. What is the purpose of using Nano-Tech experiments in your classroom by the use of ICT?

- To let students understand the core aspects of the nano-technology  
 To provide students with nano-tech examples  
 To verify hypothesis, theories or models from nano-technology area  
 To raise the students' motivation for learning nano-technology

14. What kind(s) of ICT tools do you use for presenting Science/Nano-Tech experiments in your lessons?

- PowerPoint Presentations
  Digital Images
  Video clips
  Virtual Experiments

Other, please specify...

15. Evaluate (on a scale from 1 to 4) how important are ICT tools to you for the purpose of promoting an inquiry based/creative learning environment in Science teaching?

a) as a method to explain the "Inquiry Based Science Education" concept	1	2	3	4
b) as a way for better planning of an experiment	1	2	3	4
c) as a channel for guiding students to explain scientific aspects and propose hypothesis for investigation	1	2	3	4
d) as a method to enhance creativity in teaching and learning process	1	2	3	4

(Scale: 1 – not at all; 2 – very little; 3 – to some extent; 4 – to great extent)

**16. Evaluate (on a scale from 1 to 4) how do you consider collaboration using ICT for teaching Science/Nano-Tech topics?**

a) as a method to increase students' motivation	1	2	3	4
b) as a method to make learning content more attractive (by using virtual environments and multimedia tools)	1	2	3	4
c) as a way to make students more emotional ??? (by connecting them)	1	2	3	4
d) as a method to promote creativity based on collaborative work	1	2	3	4

(Scale: 1 – not at all; 2 – very little; 3 – to some extent; 4 – to great extent)

**17. Where do you find good examples of Science experiments, appropriate to be presented in the classroom?**

- From real life
- From Internet (WWW Space), please specify some sources:
- From educational CDs/DVDs, please name some titles:
- They are produced by myself, please provide further details: