




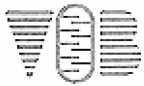


## Some questions to be discussed in workshop

	<ul style="list-style-type: none"> <li>• How we can improve our communication and exchange about experimental practical work experiences and projects in secondary school among teachers and associations from different European countries?</li> <li>• How could we improve conditions of doing practical work in schools, particularly in those countries with educational administrations are not very much sensitive to this important aspect of the science education?</li> <li>• How can we contextualize the practical work in schools: practical work related with science applications and technology and society rather than formal practical work related with concepts?</li> <li>• How could we get to introduce more open (investigative) practical work in schools and to improve teacher training in this aspect?</li> <li>• How is the best manner to assess practical work and how could we introduce the assessment of practical work in our internal and external examinations?</li> </ul>
	<ul style="list-style-type: none"> <li>• Are there similar developments in plans of instruction in other countries as there are in Germany - i.e.             <ul style="list-style-type: none"> <li>◦ from instruction to construction</li> <li>◦ from teaching to learning</li> <li>◦ from input steering to output-steering</li> <li>◦ from close-meshed curricula to description of competences (output) to achieve ...</li> </ul> </li> <li>• If so, what experience do these countries make?</li> <li>• Does the system work?</li> <li>• Are there support systems for teachers? If so - how do they work? Are they efficient?</li> </ul>
	<ul style="list-style-type: none"> <li>❖ What objectives for student practical work do we have in common?             <ul style="list-style-type: none"> <li>➤ p.e.: Is their purpose to test the theory?</li> <li>➤ p.e.: Is their purpose to develop a theory?</li> <li>➤ p.e.: Is their purpose to teach the pupils skills?</li> <li>➤ How are we going to arrange to make an inventory of both our commonalities and differences, in this respect?</li> </ul> </li> <li>❖ How are we going to arrange our co-operation as European teachers             <ul style="list-style-type: none"> <li>➤ p.e.: Could ELOS be a way to realise that</li> <li>➤</li> </ul> </li> <li>❖ What objectives of the science curriculum do we have in common as science teachers in Europe?             <ul style="list-style-type: none"> <li>➤ P.e.: How are we going to arrange to make an inventory of both our commonalities and differences, in this respect?</li> </ul> </li> </ul>
	<ul style="list-style-type: none"> <li>• What age to start experimental work ?</li> <li>• What kind of experimental work is done in other countries? In Detail!</li> <li>• Should experimental work be done separated from or integrated in theoretical courses ?</li> </ul>
	<ul style="list-style-type: none"> <li>• Are the objectives of the experimental activities specific to these activities?</li> <li>• Could they be met through other activities (documentary activities, projects, etc.)?</li> <li>• How and what does a child learn when he/she experiments ?</li> <li>• How can we train better teachers to design and supervise experimental activities?</li> <li>• What can be assessed in these activities and how can it be done ?</li> </ul>
	<p>Group 1 : What are the objectives of the experimental activities ?</p> <ol style="list-style-type: none"> <li>1. Idea: Give the pupils the opportunity to implement the scientific approach: explore, observe, investigate, deduct, summarize, conclude</li> <li>2. Idea: Give the pupils the opportunity to acquire the knowledge and understanding of science they will meet in every day live.</li> <li>3. Question: Can experimental activities in school teach the pupils basic skills in laboratory techniques (and safety)?</li> <li>4. Question: How can experimental activities help pupils to, as much as possible, construct their knowledge, instead of merely receiving it.</li> </ol> <p>Group 2 : How can experimental activities be evaluated ?</p> <ol style="list-style-type: none"> <li>1. Idea: One could ask to write a report after having completed the experiment.</li> <li>2. Idea: One could test the knowledge acquired during the experiment through oral or written questions</li> <li>3. Question: What is the best size of a group (= number of pupils) for experimental activities in a school laboratory?</li> </ol> <p>Question: To what extent can pupils build their own experiment or is it better to give them ready-to-use kits?</p>

