Main goals of the MUSE project

• to go beyond excitement by helping students to get more understanding from simple experiments;
• to propose teachers some approaches and means to be used in class practice thus enlarging the range of their choices.

Target Audience

In-service and pre-service teachers; Physics education and physics education research communities

Educational added value

• Comments on possible ways of fostering students’ understanding beyond teaching rituals
• Discussion of naive ideas and reasoning strategies conflicting with physics knowledge
• Spotlighting various viewpoints of the same phenomenon that may favor its links with contents not often presented in current teaching materials

Example: Fluids

Reconsidering common explanations such as symbolised in the force diagrams below:

- the cardboard « feels » from above, the weight of the water and from below the force due to atmospheric pressure;
- what is holding this column of water 2m above the water level in the glass? It’s atmospheric pressure (...). In the tube, there is no air, and no pressure is exerted on the water

Discussing tentative interpretations of common views:
- the idea that an object always exerts its weight on the stand
- the third law is disregarded
- agent (air, pushing) / patient (water, lifted up)
- localised, not systemic approach

Suggesting clarifying elements Here: displaced diagrams

Suggesting and justifying targeted variants such as

stressing the symmetrical action of the surrounding air

Other experiments discussed in this spirit

stressing the reciprocal force of Archimedes’ upthrust: Archimedes’ downthrust

More materials on: siphon, love-meters, surface tension, water jets from bottles...

Next: light and vision

Relating shadows to received light (eclipse, coloured shadows...)

More on: refraction, fibres, mirage, ...

Education is a keystone in all activities of EPS.
Physics Education Division (PED) was created in 2000.
It deals with pre-university and university education:
• Teaching & learning of physics at all levels
• Teacher education and in-service teacher training
• Public understanding of Physics/Science
• New trends in physics education
• Implementation of the Bologna process
• Differences in EU educational system in physics