Dansk Fysisk Selskab

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LIFE Mobile laboratory

The vision of LIFE (acronym of Learning, Inspiration, Fascination & Engagement) is to create a world class learning laboratory and contribute decisively to enhancing scientific learning and education in the Danish society. Specifically, modern physical sciences cover a variety of topics, such as Atomic, molecular, and optical (AMO) physics and solid state physics, highly relevant for the science curriculum in the Danish primary schools and high schools. However, teaching exercises within these topics places high requirements on the experimental facilities and the science teachers.

Currently, some schools do not have dedicated science laboratories. Furthermore, Danish primary schools have science classes covered with certified teachers in the range of only 68% and up to 95%. This teacher coverage varies for different scientific subjects, stages of education and geographical location.

Here, we present LIFE's two approaches to meet the requirements for supporting these varying needs for laboratory facilities and certified teachers.

First, we present the experimental facilities at LIFE visitor center in Lyngby. Visiting students and teachers will be able to perform experimental work, free of charge, in the laboratories of the visitor center. The specialized laboratories for AMO physics and for nano- and solid state physics will be presented in details.

The second approach is the development of flexible mobile laboratories with trained scientific staffs. However, a stand-alone visit of a mobile laboratory has a significant risk of becoming an isolated learning experience with no connection to the curriculum and with limited impact. Here, we present LIFE's mobile laboratories integrated in 4-6 weeks courses (learning packages) developed by LIFE in order to address this risk. The plan for LIFE's mobile laboratories and learning packages is to give teachers and students the possibility to study new ideas and acquire skills through inquiry-based teaching activities in their own school and on the mobile laboratory. This is done with a strongly student- and skill-oriented educational approach based on real-life technological and scientific cases. All this is done in collaboration with innovative Danish tech-companies and key actors in scientific education. The first LIFE mobile laboratory will be ready for test in Summer 2019. The activities of LIFE are expected to expand to: 30-40 learning packages, a digital universe, a nature and science visitor center and 10 mobile laboratories. The ambition is to physically reach 17% of all Danish students nationwide by 2023.

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