

**Category:** Technology Innovation

**Organisation:** Centre for Development of Advanced Computing

**Product / Solution:** Online Labs for School Experiments (OLabs) [[www.olabs.co.in](http://www.olabs.co.in)]

**Innovation Imperative:** According to the experiment manuals published by CBSE, experiments have not received their due importance and emphasis in science study in their schools. The constraints identified by CBSE are:

1. Experiments require a certain minimum infrastructure - a laboratory with certain basic equipment, recurring expenditure on consumables, etc. This minimum infrastructure is not always available in all schools in our country.
2. In view of the difficult logistics involved in assessing experimental work for the large number of school students, the assessment of experiments has not been as serious as that for the theory part of the curriculum.

In short, lack of infrastructure and, more importantly, lack of proper assessment, have resulted in the unfortunate marginalization or neglect of experimental work in Indian schools. Since e-learning and use of technology is increasingly penetrating in the education system, a product like OLabs seemed necessary to resolve the constraints identified above.

**Brief Overview:** OLabs is an innovative, interactive simulation and e-learning initiative jointly developed by CDAC, Mumbai and Amrita University, under a research grant from the Department of Electronics and Information Technology, Government of India. The objective of OLabs is to supplement the traditional physical labs and bridge the constraints of time and geographical distances. OLabs not only reduces the costs incurred for conducting experiments in traditional school laboratories but also gives student the flexibility to explore and repeat experiments till they are thorough.

OLabs is aligned to the CBSE syllabus for class IXth and Xth. It includes interactive simulations based on mathematical models, videos and rich interactive animations for Physics and Chemistry. Apart from the execution of the experiment, other utilities such as recording observations, plotting graphs, calculations, etc are also included. The experiments are accompanied by intuitive feedback, guidance and inline help wherever needed to make sure students make effective use of the lab. There is an evaluation component which tests the students' understanding of the lab and related theory. At present, 30 Physics and Chemistry experiments are available online for free use.

**Benefits to Customers:**

- A valuable tool for students and teachers both
- Amplifies Lab learning experience
- Encourages the use of technology for effective education
- Aids schools with Inadequate Lab Infrastructure
- Encourages High Order Thinking Skills
- Caters to the need of Anytime, Anywhere Access to a Lab
- Authentic ecosystem of learning

**Business Opportunities:** Not Applicable. It is available free of cost.