

USING VIRTUAL LABS IN SCIENCE EDUCATION

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Science is a subject that involves working in a lab. It is an understanding of natural phenomena that involves research and discovery through practical application and experiments conducted with the help of professors. The laboratory activity is significantly more significant in science education since it gives students the chance to engage in a variety of hands-on activities. The goal of the laboratory exercises is to assist the students in developing their technical skills. Students will get firsthand experience, intellectual knowledge, and long-term memory through the experimental exercises. Furthermore, recent advancements in information technology can be used to conduct current experiments.

The success of the science learning process is supported by several favorable effects of the growth of digital era technology. Information technology can be utilized in place of interactive laboratories in schools to meet their demands. A virtual laboratory is one effect of the development of the digital era that can be applied to the field of education. The fascinating lab processing and simulation capabilities, tool simplicity, and more precise outcomes are all provided by the virtual laboratory. The virtual lab is a teaching tool that enables more effective experimentation, interactive virtual environments, and direct experimental visualization.

The virtual lab activity allows the students to freely deepen their learning by having them repeat an incorrect experiment. In actuality, virtual labs offer a number of advantages in reaching the desired learning objectives. The utilization of virtual laboratories helps students meet their learning objectives while addressing some of the

issues that can arise in conventional laboratories. The virtual laboratories offer cheaper, more reliable, more accessible opportunities for learning by doing. The utilization of virtual labs substantially aids the science learning process, even though they cannot completely replace traditional labs.

However, recent advancements in computer hardware and software have made it possible for teachers to incorporate virtual technology into their upcoming teaching methods. The virtual laboratory replaces conventional lab activities with computerized simulations, models, and other learning tools.

Many benefits are offered by it. So that you or anyone else can participate without risk, it is done online. When a tool is established, it can be used repeatedly without incurring additional costs. Regardless of the school facilities, materials, and equipment accessible, the virtual lab enables students to work individually or collaboratively. To help students understand difficult ideas, virtual labs are used. Through a visual, immersive experience, virtual labs allow professors to communicate difficult theoretical concepts quickly and effectively to pupils in a way that can help them grasp them better. Additionally, it offers the coordination necessary for describing theoretical concepts and their application in practice.

K-12 educators are continuously looking for new and creative methods to improve their online learning processes considering the rapidly changing educational landscape. Virtual laboratories are fantastic online tools that boost student productivity and enable cost savings. Additionally, they effortlessly integrate the comfort and simplicity of use provided by modern technology and enable students to participate in academic work from any location. It wouldn't be incorrect to say that virtual labs are here to stay, even though they still require some upgrades in order to duplicate actual laboratories.

References:

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