

USING VIRTUAL LABS IN SCIENCE EDUCATION

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One discipline that requires lab work is science. 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 laboratory assignments are designed to help students improve 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. One outcome of the digital era's evolution that can be used in the field of education is a virtual laboratory. The fascinating lab processing and simulation capabilities, tool simplicity, and more precise outcomes are all provided by the virtual laboratory. The virtual lab is an educational instrument that facilitates direct experimental visualization, interactive virtual environments, and more efficient experimentation. 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.

With the fast evolving nature of education, K-12 educators are always searching for innovative ways to enhance their online learning processes. Excellent online resources that increase student productivity and allow for cost savings are virtual laboratories. Furthermore, they effectively incorporate the ease of use and comfort offered by contemporary technology, allowing students to engage in academic activities from any location. I think it's safe to conclude that virtual labs are here to stay, even though they still need some improvements to replicate real labs.

References:

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