

HAND ME DOWN: IMPORTANCE OF HANDS-ON LEARNING IN HIGH SCHOOL SCIENCE EDUCATION

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Learning about science through traditional lectures and required reading about it, though valuable, isn't always sufficient to truly hold students' interest. Through demonstrative engagement with scientific concepts, students not only deepen their understanding but also cultivate crucial skills essential for their academic and professional careers.

According to John Dewey's theory of learning, genuine learning occurs when individuals engage in hands-on experiences that require them to interact with their environment, solve problems, and reflect on their experiences.

In line with this theory, hands-on learning is portrayed as a dynamic approach that immerses high school students in active participation and engagement with scientific concepts. By conducting experiments, analyzing data, and solving real-world problems, students embody Dewey's philosophy of learning by doing. Rather than passively receiving information, they actively construct knowledge through firsthand experiences, which deepens their understanding and retention of scientific principles.

The benefits of hands-on learning can be seen in the actual teaching and learning process. For example, when students engage in actual experiments for the first time, they became excited and curious. By actively engaging in hands-on activities, students become active participants in their learning, rather than passive recipients of information. This active involvement fosters a sense of ownership and empowerment, motivating students to take ownership of their learning journey and pursue further questions.

In addition, this active involvement ignites students' curiosity and stimulates a deeper interest in scientific inquiry. By manipulating materials, making observations, and analyzing data firsthand, students develop a tangible connection to the subject matter, which enhances their comprehension and retention of key scientific principles.

Furthermore, hands-on learning promotes a growth mindset and resilience in the face of challenges. Through hands-on activities, students encounter obstacles, setbacks, and unexpected outcomes—integral aspects of the scientific process. By persevering through experimentation, troubleshooting errors, and refining their approaches, students learn resilience and develop a growth mindset that empowers them to embrace challenges as opportunities for learning and growth.

In conclusion, the importance of hands-on learning in high school science education cannot be overdone. By actively engaging students in experiential learning opportunities, hands-on learning enriches their educational experience, cultivates essential skills, and fosters a lifelong appreciation for scientific discovery. As Science Teachers continue to prioritize hands-on learning approaches, they empower students to become critical thinkers, problem solvers, and innovators poised to make meaningful contributions to the scientific community and society at large.

References:

<https://www.hmhco.com/blog/importance-of-hands-on-science-activities#:~:text=Hands%2Don%20learning%20is%20just,increase%20engagement%20and%20academic%20achievement.>

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