The Sound of Music & Its Effect on Biological Systems: Project-Based Learning Tapping into Adolescents' Interests

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Year: 2019

Abstract

Science education often fails to address the actual range of adolescents' interests. One such interest is music. Research shows that young people devote large amounts of time and money to music. By tapping into students' interest in music, affective outcomes can be achieved in the biology classroom. This article describes a project-based learning activity that studies the influence of music on seed germination. Part of the student project is to conduct a literature search on the influence of music on plants, and possibly also on people (its biological, psychological, and social effects). The project is contextualized in the indigenous practice of making music while planting crops. There is a growing body of literature suggesting that music can improve crop yields. Students are required to follow the key features of project-based learning to plan and execute an inquiry to determine the influence of music on seed germination. Students undertaking a literature study will find research showing that music affects the viscosity of the plasmalemma and the availability of intercellular Ca2+, which, in turn, influences the activity of membrane-based enzymes. This can lead to larger amounts of water, nutrients, and growth regulators entering the plant cell. The article also reflects on data obtained from high school biology students as they engage in the learning activity.

Keywords: Music; seed germination; project-based learning; indigenous knowledge; affective domain.

Referanse: De Beer, J. (2019). The Sound of Music & Its Effect on Biological Systems: Project-Based Learning Tapping into Adolescents' Interests. *The American Biology Teacher*, *81*(7), 507-512. https://doi.org/10.1525/abt.2019.81.7.507

Tag: biologi, prosjektbasert læring, problembasert læring

Revision #3
Created 13 June 2023 08:11:47 by Admin
Updated 4 September 2023 12:04:23 by Kristin