HYDROPONICS IN GRADE 9 AND 10 EDUCATION: WHERE LEARNING MEETS ENTREPRENEURSHIP

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Agricultural Crop Production is one of the specializations offered under TLE subjects for Grades 9 and 10 students from Junior High School. In this area of specialization, various lessons are offered to students, highlighting crop production. In crop production, different systems can be used and one of these systems is a new way of farming, namely Hydroponics Systems.

Hydroponics includes growing plants in water utilizing mineral supplements without soil. It has emerged as an important alternative method of plant production due to its ease of control over the nutrient composition, lack of soil contamination, rapid plant growth, short crop cycles, high product quality, and widespread consumer acceptance (Kaiser & Ernst, 2021).

Hydroponics offers an innovative approach to crop production and allows students to discover the science of planting without the use of soil. This system of planting promotes a faster way of growing crops as it manipulates the use of fertilizer to meet the required nutrients of the crops. Through hydroponics, students gain hands-on learning experiences and allow them to observe the use of lights, water, nutrients and as well as the environment as these are the factors to produce healthy crops. This interactive approach will increase the curiosity of the students in producing crops beyond the traditional land cultivation, and will challenge students to explore more in the use of science in agricultural crop production. Moreover, hydroponics presents students in problem-solving as there were challenges in growing crops, such as pH balance, salinity and alkalinity and nutrient deficiency or toxicity. Students will engage into critical

thinking and experimentation to solve the problems they might encounter. This may develop students' skills such as critical thinking and problem-solving skills.

In addition to its benefits in students learning, it may provide a practical opportunity for income generating project. Since TLE specialization curriculum also offers Marketing and Entrepreneurship, students can apply their knowledge by selling the crops they produce in hydroponic farming. It's as if hitting two birds with one stone, as students may not only learn about the sustainable farming but also develop entrepreneurial skills.

References:

Kaiser, C., & Ernt, MT. (nd.). Hydroponic Lettuce. Scribd. https://www.scribd.com/document/359259279/hydrolettuce-pdf