

Tissue Culture Lab Construction

Description and Goals

The Hilmar High School (HHS) agriculture program initiated the process of constructing a tissue culture laboratory and educational facility for horticulture students to study and apply current plant science technology and scientific research into everyday lessons. The project entailed the construction of Phase I of the ongoing tissue culture laboratory project.

HHS offers an Ornamental Horticulture (OH) Pathway that includes Environmental Horticulture, Agriculture Floral, and Advanced Floral. Though class sizes of Environmental Horticulture have ranged from twelve to twenty-five students per academic year, HHS does plan on expanding its OH pathway by creating a two or three course pathway, not including floral design. Rather, a proposed OH pathway would include an introductory class (Environmental Horticulture) and a concentrator or capstone class that would use a tissue culture lab.

Laboratory Construction

The construction of the laboratory followed general commercial construction procedures. As this laboratory will not completely follow the protocols of standard sterile plant tissue culture laboratories, the initial construction of the lab will encompass marking the dimensions of the lab and framing the walls. The four walls will be constructed using standard 2x4 lumber, plywood, and construction screws. Students, the cooperating teacher, and the I worked together to construct the four walls individually in the school woodshop and then transferred them to the room in which the laboratory will be built. Measurements taken from the lab room will be used to determine wall dimensions.

Laboratory Construction

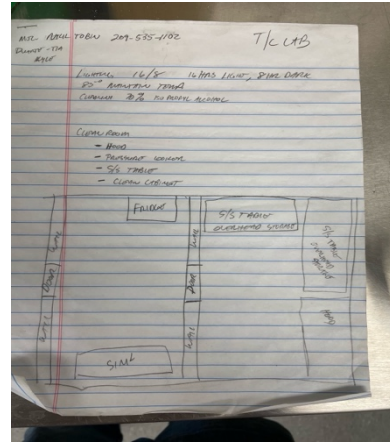
The agriculture department is desiring for more agriculture classes to meet both high school graduation and University of California A-G course requirements. Environmental Horticulture only addresses the college-preparatory elective requirement (Category G). With the addition of a concentrator or capstone class that heavily speaks to California and national science standards, the science requirement can also be met (Category D). Opportunities also arise for such a class to be articulated for dual-enrollment classes at junior colleges and lower-division undergraduate courses including introductory horticulture, botany, or plant biology.

This single project of constructing the tissue culture laboratory does not automatically qualify the HHS agriculture program or its horticulture classes for any of the aforementioned opportunities. There is much work to be done that will be completed by the HHS agriculture instructors beyond the scope of this project; however, providing a unique opportunity for students to be exposed to on-campus tissue culturing is quite exclusive for HHS students compared to most high schools and even post-secondary institutions. Construction of the laboratory and lessons will put the Hilmar High School agriculture program on the cutting edge of secondary horticulture education.

Photos



Construction yet to begin.



Written plans development with cooperating teachers.



Four individual walls were constructed in the woodshop and then installed onto the room walls.



Students using a battery power planer to ensure all 2x4s are flush with one another prior to installing the plywood over the top



Installation of plywood and the final aspects of building the four walls of the project.
