



Project: **Learning plant and agriculture science using augmented reality with zSpace**

BACKGROUND

This project promotes plant and agriculture science education using zSpace computers. These are high performance computers that offer augmented reality experiences that are immersive, interactive, and lifelike. Using augmented reality sparks students' interest and elevates their connectivity and literacy with respect to plants, food, and agriculture. This is a new style of experiential learning in which the students can direct their own learning and become curious about future careers in plant and agricultural sciences.

GOALS

- Educate middle and high school students about plant and agricultural science using the zSpace platform (zspace.com).
- Generate plant and agriculture educational material to use in the zSpace platform.
- Learn about augmented reality and its applications in STEAM education.
- Contribute to education research by participating in education assessments and sharing the artifacts generated.

DURATION OF THE PROJECT

- 2 – 4 hours to learn and practice how to use the zSpace platform and how to use, edit, and create educational activities in zSpace (teachers and students).
- 2 hours or more using zSpace activities in the classroom to teach and learn plant and agriculture science (teachers and students).
- 2 hours or more to create zSpace activities about plant and agricultural science (This module is optional and can be completed by either teachers or students).
- 1-2 hours to complete education research assessments before and after the activity (teachers and students).

MATERIALS AND EQUIPMENT SAFETY

Provided by the Donald Danforth Plant Science Center (DDPSC)	Provided by the schools
8 zSpace AIOs computers. One zSpace can be shared by maximum three	Proper area to display the zSpace (well-ventilated room, away from direct
1 zSpace camera	Sturdy surfaces on which to place the
8 3D glasses, 16 2D glasses	Continuous internet connection and electrical sources to keep the zSpaces
Protocols and example of activities	Care and safe use of the equipment to prevent infectious diseases.
Cleaning supplies	

PROJECT STEPS

1. Receive training on the use of the zSpaces.
2. Ask students to complete education research surveys.
3. Introduce the zSpace technology to the students (e.g., videos, guides).
4. Explain the proper use and care of the zSpace equipment (e.g., stylus, glasses, etc.).
5. Use demo protocols to get the students comfortable with the use of the zSpace.
6. Demonstrate to the students how to use, create, and edit zSpace activities (optional).
7. Use zSpace activities to teach students about plant and agricultural science.
8. Develop your own plant/agriculture zSpace activities (e.g., lesson plans or worksheets) editing available zSpace activities or creating your own (optional).
9. Coordinate projects with the students to create their own plant/agriculture zSpace activities (optional).
10. Share the lesson plans, worksheets, and other artifacts generated through this project.
11. complete the education research surveys for both the teacher(s) and students.



THINGS TO DO TO IMPLEMENT THIS PROJECT

Checkmark the tasks as you complete them.

- Contact the project manager to coordinate the training and implementation of the project (Dr. Sandra Arango-Caro, sarango-caro@danforthcenter.org).
- Access your Google Classroom space using the link provided by e-mail.
- Read the assigned material.
- Read, sign, and return photo release and the responsibility forms.
- Follow the project steps provided in the protocol.
- Share photos of yourself, your students, and the artifacts generated with your class.
- Complete with your students the education research surveys about your zSpace experience.
- Coordinate the return of the equipment and materials.

CONTACT INFORMATION

Project Manager

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