

GREEN MEANS GROW

THE DESIGN AND BUILD HYDROPONICS PROJECT

INTRODUCTION:

The design and build hydroponics project seeks to answer two education research questions:

1. How do students in food deserts show understanding of their own agency in growing food?
2. How does this sense of agency change when offered opportunities to grow food year-round with low resources?



Goals

1. To demonstrate to K-5th grade level students that they have agency over growing their own food

During the activity students will

- I. Learn the resource needs of plants for survival and basic plant anatomy and physiology.
- II. Design an indoor hydroponic system that meets the needs of plants for growth and development.
- III. Build a prototype hydroponic system (1-3 per classroom).
- IV. Grow plants for 1-6 weeks in the prototype hydroponic system.
- V. Collect data on plant growth and weather elements.
- VI. Compare plant mass across classrooms to determine which prototype system produced the most food.

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Activities:

1. Indoor garden design and build challenge for K-5th grade students

Roles and Responsibilities

Donald Danforth Plant Science Center will

- Provide all equipment and supplies needed to design and build hydroponic gardens.
- Visit students and teachers to launch the project and provide feedback on designs and garden projects.
- Provide data collection tools.
- Provide assessment forms for feedback.

Teachers will

- Supervise and guide students in the design, build hydroponic garden project, including planting and data collection.
- Provide feedback on what worked and what didn't, suggestions for change.
- Share insights on how they integrated project into learning strands e.g. science, design, social studies, math-measurement.
- Share tips on classroom organization and project timeline management.