

Dublin Jerome High School

2017-2018 Environmental Science

Legacy Projects

Teacher: Ashley Dulin-Smith

Student leaders: Michael Mavrouleas, Harrison Francis, Riley Tiarks, Will Birkohlz, and Meghan Bartsch

Hoop Houses

- ▶ Students wanted to be able to garden year round at school
- ▶ Designed a hoop house that would be built to cover our existing raised bed gardens
- ▶ Worked with local landscaping company on design
- ▶ Presented plan to Jerome Administration and City of Dublin
- ▶ Original plan needed altered-students designed hoop houses again and got approval



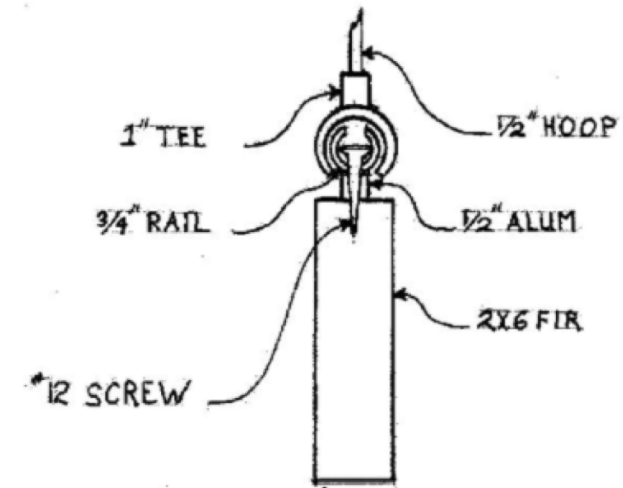
Area for hoop houses- 3 8'x16' raised bed gardens



Initial plan-hoop would go over entire area covering all 3 beds and leaving room for a 4th bed (picture for reference)



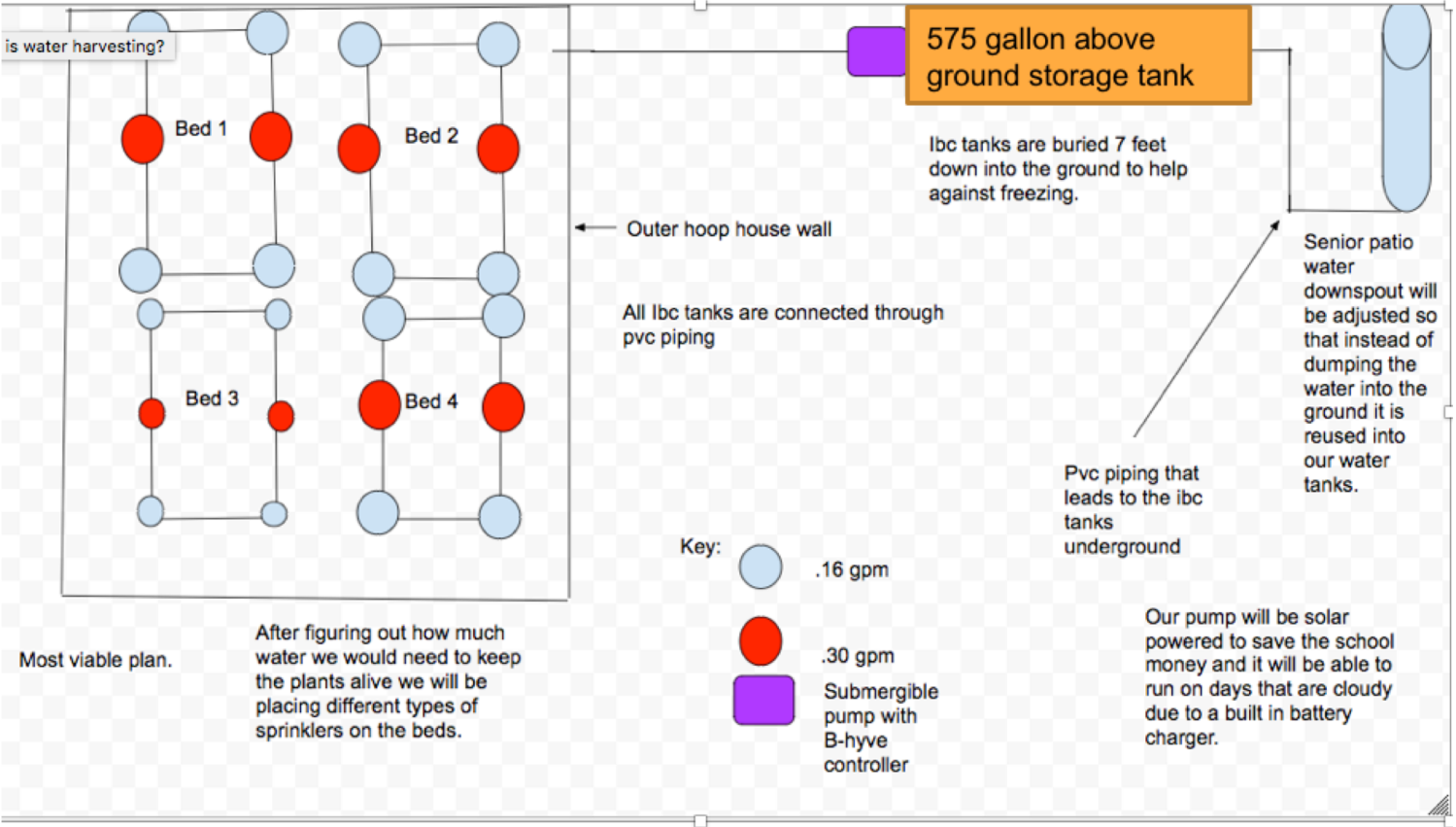
Students presenting their plan for the City of Dublin



Approved plan-retractable hoop houses over each individual bed- (picture as reference-in process of being built)

Rain Harvesting and Irrigation System

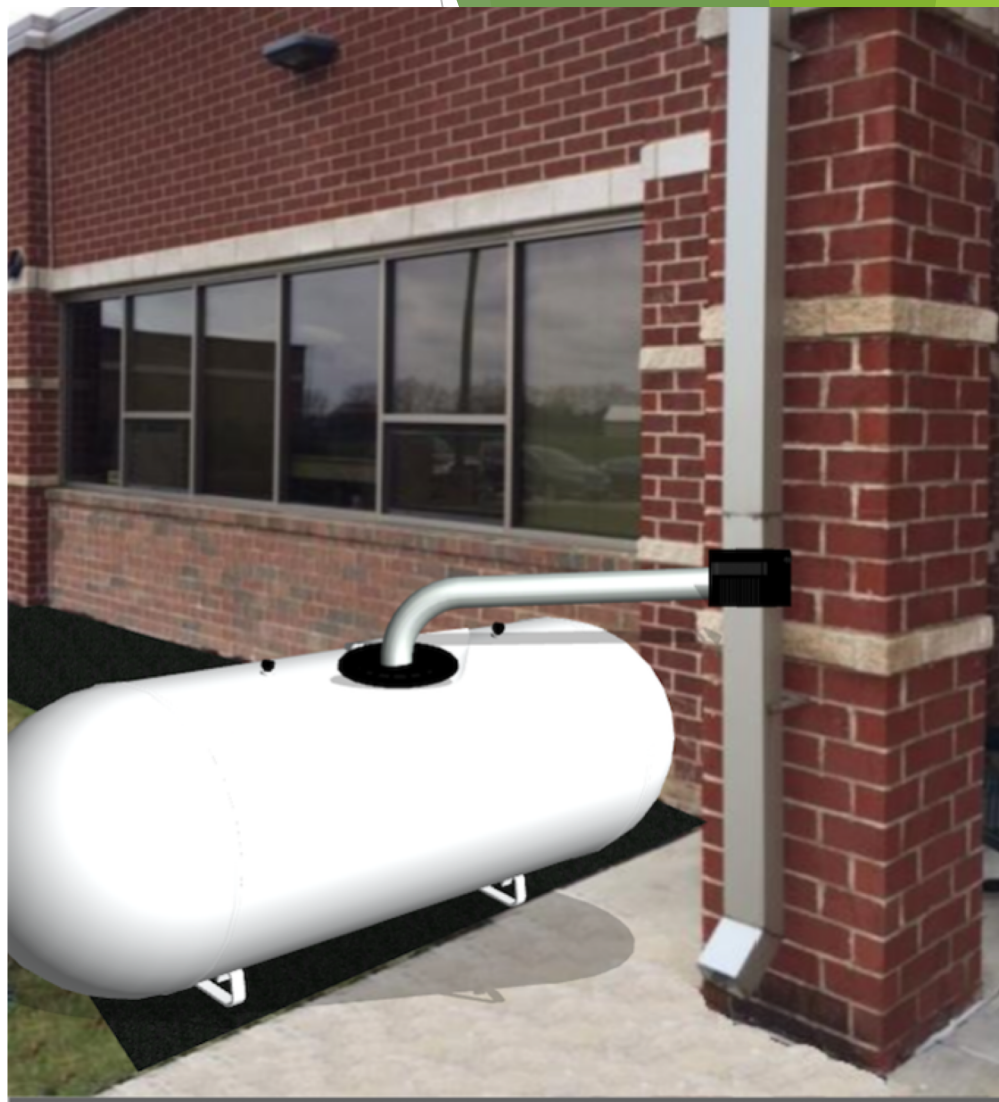
- ▶ Students wanted to reduce the amount of water that was being wasted while watering large area covering garden
- ▶ Students wanted to be able to garden through colder months and would need a way to water
- ▶ Students recognized that a lot of water was running off the roof and out of the downspouts and wanted to utilize that
- ▶ Worked with local irrigation specialists to audit area around the garden, designed and presented options for collection and irrigation
- ▶ Presented to City of Dublin for initial plan-it was declined so students designed new plan and is in final approval now



Final plan-in approval process



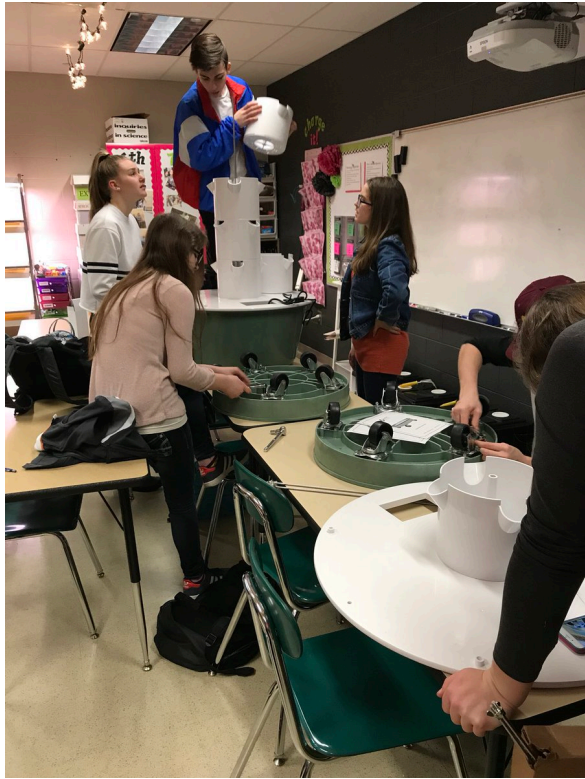
B-Hyve wireless control system-can water from any mobile device



Small modification to the downspout to catch rain water in tank with submerged Solar pump

Tower Gardens

- ▶ Students wanted to learn about aeroponic gardening-due to availability, ability to produce more vegetables faster and sustainability
- ▶ Plants grow in soilless medium called rockwool, nutrients are stored in the reservoir and solution cascades down the tower
- ▶ Great hands-on learning experience
- ▶ Learn how to incorporate fresh, healthy food into diets
- ▶ Sustainable gardening-10% space of normal garden, 2% of the water of traditional growing methods and 30% faster yields
- ▶ Possibilities for food grown-use in classroom, use in cafeteria, sample demonstrations and sell food to local restaurants



-3 tower gardens were purchased, built, set up and filled with vegetables by these students

-located in the Attendance, Main Administrative and Guidance Offices

Recycling/Composting/Waste Stations

- ▶ Students recognized a need for new and improved recycling system for Jerome
- ▶ Trash audit showed that we could be recycling between 72-144 pounds of recycling a day that was thrown into the wrong container for disposal
- ▶ Goals: limit the amount of trash that was produced by the school, add additional recycling cans and reduce the number of trash cans, reduce the amount of material being sent to the landfill, and save the school money by reducing the number of hauls to the landfill
- ▶ Students designed a new waste station that includes a spot for compost (food scraps, recyclable materials and landfill materials)
- ▶ Secured donations for most of the supplies, built and painted bins



Waste station is almost done-blue is for compost, green is for recycling and black is for landfill

Grind2Energy and Quasar

-Grind2Energy is a non-sewer based program that efficiently captures food scraps that ultimately gets hauled to a local anaerobic digestion facility for processing into renewable energy

-Quasar- Anaerobic digestion-process in which microorganisms break down biodegradable material in the absence of oxygen-produces carbon dioxide, methane and water.

-2 students have proposed this idea to school administration and will be presenting this information to district personnel before the end of the year.

OUR ESTIMATES

1 Time emptied:

61,920 lbs PER YEAR

2 Times emptied:

123,840 lbs PER YEAR



Students did a trash audit and found that our school wastes this much in food scraps alone!

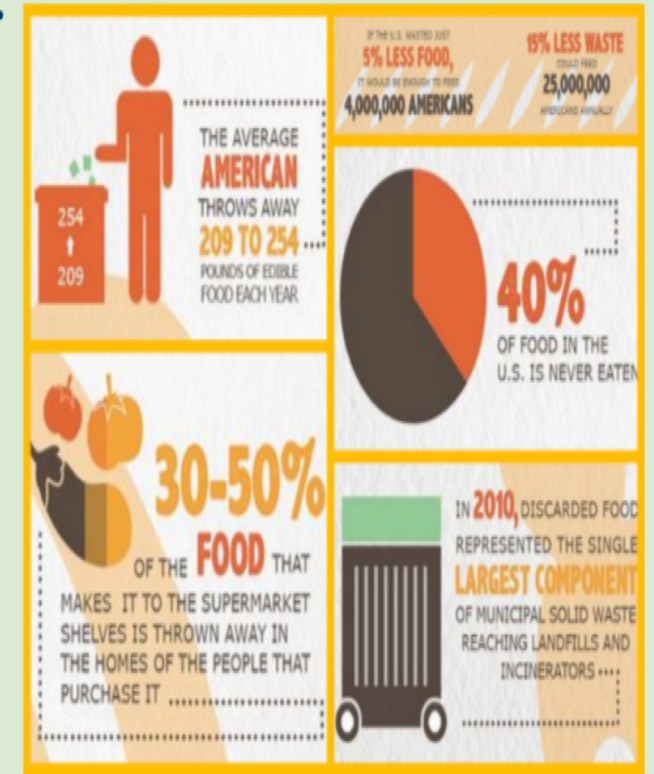
HOW DOES IT WORK?

- Food scraps are collected and then placed onto a processing table, which are then fed through the disposal.
- Ground up scraps are then pumped to a holding tank which is completely monitored by the company.



IMPACTS FOR THE ENVIRONMENT

- Not only will we be reducing the amount of waste sent to the landfill we will also be able to reduce the amount of trips trucks take to our school to pick up trash and waste.
- The waste that is collected by the company is turned into gas that is beneficial for local farmers as this type of fertilizer is economically clean and doesn't produce any chemicals that could get in the water supply in the form of runoff.



Kindness Rock Garden

- ▶ Students proposed the idea of adding a rock garden to an area by our existing raised bed gardens
- ▶ Goals: bring a positive environment to the school, lift the mood of students, and let the students know they are NEVER alone
- ▶ Students got over 2000 rocks donated and helped collect them
- ▶ Rocks are still being painted but will be placed before the end of the year



Funding for Projects

- ▶ In order for student projects to be approved, funding had to be secured
- ▶ Students participated in seedmoney.org crowdfunding grant- 30 day challenge
- ▶ First 50 grants to raise \$600 received an extra \$400 grant
- ▶ First place grant (most money donated) received an extra \$600 grant
- ▶ Students received \$400 grant
- ▶ Took 2nd place with \$11,260.99 raised
- ▶ Personally asked each person to donate and sent handwritten thank you notes to over 100 individual donors

