

First and Last Name *

Rose Kimball

School *

Cooper

Phone Number *

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Position or Title

STEM teacher

Project Title:

Powerful Planting

This project is designed for:

Elementary

Middle

High

Other:

Target Grade Level(s)

K-5

Subject Areas or Discipline

Science

Describe the grade level target population, subject or subjects being taught, overall curriculum goals and SOLs being addressed by the project.

I have three teachers in every grade level that I see. Most of the classes have 23 students so overall 414 students would be addressed by the project, from kindergarten through fifth grade. The main science SOLs being addressed in K-2 would be measuring, classification, making predictions and observations, and making simple data charts and graphs. In the upper grades 3-5, the SOLs consist of making predictions, inferences, drawing conclusions using a variety of sources such as bar graphs. Students will also utilize cause and effect to see the relationship of their data and what happened to their plants. Finally, in third grade the SOLs for soil and in fifth grade the SOLs on plants tie directly into this project. The goals for this project is for the planting process and the plants itself to be a real world model where students can take data, analyze it, and then apply the knowledge gained to make improvements. These leads to differentiation because in order to use the aerogarden students need to complete multiple tasks. Some students can get the nutrient levels correct, others water level, while some can be recording and taking pictures. Students will be working in groups and bring out their expertise at their level to share with their group. This project also is designed for all grade levels at all ages.

Provide a comprehensive overview of the project to include: project objectives, explanation of innovative learning experiences, expected student outcomes and assessment practices for the project. Include plans for dissemination of the project after it is completed.

The Powerful Plants Project starts with purchasing 3 hydroponic growing devices to use in the STEM classroom. These devices allow plants to suspend partially in the air which allows oxygen to get to the plant. This device allows the plant to get the exact levels of nutrients, water, and oxygen, which in return makes the plants grow significantly faster with a higher nutrient content level in the soil. With these devices students will be able to make predictions about plants, as well as classification, and actually see observations that are measurable in a time allotment that allows multiple data entries to make conclusions. The K-2 students will be able to identify what plants need in order to grow, what is edible vs non-edible, seasons, and the life cycle of butterflies. The 3-5 students will be able to identify living vs non-living things, parts of a plant and how it reproduces, and the process of photosynthesis. This is an innovative learning project because it takes normal planting into the study of hydroponics. With this study students will be able to see that farming in places that do not have high amounts of rainfall is possible. This is a great tie to current events in places like Africa, or even growing in space like NASA, as well as ways to make a difference and be a good global citizen. Students will learn that typical planting looks different in hydroponics

because there is no soil. This hopefully will lead to scientific discovery of looking at “old or traditional” ways of solving problems and making technological advancements of things that already exist.

Another reason this project would be beneficial for our students is because research shows that having plants in the classroom improves air quality. According to researcher Burchett (2010) plants in the classroom also decreases illness symptoms, increases work production, and causes a lifting of spirits. If students are excited and healthy at school, they will be able to master their SOLs and be ready for learning.

For K-2 grade students they will be expected to make graphs using standard and non-standard measurement of the plants growth. Students will make data tables with the date, type of plants, and growth each week. Students will discuss why they think certain plants are taller than others. They will also be able to use their math skills with the calculations. For students 3-5 they will be expected to make and analyze their data tables, and graphs. Students will need to identify the control and variables of the experiment. Furthermore, students will be able to use the real plant to identify its parts, the functions of each part, and how it can spread the plants seeds for pollination. These students will be assessed prior to the project by identifying the plants part, photosynthesis, and pollination according to their 5th grade SOLs. After the project is over, during technology class students will develop a presentation explaining each of these assessment points including pictures throughout their project. These projects will be shared among the students and staff, as well as pictures posted in the hallways and on our STEM website. Parents will also receive samples of the lettuce to try at home with their student. If this project is feasible it could turn into a great community outreach where extra food could be donated to food banks. Students will see they can make a difference and because of that they will master the content of planting. I believe this will help improve our science SOL scores in the areas of plants and using experiments to collect and analyze data.

Provide a timeline outlining the preparation and events of the project. Note that funded projects must be implemented within the school year and a project report must be completed. (See Hampton Education Foundation website for Project Report form).

The plan for this project is to have all materials ordered and arrived by our third semester. During this third semester students will be exploring a STEM unit on renewable sources of energy (wind, solar, water (hydro), geothermal). These aeroponics planters would fit nicely in the curriculum. Students will use the STEM engineering process to walk through how to use these natural resources in today’s society. Students will focus be able to study hydro- powered planting, as well as other natural resources.

Another reason I would like to complete this project in the third semester is because it is spring and planting season. A great variable would be to have a small garden outside to compare with the aerogarden in the classroom.

Budget:

List Items, Quantity, Cost (ex. iPads/6/\$150)- Use a different line for each requested item.

2 MIRACLE-GRO AEROGARDEN BOUNTY WI-FI from aerogarden.com (\$399.95 each)
**That includes the LED light system, pre-seeded pods, one 9-pod seed kit,
and the app so the plants can talk to you.
3 seed pods (Salad greens) \$19.95 each
3 seed pods (tomatoes) \$19.95 each
BUDGET: \$919.60 plus tax
Taxes: About \$50 with free shipping
TOTAL BUDGET: \$969.60

Total amount requested

\$969.60

Special Instructions:

After you hit submit, this application will be e-mailed to you . E-mail will show your answers and you can edit again if necessary from link in e-mail. Once you are happy with your application, you need to forward the Google Forms email (which shows your responses) to hcs-edfoundation@hampton.k12.va.us. Be sure to do this before the deadline! At that point, the grant review committee will route your application to your building administrator for approval. By signing this and forwarding your application, you confirm that you have discussed this project with your appropriate building administrator who has agreed to support the program if grant funds are awarded.

Electronic Signature

Rose Kimball

Create your own Google Form

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