

3rd Grade Science

1) Introduction: Service-learning is an excellent way to teach Science. Service-learning emphasizes a “hands-on” experiential approach as a means of connecting academic learning to real-world applications. This approach is an effective way of engaging students in scientific concepts, which can sometimes seem abstract. Service-learning brings students into direct contact with real-world community problem-solving and by framing the scientific method as a problem-solving tool itself, students can begin to see the impact science has on the world around us.

2) Definition of service-learning:

Service-learning is a form of teaching and learning that engages students in meaningful service activities in their schools and communities as part of the standard academic curriculum. Integrated into (but not limited to) the school day, service-learning connects young people with structured activities that address human and community issues, and that provide opportunities for increased student academic engagement, civic responsibility, personal and social development and the acquisition of critical thinking skills.

The following concepts are central to good service-learning practice. Evidence of these elements as well as their alignment with Pennsylvania state standards and the School District’s promotion/graduation requirements are keys to model practices.

- **Student voice in choosing, developing and implementing a project:** Service-learning works best when students are involved in something relevant and meaningful to them. Encourage student participation and sharing of responsibility in all aspects of a project.
- **Identification of genuine need:** The “community” identifying the need can be the class, the school, the neighborhood, a community partner, the city, etc. Goals for addressing problem have the support of designated community and clearly defined objectives.
- **Mutual benefit for students and community partner(s):** Students acquire knowledge and skills, and in return contribute a short or long-term solution to the problem. Sensitivity to needs and/or limitations of all parties is important.
- **Sustained student involvement:** Length of project can vary but should span a minimum of 6 weeks. Projects with greater richness and complexity may last a semester or an entire school year.
- **Rigorous, multidisciplinary research:** Projects should meet content standards in at least two academic disciplines and demonstrate writing and research competence. Research can explore root causes/effects, potential solutions or public policy related to the problem.
- **Ongoing reflection:** Reflection activities should occur throughout the project. They reveal cognitive and affective learning and can incorporate speaking, writing and/or multimedia strategies.
- **Assessment of student learning and project impact:** Evaluates academic, personal and social development as well as whether stated community need has been

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met/addressed. Rubrics and other authentic assessment tools are preferred.

- **Culminating presentation:** Presentations or exhibitions of learning allow students to demonstrate what they have learned for the benefit of others, including community partners. This may occur through oral presentations, culminating events, and/or artistic expressions.
- **Final celebration:** Positive change and collaboration is hard work! Acknowledge and celebrate the contributions and accomplishments of all who were involved.

3) Sample Project Description

A sample project description is included for your convenience. This particular project is not required, however, it is designed to fit the core curriculum for this subject and it reflects a common issue or problem in many of Philadelphia's communities. Teachers are encouraged to transform this project and take it in new directions.

Greening For Seniors

This project has students growing plants to donate to a local senior center or nursing home as part of their unit on "Plant Life Cycles" during the third twelve weeks of the school year. As students learn about plants and seeds, they will plant seeds of their own and watch them grow. They will keep track of the growth of the seed and identify different parts of the growing plant (3.2.4 B; 3.1.4 A,C; 3.3.4 A, B,C; 4.3.4 A)

The students should be given freedom to decide what type of plants they would like to grow and where they would like to donate them. Students may choose to grow flowers, herbs, or a variety of plants. This could add an extra dimension to the project as they compare the development of different plant varieties.

A key piece of service-learning, especially for younger grades, is celebration and recognition. When the plants are donated to a senior center or nursing home, having a celebration at which the plants are presented would be a good way to recognize your students and develop relationships between your students and the seniors receiving plants.

4) Sample Lessons/Activities

Situating Students in the Problem

- Talk to students about feelings of isolation that senior citizens sometimes feel when they live in nursing homes.
- Describe the therapeutic benefits of plants.

Research

- Review the life cycle of plants and plant parts (3.1.4 A, C)
- Perform an experiment to on how different amounts of light and water affect plant growth (3.2.4 C; 4.3.4 A)
- Compare the growth patterns of different varieties of plants (4.7.4 A)

Creating a Solution

- Grow starter plants and donate them to a local senior center

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- Create instruction cards that describe the proper care of the plant

5) Sample Rubric

Rubrics can be used at all steps of the service-learning process. Each activity can have its own rubric, and you can use a cumulative rubric to assess student work at the end of the project. Here are two sample rubrics that assess student learning, one on developmental growth and one on task completion.

See attached

6) Multidisciplinary Connections

Social studies – Make a map of different types of plants on the school grounds or in the local community

English – Have students write a play of a plant's life cycle from seed to plant and back to seed

Art – Use different media to illustrate local plants and flowers

Drama – Put on the play of the plant life cycle

Math – Calculate the average number of seeds produced by a group of plants

7) For more information:

National Gardening Association: KidsGarden!

<http://www.kidsgardening.com/>

Starter Plants with Children

<http://www.gardenguides.com/articles/childsplay.htm>

Gardening with Children

<http://www.thegardenhelper.com/kidgarden.html>

Partnership for Learning: Green thumb kids

<http://www.partnershipforlearning.org/article.asp?ArticleID=1458>

8) Local resources:

Delaware Valley Earth Force

<http://www.earthforce.org/section/offices/delval/>

Philadelphia Green

<http://www.pennsylvaniahorticulturalsociety.org/phlgreen/index.html>

Penn State Cooperative Extension in Philadelphia: Urban Gardening

<http://philadelphia.extension.psu.edu/second.asp?county=Philadelphia&table=Hort>

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This curriculum insert was developed by Megan Heckert, Program Coordinator of Delaware Valley Earth Force, as part of a collaborative effort between the School District of Philadelphia and several local community-based service-learning organizations, designed to integrate service-learning with the new core curriculum.