

## 2<sup>nd</sup> 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.

#### Seasonal Decorations and Protective Gear

This project has students making seasonal decorations for a variety of audiences to reinforce academic content related to "Air and Weather," during the second 12 weeks of the school year. Students will learn about seasonal changes in the weather and create decorations (3.7.4 B) for others such as younger children in pre-K programs, children with special needs, senior citizens at nursing homes, and/or the school itself.

Students should be given time to decide which population to serve and how best to go about serving them. For example, they may want to make seasonal placemats for senior citizens in a nursing home. Or, they may want to make tip cards for children with special needs that remind them what type of protective gear they might need given the season and weather conditions (i.e. sun block, gloves, a raincoat). Or they may do all of the above.

A key piece of service-learning, especially for younger grades, is celebration and recognition. Consider providing the opportunity for your students to present their decorations to the intended audience.

### 4) Sample Lessons/Activities

- Identify seasonal weather patterns that occur over the course of the year (3.1.4 B, 3.4.4 D, 3.5.4 C)
- Describe indicators of various seasonal weather occurrences such as rain, snow, heat. (3.2.4 B)
- Describe what happens when people go out into different types of weather without protective gear. (3.2.4 B) Compare different materials for their suitability for various types of protective gear (i.e. plastic vs. paper umbrellas) (3.4.4 A)
- Capture rain and then snow and compare to demonstrate the state of water in different forms (3.5.4 D)

### 5) Sample Rubric

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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** – connect the seasons to American holidays as well as holidays across the globe and/or religious and cultural holidays.

**Math** – Make calendars and have students count days of the month; keep track of the number of days it rains or snows and graph it

**English** – Have students write summaries for their decorations that describe the weather conditions for different seasons.

**Art** – Use different media to create decorations

### 7) For more information:

Web Weather for Kids

[http://www.ucar.edu/educ\\_outreach/webweather/](http://www.ucar.edu/educ_outreach/webweather/)

National Weather Service's Kids Page

<http://www.weather.gov/om/reachout/kidspage.shtml>

Nick Walker: The Weather Dude

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

### 8) Local resources:

Philadelphia Corporation for Aging

<http://www.pcaphl.org/>

Pennsylvania Council on Independent Living

<http://www.pcil.net/>

Philadelphia Pre-School/Early Childhood programs

<https://sdp-webprod.phila.k12.pa.us/OnlineDirectory/Directory>

Select your region and scroll down to pre-school/early childhood programs

Local meteorologists

ABC: <http://abclocal.go.com/wpvi/weather/index.html>

NBC: <http://www.nbc10.com/weather/index.html>

CBS: <http://weather.kyw.com/>

FOX: <http://www.fox29.com/weather/index.shtml>

WB: <http://weather.wb17.com/US/PA/Philadelphia.html?main=1>

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This curriculum insert was developed by Hillary Aisenstein, Director of the Philadelphia Higher Education Network for Neighborhood Development (PHENND), 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.