



Maryland State Department of Education
Service-Learning
Special Education Unit
School-Wide Recycling Project

Primary Subject: Science (Environmental) **Grade Level:** 3-12 grades (Alt-MSA)

Additional Subject Area Connections:
Reading/Language Arts, Math, Technology, Art

Unit Title: School-Wide Recycling Project

Type(s) of Service: Direct, Indirect, and Advocacy

Students participating in service-learning projects may have a wide range of abilities, challenges, and needs. Teachers and parents may provide a greater amount of guidance and assistance before, during, and at project completion. Procedures and steps described in the unit may be modified or excluded as dictated by the needs of the students.

Unit Description: As students learn about the planet and recycling, they often have limited knowledge with what happens to the by-products they discard. Students will research, discuss, and identify issues associated with keeping a healthy planet. Using knowledge of school climate and activities associated with recycling, the students will design a plan of action to reduce the amount of school recyclable items that are thrown into the trash. Math and technology skills will be used to collect, record, and analyze data associated with school-wide recycling trends. Students will extend their understanding of human effects on their environment by conducting home and school surveys regarding recycling practices. In addition, students will visit a recycling center. Ultimately, students will become actively involved in preparing and taking recyclable items (plastic bottles/cans) to a local pick-up center. Students will report to the school and student body the findings and totals on the number of recycled items saved from

Maryland State Curriculum Indicators Met

Science:

Standard 6.0 Environmental Science: Students will use scientific skills and processes to explain the interactions of environmental factors (living and non-living) and analyze their impact from a local to a global perspective.

Recognize and explain how renewable and nonrenewable natural resources are used by humans in Maryland to meet basic needs.

Identify and compare Maryland's renewable resources and nonrenewable resources.

Describe how humans use renewable natural resources, such as plants, soil, water, animals.

Describe how humans use nonrenewable natural resources, such as oil, coal, natural gas, minerals, including metals

1. Recognize and explain that decisions influencing the use of natural resources may have benefits, drawbacks, unexpected consequences, and tradeoffs.

a. Identify and describe personal and community behaviors that waste natural resources and/or cause environmental harm and those behaviors that maintain or improve the environment.

b. Identify and describe that individuals and groups assess and manage risk to the environment differently.

Additional VSC indicators met follow

the trash and taken to the recycle center. Through announcements made to the student body, and a letter writing campaign, students will solicit the support of peers and adults to increase their involvement in recycling. As a culminating activity, students will host a screening of a DVD documenting the recycling project.

Potential Service-Learning Action Experiences:

- Collect plastic bottles/cans/paper to recycle. (*indirect*)
- Create public service announcements (PSAs) regarding recycling awareness. (*advocacy*)
- Create a DVD for community distribution on the importance of recycling. (*advocacy*)
- Create social story for sensory students who will visit the recycling center. (*direct*)
- Visit a recycling center/ drop-off-location to deliver collected items. (*direct*)
- Create a letter to the editor about recycling at their school. (*advocacy*)
- Host a community screening of recycling DVD and a recycling promotional event. (*advocacy*)

Additional Indicators Met

Science Continued:

2. Recognize and describe that consequences may occur when Earth's natural resources are used.

Explain how human activities may have positive consequences on the natural environment.

- a. Recycling centers
- b. Native plantings
- c. Good farming practice

Health

3.0 Personal Consumer Health- Students will demonstrate the ability to use consumer knowledge, skills, and strategies to develop sound personal health practices involving the use of health care products, services, and community resources.

- a. Analyze various media messages for valid health information.
- b. Identify advertising techniques used in different media sources
- c. Identify and recognize products label information.

Alignment with Maryland's Best Practices of Service-Learning: *School Recycling Project*

1. Meet a recognized community need

Students will collect plastic bottles /cans/paper in order to demonstrate the ease of recycling and reduce the trash in and around their school or community.

2. Achieve curricular objectives through service-learning

Many curricular objectives could be met through this project in a variety of content areas (see numerous attached VSC indicators) depending on how the teacher implements the project. Students will advocate for recycling and develop a social story (an anticipatory story for sensory challenged peers). Directions for recycling may be displayed in a picture form for those students who have reading challenges.

3. Reflect throughout the service-learning experience

Students will use graphic organizers, video recording, and story boards to reflect on their collection process and to develop PSA and a community DVD of the project. The culminating reflection task will ask students to write a letter as a class to the editor of the school newspaper and community newsletter/school or district website describing their service-learning project. Written correspondence may be completed on a computer with keyboard adaptations.



4. Develop student responsibility (Students have opportunities to make decisions about the service-learning project.)

Students will:

- design or decorate receptacle covers to easily identify recycling containers;
- create social stories for sensory challenged peers;
- develop a survey to learn the recycling habits of the members of their home and school community;
- interview school personnel about their recycling habits to create a DVD and PSA;
- develop a storyboard;
- create letters and thank you notes regarding the recycling project;
- use data to identify, describe, and analyze numeric patterns.

5. Establish community partnerships

Establish a partnership with a recycling center and waste removal vendor to provide recycling containers, guest speakers, and a recycling center tour.

6. Plan ahead for service-learning

Building Background Knowledge / Vocabulary Development

- o living/non-living, environmental issues, and recycling

Social Stories

- o A social story can be developed for sensory challenged students who may need more preparation for the field trip to the recycling center. Students can create a storyboard and then photograph specific places to prepare the students (e.g. The recycling center is large and noisy. Most of the work is outside. The big machines make the floor and the grounds vibrate.)

7. Equip students with knowledge and skills needed for service

The student will learn about the importance of service-learning. They will explore concepts associated with civic responsibility. They will learn about the importance of having a healthy planet.

They will read books, visit web sites, read survey questions, conduct interviews and report and share findings using various technologies. Teachers may adapt stories or books through the use of a tool such as Boardmaker. Adaptations may increase visual memory and comprehension.

Students will learn behaviors for life skills (e.g. use community transportation, empty recycling containers, rinse recycled bottles and cans, operate a camera), create a Powerpoint, video, or storyboard, write a letter of introduction and request for assistance, read a short paragraph fluently, interview an adult (by introducing himself, shaking hands, and thanking the interviewee), and write a thank you letter.

Students can sort collected items as a class or in small groups. Recycling containers must be accessible to students in wheelchairs.

Procedures with Resources: *School Recycling Project*

These procedures represent an example of a service-learning lesson on this specific topic, but can be changed to meet individual classroom interests or varying community needs. You are encouraged to adapt this unit to fit your unique classroom and community and to solicit student input in planning and decision making.

1. Introduce the service-learning project by discussing service-learning and citizenship with students and engaging in activities to explore those themes. A resource to support this topic can be found at:
http://www.servicelearning.org/lisa/bring_learning/fullvideo.php.
2. Send letter home with students to inform parents about the project and service-learning used as an integrated teaching method.
3. Build Background:
 - a. Instruction provided to build student background knowledge in the following areas:
 - i. Our planet (healthy planet)
 1. <http://www.epa.gov/kids/garbage.htm>
 2. <http://www.planetpals.com/>
 - ii. Positive/negative effects that humans have on environments
 1. http://www.need.org/needpdf/infobook_activities/ElemInfo/SavingE.pdf
 2. <http://www.thedailygreen.com/green-homes/latest/recycling-symbols-plastics-460321>
 3. <http://www.fredericknewsjournal.com/sections/news/display.htm?StoryID=87981>
 4. <http://www.depweb.state.pa.us/justforkids/cwp/view.asp?a=3&q=464803>
 - iii. Recycling projects completed by same aged peers in other locations states, – reduce, reuse, recycle
 1. <http://www.container-recycling.org/kids.htm>
 2. <http://www.recycleworks.org/kids/games.html>
 3. <http://www.ecy.wa.gov/programs/swfa/kidsPage/>
 4. <http://www.mwcog.org/uploads/committee-documents/bF5eWVxY20080717152942.ppt>
 5. http://www.gazette.net/stories/061208/frednew175326_32356.shtml
 - iv. Characteristics of living and non living things

- Reading focus: books, websites, etc. High interest, lower level readings by:
 - What Living Things Need: Homes
 - What Living Things Need: Food
 - What Living Things Need: Light
 - What Living Things Need: Water
 - What Living Things Need: Air
- b.
 - i. Comprehension
 - ii. Main idea
 - iii. Use of graphic organizer/story maps
- 4. Construct surveys & conduct interviews
 - a. Use information from background to
 - i. Construct a survey on recycling practices
 - ii. Give survey to staff and parents/guardian
 - iii. Write class letter to invite school personnel to participate in class survey
 - iv. Practice reading survey question, practice using video camera
 - v. Interview school personnel
- 5. Discuss human/environmental issues at home and school
 - a. Conserving energy
 - b. Water usage
 - c. Pollution
 - d. Trash verses recyclable items
 - e. Identify problems associated human/environmental issues at school
- 6. Discuss and design ways to collect recyclables in school
 - a. Write a class note to administrator to conduct a school-wide recycling competition between grade levels
 - b. Get permission to conduct a school-wide recycling project
 - c. Write and make announcement about school wide recycling project competition
 - d. Get separate recycling containers per grade/level decorate and place in lunch area

Additional Interdisciplinary Connections



- **Reading/Language Arts** – read and conduct research on the topic. Write letters and survey.
- **Math** – track material recycled and graph.
- **Technology** – Create visual presentation/DVD on project and recycling.
- **Art** – Create posters and signage for recycling program.

- e. Students count items that are deposited in each container and record data on graphic organizer
7. Students keep data on recyclable items by grade
 - a. Students keeps log
 - b. Report totals to peers on school-wide announcements
 - c. Report totals to classmates and use for math instruction
 - i. Skip counting (counting by twos, fives, tens)
 - ii. Tally
 - iii. Enter info into graph format.
 8. Teacher provide instruction on how to use video/technology
 - a. Instruction in Powerpoint, movie maker, Photostory. Technology will be use to make final project
 9. Visit Recycling Center
 - a. Visit website
 - b. Discuss what happens to bottles/can (recyclables) when recyclables are removed from the school/home
 - i. Initial team of students go out and take camera
 - ii. Report back to class about what will be experienced during the visit
 - iii. The purpose of this visit is to develop a social story to for sensory challenged students who may need more preparation for the field trip to the recycling center.
 10. Students study environmental science in science class.
 11. Students discuss behaviors and habits of community members.
 12. Students research recycling center and learn life skills behaviors to prepare for survey, interviews, and storyboard.
 13. Students recall aspects of project and they are written as a language experience story infused with photos taken throughout the project.
 14. Review the impact of the project and what students learned and how they helped their community.
 15. Reflect and evaluate the effectiveness of the project by completing the *Rubric for Assessing the Use of the Maryland's Seven Best Practices of Service-Learning* which can be found at www.mdservice-learning.org.

Additional Potential Maryland State Curriculum Indicators Met

Reading Language Arts:

Standard 1.0 General Reading Processes:

Fluency * 1. Read orally from familiar text at an appropriate rate c. Reread text multiple times to increase familiarity with words

D. Vocabulary 1. Develop and apply vocabulary through exposure to a variety of texts a. Acquire new vocabulary through listening to and independently reading a variety of literary and informational texts b. Discuss words and word meanings daily as they are encountered in texts, instruction, and conversation c. Make connections to prior knowledge and new vocabulary by listening, reading, and responding to a variety of texts

E. General Reading Comprehension

1. Develop comprehension skills through exposure to a variety of print and non-print texts, including traditional print and electronic texts

2. Use strategies to prepare for reading (before reading)

a. Make and explain the connections made from prior knowledge and experiences with the text

b. Make predictions or ask questions about the text by examining the title, cover, illustrations/photographs/text, and familiar author or topic

3. Use strategies to make meaning from text (during reading)

a. Recall and discuss what they understand

g. Periodically summarize while reading

Review/restate and explain what the text is mainly about

b. Identify and explain what is directly stated in the text (details, literal meaning)

Summarize the text orally

Additional Potential Maryland State Curriculum Indicators Met

School Library Media:

2.0 Locate Information: Students will be able to use resources, in a wide variety of formats, to locate information to meet an identified need.

3.0 Collect Information: Students will be able to collect information relevant to their current information need.

4.0 Organize and Manage Data/information: Students will use appropriate print, non-print and computer/online/digital formats to organize and manage data/information.

5.0 Interpret Information: Students will be able to interpret information to generate new understandings and knowledge.

6.0 Share Findings/Conclusions: Students will be able to communicate findings/conclusions by producing materials in an appropriate format to support written, oral and multi-media presentations.

6.0 Share Findings/Conclusions: Students will be able to communicate findings/conclusions by producing materials in an appropriate format to support written, oral and multi-media presentations.

7.0 Ethical Use of Information: Students will demonstrate responsible attitudes toward the use of information.

Additional Potential Maryland State Curriculum Indicators Met

Mathematics:

Standard 1.0 Knowledge of Algebra, Patterns, AND Functions – Students will algebraically represent, model, analyze, or solve mathematical or real-world problems involving patterns or functional relationships.

Standard 3.0 Knowledge of Measurement – Students will identify attributes, units, or systems of measurements or apply a variety of techniques, formulas, tools or technology for determining measurements.

Standard 4.0 Knowledge of Statistics – Students will collect, organize, display, analyze, or interpret data to make decisions or predictions

Standard 5.0 Knowledge of Probability – Students will use experimental methods or theoretical reasoning to determine probabilities to make predictions or solve problems about events whose outcomes involve random variation.

Standard 6.0 Knowledge of Number Relationships and Computation/Arithmetic: Students will describe, represent, or apply numbers or their relationships or will estimate or compute using mental strategies, paper/pencil or technology.

Standard 7.0 Processes Of Mathematics – Students demonstrate the processes of mathematics by making connections and applying reasoning to solve and to communicate their findings.

Created: July 2009



This material is based upon work supported by the Corporation for National and Community Service under the Learn and Serve America Grant No. 09KSAMD001. Opinions or points of view expressed in this document are those of the authors and do not necessarily reflect the official position of the Corporation or the Learn and Serve America Program.



Division of Student, Family, and School Support
Youth Development Branch
200 West Baltimore Street
Baltimore, Maryland 21201
410-767-0358

www.mdservice-learning.org
www.marylandpublicschools.org