



Maryland State Department of Education
Service-Learning Unit
Natural Disasters

Primary Subject: Earth/Space Science
(Plate Tectonics, Weather)

Grade Level: 8th

Additional Subject
Area Connections: Health

Unit Title: Natural Disasters

Type(s) of Service: Direct, Indirect &/or
Advocacy

Unit Description: While students are studying the causes of natural disasters including earthquakes, volcanic eruptions, hurricanes, floods, & tornadoes, they will explore the needs of their school/community to be prepared for such disasters, as well as how they can help others who have experienced one of these disasters.

Potential Service-Learning Action Experiences:

- If these drills are not already in place in the community, develop and practice a tornado drill for a senior center or homeless shelter. *(Direct)*
- Implement a drive to donate supplies to the Red Cross to help in the relief effort after a hurricane, tornado, or earthquake, www.redcross.org/donate/donate.html. *(Indirect)*
- Host a blood drive for the relief efforts, www.redcross.org/donate/give/ and http://www.redcross.org/services/biomed/0,1082,0_557_00.html. *(Indirect)*
- Establish a correspondence (ex. pen pal program) with a school in a disaster struck area and work to assist that schools recovery. *(Indirect)*
- Create and implement a community-wide campaign on emergency preparedness. *(Advocacy)*

VSC Indicators Met

Science:

Standard 2.0 Earth/Space Science
Students will use scientific skills and processes to explain the chemical and physical interactions of the environment, Earth, and the universe that occur over time.

C. Plate Tectonics

2. Recognize and explain how major geologic events are a result of the movement of Earth's crustal plates.
a. Recognize and describe the evidence for plate movement.

Global Patterns of earthquakes and volcanoes

b. Recognize and explain that major geologic events occur along crustal plate boundaries

D. Interactions of Hydrosphere and Atmosphere

3. Identify and describe the atmospheric and hydrospheric conditions related to weather systems.

b. Identify and describe the atmospheric and hydrospheric conditions associated with the formation and development of hurricanes, tornadoes, and thunderstorms.

Additional course VSC follows.

Alignment with Maryland's Best Practices of Service-Learning: *Natural Disasters*

1. Meet a recognized community need

Prepare the school or community for safety in the event of a natural disaster and/or support a community anywhere in the world impacted by a natural disaster.

2. Achieve curricular objectives through service-learning

See VSC objectives listed.

3. Reflect throughout the service-learning experience

Create collages of natural disasters and their impact. Discuss the potential impact on the individual, family and community when a disaster strikes.

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

Students will be responsible for researching, planning, implementing, and revising a safety drill procedure if needed for their school or community. If conducting a drill, students who developed the procedure will be responsible, in conjunction with local emergency agencies, for conducting the drill, assessing the effectiveness of the drill and making changes if necessary. Alternately, students can identify an area impacted by a natural disaster and implement a plan to help that community.



5. Establish community partnerships

Contact the local emergency management agencies (ex. fire and police departments or Maryland Emergency Management Agency) for assistance with the project. Arrange for a guest speaker who can discuss emergency preparedness and the impact of natural disasters (e.g. Red Cross, etc.).

6. Plan ahead for service-learning

If conducting drills, students will need to determine which natural disaster(s) they will address and must consider the advice of reliable internet sources and local emergency agencies to determine the procedure to be followed. Or,

students should select an area impacted by a natural disaster and make their plan to assist.

7. Equip students with knowledge and skills needed for service

Students will use research and listening skills to gain the knowledge needed. Students will use communication and organization skills to plan and execute the safety drill in their school/community or the relief project for a community affected by a natural disaster. Students will also explore the concepts of active citizenship and service-learning.



Additional VSC Indicators Met

Health Education:

5.0 Safety and Injury Prevention

Students will demonstrate the ability to apply prevention and intervention knowledge, skills, and processes to promote safe living in the home, school, and community.

A. Safety and Injury Prevention

1. Demonstrate the ability to respond appropriately to situations requiring emergency services.

a. Construct and perform scenarios applying effective utilization of emergency services.

Procedures with Resources:

Natural Disasters

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 www.servicelearning.org/resources/bring_learning/.
2. As students are learning about the causes and effects of earthquakes and/or tornados, they will complete research online and conduct interviews with local emergency management agencies, fire departments, etc. Students will learn the types of damage, as well as the proper safety precautions to be taken, during one of these events.
www.spc.noaa.gov/faq/tornado/safety.html
www.tornadoproject.com/
www.fema.gov/hazard/tornado/to_during.shtm
www.nws.noaa.gov/om/brochures/tornado.shtml
www.fema.gov/hazard/earthquake/eq_during.shtm
emaresources.com/earthquakesafety1.htm
earthquake.usgs.gov/learning/faq.php?categoryID=14
3. Math Option - Students examine the probability of an earthquake vs. tornado occurring in their area in an effort to determine the type of disaster for which to prepare.
www.earthquake.usgs.gov/research/hazmaps/products_data/index.php
www.earthquake.usgs.gov/regional/states.php?regionID=20
www.nssl.noaa.gov/edu/safety/guideimg/pic14.jpg
4. Students are then challenged to create the procedure that would be followed in the event that a tornado or other event would occur during school hours or develop a plan to support a community impacted by a natural disaster.
5. Students carry out their project. For example, after identifying the impacted area they want to assist, students develop and implement strategies to be of

Additional Interdisciplinary Connections



- Math – Students examine the probability of an earthquake vs. tornado occurring in their area in an effort to determine which type of drill to create or disaster for which to prepare.

assistance. Or students might decide to implement a community-wide campaign on disaster preparedness and create supporting materials and public service announcements that are broadcast on television. Or if the school does not already have a procedure in place that they practice, students might coordinate with their school administration to create a natural disaster drill and plan the implementation of it and help carry it out (e.g.: memo to teachers, assembly, PA system announcement, or student presentations to individual classes, etc.).

6. 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.

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