

Firewise in the Classroom Community Assessment Process



Minnesota Alliance for Geographic Education (MAGE)
Minnesota Department of Natural Resources
Firewise in the Classroom Project

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Curriculum Overview

Background

The Minnesota Department of Natural Resources (DNR) has adopted the national Firewise Communities program. Stillwater Area High School Geography students became involved in the Firewise program in 2001, utilizing instructional materials created by Dave Schuller of the Minnesota DNR and EPIC GIS software produced by the Minnesota Land Management Information Center (LMIC). In support of the National Fire Plan, the U.S. Forest Service allocated funding to support the replication of this activity in additional communities. To facilitate this effort, the Minnesota DNR Firewise Program and Minnesota Alliance for Geographic Education (MAGE) created the “Firewise Communities: Reducing the Risk of Wildfire” curriculum, and in 2004, began training teachers to implement the curriculum.

This new 2011 curriculum package, Firewise in the Classroom Community Assessment Process, offers an updated, streamlined, Internet-based approach to Firewise Community Assessment.

Goal

Young people, as community members and future homeowners, can play a critical role in helping communities to reduce the wildfire risk of homes. Firewise in the Classroom Community Assessment Process was created for formal and informal educators who would like to conduct a Firewise Community Assessment with 8th to 12th grade youth.

Philosophy

Firewise in the Classroom Community Assessment Process is a standards-based, authentic learning experience integrating spatial analysis, technology and community service. Students gain content knowledge, apply new skills, are exposed to potential career paths, and provide valuable data to their community and state. The curriculum is based on the steps of geographic inquiry as published in *Geography For Life: The National Geography Standards*, 1994:

- Ask geographic questions
- Acquire geographic resources
- Explore geographic data
- Analyze geographic information
- Act upon geographic knowledge

Introduction

Includes correlations to academic standards, technical information and recommendations regarding the involvement of the Minnesota DNR, fire departments and local government.

Lesson Plans

- Lesson Overview: A brief summary.
- Teacher Notes: Suggestions for preparing, teaching and assessing the lesson.
- Objectives: Specific student outcomes.
- Estimated Time: The estimated time required to complete the lesson.
- Materials Needed: A listing of teacher and student materials needed.
- Activity: Step by step instructions for the lesson.
- Assessment: Suggestions for informal and formal assessment.
- Extension Ideas: Suggestions for expanding the lesson for a class or individual students.

Additional Materials

Also included are Images, Student Guide, Appendix and Teacher Resource Links. Additional resources are found on the 2011Teacher DVD.

Firewise in the Classroom Community Assessment Process

Correlations to Minnesota Academic Standards in Social Studies and History

Lesson #	Grade Level	Strand	Sub-Strand	Standard	Benchmark
4	4-8	V. Geography	B. Maps and Globes	The student will make and use maps to acquire, process and report on the spatial organization of people and places on Earth.	1. Students will create a variety of maps to scale.
1, 2, 4, 5	4-8	V. Geography	C. Physical Features and Processes	The students will give examples of physical systems and describe their role in shaping life on Earth.	2. Students will describe natural hazards, the physical processes behind them, the areas where they occur, and the costs and benefits of methods people use to mitigate their damage.
1, 2, 4, 5	4-8	V. Geography	D. Interconnections	The student will give examples that demonstrate how people are connected to each other and the environment.	2. Students will analyze how the physical environment influences human activities.
1, 2, 4, 5	4-8	V. Geography	D. Interconnections	The student will identify examples of the changing relationships between the patterns of settlement and land use in Minnesota.	4. Students will explain the changing situation of Minnesota's largest cities and suburbs and analyze associated effects.
1, 2, 3, 4, 5	4-8	V. Geography	D. Interconnections	The student will describe how humans influence the environment and are influenced by it.	1. Students will recognize changes over time in nearby landscapes, resulting from human occupation.
1, 2, 3, 4, 5	4-8	V. Geography	E. Essential Skills	The student will use maps, globes, geographic information systems and other sources of information to analyze the natures of places at a variety of scales.	1. Students will demonstrate the ability to obtain geographic information from a variety of print and electronic sources.
1, 2, 3, 4, 5	4-8	V. Geography	E. Essential Skills	The student will use maps, globes, geographic information systems and other sources of information to analyze the natures of places at a variety of scales.	2. Students will make inferences and draw conclusions about the character of places based on analyses and comparison of maps, aerial photos, and other images.
1, 2, 3, 4, 5	9-12	V. Geography	B. Essential Skills	The student will use maps, globes, geographic information systems and other sources of information to analyze the natures of places at a variety of scales.	1. Students will demonstrate the ability to obtain geographic information from a variety of print and electronic sources.
1, 2, 3, 4, 5	9-12	V. Geography	B. Essential Skills	The student will use maps, globes, geographic information systems and other sources of information to analyze the natures of places at a variety of scales.	2. Students will make inferences and draw conclusions about the character of places based on analyses and comparison of maps, aerial photos, and other images.
1, 2, 4, 5	9-12	V. Geography	D. Interconnections	The student will describe how humans influence the environment and in turn are influenced by it.	3. Students will understand and analyze examples of the impacts of natural hazards on human activities and land use.

Source: *Minnesota Academic Standards in Social Studies and History, 2004*

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Correlations to National Geography Standards

Lesson #	Standard
1,2,3,4,5	1. How to use maps and other geographic representations, tools, and technologies to acquire, process, and report information from a spatial perspective.
1,4	2. How to use mental maps to organize information about people, places, and environments on Earth's surface.
1,3,4,5	3. How to analyze the spatial organization of people, places and environments on Earth's surface.
1,2,3,4,5	4. The physical and human characteristics of places
1,4	5. That people create regions to interpret Earth's complexity.
1,2	7. The physical processes that shape the patterns of Earth's surface.
1	8. The characteristics and spatial distribution of ecosystems on Earth's surface.
2,3,4,5	12. The process, patterns and functions of human settlement.
1,2,3,4,5	14. How human actions modify the physical environment.
1,2,4,5	15. How physical systems affect human systems.
1,2,3,4,5	18. How to apply geography to interpret the present and plan for the future.

Source: *Geography For Life: The National Geography Standards*, 1994

Correlations to National Science Education Standards Update

Lesson #	Standard
1, 2, 4	A. Unifying concepts and processes in science
2, 4	B. Science as inquiry
1	C. Physical science
1	D. Life science
2, 4	F. Science and technology
1, 2, 5	G. Science in personal and social perspectives

Source: *National Science Education Standards*, 1996

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Correlations to 2009 Minnesota Academic Standards in Science

Lesson #	Grade Level	Strand	Sub-Strand	Standard	Benchmark
4, 5	7 - 8	1. The Nature of Science and Engineering	1. The Practice of Science	2. Scientific inquiry uses multiple interrelated processes to investigate questions and propose explanations about the natural world.	8.1.1.2.1 - Use logical reasoning and imagination to develop descriptions, explanations, predictions and models based on evidence. 7.1.1.2.3 - Generate a scientific conclusion from an investigation, clearly distinguishing between results (evidence) and Conclusions (explanation)
4	7 - 8	1. The Nature of Science and Engineering	3. Interactions Among Science, Technology, Engineering, Mathematics and Society	4. Current and emerging technologies have enabled humans to develop and use models to understand and communicate how natural and designed systems work.	8.1.3.4.1 - Use maps, satellite images and other data sets to describe patterns and make predictions about local and global systems in Earth Science context. <i>For example:</i> Use data or satellite images to identify location of earthquakes, volcanoes, wildfires or weather patterns. 7.1.3.4.1 - Use maps, satellite images and other data sets to describe patterns and make predictions about natural systems in a Life Science context. <i>For example:</i> Use online data sets to compare wildlife populations or water quality in regions of Minnesota.
4, 5	9, 12	1. The Nature of Science and Engineering	1. The Practice of Science	2. Scientific inquiry uses multiple interrelated processes to investigate questions and propose explanations about the natural world.	9.1.1.2.1 - Formulate a testable hypothesis, design and conduct an experiment to test the hypothesis, analyze the data, consider alternative explanations and draw conclusions supported by evidence from the investigation. 9.1.1.2.4 - Use primary sources or scientific writings to identify and explain how different types of questions and their associated methodologies are used by scientists for investigations in different disciplines.
1, 2, 4, 5	9 - 12	3. Earth and Space Science	4. Human Interaction with Earth Systems	1. People consider potential benefits, costs and risks to make decisions on how they interact with natural systems. The student will investigate the impact humans have on the environment.	9.3.4.1.1 – Analyze the benefits, costs, risks and tradeoffs associated with natural hazards, including the selection of land use and engineering. For example: Determining land use in floodplains and areas prone to landslides. 9.3.4.1.2 – Explain how human activity and natural processes are altering the hydrosphere, biosphere, lithosphere and atmosphere, including pollution, topography and climate. For example: Active volcanoes and burning of fossil fuels contribute to the green house effect.

Source: *Minnesota Academic Standards in Science*, revised in 2009 and put into rule effective May 24, 2010

Firewise in the Classroom Community Assessment Process

**Technical Assistance, Computer Requirements
and Firewise in the Classroom Login Tips**

Contact Ken Pekarek and your Firewise Community Specialist to schedule a project date. They will work with you to determine an official project area and project name, to facilitate initial contact with the local Forestry Office and Fire Department and to set up necessary Firewise in the Classroom Community Assessment Process authorizations and logins.

Technical Assistance

Ken Pekarek, GIS4Schools
1807 Gervais Ave Apt 1
Maplewood, Minnesota 55109
E-mail - kenpekarek@comcast.net
Phone - 651-773-0073
Web page - <http://www.gis4schools.org>

Computer Requirements

Internet Explorer, Mozilla Firefox or similar Internet browser
Broadband Internet connection (required)

Firewise in the Classroom Login Tips

The Firewise in the Classroom web site is located at:

<http://webapps1.dnr.state.mn.us/firewise-classroom>

FIREWISE PRODUCTION



If you already have an account, please login.

Enter your email and password below; then click on the **Login** button to continue.

Email:

Password:

NOTICE: DNR users should now use their Outlook password.

[Forgot your password?](#)

[Firewise Authorization Form](#)

The Firewise in the Classroom Site has restricted access. Teachers that want to participate in the project must register. **Click** on the [Firewise Authorization Form](#) link above and it will connect to the Firewise in the Classroom Authorization Request form. Fill in all the information, agree to the terms and **click** on the **Submit** key at the bottom.

After you have completed the Authorization Form MNDNR Firewise Staff will email you instructions on how to connect to Firewise in the Classroom Site and how to set up a password.

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Sample Firewise in the Classroom Authorization Request Form

Firewise In the Classroom Authorization Request

Data Restrictions:

The FireWise In the Classroom Site has restricted access. This means that use of the site is limited to FireWise activities by non-DNR personnel. Distribution and copying of the data without prior authorization is prohibited. The site may contain data that is licensed or has restricted access. Use of the site by non-DNR personnel requires permission from the MNDNR FireWise Staff or higher authority. The data held on the site is intended for risk mitigation planning, emergency services operations, or classroom projects only. Other uses are not permitted without special written permission. For inquiry please call 218.308.2364 or 651.259.5277.

I, by providing the information requested below, will adhere to the policies discussed with the FireWise staff.

* Required

Required Information:

School Name and District Number: *

First Name: *

Last Name: *

Email Address: *

This email will only be used for administering login and correspondence for the purposes of Firewise in the Classroom only.

Address Line 1 *

Address Line 2

City *

State *

Zip Code *

Telephone Number *

Please include an extension if necessary.

Cell Phone Number

Distribution and Copying Prohibited, unless specified below:

1. May Contain Licensed and Restricted Access Data.
2. Use by non-DNR personnel requires permission from MNDNR FireWise Staff.
3. The data held on the site is intended for risk mitigation planning, emergency services operations, or classroom projects only. Other uses not permitted without special written permission.
4. Inquiry: 218.308.2364 or 651.259.5277

I, by submitting the information requested above, will adhere to the policies discussed with the FireWise staff.

Policy Verification and Agreement: *

I agree to the policies described above and discussed with me by Minnesota Firewise Staff.

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Firewise in the Classroom Community Assessment Process

Working with Your Community: Minnesota Department of Natural Resources Forestry Division, Fire Department and Local Government

To accomplish the goals of the Firewise Community Assessment project, you must involve your community. The Minnesota Department of Natural Resources (DNR) Forestry Division, or your local Forestry Office, is a facilitator in this process. Key players are the local Fire Chief and City Administrator.

Initial Contact with the Forestry Office and Fire Department

Make contact with the DNR Forestry Office and local Fire Department early.

Your local Forestry Office can explain the fire concerns in and around the community. They may also be available to make an initial presentation on fire hazards in the area. They can connect you with the Firewise Specialist who can provide you with resources to complete the program.

Your local Fire Department is a critical partner. The Fire Chief will value the fire education that you are providing for your class, and may be willing to give a presentation on fire issues in the community. The Chief will also be interested in your students' findings of fire risk and recommendations.

Talk to your local Fire Chief. Explain what you are attempting to do in your classroom. Ask if the chief would be willing to speak to your class. If the chief is interested in the program, direct him to the appropriate Firewise Specialist (following this section) to help design a grant program to help fund community Firewise efforts.

Level 1 Assessment

Invite your local Fire Chief to visit your classroom during the Level 1 Assessment process to see what you are doing, to look at the aerial photos of the fire protection district, and to lend a hand.

Communicating Your Findings

Once the Level 1 Assessments are completed, your class may develop a presentation to communicate its findings. Students may make a presentation at a city council or fire department meeting. The city may want to publish your findings on a web site, in the local newspaper or in a newsletter. The data you collect will go to your Firewise Specialist and will be provided to your Fire Chief or City Administrator for local planning.

Future Steps

Your community may have homes at risk. Your class will assess and make recommendations related to those risks. The class or a local civic organization may be called upon to assist with carrying out some of these recommendations as a community service project. Projects may include installing visible address signage, cutting brush along high risk right of ways, or pruning trees. The possibilities are endless. Firewise Grant funds can be used to cover some of the costs of this mitigation work.

Firewise in the Classroom Community Assessment Process

Working with Your Community (continued)

Firewise Community Specialists



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Minnesota Department of Natural Resources Forestry Regional Offices

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(218) 308-2378

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