

Defense by Diorama

(Modified from the FireBox Topic #3. This is an application of the information learned in Firewise.)

Objectives

Students will:

1. Build a model of their 'ideal' home in the woods.
2. Peer review the defensibility of their homes.
3. Make a connection between their models, Colorado homes (across landscapes) and fire preparedness responsibility.

Time: 60 minutes

Materials (A trip to a hobby/art store will fill your list):

Per diorama kit*:

12" by 12" mat (This is the student's acreage. Randomly give the mats a number between 1 and 4 to represent the degree of slope)

deciduous trees

evergreen trees

shrubs

street sign

6 tan triangles (stacked firewood)

cabin and outbuildings

red fire hydrant

include blue ponds and streams in some kits

*The parts and pieces do not need to match exactly. The students must use what you put in each kit.

[Woodland Home Forest Fire Rating Chart](#), one per group (found in the materials section)

Background

A spacious defense is the best offense against fire! That statement is very true but is the complete opposite of what many perceive as the ideal wildland home. Most people who move into forested or wildland areas want to keep plenty of undisturbed natural vegetation around their homes. They enjoy the privacy and beauty offered by trees and shrubs surrounding living spaces. However, fire can rapidly destroy the beauty of homes and surroundings. Those who live in the "Red Zone," or any region where wildfire is a potential threat, need to take measures to protect their property. The two primary factors that determine a structure's ability to survive wildfire are its roofing material and the quality of the "defensible space" surrounding it.

Defensible space is an area around a structure where fuels and vegetation are treated, cleared, or reduced to slow the spread of wildfire towards the structure. It also reduces the chance of a structure fire moving to surrounding vegetation. In addition, defensible space gives firefighters room to do their jobs!

As previously mentioned, homes are sometimes built out of the same wood that fuels nearby forest fires. The diorama kits include stacks of wood used to heat homes. This activity is an excellent time to address the importance of trees as a renewable natural resource. Products from trees are used to make paper, telephone poles, furniture, homes, and even toothpaste! This module teaches students the dangers of having too many trees and trees in the “wrong” places on property. However, it is important to remember how we use trees in everyday life. Students should be made aware that when catastrophic forest fires occur, not only can they be a threat to homes and wildlife habitat, but they can also remove a natural resource in the area that is used in everyday life. Low-intensity fires in forested areas are less of a threat to homes and infrastructure, and can actually promote better growing conditions for established trees in the forest. Fortunately, trees are a renewable resource, so once trees are killed or harvested, they can be “renewed” in the course of our lifetime by natural processes or by being replanted.

Procedure

1. Divide participants into groups of 2-3.
2. Hand each group a diorama kit.
3. Instruct the groups to build their “ideal” home in the woods using the materials in the kit, explaining that the 12x12 base is their “acreage.”
4. Explain that each group must use only the materials contained in the kit to design their homesite.
5. Give groups 15 minutes to build their dream homesite.
6. After 15 minutes, stop the designing process.
7. Have each group spend 5 minutes creating a mitigation plan.
8. Ask a group to explain the features of their miniature “homesite” that may be helpful and harmful in the event of fire. Have the group explain their defensible space plan.
9. Allow other groups to question, comment, or make suggestions once the first group has presented its diorama. Continue the process until all groups have had a chance to present their designs.
10. Once discussion has reached a natural stopping point, have the students connect the individual dioramas and create a subdivision.
11. Ask the participants to explore how subdivisions or community concerns differ from individual homeowner concerns. Have the students apply the concepts learned in the FireWise curriculum using the [Woodland Home Forest Fire Rating Chart](#) (found in the ‘Materials’ section). This is the same chart used for assessing a subdivision when writing a Community Wildfire Protection Plan.
12. At the end of the activity, make a list on a chalkboard or flip chart summarizing the essential features of good defensible homesites.
13. Have participants place the diorama pieces back into the containers, checking the list to make sure all pieces are included.

Science notebook:

1. What are some of the most common fire hazards the groups included when setting up their “ideal” home sites?
2. Explore how marketing strategies might include fire safety as a positive approach to sales and promotions of homes, construction materials, and outdoor home equipment.
3. What are the “hidden risks” common to many mountain and grassland properties and home sites in wildland areas? Should potential owner ask about: the presence of fire hydrants, alternative escape routes from subdivisions, slope of the property, dense forest growth and other characteristics that may affect the degree of fire risk for the area?
4. Ask participants to list how this activity affected their view of their “ideal lot.”

Extension

Take a walk through your residential area and imagine a wildland fire. Look for homes, buildings or areas that have defensible space around them and take note of the features that make it ‘defensible’. Note structures that would invite fire damage or allow fire to spread to uninvolved spaces.

Additional Information

You will need a few more tools to aid your students in making model decisions. Please read the Creating Wildfire-Defensible Zones article at http://csfs.colostate.edu/pdfs/FIRE2012_1_DspaceQuickGuide.pdf. It is very detailed and written for both professionals and homeowners. You may want to extract some of the charts for your students, with explanations. You can find a list of additional resources on the last page of the article.