Mississippi Wildfire Prevention . . .

This Teacher's Guide, along with the *Wildfire Prevention* CD-ROM, is designed to help you explore with your students the importance of fire to the ecosystem. We hope you find these tools useful as you and your students set out to discover how fire is used to properly manage and maintain an infinitely renewable resource... our forests. We are confident that you and your students will enjoy the challenges of this CD-ROM.

**** Register for a Wildfire Prevention Workshop at:**

www. itm-info.com/wildfire

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INTRODUCTION

PURPOSE

The *Wildfire Prevention* CD-ROM, along with other software developed for forestry education, *Forests Forever, Forest Friends* and *Forest Fever*, is designed with one goal in mind--to educate. Using the CD-ROM to actively engage student learning will increase a student's understanding of the importance of fire in managing our pine ecosystems.

THE *WILDFIRE PREVENTION* CD-ROM IS DESIGNED TO:

- Show students that fire is vital to the health of pine ecosystems;
- Teach how prescribed fire benefits wildlife;
- Show how prescribed fire prevents disastrous wildfires;
- Promote the importance of wildfire prevention;
- Provide an educational tool that can be used in the classroom to enhance critical thinking skills concerning the environment.

The CD-ROM offers a fun, attention grabbing presentation of facts and information about fire and ecosystems. Built on interactive games, exercises and messages, this CD-ROM will help students understand how fire helps shape the natural environment.

USE IN THE CLASSROOM

This **Teacher's Guide** is designed to assist the educator in using the CD-ROM. Presented in an easy-to-use format, the guide provides information to facilitate learning about fire. To assist in the learning experience, each of the content areas on the CD-ROM includes grade level, subjects, concepts, skills and correlations to state educational standards. A brief introduction to each topic is provided along with an activity to reinforce the content.

Using this CD-ROM and Teacher's Guide, along with the contact list provided and a little imagination, the educator can lead students into an exploration of many subjects. Together, they can go well beyond merely understanding the role that fire has played (and continues to play) in shaping ecosystems and providing habitat for wildlife.

The *Wildfire Prevention* CD-ROM is primarily designed for use in 4th- 6th grade classrooms, but can be used with a wide variety of audiences. It is primarily intended for single-user or small group settings.

REQUIRED COMPUTER EQUIPMENT

The minimum and recommended system requirements are listed on the back of the CD-ROM case for both IBM-compatible and Macintosh computers. Your computer must meet these requirements in order to operate the CD-ROM program.

INTRODUCTION (CONTINUED)

INTRODUCTION VIDEO

The CD-ROM begins with a video that describes the benefits of fire and how important fire is to forests. It explains that forests need to have sunshine, water and fire. The introduction video also describes how some fires are good and some are bad. It gives the students a preview of the information they will learn by using the CD-ROM.

PRETEST/POST-TEST

The students take a pretest that measures their current knowledge of the benefits of fire to forests. Their scores are recorded in a database that teachers can access. After the students complete the four content areas of the CD-ROM, they take a post-test that evaluates what they have learned. While completing these tests is optional, it gives teachers the ability to evaluate the students' understanding of the concepts contained in the CD-ROM. Pre- and post test scores are saved in a text file on the computer desktop called "wpscores."

LOG-IN EXERCISE

This exercise, also optional, offers students the opportunity to register as users of the CD-ROM. By completing this simple exercise where students supply their names and other information, a database is built for the teacher's use.

INSTALLING THE WILDFIRE PREVENTION CD-ROM

IBM-COMPATIBLE PC COMPUTERS- Place CD-ROM into the CD-ROM drive. From My Computer, click on CD-ROM DRIVE: WILDFIRE PREVENTION. Select INSTALL and follow directions generated by the installation program. Install QUICKTIME as directed. Once installed, a Wildfire Prevention icon will be placed on the desktop for activation by double-clicking.

MACINTOSH COMPUTERS- Place the Wildfire Prevention CD-ROM in the CD-ROM drive. Double-click on the desktop folder that is created. If QUICKTIME is not already installed, install it from the folder.

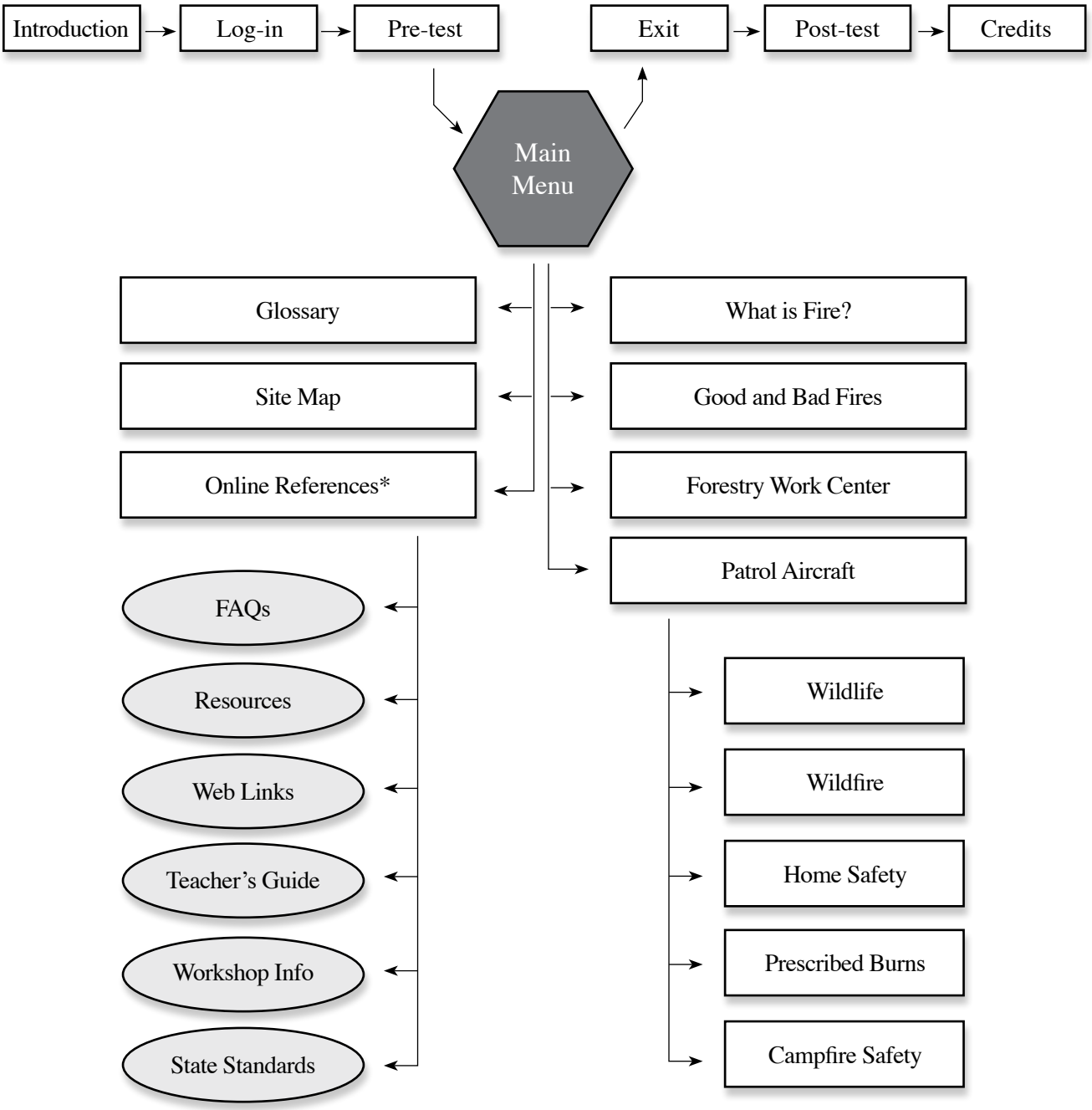
In some sections of this guide, enrichment material is indicated by a box around the paragraph. The material may not be included in the audio scripts of the CD-ROM; however, the instructor should teach this material prior to giving the student assessment.

USER-TIPS

COMPUTER MONITOR RESOLUTION- The Wildfire Prevention CD-ROM was developed at 640 x 480 monitor resolution. If the picture does not fill the screen, you will have to adjust your monitor resolution to this setting. Please consult your monitor guidelines for instructions. If your screen appears dark, you may want to adjust the brightness/contrast settings.

NAVIGATION- In some cases, students cannot manipulate items in the activities screens until the audio instructions have ended.

CD-ROM Flow Chart



* Internet access is required to view the Online References section.

WHAT IS FIRE?

In this section students will learn about:

- Ecosystems
- The fire triangle and components necessary for a fire to exist.

19,950,000 acres of Mississippi are covered with forests. Although the state's abundant rain and sunshine are vital to the survival of pine forests, another element is necessary to maintaining them...fire. Over thousands of years, forests have developed because of the presence of fire. In fact, some ecosystems require fire in order to exist.

To have fire, three ingredients are needed: oxygen, fuel and heat. Removing any of these three ingredients will extinguish a fire. The "fire triangle" shown in the CD-ROM is a visual way of depicting the needs of fire.

For a fire to burn, the air around it must be at least sixteen percent oxygen. Therefore, Earth's atmosphere, at about twenty-one percent oxygen, provides plenty of oxygen to sustain a fire. Removing the oxygen, for example by putting dirt on a fire, smothers it.

Fuel is supplied by woody debris and other plant matter like limbs, leaves and pine needles in the forest. The build up of debris on the forest floor can lead to excessive, dangerous fires. Fuel can also come from buildings and other structures.

Heat is supplied through a number of mechanisms, including lightning, campfires, cigarettes and debris burning.

A wildfire is a fire that burns out of control in forested or wildland areas and destroys anything in its path. Approximately 2-5 percent of wildfires in the US are started by lightning. Sadly, arson, the crime of maliciously setting a fire to damage or destroy property or buildings, is a major cause of wildfires as well.

Fire is an important part of the ecosystem. In fact, there are about 3,777 wildfires in Mississippi every year. Managing fire to protect the citizens as well as provide many benefits to our natural resources is an important part of the job of the Mississippi Forestry Commission.

In the *What is Fire?* activity on the CD-ROM, students are asked to help put out a fire by smothering it (removing the oxygen from the fire). When they successfully extinguish the fire, they are allowed to move into the next content area of the CD-ROM.

Sample Activity

Use a candle and a glass jar to show how the three elements of the fire triangle, oxygen, fuel and heat, are necessary to sustain fire.

1. Place a small candle inside a glass jar. Melt the bottom of the candle and use that to attach it to the bottom of the jar. After lighting the candle, place the lid on the jar. The flame will go out as the oxygen inside the jar is used.

2. Relight the candle and leave the lid off the jar. Allow the candle to burn until the fuel (the wax) is consumed and the flame goes out. This is an example of removing the fuel from the flame.

3. Use water to put out the candle. This removes the heat source, which is necessary to have a fire.

4. Relate the burning candle to wildfires. Do this by discussing the fire triangle, the necessary components of a fire and how all these things can be found in forests.

Levels
Grades 4-6

Subjects
Science, Math, Language Arts

Concepts for Students to Learn:

- Fire requires oxygen, heat and fuel in order to burn.
- Fire is an important part of the natural environment.
- Fire has shaped the development of forests for thousands of years.

Skills
Observing, Relationships, Patterns, Organizing Information and Analyzing

5. ***Math*** 19 million acres of Mississippi's 30 million total acres are forested. What percentage of the land base is covered with forests? *(63.3%)* If 2% of 1,000 yearly wildfires in the US are started by lightning, how many fires are caused by factors other than lightning each year? *(980)*

STUDENT ASSESSMENT - WHAT IS FIRE?

Name:_____

1. List three things that many pine <u>forests</u> need to survive:

   _____, _____, _____

2. A fire needs the air to be at least _____ oxygen in order to burn and Earth's atmosphere is approximately _____ oxygen.

   a) 3%, 42% b) 9%,18% c) 16%, 21% d) 23%,5%

3. In Mississippi, there are about _____ wildfires each year.

   a) 2,000 b) 19,000 c) 3,700 d) 900

4. What percent of wildfires in the US are started by lightning?

   a) 10% b) 2-5% c) 25% d) 60%

5. The "fire triangle" consists of all of the following, *except* for:

   a) lightning b) fuel c) heat d) oxygen

Match the word on the left to the definition.

____6. Fuel	a) To remove oxygen from a fire
____ 7. Smother	b) A fire that burns out of control in forested or wildland areas and destroys anything in its path
____ 8 Ecosystem	c) Material that burns like dead limbs, trees, buildings and even pine needles and leaves
____ 9. Wildfire	d) An ecological community and its physical environment

10. Discuss ways that fire affects your life today.

Good Fires and Bad Fires

In this section students will learn about:

- Distinguishing between good fires and bad fires.

Good Fires

We don't normally think of fires as being "good," but in some instances, they are very beneficial. Thousands of years ago, man first used fire as a source of warmth, cooking and light. Today, we still use fire in a fireplace or furnace to keep us warm, fire in a grill or gas stove is used to cook and candles and lanterns are sometimes used as a light source, especially during a power outage. Some fires, called prescribed burns or prescribed fires, are even used to control the growth of unwanted vegetation in forests. The importance of prescribed fires, introduced in this section is discussed in detail in the "Patrol Aircraft" section of the CD-ROM.

Bad Fires

A fire that burns out of control and destroys anything in its path is an example of a bad fire. Wildfires in the forest fall into this category. Each year, Mississippi has about 3,777 wildfires that burn an average of 13 acres each.

In Mississippi, there are three main causes of wildfires. These are incendiary, debris burning, and miscellaneous. Incediary (arson) is the #1 cause of wildfires in Mississippi.

Arson is a crime. It is the crime of maliciously setting a fire to destroy or damage property or buildings. Persons convicted of arson pay heavy fines and are imprisoned if convicted.

The second leading cause of wildfire in Mississippi is debris burning. Careless burning of leaves that results in escaped fire, or campfires that get out of control are other examples of fires caused by man that destroy our forests.

The most common non-human cause of wildfires is lightning.

Lightning causes less than 1% of wildfires in Mississippi. Little can be done to protect against wildfires caused by lightning. Prescribed burning in concert with frequent checks of forested areas by fire patrol aircraft during periods of high fire danger are some of the mitigation measures employed by the Mississippi Forestry Commission to reduce the damage caused by wildfires. A three year burning cycle is often recommended for pine ecosystems. This length of time might be lengthened due to work loads and wildfire occurrence.

Sample Activity

1. Have the students use the Internet links in the reference section of the CD-ROM to find information about fire. They can look for information about wildfires (fire history, statistics, prescribed burning and forest fire laws) at the Mississippi Forestry Commission website. If they do not have Internet access, they can use a library, contact resource professionals, fire fighters/EMTs, etc.

2. Use the above information to have the students, in teams or individually, debate the importance of wildfire prevention. You can give them leading questions to begin the debate, or have each team look up topics that they must defend.

3. Students can use the information gathered in their research to write papers or prepare posters documenting the importance of fire in our lives. Have them present these to the class in an oral report.

4. ***Writing Activity*** Have the students research in newspapers, magazines and other sources about actual fires, good and bad. Have students write about what they learn about the impact of fire on our lives.

Levels
Grades 4-6

Subjects
Science, Math, Language Arts

Concepts for Students to Learn:

- Fire has been used by man to improve the quality of life for thousands of years.
- When fire is uncontrolled and unplanned, it can have disastrous consequences.
- Arson is a crime punishable by imprisonment and fines.
- How prescribed fires/ burns can be used to manipulate an ecosystem.
- The importance of prescribed fire in preventing destructive wildfires.

Skills
Observing, Relationships, Patterns, and Analyzing

STUDENT ASSESSMENT - GOOD FIRES/BAD FIRES

Name:_____

1. Fires have been used by man for thousands of years as a source of _____,

   _____, and _____.

2. List the three main causes of wildfires in Mississippi:_____, _____

   and _____.

3. _____ is the #1 cause of wildfires in Mississippi.

   a) arson b) lightning c) debris burning d) campfires

4. Unlike with wildfires, foresters and forestry crews can control and closely monitor the effects of

   _____ fires.

5. _____ is the most common non-human cause of wildfires.

Write "good fire" or "bad fire" in the blank.

_____ 6. A prescribed fire

_____ 7. A fire used to cook or for warmth

_____ 8. A wildfire started by lightning

_____ 9. A fire that destroys houses, the forest or people's property

10. Write a paragraph explaining why a forester would intentionally start a fire in the forest.

FORESTRY WORK CENTER

In this section students will learn about:

- Work done by the Mississippi Forestry Commission.
- The purpose of Mississippi Forestry Commission Work Centers.

This video describes the place where forestry officials work, make land management plans, and keep equipment.

Almost every county in Mississippi has a County Forester's office where both foresters and forestry crews work. These forestry professionals are there to respond to wildfires and to help landowners make wise decisions regarding the management of their natural resources.

Forestry Work Centers maintain all of the necessary equipment for foresters and forestry crews to use in fighting fires. Equipment shown in the video segment for this content area includes:

- Crawler tractor and fire plow
- Crawler tractor on truck transport
- Engine

Forestry crews are dispatched to (sent to) wildfires when fires are reported by:

- Mississippi Forestry Commission patrol airplanes
- Citizens who call 911

Mississippi Forestry Commission district offices also issue outdoor burning permits to landowners who wish to prescribe burn their forest or agricultural land. **Open Burning** - The burning of residential, commercial, institutional, or industrial solid waste is prohibited. This prohibition does not apply to infrequent burning of agricultural wastes in fields, silvicultural wastes for forest management purposes, land-clearing debris, debris from emergency clean-up operations, and ordinance; and permitted open burning waste disposal facilities subject to regulation under Subtitle C of the federal Resource Conservation and Recovery Act (RCRA). Complete information about burning is available from the Mississippi Department of Environmental Quality (DEQ). The DEQ website is www.deq.state.ms.us.

At these district offices, forestry officials calculate *Fire Danger* based on the wind, temperature, and relative humidity. All outdoor burning can be banned by a local county board of supervisors during periods of extreme fire danger by following appropriate protocol.

Sample Activity

Use the contact list provided in this guide to invite a number of resource professionals to your classroom. In addition to Forestry Commission employees, be sure to include industry foresters and firefighters from your city or county fire departments.

Ask them to share information about careers in their field, such as: job qualifications and education, what they do on a day-to-day basis, field work vs. office work, opportunities for advancement, etc.

Have each student choose a career in natural resources and write about it. If time permits and the ages of the students are appropriate, do some of the following activities with your students:

1. Have students interview a resource professional, either over the phone or in person. Have them prepare a report on the career of the person they interviewed.

2. Have the students seek out a resource professional and invite that individual to the class. Ask each student to prepare and present an introduction for the person they invite, take notes and prepare a brief written report about that career.

3. Have the students go to the library or other sources of information and find information on careers in forestry/natural resources. Have them prepare a report with that information.

4. Have the students pretend to be foresters, forest rangers, wildlife biologists, etc. Have the students tell about a "day in the life of a _____."

Levels
Grades 4-6

Subjects
Science, Social Studies, Language Arts

Concepts

- The diversity of careers available in natural resources/forestry.
- The importance of forestry professionals in controlling/preventing wildfires.
- The importance of studying and preparing for a career.

Skills
Observing, Classifying and Categorizing, Evaluating

STUDENT ASSESSMENT - FORESTRY WORK CENTER

Name:_____

1. A _____ _____ works at the County Forester's Office and is responsible for planning when and how to conduct prescribed burns.

2. List two types of equipment kept at the County Forester's Office:_____

   and _____.

3. In Mississippi, landowners are issued burning _____ by the Forestry Commission for conducting prescribed burning.

4. Fire danger is influenced by all of the following *except*:

   a) Relative Humidity b) Temperature c) Wind d) Air Quality

5. What type of career in the natural resources field would you enjoy, and why?

PATROL AIRCRAFT

In this section students will learn about:

- Wildlife
- Wildfires
- Campfire Safety
- Prescribed Burns
- Home Fire Safety

The patrol aircraft gives students a view of the forest from a virtual fire patrol airplane where forestry crews help protect the forests from bad fires. The directions instruct the students by saying, "You're now in the cockpit of a plane flying over the forest. From here you can learn more about how to prevent disastrous wildfires. Click and drag on the steering wheels to turn the plane in the direction you want to go. Use your mouse to seek out areas in the forest that may need your attention. You'll know you have found one of the five active spots in the forest, when you see a title appear in the cockpit's information panel. Click on that spot to take a closer look and learn more."

The patrol aircraft also has a button to hear the directions again, and a button for accessing the online references. The exit button will take the student back to the main menu.

Prescribed Fire

One of the most important reasons to conduct a prescribed burn is to limit the damage caused by wildfire. As discussed earlier, wildfires are unpredictable and dangerous. Fuel, such as dead limbs, leaves and thick vegetation builds up in a forest over time. It is necessary to reduce this fuel by allowing it to burn in a controlled manner.

Also, a prescribed fire can be used to prevent vegetation from growing tall enough to become a "ladder fuel." Ladder fuels carry fire from the ground to the tops of trees and cause crown fires, which are devastating. Prescribed fire under controlled circumstances is the best way to reduce fuel loads and prevent damage to the forest and people's homes.

Another reason to conduct a prescribed burn is to manipulate an existing forest. Some species of trees and plants need fire in order to reproduce. For example, fire is needed to melt the resin that holds the seeds of some pine species, like sand pine, inside the cone. These seeds remain dormant in the cone until a fire occurs. After the heat of a fire releases the seeds, new seedlings can begin to grow. This is nature's way of ensuring that the forest floor is ready to support a new forest... the fire removes vegetation that would compete with the seedlings.

Also, some types of pine seedlings (longleaf pine) will not grow well until a fire has "released" them. Fire serves to reduce competition--killing the vegetation that shades the forest floor and competes with seedlings for sunlight, nutrients and water. Thus, fire tolerant species like longleaf pine have a competitive edge in these ecosystems, to the extent that a longleaf pine ecosystem cannot even exist without fire.

This is how many forests have evolved. Prescribed fires are often used to help a plant species reproduce and allow a particular type of forest to develop, thus imitating natural fires that occurred before man inhabited Mississippi.

Prescribed fire may also be used for other reasons. The control of certain plant diseases can be accomplished with fire; when landowners want a particular species of trees, usually pines on their land, fire is often used to eliminate an undesirable species of tree; fire may also be used to maintain meadows in a forest where shrubs and herbs may grow to provide needed

Levels
Grades 4-6

Subjects
Science, Social Studies, Math, Language Arts,

Concepts

- Plants and animals develop ways to protect themselves from fire.
- Fire is a useful tool to help protect our forest resources, homes and property.
- Fire helps to shape the ecosystem.
- Man can use fires to imitate nature.
- Fire, despite its many important uses, poses many dangers and we must prepare for them.
- Certain steps must be taken to protect our life and property.

Skills
Observing, Classifying and Categorizing, Evaluating

PATROL AIRCRAFT (CONTINUED)

food and cover for species of wildlife.

Planning a prescribed fire

In this content area, computer demonstrations illustrate the many factors that must be accounted for when foresters and forestry crews plan a prescribed fire. These include the speed and direction of the wind, the temperature and relative humidity, the kinds of fuel present, the moisture content of the fuel and the type and amount of personnel and equipment available to manage a prescribed burn.

The first thing foresters must do is establish a **firebreak**. This can be a man-made structure like a road or a firelane. They then set a **backing fire,** which is a fire that burns slowly, against the wind. The **blackline**, a burned area between the backing fire and the firebreak, is created as the backing fire moves away from the firebreak. The firing pattern then depends upon the prescribed burning plan prescription which is dictated by the landowner's management plan objectives. Forestry crews are constantly on guard to make sure the fire stays under control and in the planned areas.

Wildfires

Dry and windy conditions are often the precursors of wildfires. Dryness makes the fuel in the forest ignite easier and wind helps spread fire. Such conditions are called periods of "high fire danger."

When a wildfire is spotted, generally by an airplane patrolling for wildfires or a citizen, forestry crews act quickly to control and extinguish the wildfire. They must determine what equipment they will need to control the wildfire, provide for the safety of those fighting the fire and nearby residences, plow the necessary firebreaks and make sure the fire is completely out.

A computer demonstration of the effects of fire illustrates how different forests would look if fire were excluded from them. The demonstration compares a pine forest that has been prescribed burned every three years to one that has not received any planned fires. Students see that years of accumulated vegetation (fuel) where fire was excluded led to total destruction of the forest.

To conclude this section of the CD-ROM, students are asked to take a short true/false quiz regarding prescribed fire. Please evaluate the statements below:

1. Prescribed fires, or prescribed burns, imitate the effects of fire in nature. ***True***
2. Prescribed fires reduce the amount of fuel available for a wildfire. ***True***
3. Prescribed fires are good for a pine ecosystem. ***True***

Campfire Safety

Campfire safety is an important part of preventing wildfires. Below are some rules discussed that will help prevent a campfire from getting away from you.

- Remember to put the campfire out completely before you leave.
- Build the fire away from overhanging branches, limbs, etc. and stack wood away from the fire.
- Don't play with matches.
- Keep plenty of water and a shovel near the fire.
- Scrape away leaves, branches and other flammable material from within a 10 foot diameter circle.
- Never leave a campfire unattended.
- Put the campfire out with water and dirt and stir the remains. Make sure all the burned material has been extinguished and cooled.

Wildlife

Our beautiful forests support a great variety of wildlife. These animals have evolved to live with fire. They are usually able to hide or escape during prescribed fires. Animals such as deer, bear and foxes run away from slow moving prescribed fires. Other animals that cannot escape by running, hide in underground burrows, logs or ponds. Rats, mice, shrews, snakes, lizards and turtles are all examples of animals that use this technique to escape fire.

Home Fire Safety

Due to the risk of wildfire, it is important for people who live in or near the forests to take precautions to protect their homes and property.

A home's proximity to the forest is the most important factor in predicting the danger it faces from wildfire. The CD-ROM illustrates a wildland/urban interface home that has many fire hazards. Students are to make the house "firewise" by clicking on and removing the hazards they detect. Below are some things homeowners can do to protect their property.

- Trim tree branches that touch the roof and are less than ten feet from the ground.
- Keep leaves, dead limbs etc. from collecting on the roof or around the house.
- Do not stack firewood near the house.
- Don't use bark or wood chips as flower bed mulch near the house.
- Do not use wood shingles.

PATROL AIRCRAFT (CONTINUED)

- Equip the house with smoke detectors.
- Observe proper procedures and local laws for burning debris.
- Work with foresters conducting prescribed burns.
- Keep tools, especially a rake, shovel, bucket, hose and ladder, available for help in fighting a fire.
- Make sure the 911 address is visible from the street so emergency vehicles can find the home easily.

Sample Activity

Using the "Safety Check Sheet" on the next two pages, have your students determine how "firewise" their house is. Then use that information to have each student develop fire safety plans for their house and share them with the class.

Writing Activity Assign each student to be a type of animal found in the forest. Have them describe, from the animal's point of view, seeing and trying to escape from a fire in their forest home. Ask them these questions: what do you see, hear and smell? What will you do to escape? How will your life be different after the fire? Where will you live?

Math Activity Have the students solve the problems below.

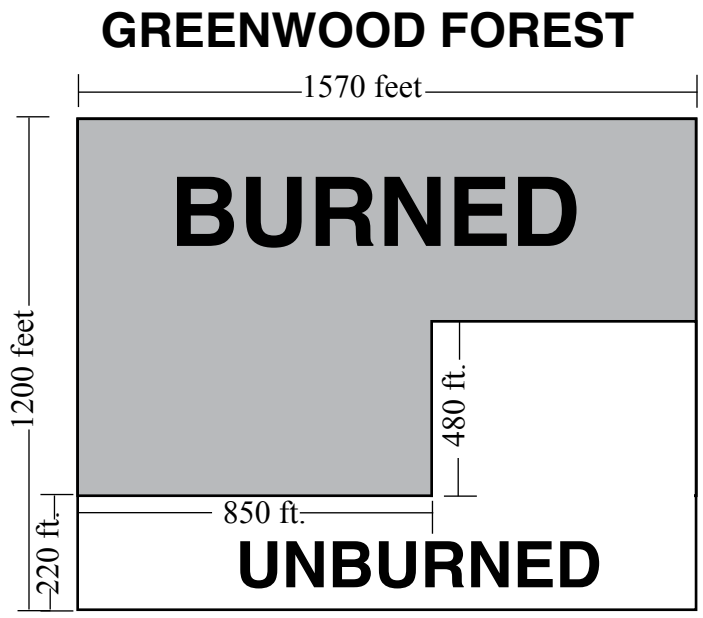
1. Before starting a campfire, it is recommended that you clear the debris within a circle with a ten foot diameter. Following that recommendation, what is the distance from the fire in the drawing below, to the edge of the circle (the diameter of the circle is 10 feet)? How much area (in square feet) is cleared around the fire?

2. If the shaded area of Greenwood Forest below represents a wildfire, what is the area (in square feet) of the forest that burned in this fire? What is the area (in square feet) of the forest that did not burn? Convert these calculations to acres. (There are 43,560 square feet in one acre.)

Answers:

1. The fire is approximately 5 feet from the edge of the circle. The area of the circle is 78.5 square feet.

2. Total area	1,884,000 square feet 43.25 acres
Burned area	1,193,000 square feet 27.39 acres
Unburned area	691,000 square feet 15.86 acres

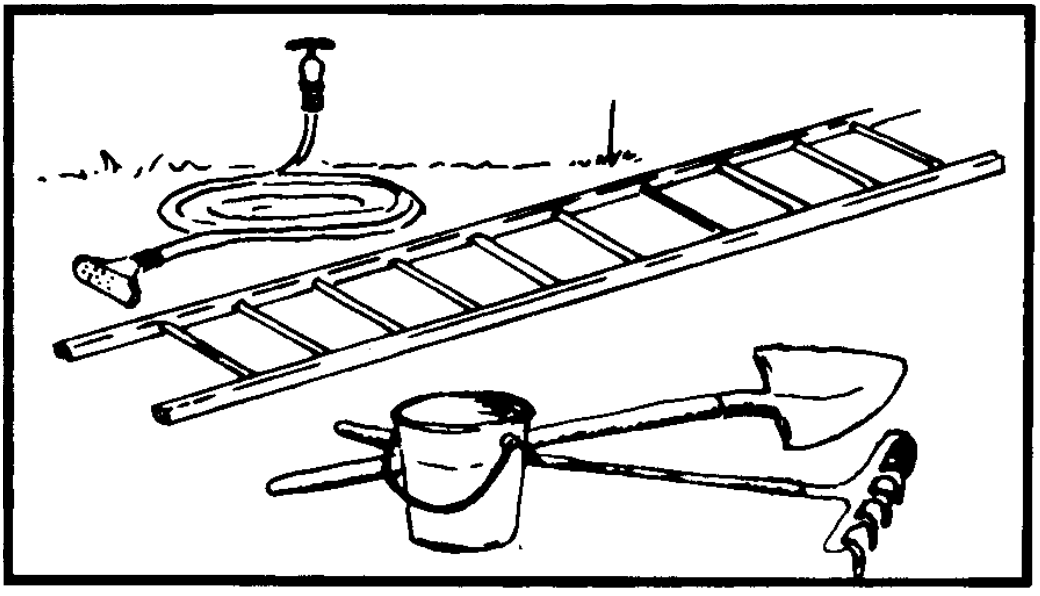


Fire Safety Check List (Inside)

Inside your house, do you . . .	**Yes**	**No**
Know how to give directions to your house to the local fire department?	❑	❑
Have written directions posted near the phone in your house?	❑	❑
Keep flammable material at least 24 inches away from the fireplace and other sources of combustion?	❑	❑
Cover fireplaces with screens or glass to prevent sparks from getting out of the fireplace?	❑	❑
Have the chimneys cleaned annually?	❑	❑
Remove wires running under carpets, through doorways, near heaters, etc.?	❑	❑
Replace damaged electrical cords and plugs?	❑	❑
Allow appliances to cool before leaving or storing?	❑	❑
Provide sufficient air space around appliances like televisions, radios, etc.?	❑	❑
Caution guests about smoking in bed?	❑	❑
Store combustible materials in appropriate places, away from heat sources?	❑	❑
Discard garbage properly to avoid the accumulation of fuels?	❑	❑
Have fire and smoke alarms in appropriate places throughout the house?	❑	❑
Replace the batteries in fire and smoke detectors twice a year (when the time changes in the spring and fall)?	❑	❑
Have an escape plan to insure that each family member and guest could get out of the house in the event of a fire?	❑	❑
Have fire extinguishers in appropriate places and know how to use them?	❑	❑
Know the meaning of Stop, Drop and Roll?	❑	❑
Know proper first aid for burns, shock and other fire-related injuries?	❑	❑

FIRE SAFETY CHECK LIST (OUTSIDE)

Outside your house, do you . . .	**Yes**	**No**
Keep a thirty foot zone of defensible space around your house?	❑	❑
Keep tree limbs and leaves cleaned off of your roof?	❑	❑
Have spark arrestors on your chimney and prune limbs that are within 15 feet of the chimney?	❑	❑
Keep branches cleared from around powerlines (make sure the power company handles this one)?	❑	❑
Store firewood and other burnable material away from your house?	❑	❑
Burn debris under the proper weather conditions (low winds and high humidity)?	❑	❑
Follow the laws applicable to burning of yard trash like leaves and limbs?	❑	❑
Stay with all debris or barbecue fires at all times until they are properly extinguished?	❑	❑
Refuel equipment only when the engines have cooled?	❑	❑
After fueling equipment, move it to another area to start?	❑	❑
Supervise children playing with fireworks?	❑	❑
Have an outside source of water to put out a fire?	❑	❑
Have tools like rakes, shovels and ladders in a convenient place to put out a fire?	❑	❑



STUDENT ASSESSMENT - PATROL AIRCRAFT

Name:_____

1. Periods of time when a wildfire is very likely to occur due to weather conditions and the condition of the forest are called periods of _____ _____ _____.

2. Prescribed fire is often used to do all of the following *except:*
   a) reduce the amount of fuel in the forest b) burn houses and buildings
   c) control diseases of plants d) help desirable plants reproduce

3. _____ _____ carry fire from the ground to the tops of trees.

4. Animals are protected from slower moving prescribed fires in which two ways? _____ and _____.

5. List the most common ways that wildfires are reported to the Forestry Commission:
   _____, _____, _____.

6. In a prescribed burning, the _____ is the burned area between the backing fire and the firebreak.

7. The recommended area to clear around a campfire is a circle with a _____ foot diameter.
   a) 4 b) 8 c) 10 d) 100

8. To make your home *"firewise"* you should:
   a) Equip the house with smoke detectors and change the batteries twice a year
   b) Avoid stacking firewood near the house
   c) Replace wooden shingles with more fire resistant ones
   d) All of the above

9. Imagine that this happened in your neighborhood. Two of your classmates found a box of matches on their way home and took a shortcut through a wooded area. There, the two of them built a fire with notebook paper. Although they meant no harm, the fire quickly became large and spread to the woods and then moved toward nearby homes where the fire destroyed a family's home. Discuss as a group:
   (1) How the two students would feel
   (2) Whether this was arson or not
   (3) Who would be responsible
   (4) What hardships this would create for the family who lost their home

10. Develop a fire safety plan for your house. Draw the floor plan of your house and show how each person who lives with you could escape if a fire happened.

GLOSSARY (BOLD TERMS APPEAR ON CD-ROM)

Arson fire – A fire set on purpose by anyone to burn, or spread to, vegetation or property.

Backfire – A fire set along the inner edge of a fire line to consume the fuel in the path of a wildfire and/or change the direction of force of the fire's convective column.

Backing fire – A fire spreading or set to spread into (against) the wind, or downhill.

Burning conditions – The environmental factors that affect fire.

Burning index – A number that describes anticipated fire behavior and how difficult it will be to control the fire.

Canopy – The leaves and branches making up the "roof" of the forest.

Combustible material – Any material that can catch on fire and burn.

Combustion – The act of burning.

Contain a fire – An effort to prevent further spread of the fire.

Control a fire – A fire is considered "controlled" when it is completely surrounded by a "control line," which is expected to keep the fire from spreading further.

Control line – Also often called a "fireline," this includes lines constructed by firefighters as well as natural barriers to fire such as rock outcroppings, roads, and streams or other water bodies. Crews construct fire lines by using fire plows, harrows, shovels, pulaskis, rakes, and chainsaws to clear the line of vegetation down to the mineral soil so that the fire will have nothing to burn when it gets to that point.

Council rake – A long-handled combination rake and cutting tool used in a mop-up.

Crawler tractor – A tracked vehicle (often equipped with a front-mounted blade and rear-attached fire plow) used to suppress wildfires.

Crown fire – A wildfire that spreads across the tops of trees or shrubs more or less independently of any fire on the ground.

Defensible space – An area, usually a width of 30 feet or more, between a home or other structure and a potential wildfire where the combustibles have been removed or modified.

Drip torch – A small fuel tank with a handle, nozzle, and igniter used to drip a burning mixture of oil or diesel and gasoline to ignite a prescribed fire or a backfire.

Ecotone – The edge between two vegetation types.

GLOSSARY (CONTINUED)

Ecosystem – A community where living organisms and non-living components of the environment are acting as a unit.

Engine – A light truck with a water pump and a limited supply of water used for off-road fire suppression.

Environment – The sum of all external conditions affecting the life, development, and survival of an organism.

Escape route – A route away from dangerous areas or a fire; should be preplanned.

Firebreak – A natural or man-made barrier used to stop fires or keep them from spreading.

Fire exclusion – Total or near total elimination of fire from an ecosystem.

Fire flap – A fire tool made of a thick, flat piece of rubber on a long handle used to smother grass fires.

Fire inclusion - The intentional use of prescribed fire to manipulate an ecosystem.

Fireline – See "control line."

Fire plow – A heavy-duty plow usually pulled by a crawler tractor to make fire lines.

Fire prevention – Activities, including education, enforcement, and administration directed at reducing the number of wildfires, the cost of suppression, and the cost of related fire damages.

Fire triangle – A learning tool where the sides of a triangle are used to represent the three factors (oxygen, heat, fuel) needed to catch on fire, burn, and produce flame; removing any of the three factors causes the fire to go out.

Firefighter – A person who is trained to suppress structural and/or wildland fire.

Firewise construction – The use of materials and systems in the design and construction of a building to help keep fire from spreading from buildings to the wildland/urban interface area, or vice versa.

Firewise landscaping – Managing the landscape so that flammable fuels are removed from around a structure to reduce exposure to radiant heat. The flammable fuels may be replaced with green lawn, gardens, certain individually-spaced greenery, ornamental shrubs, individually-spaced and pruned trees, or decorative stone or other non-flammable or flame-resistant materials.

Foam – A chemical fire-extinguishing mixture. It attaches to fuels, cooling and moistening them. It also keeps oxygen from the fuel, eliminating one of the items fire needs to burn.

GLOSSARY (CONTINUED)

Forest – An ecosystem with dense or not-so-dense tree cover, often containing separate stands of trees and commonly including meadows and streams.

Forest Technician – An employee of the Mississippi Forestry Commission whose duties include forest management and wildland firefighting.

Forester – An employee of the Mississippi Forestry Commission whose duties include landowner forest management assistance as well as fire suppression.

Fuel – All combustible material within the wildland/urban interface or intermix, including vegetation and structures.

Fuel break – A wide strip or block of land where the vegetation has been permanently changed or reduced so that fires burning into it can be put out more easily.

Fuel hazard reduction – The treatment and/or removal of living and/or dead forest or wildland vegetation to reduce the threat of wildfire.

Fuel moisture content – The quantity of moisture in fuel given as a percentage of weight when thoroughly dried.

Hand crew – A group of firefighters organized and trained to clear brush, cut trees, and make fire lines with hand tools.

Ladder fuels – Fuels (like shrubs and branches) that carry the fire from the ground to the tops of trees, the same way a person would climb a ladder.

Mop-up – Once a fire is controlled, mop-up begins. This is the process of making sure all remaining hot spots within the fire's perimeter are completely out.

Natural barrier – Any area that does not have flammable material (such as a stream) and can help keep wildfires from spreading.

Overstory – The portion of the trees in a forest that forms the upper or uppermost layer.

Prescribed burning – A forest management tool where fire is applied in a skillful manner to forest fuels, in a definite place, for a specific purpose, under exacting weather conditions, to achieve manageable objectives, such as to improve forage and habitat for wildlife and livestock, to improve watershed, or to reduce hazardous build up of fire fuels.

Ranger – An employee of the Mississippi Forestry Commission whose duties include forest management and wildland firefighting.

GLOSSARY (CONTINUED)

Red flag warning – A term used by weather forecasters to alert firefighters and citizens to ongoing or approaching fire weather conditions.

Relative humidity – The amount of moisture in the air as a percentage of the maximum the air will hold at a given temperature.

Smoke – (1) The visible products of combustion rising above fire. (2) Term used when reporting a fire or probable fire in its initial stages.

Smokey Bear – "Smokey," the fire prevention bear, has been our nation's symbol for the prevention of human-caused wildfires since 1944. His main message has always been, "Remember . . . only you can prevent wildfires."

Strip-head fire – A series of lines of fire upwind (or downslope) of a firebreak or backing fire that will burn with the wind toward the firebreak or backing fire and also more slowly against the wind to create more black line.

Suppression (of fire) – The act or process of putting a fire out.

Understory – The layer in a forest below the overstory, formed by lower-growing vegetation under the tall trees, like shorter trees or bushes.

Vegetation – Plant life or total plant cover of an area.

Wildfire – An unwanted or unplanned fire burning in forests or wildland areas that threatens to destroy life, property, or natural resources.

Wildland – Land not used for agriculture (such as: grazing, row crops, commercial forestry), urban development, mining, parks, or reserves.

Wildland/Urban Interface – The line, area, or zone where structures and other human development meet or intermingle with undeveloped wildland or vegetative fuels.

Wildlife – All non-domesticated animal life.

PRETEST/POST-TEST

1. Pine forests need which of the following to survive?
    a. Rain
    b. Sunshine
    c. Rain and sunshine
    d. Rain, sunshine and fire

2. What ingredients are necessary to start a fire?
    a. Fuel, water and oxygen
    b. Heat and fuel
    c. Oxygen and fuel
    d. Fuel, heat and oxygen

3. Which of the following is an example of a "good" fire?
    a. A campfire
    b. The flame on a gas stove
    c. A prescribed fire
    d. All of these are good fires

4. Intentionally setting a wildfire, or any fire, is against the law. What do police call this crime?
    a. Arson
    b. Bad judgment
    c. Carelessness
    d. Improper fire setting

5. What is the name for the place where foresters and forestry crews go to work and to make plans for managing forests?
    a. County Fire Station
    b. Fire Lookout Tower
    c. Work Center
    d. Firehouse

6. Certified burn managers set, control and closely monitor_____ fires that imitate the effects of fire in nature.
    a. House
    b. Wild
    c. Prescribed
    d. Hot

7. What is the name for plant life that grows tall enough to carry fire from the ground to the tops of trees?
    a. Burning plants
    b. Good fuels
    c. Ladder fuels
    d. Burning fuels

8. Which of the following is an example of a bad fire?
    a. Arson
    b. A wildfire
    c. A house fire
    d. All of the above are bad fires

9. Which type of fire can animals escape most easily?
    a. Prescribed fire
    b. A car fire
    c. Arson fire
    d. A wildfire started by a careless person

10. If you live near a wooded area, which of the following can help reduce the risk of wildfire damage?
    a. Clear a 30-foot "defensible space" around your home
    b. Trim tree branches away from your roof and at least 10 feet from the ground
    c. Be sure your address is visible from the street so fire trucks can find your home easily
    d. All of the above can help reduce the risk of wildfire damage to your house

FIRE WORD SEARCH

R I R D F Y R E K A A L E Z Y
S M O K E Y B E A R A L C S Y
E I B U Z O B L O A U U O G T
R R L A M R X D O P E V S S A
I R U R E A E Y D L L C Y R E
F S E S Y Y L I G R A X S E H
D Y E O S P V N C E R M T P R
L I O N C N I E S E N Z E A P
I O O T H R A Y T E C Y M I O
W D E L T K I B Y O D R R D L
V E L E I L I G H T N I N G G
Q S R V B N Y F E B R S R A X
T I O T L P A Q T F U E L F M
F R A N G E D R I N U R R J V

See if you can find the following words in the word search puzzle above.

Arson

Ecosystem

Fire

Fuel

Heat

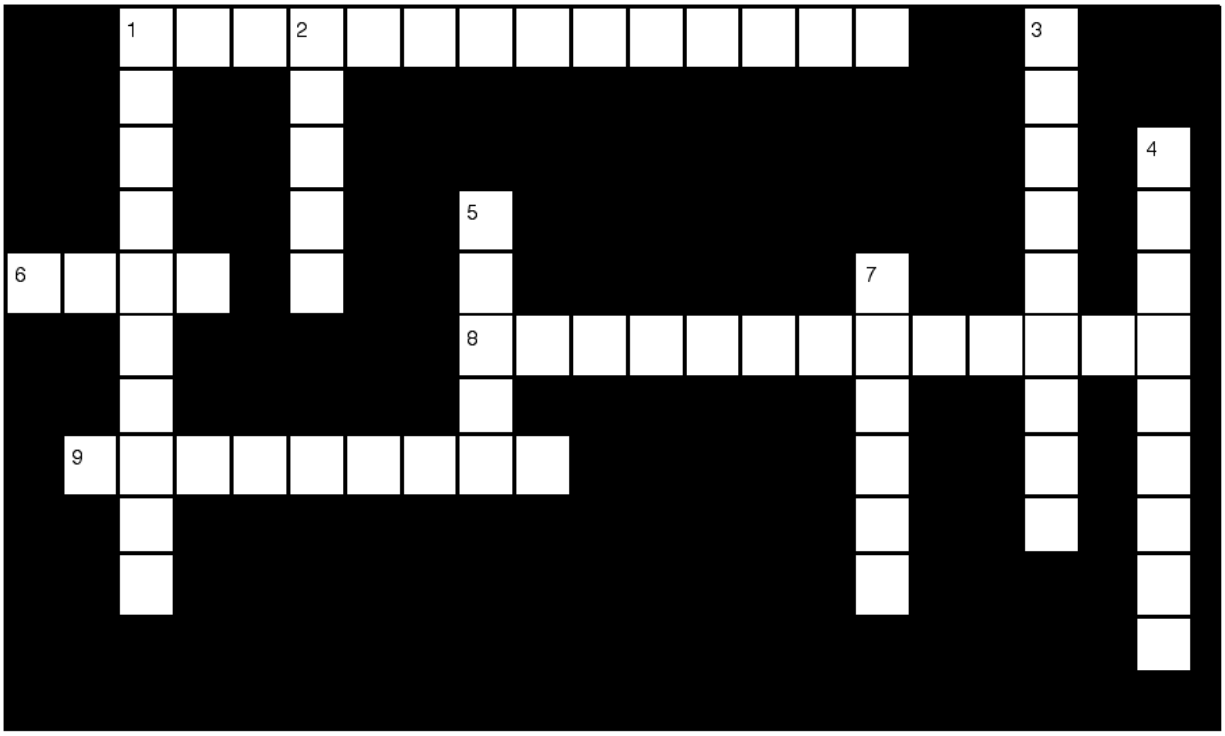
Lightning

Oxygen

Smokey Bear

Wildfire

PRESCRIBED BURN CROSSWORD PUZZLE



Across

1. A _____ _____ is a fire set on purpose to imitate the effects of fire in nature.
6. Dead leaves, limbs and thick vegetation serve as _____ for fires.
8. One of several small fires that is purposely started with the wind and spreads out and joins together moving toward the backing fire is called a _____ - _____ _____.
9. _____ starts 2-5% of the wildfires in the US.

Down

1. Things done to reduce the risk of wildfire are known as fire _____ techniques.
2. This is a by-product of fire that is a nuisance, and can, if not properly managed, cause visibility and other problems for people living nearby.
3. These are "bad" fires that are harmful to people, homes, forest resources, wildlife and ecosystems.
4. A natural, or man-made structure, like a creek or road that acts to prevent fire from spreading past a certain point.
5. _____ is the crime of maliciously setting a fire to damage or destroy property or buildings.
7. Thick vegetation that grows tall enough to carry fire from the ground to the crown of trees is called _____ fuel.

WILDLIFE SCRAMBLE

How do these animals escape a fire in the woods?
Unscramble their names and find out by putting the letters in the boxes in the blanks below.

1. B I T B R A ☐ ___ ___ ___ ___ ___

2. R E Y K T U ___ ☐ ___ ___ ___ ___

3. C R O O N A C ___ ___ ___ ___ ___ ___ ☐

4. O F X ☐ ___ ___

5. G A L E E ___ ___ ___ ☐ ___

6. U M O E S ___ ☐ ___ ___ ___

7. E D R E ___ ___ ___ ☐

8. K H I M C U P N ___ ☐ ___ ___ ___ ___ ___ ___

9. R Q I U R L E S ___ ___ ___ ☐ ___ ___ ___ ___

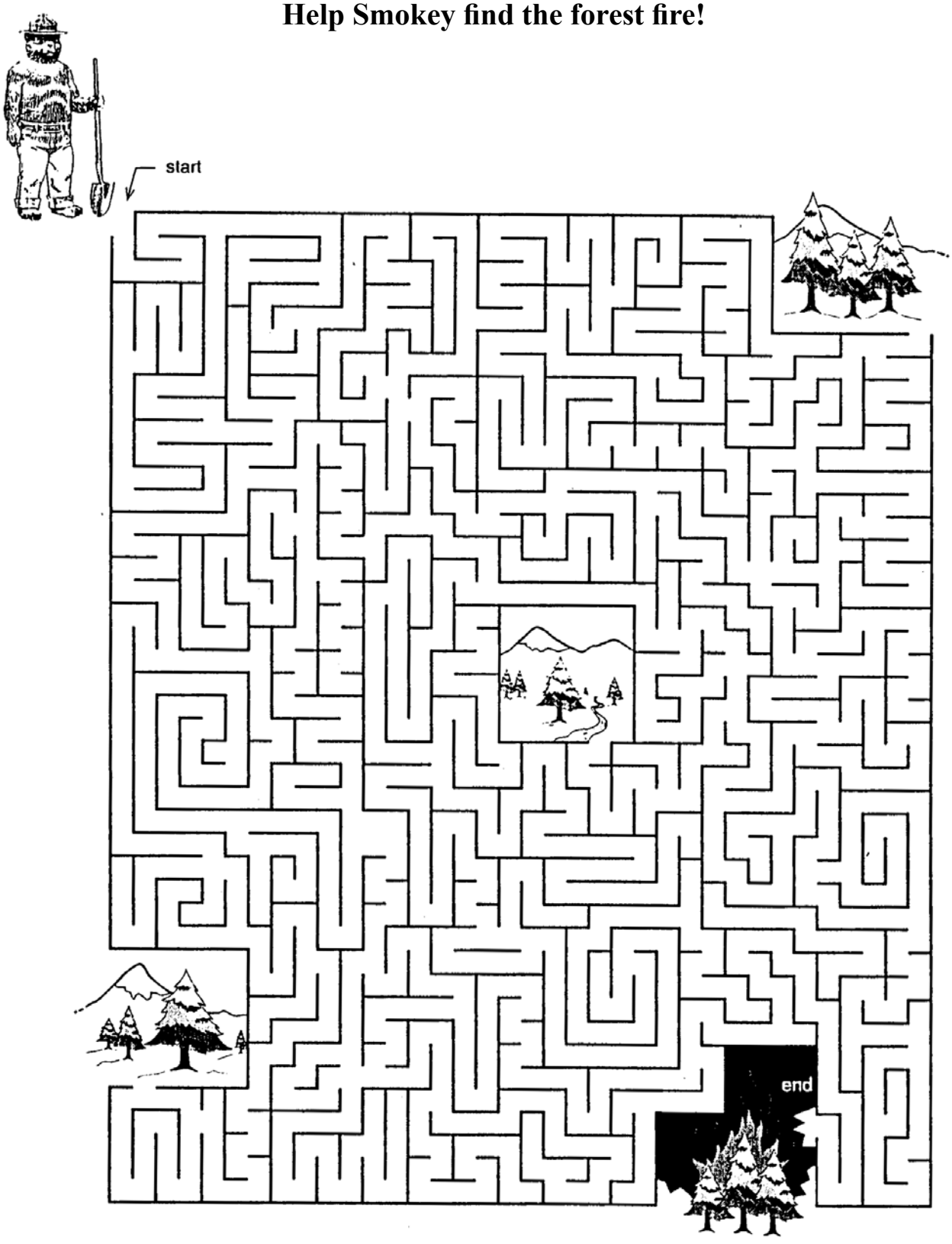
10. K E C O O P E R D W ___ ___ ___ ☐ ___ ___ ___ ___ ___ ___

11. R L U T T E ___ ___ ___ ___ ___ ☐

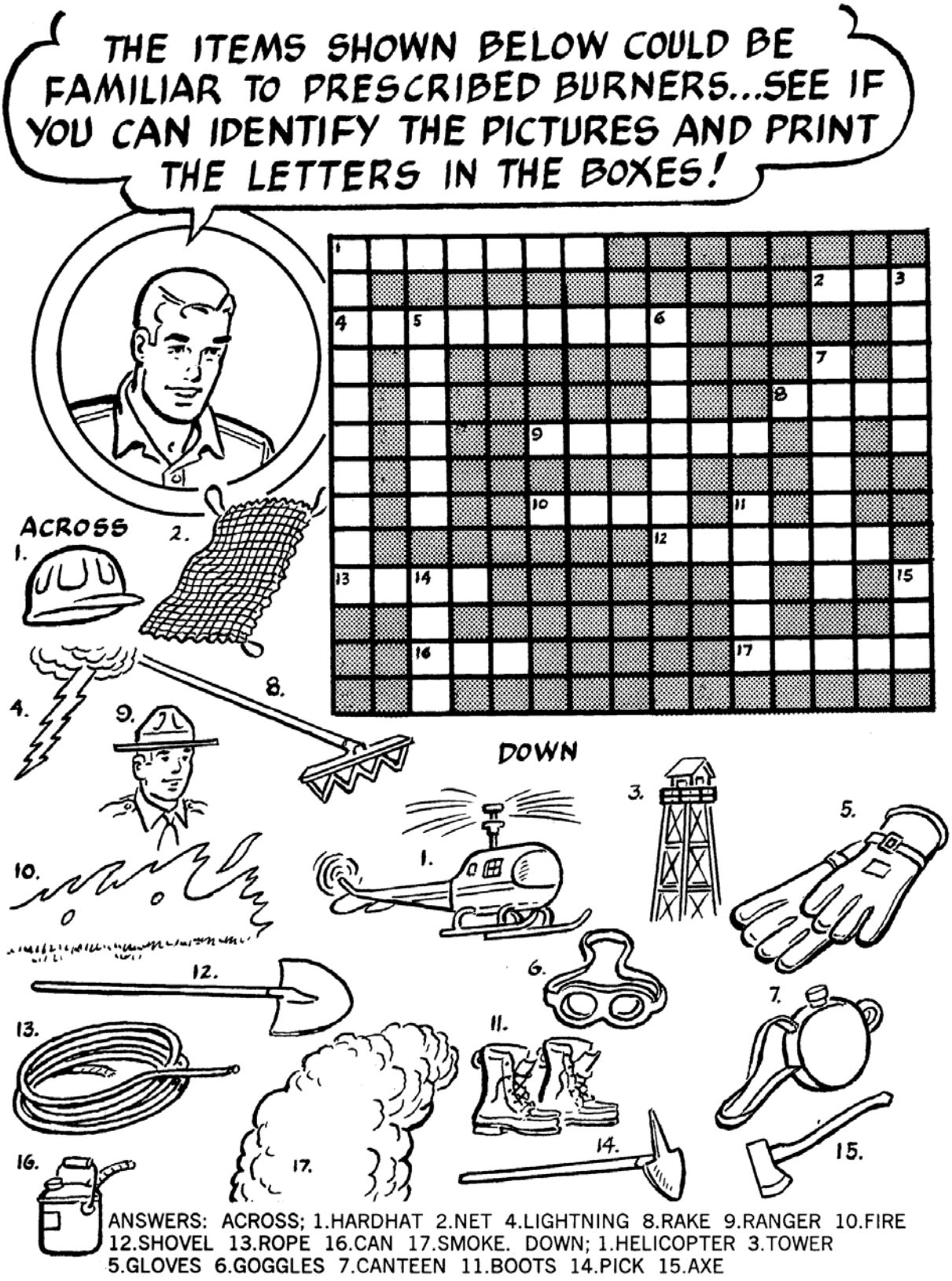
12. ___ ___ ___, ___ ___ Y ___ ___ ___ ___ ___ ___

SMOKEY'S MAZE

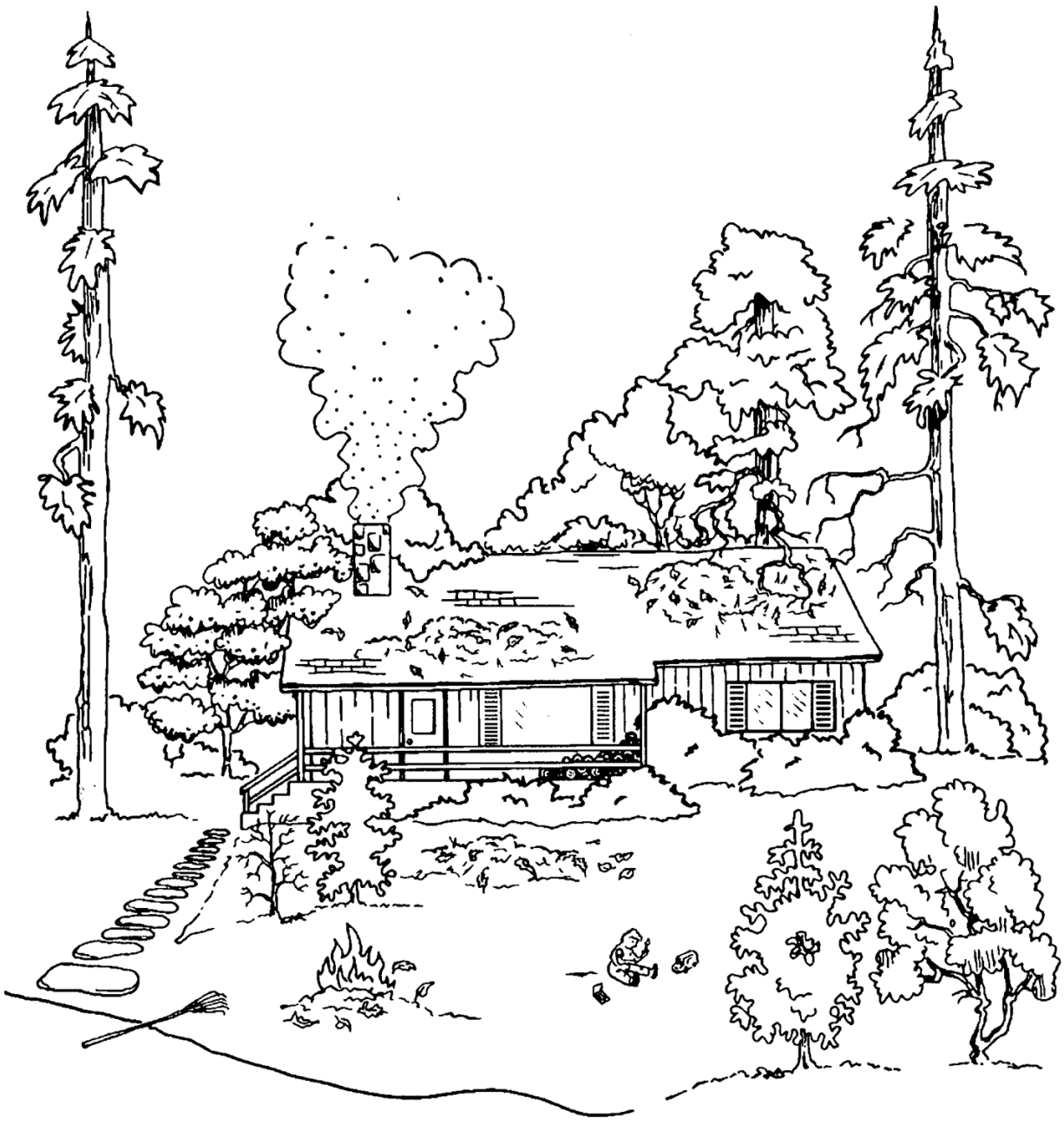
Help Smokey find the forest fire!



FIRE FIGHTER'S CROSSWORD



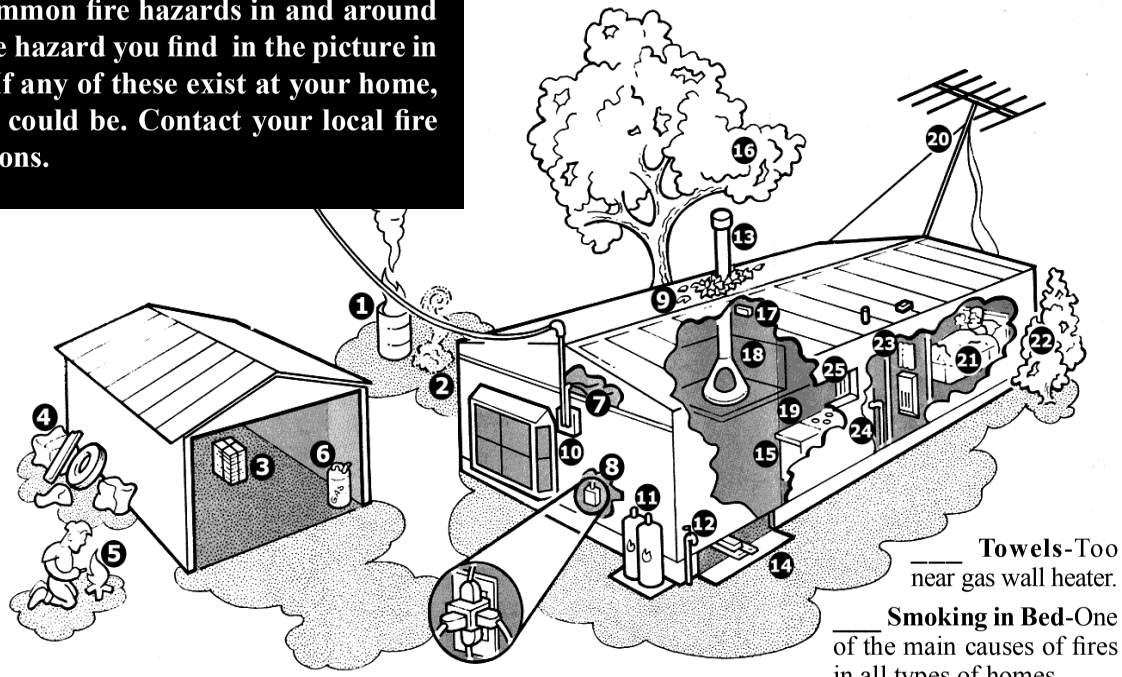
HOME HAZARDS



Can you find the fire hazards in this picture?

Mobile Home Fire Hazard Number Match

Pictured to the right are 25 of the most common fire hazards in and around mobile homes. Write the number of the fire hazard you find in the picture in the blank next to the correct description. If any of these exist at your home, you and your family aren't as safe as you could be. Contact your local fire prevention "partner" to answer any questions.



___ **Vegetation** -Don't allow forest vegetation to grow within 30 feet of house.

___ **Trash on Roof** -Leaves, pine needles, etc., are dangerous fire hazards. Keep roof clear of them.

___ **Yard Rubbish** -Unsightly as well as a fire hazard. Do not allow paper, rags, weeds and other rubbish to accumulate.

___ **Gas water Heaters** -Play it safe by venting all gas heaters. Have yearly checks of hoses/connections. Extend all vent pipes above roof.

___ **Hot Ashes** -Never dump in exposed pile or into container holding household trash. Soak with water and bury.

___ **Chimney** -Cover with mesh screen spark arrester. Top of vent should be at least 3 feet above roof.

___ **Curtains** -Use fire-resistant materials, especially for curtains near a stove, heater or fireplace.

___ **Fireplace** -Use fire-resistant material on walls behind freestanding fireplaces or wood stoves.

___ **Stove** -Use fire-resistant materials on walls around stove.

___ **Fuel Tanks** -Too close to building. Remove to a distance where valves can be shut off if house is burning.

___ **Children & Fire**-Keep matches away from children. Teach them fire safety. You are responsible for fires they start.

___**Gasoline Storage**-Use a safety can. Keep in a well-ventilated place.

___**Smoke Detectors**-Place in appropriate places, including outside each sleeping area. Check monthly.

___ **Burning Barrel** -Legal only if trash pickup is NOT available weekly, and local laws do not prohibit it. Barrels should be covered with mesh screen spark arrester, and ground cleared to bare earth for 10 feet around barrel.

___ **House Wiring**-Use copper wiring; aluminum wiring can be very dangerous. If your home has aluminum wiring, have system checked annually by a qualified electrician.

___ **Skirting**-Should be maintained to prevent burnable debris from blowing under mobile home, and to prevent materials from being stored there.

___ **Overhanging Branches** -Don't allow branches to hang over a flue or chimney.

___ **Towels**-Too near gas wall heater.

___ **Smoking in Bed**-One of the main causes of fires in all types of homes.

___ **Outside Water Supply** -Too near house for use in case of fire. Have pipe stand away from building, with hose available.

___ **Fire Extinguishers** -Keep an all-purpose fire extinguisher handy near the stove. They are inexpensive, so have several around.

___ **Debris** -Newspapers, oily rags and rubbish can fuel a fire. Remove and dispose.

___ **Overloaded Circuits** -Use only one appliance at a time on a single outlet. Check electrical cords; replace if worn. Never run cords under rugs.

___ **TV Antenna** -Poorly installed. Keep guy wires tight. Use lightning arresters.

___ **Fuse Box** -Always use proper fuses/breakers. Never "bridge' fuses.

ANSWERS TO ASSESSMENTS

Student Assessment, What is Fire, Page 7

1. Sunshine, rain, fire; 2. c;
3. c; 4. b;
5. a; 6. c;
7. a; 8. d;
9. b; 10. Answers will vary

Student Assessment, Good Fires/Bad Fires, Page 9

1. Warmth, Cooking and Light
2. Arson, debris burning, miscellaneous
3. a
4. Prescribed
5. Lightning
6. Good
7. Good
8. Bad
9. Bad
10. Answers will vary

Student Assessment, Forestry Work Center, Page 11

1. Forester or forestry crew or forestry professional
2. Engines, fire plows, truck transport, crawler tractor.
3. Burning permits
4. d
5. Answers will vary.

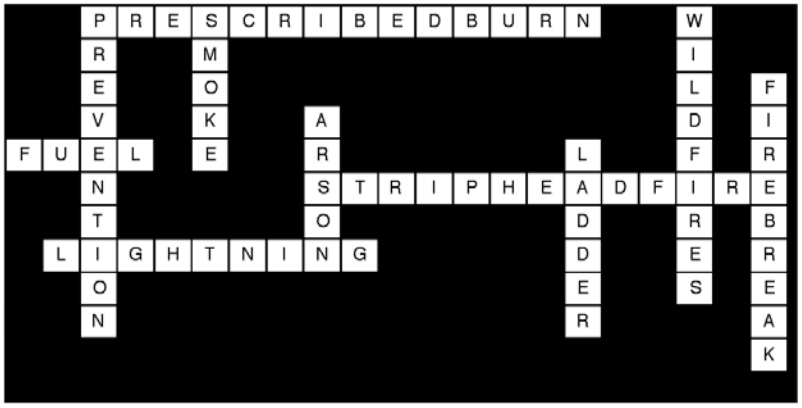
Student Assessment, Patrol Aircraft, Page 17

1. High fire danger
2. b
3. Ladder fuels
4. Running away, hiding
5. Fire towers, airplanes, citizen reports
6. Blackline
7. c
8. d
9. Answers will vary.
10. Answers will vary.

Word Search, Page 23

R	I	R	D	F	Y	R	E	K	A	A	L	E	Z	Y
S	M	O	K	E	Y	B	E	A	R	A	L	C	S	Y
E	I	B	U	Z	O	B	L	O	A	U	U	O	G	T
R	R	L	A	M	R	X	D	O	P	E	V	S	S	A
I	R	U	R	E	A	E	Y	D	L	L	C	Y	R	E
F	S	E	S	Y	Y	L	I	G	R	A	X	S	E	H
D	Y	E	O	S	P	V	N	C	E	R	M	T	P	R
L	I	O	N	C	N	I	E	S	E	N	Z	E	A	P
I	O	O	T	H	R	A	Y	T	E	C	Y	M	I	O
W	D	E	L	T	K	I	B	Y	O	D	R	R	D	L
V	E	L	E	I	L	I	G	H	T	N	I	N	G	G
Q	S	R	V	B	N	Y	F	E	B	R	S	R	A	X
T	I	O	T	L	P	A	Q	T	F	U	E	L	F	M
F	R	A	N	G	E	D	R	I	N	U	R	R	J	V

Crossword, Page 24



Pretest/Post-test, Page 22

1. d 2. d
3. d 4. a
5. c 6. c
7. c 8. d
9. a 10. d

Wildlife Scramble, Page 25

1. Rabbit 2. Turkey
3. Raccoon 4. Fox
5. Eagle 6. Mouse
7. Deer 8. Chipmunk
9. Squirrel 10. Woodpecker
11. Turtle 12. Run, fly or hide

Fire Hazard Number Match, Page 29

First column: 22,9,4,24,2,13,25,18,19,11,5
Second Column: 6,17,1,7,14,16
Third Column: 23,21,12,15,3,8,20,10

BOOK LIST

The following is a list of books about fire and wildland fire-fighting that you might find in your library or media center to enhance your unit on wildfire prevention.

AUTHOR	TITLE	GRADE
Karen Bell	*Fire In Their Eyes*	5-8
Patrick Cone	*Wildfire*	3-5
Caroline B. Cooney	*Flash Fire*	5-8
Chris Demarest	*Firefighters A to Z*	K-2
Chris Demarest	*Smoke Jumpers 1 to 10*	PreK-1
Jack Gottschalk	*Firefighting*	3-5
Jeanette Ingold	*The Big Burn*	7+
Thomas Locker	*Sky Tree*	1-3
Rafe Martin	*The Brave Little Parrot*	K-3
Joy Masoff	*Fire!*	3-6
Dorothy Patent	*Yellowstone Fires*	3-6
Seymour Simon	*Wildfires*	3-5

The following list are adult level books on the subject of fire and wildland fire-fighting that you might enjoy reading as you develop your unit on wildfire prevention.

AUTHOR	TITLE
Nevada Barr	*Firestorm*
John MacLean	*Fire on the Mountain*
Norman MacLean	*Young Men and Fire*

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Representing: At Large

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The Mississippi Forestry Commission provides equal employment opportunity and services to all individuals regardless of race, age, disability, religion, color, gender, creed, national origin, or political affiliation.

MFC Commissioners serve staggered terms. This list is subject to change. A current list of Commissioners is available from the State Forester's office.

MISSISSIPPI WILDFIRE PREVENTION EDUCATIONAL STANDARDS

Grade	Framework	Strand	Standard
4	Social Studies	Economics (impact of forest industry in state as well as state parks, forest recreation, wildlife habitat)	5. Understand how geographic and environmental factors influence life and work. a. Compare the resources and scarcity of resources in a local region to other regions of Mississippi b. Describe the division of labor within Mississippi c. Describe the opportunity cost of choices made within Mississippi
6	Social Studies	Global Affairs (Forestry- best management practices concerning logging, planting, erosion control, insect control, drought, wildfire etc.)	5. Understand the processes that shape the physical environment, including long range effects of extreme weather phenomena and human activity. a. Compare and contrast the effects that human activity has on ecosystems throughout time b. Analyze positive and negative effects that natural and human phenomena have on societies throughout the world. c. Assess and describe how governments and people prepare for natural disasters.
4	Science	Inquiry (The forest lifecycle; the effects of prescribed burning on forest ecosystems, the effects of wildfire of forest ecosystems)	1. Explain and use skills necessary to conduct scientific inquiry. a. Use simple sketches, diagrams, tables, charts, and writing to draw conclusions and communicate data results
4	Science	Life Science (Forestry Best Management Practices, Forest ecosystems, plant growth in forests)	2. Analyze the characteristics, structures, life cycles, and environments of organisms. a. Describe the cause and effect relationships that explain the diversity and evolution of organisms over time. c. Compare characteristics of organisms, including growth and development, reproduction, acquisition and use of energy, and response to the environment d. Distinguish the parts of plants as they relate to sexual reproduction and explain the effects of various ations on the pollination process
5	Science	Inquiry (The forest lifecycle; the effects of prescribed burning on forest ecosystems, the effects of wildfire of forest ecosystems)	1. Develop and demonstrate an understanding of scientific inquiry using process skills. e. Use drawings, tables, graphs, and written and oral language to describe objects and explain ideas and actions.
5	Science	Life Science (Forestry cycle and adaptation to weather and fire)	3. Predict characteristics, structures, lifecycles, environments, evolution, and diversity of organisms. a. compare and contrast the diversity of organisms due to adaptations to show how organisms have evolved as a result of environmental changes.
6	Science	Inquiry (Forest management practices)	1. Conduct a scientific investigation utilizing appropriate process skills. c. Use simple tools and resources to gather and compare information. d. Analyze data collected from a scientific investigation to construct explanations and draw conclusions e. Communicate scientific procedures and conclusions using diagrams, charts, tables, graphs, maps, written explanations, and/or scientific models.

MISSISSIPPI WILDFIRE PREVENTION EDUCATIONAL STANDARDS *(CONTINUED)*

6	Science	Life Science (Forest ecosystems – effect of forest management, weather, fire, etc.)	3. Explain the organization of living things, the flow of matter and energy through ecosystems, the diversity and interactions among populations, and the natural and human-made pressures that impact the environment. a. Describe and predict interactions (among and within populations) and the effects of these interactions on population growth to include the effects on available resources.
6	Science	Earth and Space Science (Forests, watersheds, wetlands, etc.)	4. Establish connections among Earth's layers including the lithosphere, hydrosphere, and atmosphere. g. Research and cite evidence of current resources in Earth's systems.
4	Language Arts	(Reporting on information learned in Wildfire Prevention program – cause and effect, comparison/contrast, problem/solution)	3. The student will express, communicate, evaluate, or exchange ideas effectively. d. The student will compose informational text clearly expressing a main idea with supporting details f. The student will compose text based on inquiry and research.
5	Language Arts	(Reporting on information learned in Wildfire Prevention program – cause and effect, comparison/contrast, problem/solution)	3. The student will express, communicate, evaluate, or exchange ideas effectively. d. The student will compose informational text clearly expressing a main idea with supporting details f. The student will compose text of a variety of modes based on inquiry and research.
6	Language Arts	(Reporting on information learned in Wildfire Prevention program – cause and effect, comparison/contrast, problem/solution)	3. The student will express, communicate, evaluate, or exchange ideas effectively. d. The student will compose informational text clearly expressing a main idea with supporting details f. The student will compose text of a variety of modes based on inquiry and research.

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Project Learning Tree Correlated Activities

www.plt.org

Project Learning Tree is an award-winning environmental education program designed for teachers and other educators, parents, and community leaders working with youth from preschool through grade 12.

Visit *www.plt.org/get-plt* to sign up to receive PLT Curricula by attending a teacher workshop in your area.

Below is a chart that correlates PLT activities with the Mississippi Wildfire Prevention program.

Wildfire Prevention Topic	PLT Activity	Activity Number	Page
What trees need to survive	How Plants Grow	41	117
	Tree Cookies	76	327
	Tree Factory	63	269
Good and Bad Fire	Living with fire	81	350
Fire Triangle	Living with fire	81	350
Fire Safety	Living with fire	81	350
	Earth Manners	87	378
Forest Work Center	Who Works in the Forest	34	144
Camping	A Forest of Many Uses	32	135
	Earth Manners	87	378
Prescribed Burning	Living with Fire	81	350
	Forests for the Trees	69	291
Water Quality (BMP's)	Renewable or Not	14	69
	Pollution Search	36	153
	Every Drop Counts	38	163
	Water Wonders	44	188
	Forest, Field and Stream	48	203
	Watch on Wetlands	71	303
Wildfire; High Fire Danger	Living with Fire	81	350
Carelessness, Human Caused Fires	Living with Fire	81	350
	Earth Manners	87	378
Ecosystem Changes	Nothing Succeeds like Succession	80	345
	Forest, Field and Stream	48	203
	Trees in Trouble	77	332
	The Global Climate	84	363
	Tree Cookies	76	327
	Tree Factory	63	269