

9TH-12TH GRADE LESSON

Wildland Fire Issues and Education

NUTSHELL

In this lesson, students conduct research to determine the need for wildland fire education. Students learn about wildland fire issues in Wisconsin through reading a memo and conducting guided Internet research. They discuss and use the scientific method and public opinion surveys as a class. After creating and conducting a survey about wildland fire, the class analyzes the results and discusses their findings and the need for wildland fire education.

BIG IDEAS

- The ignition of wildland fire can be caused by human activity (e.g., debris burning and other outdoor burning, machine sparks, children playing with matches, power lines, fireworks) or natural sources (e.g., lightning, spontaneous combustion). Human activity is responsible for most wildland fires in Wisconsin. (Subconcept 2)
- Current conditions are a result of past events. Decisions about the use of prescribed fire and the suppression of wildland fire affect present and future society. (Subconcept 13)
- Fire can play an important role in the restoration and maintenance of ecosystems. In Wisconsin, periodic fire is an important component of a variety of plant communities. (Subconcept 18)
- Homeowners have a responsibility to protect their property from wildland fire. The location, landscaping, maintenance, and design of a home can influence the threat of wildland fire to residents and their property. (Subconcept 27)
- The wildland/urban interface is an area where human structures exist among wildland fuels. As people move into fire prone areas, the potential for ignition of wildland fire increases, and buildings and other human-made objects become a possible fuel source. (Subconcept 32)
- The use of some wildland fire management techniques (e.g., prescribed fire, construction

of firebreaks, forest thinning) can be controversial because of safety issues and aesthetic impact. The use of these techniques is sometimes misunderstood. (Subconcept 33)

OBJECTIVES

Upon completion of this lesson, students will be able to:

- Identify and explain four wildland fire issues in Wisconsin
- List the four steps of the scientific method and explain how and why it is used
- Explain the purpose of a public opinion survey and describe its use

SUBJECT AREAS

English Language Arts, Science, Social Studies

LESSON/ACTIVITY TIME




- Total Lesson Time: 220 minutes
- Time Breakdown:
 - Introduction20 minutes
 - Activity 120 minutes
 - Activity 245 minutes
 - Activity 375 minutes + outside class time
 - Activity 445 minutes
 - Conclusion15 minutes

TEACHING SITE



Classroom and Computer Lab



MATERIALS LIST

FOR EACH STUDENT


- Copy of Student Page  1, *Wildland Fire Memo*
- Copy of Student Page  6, *Public Opinion Survey*
- Copy of Student Page  7, *Wildland Fire Public Opinion Survey*

FOR EACH STUDENT PAIR (ONE OF THE FOLLOWING)


- Copy of Student Page  2, *Wildland Fire Topic 1 – Causes of Wildfire in Wisconsin* **OR** Copy of Student Page  3, *Wildland*

Fire Topic 2 – Wildland/Urban Interface **OR** Copy of Student Page  4, *Wildland Fire Topic 3 – Prescribed Fire* **OR** Copy of Student Page  5, *Wildland Fire Topic 4 – Protecting Property from Wildfire*

FOR THE TEACHER

- Overhead transparency of Teacher Page  1, *The Scientific Method*
- Chalk/marker board
- Overhead projector

TEACHER PREPARATION

- Make an overhead transparency of Teacher Page  1, *The Scientific Method*
- Make computer lab reservations for conducting the web research and analyzing results.

BACKGROUND INFORMATION

Over the past quarter-century, the major causes of wildland fire have remained somewhat constant. During this time, human activity has been responsible for more than 90 percent of all wildland fires. These activities include the burning of debris, sparks from railroad cars, cigarettes, campfires, and more. Many of these fires are due to careless behaviors.

The risk of human-caused fire increases annually as people buy properties in wooded areas on which to recreate or build homes and cabins. More people in “wildland” areas means more potential for human-caused fire. These properties are located in what is referred to as the wildland/urban interface. Many of these properties are in fire prone areas. Loss of life and property is possible in these regions.

It is possible to take measures to better ensure a structure such as a home will survive a wildland fire.

A program known as Firewise (www.firewise.org) promotes measures that save structures. These measures include creating a defensible space around the home, eliminating flammable plants and materials near the structure, and keeping trees and shrubs properly spaced. Many individuals don't believe a wildfire will ever affect them, but losses happen somewhere each year. Education is important to keep the threat in the minds of people and hopefully motivate them to protect their property by taking Firewise measures.

VOCABULARY

Bias: An opinion or belief that strongly favors one side of an issue.

Knowledge: Awareness and understanding of facts.

Likert Scale: A rating system used to determine a person's perception of an issue. For example, a number system from 1-5 is used and "1" indicates a respondent strongly agrees with the statement and "5" indicates a respondent strongly disagrees.

Perception: The feelings, attitudes, views, and judgments that a person has about something or someone.

Phenomenon: An observable fact or event.

Prescribed Fire: A fire used to deliberately burn wildland fuels under specific conditions to meet desired management goals (e.g., fuel management, disease and pest control, wildlife habitat).

Public Opinion Survey: A survey used to measure public understanding and perception of an issue.

Sample Population: The subgroup of a target population that is actually studied.

Sampling: The process of selecting a group of people to be studied from within a larger population being studied.

Scientific Method: A method of research in which a problem is identified or observed, a hypothesis is formulated, and the hypothesis is tested.

Target Population: The group of interest in a research project.

Wildfire: A wildland fire that ignites and spreads without the intent of the landowner.

Wildland Fire: An outdoor fire involving primarily vegetative fuels.

Wildland/Urban Interface: An area where human structures are in close proximity to wildland fuels.

Prescribed fire is used as a management tool to maintain fire dependent ecosystems like prairies and oak savannas and to reduce fuel buildup in forests. These fires are typically conducted by personnel that have training in fire control and suppression. Great care is taken to conduct these fires during periods of lower fire danger and to ensure that they do not spread to other areas. In recent years, prescribed fires in the nation have escaped control and created larger scale wildfires. These high-visibility fires have caused many citizens to fear and oppose the use of prescribed fire. Education on the use and measures taken to contain prescribed fires is important.

For more information on wildland fire, see the Wildland Fire Background starting on page 152.

PUBLIC OPINION SURVEYS


A public opinion survey is conducted by interviewing a random sample of people. A random sample is the result of a process whereby a selection of participants is made from a larger population and each subject is chosen entirely by chance. Two of the most common ways that public opinion polls are completed are by telephone and face-to-face interviews. Other methods include mail, on-line and self-administered surveys.

Using statistical methods, the margin of error can be calculated to provide an estimate of how much the results of the sample may differ from the entire population. Errors in measuring the response may be due to bias in the survey questions. Bias can be caused by flaws in question wording, question order, question response options, and whether all segments of the population have been surveyed. Survey results can be adjusted by weighting results to account for specific population groups that have not responded. Weighting uses known estimates of the total population provided by the Census Bureau to adjust the final results. It's not uncommon to weight data by age, gender, education, race, etc. in order to achieve the correct demographic proportions.

PROCEDURE


INTRODUCTION – WILDLAND FIRE IN WISCONSIN

1. Tell the class that at the current time, wildland fire is a concern of the federal and state governments as well as many agencies and individuals. Ask students to discuss what they know about wildland fire. Lead the discussion to include destructive wildfire (e.g., the Peshtigo Fire in 1871, the Cottonville Fire in 2005) and the use of prescribed fire (e.g., fire ecology, fire dependent communities, Native American use of fire).
2. Tell students that local, state, and federal agencies have been trying to determine the primary causes of some major wildland fire problems. Tell the class you have a classified memo written by a top government fire official. Classified memos (i.e., communications that the author does not expect you to see) can be very enlightening.


Hand a copy of Student Page  1, *Wildland Fire Memo* to each student. Give them a few minutes to read the memo and ask questions.

3. Explain to students that during the next few class periods they will try to determine what the public's level of knowledge about wildland fire is and speculate if the knowledge level might affect wildland fire incidence in Wisconsin. Ultimately, they will try to answer the question, "Is wildland fire education necessary?"

ACTIVITY 1 – THE SCIENTIFIC METHOD

1. Tell students that the research they will conduct is based on the scientific method. Place a copy of Teacher Page  1, *The Scientific Method* on the overhead projector. Have a student read the four steps of the scientific method. They are as follows:
 - Observation to **describe** a phenomenon or group of phenomena
 - Formulation of a hypothesis to **explain** the phenomena
 - Use of the hypothesis to **predict** the results of a new observation (e.g., an experiment)
 - Performance of research to **test** the predictions
2. Ask the class to look at the bold word in each of the four steps (i.e., describe, explain, predict, test). To help them understand the process, tell them that it is quite easy to put the four steps into practice on something that is already common sense.

Guide them through the following simple example: Ask the class if they have ever been really hungry. Have them **describe** how it feels. (*It feels like my stomach is empty or hollow and I get tired and cranky.*) Have them **explain** why they feel that way. (*I haven't eaten in a while and there is nothing in my stomach.*) In this situation, that is their hypothesis. Ask them how they would stop being hungry. (*I could eat.*) Ask them to **predict** what would happen if they ate. (*The feeling would go away. I would be full, not hungry.*) Ask them how they could **test** this prediction. (*I could eat!*)





3. Emphasize that the challenge of the scientific method is to put it into practice on phenomena that we do not yet understand. Have your class brainstorm some phenomena that we do not fully understand. (*The list can include such things as the cause of the northern lights, the beginning of the universe, the behavior of subatomic particles, the effects of certain drugs, etc.*) Explain that in this case, the phenomenon not yet understood is the extent of people's knowledge about wildland fire in Wisconsin.
4. There are two unanswered questions on Teacher Page  1, *The Scientific Method*. Discuss and answer the questions as a class. The answers should be similar to the following:

- **What is the purpose of the scientific method?** The scientific method is the process by which scientists, collectively and over time, try to construct an accurate representation of the world. The scientific method allows scientists to work across cultures and languages to analyze, critique, and improve upon the work of other scientists. The primary objective of the scientific method is to minimize the bias that an individual scientist may have in his or her research.
- **Who uses the scientific method?** The scientific method is used by all professions that attempt to explain a phenomenon. Phenomena can include such things as violent crime, change in the chemical properties of materials, the flow of money in a community, and cancer. The professionals that explain and predict the phenomena (e.g., sociologists, chemists, economists, doctors) all use the scientific method.

ACTIVITY 2 - WILDLAND FIRE TRENDS

1. Tell the class that in order to conduct research about people's knowledge of wildland fire in Wisconsin, they must first have some background about wildland fire themselves. Explain that they will gather two types of information. The first will be general and the second will be about one of four wildland fire topics that affect people in Wisconsin. Each of these topics has social, economic, and/or ecological concerns related to it. It is their task to use the Internet to investigate and understand the topics. They will need to be able to explain the topic to the rest of the class.

Explain that the four topics were introduced in the classified memo they read earlier. Have a student read each of the trends aloud to the class (the underlined sections on the memo).

- **Memo Statement:** Humans cause most of the destructive wildfires in Wisconsin. *Topic 1: Causes of Wildfire in Wisconsin*
 - **Memo Statement:** A growing number of people are building homes in fire prone areas. *Topic 2: Wildland/Urban Interface*
 - **Memo Statement:** There is public resistance to the use of prescribed fire. *Topic 3: Prescribed Fire*
 - **Memo Statement:** People who live in fire prone areas do not always protect their property from wildland fire. *Topic 4: Protecting Property from Wildfire*
2. Pair students and assign each pair to one of the four topics. Be sure that students are evenly distributed among the four topics. Each pair should have access to at least one computer. If each student has a computer, have the pairs sit next to each other in the computer lab. Give each pair a copy of either Student Page  2, OR Student Page  3, OR Student Page  4, OR Student Page  5 for their topic. Have students complete steps one through five.

The web pages students need to access are on the LEAF website. Navigate to www.leafprogram.org. Click on the wildland fire section. Navigate to the educator resources for the 9-12 lesson. Each topic has its own page of links for students to follow. **NOTE:** Resources will continue to be added to this section of the LEAF website. As this is done, the navigation structure of the pages may change. Please check the location of the pages needed for this lesson each time you teach it so you can provide students with directions on how to find the pages they need.

Assist students with their research and answer any questions they may have in the process.

- Once students have completed steps one through five on their student pages, explain that it is now time to conduct research to determine if the hypothesis is correct. Their research will be done through a survey.

ACTIVITY 3 – PUBLIC OPINION SURVEY

- Tell the class that in conducting their research, they will use a process called public opinion surveying. The process is widely used in many different fields. It is used by corporations to market products to consumers, by hospitals to understand their patients' needs, and by politicians to understand how the public feels about important issues.

Ask the class if they have ever seen or ever taken a public opinion survey. Allow a few students to provide examples. Ask the class to think of some attributes of a public opinion survey. Answers may include the following:


- Population
- Face-to-face interview
- True/False questions
- Multiple choice questions
- Questions with a numbered scale of 1-5 (Likert Scale)
- Sample size
- Margin of error
- Mailed survey
- Bias
- Telephone interviews





- Hand each student a copy of Student Page **6**, *Public Opinion Surveying*. Have different students read each section and discuss the information on the handout. Help students understand the difference between population and sample and stress the importance of avoiding bias. Answer any questions that arise.
- Have the students get back into the same pairs they were in for their web investigation. Ask students to refer back to the hypothesis they wrote about why the phenomenon they researched is occurring. Have students from each of the four topic groups share their hypothesis with the rest of the class. All hypotheses should relate to the author believing the phenomena are occurring because people are not knowledgeable enough about wildland fire. As a class, choose one hypothesis that the survey questions will address. It should be well-written and represent students' thoughts but still be focused on the author believing the phenomena are occurring because people are not knowledgeable enough about wildland fire. Write the hypothesis on the board. Explain that they will now create questions for a public opinion survey that will study people's level of knowledge about wildland fire in Wisconsin.
- Tell each pair that they must write two questions about their topic for the public opinion survey. The questions must be true/false questions and must be based on facts they gathered in their research. They can use the notes they took on their student pages as reference. Write guidelines (see the next page for a listing) for creating good survey questions on the board.

Good survey questions ...

- are well-written, use proper English, and contain no slang terms
- do not lead the reader to answer in a certain way
- are based on fact and have only one right or wrong answer (An opinion question such as, “Wisconsin trees are the most beautiful in the fall,” is not appropriate. A more appropriate question on the same topic would be, “Some people enjoy looking at Wisconsin trees in the fall because of their colors.”)
- cover general information about a topic, not specific or picky details (“Wisconsin’s state tree is the sugar maple” is a more appropriate true or false question for a survey of the general public than “School children voted the sugar maple as Wisconsin’s state tree in 1893.”)

5. Once pairs have finished writing their questions, have all the pairs with the same topic get together in a group. Have each pair share their questions with the rest of the topic group. Tell each topic group that it is their job to choose two questions from all the pairs’ questions to put on the final survey. They should work to come to agreement on which questions best represent their topic. Each topic group must then choose one or two spokespeople for the group. They will need to summarize what they learned about their topic for the rest of the class and share the two questions that were chosen.

6. When all the groups have chosen their questions, have the spokespeople for each group summarize their topic and share their questions with the rest of the class. Write each question on the board and have students fill them in on Student Page , *Wildland Fire Public Opinion Survey*.

7. Ask students what the third step in the scientific method is. (*Predicting the results of the experiment.*) It is now time for students to predict how people will answer the survey questions. In their original pairs, have students predict how respondents will answer each question and record this on their topic specific student page (either Student Page , OR , OR , OR ).

The opinion questions for the survey have already been created for students. Have students read through questions nine and 10 and predict what the average answer will be.

8. Tell students it is now time to conduct the survey. Each student must find 10 individuals to interview by tomorrow’s class. They should verbally ask people the questions and record the answers on the survey. Explain that if people are allowed to read the survey questions and see other people’s answers, it could introduce bias. To decrease bias, they should also try to interview a diverse group of people (e.g., adults, fellow students, relatives, neighbors).

ACTIVITY 4 – ANALYZING RESULTS

1. It is now time to analyze the results of the survey. Have students calculate the percentage response for the true and false answers for each question on their survey using the following equation, where “X” is either true or false.

$$\% \text{ of Response for "X"} = \left[\frac{\text{No. of Responses for "X"}}{\text{Total No. of Responses}} \right] \times 100$$

Example: Question 1 had four true responses and six false responses.

$$(4 \div 10) \times 100 = 40\% \text{ True}$$

$$(6 \div 10) \times 100 = 60\% \text{ False}$$

Have students calculate the average response for the Likert Scale questions using the following equation:

Average Response = [(No. of Responses for Likert Scale “1” x 1) + (No. of Responses for Likert Scale “2” x 2) + (No. of Responses for Likert Scale “3” x 3) + (No. of Responses for Likert Scale “4” x 4) + (No. of Responses for Likert Scale “5” x 5)] ÷ Total No. of Responses

Example: Question 1 had two “1” responses, two “2” responses, three “3” responses, one “4” response, and two “5” responses.

$[(2 \times 1) + (2 \times 2) + (3 \times 3) + (1 \times 4) + (2 \times 5)] \div 10 = 2.9$ (Average Response)

NOTE: The preceding calculations can be done directly in an Excel spreadsheet. If you are using a computer lab, you can have the students build the equations in the spreadsheet.

- Once the results are compiled, have students get back into their research pairs. Have them compare their results to their predictions and then determine if the results support the class hypothesis. Ask each pair to come up with a reason (i.e., a conclusion) about why the results did or did not support the hypothesis.
- Have each pair present their results and conclusion to the rest of the class.

CONCLUSION – FINAL DISCUSSION

- After all the groups have presented, lead a class discussion to outline the conclusions of the survey. Make a list of conclusions on the board. The following questions may help to guide the discussion:
 - How well did people do on the true/false portion of the survey?
 - What were the average responses for the Likert Scale questions?
 - Did your predictions hold up?
 - Do you feel your hypothesis is correct?
 - Based on the survey results, would public education about wildland fire in Wisconsin increase people’s knowledge of the issues?
 - Based on the results of this survey, is wildland fire education necessary? Why or why not?
- Once the conclusions are listed, ask the class if they think that the results of their survey are an accurate representation of the Wisconsin public’s opinion. Use the following questions to guide the discussion and introduce the notion of bias.
 - Do the people you surveyed represent all the types of people who make up Wisconsin? Why or why not?
 - Is there bias in this sample? (Is there a diversity of ages, careers, ethnicities, income, etc.?)
 - Do you think that things such as age, income levels, ethnicity, and educational background influence a person’s opinions? What else might influence a person’s opinions?
 - What types of people are not represented in your survey?
 - What type of sample population do you think would best determine the opinions of the Wisconsin public?
 - How might you select the sample population to minimize bias?
 - What factors, other than knowledge and perception, might influence a person’s decisions about wildland fire?

FORESTERS IN THE CLASSROOM

Wisconsin Department of Natural Resources fire personnel make classroom visits. To find a staff member in your county, go on-line to www.dnr.state.wi.us/staffdir/SearchCounty.asp, click on your county, and type "fire" into the subject box.

SUMMATIVE ASSESSMENT

Have students write an editorial for the school or local newspaper about wildland fire in Wisconsin and the importance of wildland fire education.

REFERENCES

Polling 101. The Roper Center. World Wide Web: www.ropercenter.uconn.edu/education/polling_fundamentals.html.

Pyne, S. J. (1982). Fire in America: A Cultural History of Wildland and Rural Fire. Princeton, NJ: Princeton University Press.

Vogrin, V. (2002, Winter). Fire and Society: A Burning Issue. *Clearing*, 112, 9-12.

Wisconsin Department of Natural Resources. (2005, April). Spreading like Wildfire: Planning fire prevention as communities grow into wildlands. Wisconsin Natural Resources. PUB FR-309-2005.

RECOMMENDED RESOURCES

ACTIVITY GUIDES

Fire! An Event-based Science Module Student Edition by Russell G. Wright. (White Plains, NY: Dale Seymour Publications, 2001.) Students study the Yellowstone National Park Fire of 1988 to learn about the chemical nature of fire and its ecological effects.

FireWorks Curriculum: Featuring Ponderosa, Lodgepole, and Whitebark Pine Forests by Jane Kapler Smith and Nancy E. McMurray. (Fort Collins, CO: U.S. Department of Agriculture Forest Service, Rocky Mountain Research Station, General Technical Report RMRS-GTR-65, 2000.) The FireWorks Curriculum is a compilation of fire lessons for grades K-10. Some of the information is specific to western fire regimes but many of

the activities convey basic information about fire safety and fire behavior that is useful for younger students. A free copy of the curriculum is available at www.fs.fed.us/rm/pubs/rmrs_gtr65.html. Workshop participation is required to obtain additional materials needed for some lessons.

Wildland Fire Primer: A Guide for Educators prepared by John Owen and Pat Durland. (Boise, ID: U.S. Department of the Interior Bureau of Land Management, National Interagency Fire Center, 2002.) The Wildland Fire Primer presents the concepts and messages that the National Interagency Fire Center determines necessary for effective wildland fire education.

RECOMMENDED RESOURCES

BOOKS

Fire in America: A Cultural History of Wildland and Rural Fire by Stephen J. Pyne. (University of Washington Press, 1997.) In this book, the author explores the efforts of various American cultures to master wildfire and use it to shape the landscape.

Introduction to Wildland Fire by Stephen J. Pyne. (NY: John Wiley and Sons, 1996.) This book covers the fundamental physics and chemistry of fire, fire behavior, wildland fuels, the interactions of fires and weather, ecological effects of fires, the cultural and institutional framework of fire management, planning efforts for fire management, suppression strategies, prescribed fires, and global fire management.

MAGAZINE

Spreading Like Wildfire: Planning fire prevention as communities grow into wildlands. (*Wisconsin Natural Resources* magazine April 2005, PUB FR-309-2005.) A series of articles related to wildland fire in Wisconsin by DNR staff. Available on-line at: www.wnrmag.com/supps/2005/apr05/intro.htm.

WEBSITES

Fire and Aviation Management – National Park Service

www.nps.gov/fire

The U.S. National Park Service offers resources and variety of wildland fire education materials.

Fire and Aviation Management – USDA Forest Service

www.fs.fed.us/fire/

The USDA Forest Service website contains information about fire management and fire ecology.

Firewise Communities

www.firewise.org

Learn about the Firewise program and find educator resources including videos on a variety of topics such as Firewise building practices and the dynamics of wildfire.

National Interagency Fire Center

www.nifc.gov

Find information on current wildfires burning in the U.S., wildland fire statistics, images, educator resources, and much more.

Project Learning Tree – Fire Education

www.plt.org

Navigate to the Special Initiatives section of the Project Learning Tree website to find materials related to fire ecology.

Sampling (statistics) – Wikipedia

[http://en.wikipedia.org/wiki/Sampling_\(statistics\)](http://en.wikipedia.org/wiki/Sampling_(statistics))

Wikipedia has an overview of statistical samplings including definitions and descriptions of various types of sampling.

Wisconsin Department of Natural Resources - Forest Fire Program

<http://dnr.wi.gov/org/land/forestry/Fire/>

Information related to wildland fire in Wisconsin from the Wisconsin DNR. Includes Firewise information, regulations and permits, prevention information, an overview and photos of suppression equipment, weather indices, and the current fire danger around the state.

www.eFire.org

www.efire.org/

An on-line bookstore for wildland fire education. Find wildfire information, links, resources, and materials for purchase.

THE SCIENTIFIC METHOD

THE 4 STEPS OF THE SCIENTIFIC METHOD

1. Observation to **DESCRIBE** a phenomenon or group of phenomena.
2. Formulation of a hypothesis to **EXPLAIN** the phenomenon.
3. Use of the hypothesis to **PREDICT** the results of a new observation (e.g., an experiment).
4. Performance of research to **TEST** the predictions.

What is the purpose of the Scientific Method?

Who uses the Scientific Method?

WILDLAND FIRE MEMO

Dear **CLASSIFIED**,

I am writing in response to your memo #132. To begin, I agree that it seems ironic that for much of the 20th century, societies have done everything possible to stop wildland fires in the name of fear and progress. Yet today, people are the major cause of destructive wildfire. I do not agree that people do this purposely. It is obvious that most of these fires are unintentional. They are caused by common activities such as outdoor burning, the use of machinery, misuse of matches, etc.

This begs the question, “Are people poorly educated about this issue, are we uncaring, or are we both?”

It is my experience that education must be a central strategy in stopping destructive wildfire and promoting beneficial fire through prescribed burning. If we look at four major wildland fire trends, it may be that lack of knowledge is the main cause.

1. Humans cause most of the destructive wildfires in Wisconsin.

It is obvious to me that education is a major factor here. The question that needs to be answered is, “Is lack of knowledge the only cause?” Even if people knew that their actions could cause a destructive wildfire, would they stop? What is their perception of the risk of outdoor burning or playing with fireworks? Are some of these activities (like machinery use and smoking) things that people feel they need to do regardless of the consequences?

2. A growing number of people are building homes in fire prone areas.

Many forested areas have a fire history. Every one hundred years or so, a fire burns through the forest and it regenerates. Many forests are overdue for fire – meaning, it is only a matter of time before a fire occurs. Surprisingly, people are building houses in these forests. In these wildland/urban interface areas there is an increased potential for loss of life and property. What, besides lack of knowledge, would cause this behavior?

3. There is public resistance to the use of prescribed fire.

Because of our 60-year history of stopping all wildland fire, many ecosystems that depend on fire have been damaged. Animal and plant habitat has been lost and fuels have built up to dangerous levels. The use of prescribed fire by experienced land managers can renew ecosystems and prevent fuel buildup. Yet, people do not seem to understand the difference between this helpful type of fire and destructive wildfire. Lack of knowledge must be a factor.

4. People who live in fire prone areas do not always protect their property from wildland fire.

When people chose to live in areas known to be at high risk for wildland fire they could take measures to protect their home and property from destruction. There are even special programs designed to teach them about their options. Why doesn't everyone take advantage of opportunities to protect their property from wildland fire? If they knew there were reasons to protect their property and that there were programs to help them do so, would they?

I suggest that we research the importance of education in these issues. That is to say, we need to know the answer to the question, “Is wildland fire education necessary?” I think a public opinion survey would do the trick, but I'll leave the details up to you.

Best regards,

WILDLAND FIRE TOPIC 1

CAUSES OF WILDFIRE IN WISCONSIN

1. Go to the website given by your teacher.
2. Read the general information about wildland fire in Wisconsin.
3. Explore the web links to learn about causes of wildfire in Wisconsin. As you explore the links, answer these questions:

a. What are the major causes of wildfire in Wisconsin? _____

b. What is being done to prevent these causes? _____

Remember, you will need to present information about your topic to the rest of the class. Take some notes about the topic that will help you summarize the information for the rest of the class.

4. **DESCRIBE** the phenomenon, "Humans cause most of the destructive wildfires in Wisconsin." _____

5. Based on information from the classified memo, what hypothesis do you think the author would formulate to **EXPLAIN** why the phenomenon is occurring? _____

•• STOP here until you are given further instructions. ••

6. Write two true/false questions about the causes of wildfire in Wisconsin for the public opinion survey.

a. _____

b. _____

7. **PREDICT** how the majority of people will respond to the survey questions.

- | | | | |
|-----------------|-----------------|-----------------|-----------------------|
| 1. True False | 4. True False | 7. True False | 9. 1 2 3 4 5 |
| 2. True False | 5. True False | 8. True False | 10. 1 2 3 4 5 |
| 3. True False | 6. True False | | |

WILDLAND FIRE TOPIC 2

WILDLAND/URBAN INTERFACE

1. Go to the website given by your teacher.
2. Read the general information about wildland fire in Wisconsin.
3. Explore the web links to learn about the wildland/urban interface. As you explore the links, answer these questions:

a. What is the wildland/urban interface? _____

b. How does the wildland/urban interface relate to wildfire in Wisconsin? _____

Remember, you will need to present information about your topic to the rest of the class. Take some notes about the topic that will help you summarize the information for the rest of the class.

4. DESCRIBE the phenomenon, “A growing number of people are building homes in fire prone areas.”

5. Based on information from the classified memo, what hypothesis do you think the author would formulate to EXPLAIN why the phenomenon is occurring? _____

*** STOP here until you are given further instructions. ***

6. Write two true/false questions about the causes of wildfire in Wisconsin for the public opinion survey.

a. _____

b. _____

7. PREDICT how the majority of people will respond to the survey questions.

- | | | | |
|-----------------|-----------------|-----------------|-----------------------|
| 1. True False | 4. True False | 7. True False | 9. 1 2 3 4 5 |
| 2. True False | 5. True False | 8. True False | 10. 1 2 3 4 5 |
| 3. True False | 6. True False | | |

WILDLAND FIRE TOPIC 3

PRESCRIBED FIRE

1. Go to the website given by your teacher.
2. Read the general information about wildland fire in Wisconsin.
3. Explore the web links to learn about prescribed wildfire. As you explore the links, answer these questions:

a. What are the benefits of prescribed fire? _____

b. Why might some people have a negative view of prescribed fire? _____

Remember, you will need to present information about your topic to the rest of the class. Take some notes about the topic that will help you summarize the information for the rest of the class.

4. **DESCRIBE** the phenomenon, "People misunderstand the use and benefit of prescribed fire."

5. Based on information from the classified memo, what hypothesis do you think the author would formulate to **EXPLAIN** why the phenomenon is occurring? _____

•• STOP here until you are given further instructions. ••

6. Write two true/false questions about the causes of wildfire in Wisconsin for the public opinion survey.

a. _____

b. _____

7. **PREDICT** how the majority of people will respond to the survey questions.

- | | | | |
|-----------------|-----------------|-----------------|-----------------------|
| 1. True False | 4. True False | 7. True False | 9. 1 2 3 4 5 |
| 2. True False | 5. True False | 8. True False | 10. 1 2 3 4 5 |
| 3. True False | 6. True False | | |

WILDLAND FIRE TOPIC 4

PROTECTING PROPERTY FROM WILDFIRE

1. Go to the website given by your teacher.
2. Read the general information about wildland fire in Wisconsin.
3. Explore the web links to learn about protecting property from wildfire. As you explore the links, answer these questions:

- a. How can property be protected from wildfire? _____

- b. Why might people not take steps to protect their property from wildfire? _____

Remember, you will need to present information about your topic to the rest of the class. Take some notes about the topic that will help you summarize the information for the rest of the class.

4. **DESCRIBE** the phenomenon, "People who live in fire prone areas do not always protect their property from wildland fire." _____

5. Based on information from the classified memo, what hypothesis do you think the author would formulate to **EXPLAIN** why the phenomenon is occurring? _____

*** STOP here until you are given further instructions. ***

6. Write two true/false questions about the causes of wildfire in Wisconsin for the public opinion survey.
 - a. _____

 - b. _____

7. **PREDICT** how the majority of people will respond to the survey questions.

- | | | | |
|-----------------|-----------------|-----------------|-----------------------|
| 1. True False | 4. True False | 7. True False | 9. 1 2 3 4 5 |
| 2. True False | 5. True False | 8. True False | 10. 1 2 3 4 5 |
| 3. True False | 6. True False | | |

PUBLIC OPINION SURVEY

SURVEYING

PURPOSE

To determine public understanding of a specific issue and determine public perception of the issue's importance.

OPINION = KNOWLEDGE + PERCEPTION

Public opinion has two components – knowledge and perception.

- *Knowledge* is the awareness and understanding of facts. To determine public knowledge, surveys pose questions based on factual information. This type of question has both a correct and incorrect answer.
- *Perception* can be defined as the feelings, attitudes, views, and judgments that a person has about the world around them. To determine how a person perceives an issue, surveys commonly allow respondents to rank the importance of an issue and rate their level of agreement with a specific statement.

TYPES OF QUESTIONS

- *True/False Questions* present respondents with the option of describing a statement as correct or incorrect. True/False questions are used to determine a respondent's knowledge about the facts surrounding an issue.
- *Likert Scale Questions* present respondents with the option of rating their agreement with a statement. Likert questions use a number system from 1 to 5. "1" indicates that a respondent strongly agrees with the statement, "2" indicates they agree, "3" indicates a neutral response, "4" indicates that they disagree, and "5" indicates they strongly disagree. Likert questions are used to determine a respondent's perception of an issue.

SAMPLING

PURPOSE

The purpose of sampling is to identify a group of people who accurately represents the population that you are studying. It is often impractical if not impossible to survey an entire population. Sampling allows researchers to survey a smaller group within the population and make accurate conclusions.

TARGET POPULATION

The target population is the group you are studying. The group can be as large as the American public or as small as the students in a classroom.

SAMPLE POPULATION

The sample population is the part of the target population that is actually studied. The sample population should be selected to avoid bias.

BIAS

Inaccuracy of research results may be caused by flaws in research methods. Bias is an opinion or belief that strongly favors one side of an issue. Bias can occur in the sample population if it does not represent the target population. Bias can also be caused by factors in the survey itself, including choice of words, sentence structure, and the sequence of questions.



WILDLAND FIRE PUBLIC OPINION SURVEY

INSTRUCTIONS (read to survey respondent): "As I read each statement, please choose true or false."

QUESTION	Respondent 1	Respondent 2	Respondent 3	Respondent 4	Respondent 5	Respondent 6	Respondent 7	Respondent 8	Respondent 9	Respondent 10
1.										
2.										
3.										
4.										
5.										
6.										
7.										
8.										

INSTRUCTIONS (read to survey respondent): "For each statement, please choose a number between 1 and 5 to indicate how you feel about it. The numbers indicate the following: 1 = Strongly Agree, 2 = Agree, 3 = Neutral, 4 = Disagree, 5 = Strongly Disagree."

QUESTION	Respondent 1	Respondent 2	Respondent 3	Respondent 4	Respondent 5	Respondent 6	Respondent 7	Respondent 8	Respondent 9	Respondent 10
9. Wildland fire education is important for Wisconsin residents. (1, 2, 3, 4, or 5)										
10. I support the use of taxpayer dollars for wildland fire education for Wisconsin residents. (1, 2, 3, 4, or 5)										