



# GRAY WOLVES



# GRAY MATTER

Exploring the Social and Biological Issues of Wolf Survival

SECOND EDITION

Jacquelyn Fallon



A PUBLICATION OF THE INTERNATIONAL WOLF CENTER

**International Wolf Center**  
Teaching the World about Wolves



**GRAY  
WOLVES**



**GRAY  
MATTER**



Jacquelyn Fallon

# Gray Wolves, Gray Matter

## Exploring the Social & Biological Issues of Wolf Survival

SECOND EDITION

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The International Wolf Center advances the survival of wolf populations by teaching about wolves, their relationship to wild lands and the human role in their future.

PDF versions of this curriculum may be downloaded for free from [www.wolf.org](http://www.wolf.org).  
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Editorial comments and corrections may be directed to [edudir@wolf.org](mailto:edudir@wolf.org), subject line: GWGM Editor

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Chris Darimont



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# Foreword

*A wild wolf trots out of the woods into a clearing.  
It doesn't see you as it crosses...*

*a prairie meadow*

*your cattle pasture*

*a wilderness trail*

*the playground at the edge of town*

*a logging road in the forest*

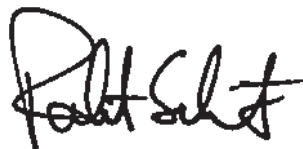
*or your back yard*

How do you react?

The wolf evokes feelings of excitement and fear, wonder, anger and allure. Looking into the eyes of a wild animal blows open the doors of a student's imagination and sparks the mind with curiosity. As this curriculum fuels the fire with biological, cultural and political perspectives, it takes students beyond emotion and challenges their thinking about the wolf and its complex relationship with humans.

The world's top wolf researchers have gathered the information you will present in these exercises. With that expertise in hand, your students are about to enter a real-world debate taking place in the wolf-populated and wolf-barren areas of Yellowstone National Park, New Mexico, France, Finland, Russia and elsewhere around the world.

Will the controversial wolf lope across our future landscape? Your students will gather facts, write, talk and listen, explore outcomes, resolve conflict and then decide.



Robert Schultz  
Executive Director  
International Wolf Center

September 1, 2018

# How to use this curriculum

The International Wolf Center is proud to provide educators with a resource that goes beyond biology to analyze the human aspects of the wolf's survival. This curriculum helps educators of all types address a true environmental controversy in a holistic, objective manner. Wolves are a complex subject to study, encompassing multiple disciplines and issues. The materials provided will help you and your students make sense of this multifaceted subject.

Even the name of this curriculum, *Gray Wolves, Gray Matter*, reflects the complexity of wolf issues. The phrase *gray matter* has dual meaning. First, it refers to the gray areas between fact and fiction, right and wrong. Second, gray matter is a metaphor for the brain, meaning that intensive thinking will be required to find compromise on these complicated issues.

Within these pages you will find a wealth of resources for teaching about the wolf and the current controversies surrounding their survival, including background information for teachers, interdisciplinary activities, assessment recommendations and student worksheets and game pieces. This activity guide is composed of a series of lessons that may be used together in sequence as one unit or used piecemeal to supplement an existing unit of study. The project is geared to students in grades 6–12, but no specific grade level is recommended for any of the lessons because they can all be adapted for learners of any age.

The activities are grouped into five themes:

**The Wolf:** The natural history of wolves, including pack life and survival needs

**Natural Systems:** The wolf's relationship with its ecosystem, including predation and territorial behavior

**Social Systems:** The cultural and economic interactions between wolves and humans

**Wildlife Management:** Understanding the mechanisms humans use to influence wildlife populations

**Finding Solutions:** Personal and civic skills necessary to find peaceful coexistence with wolves.

Not only has this curriculum been classroom tested, but it has also been reviewed by a variety of stakeholders in the wolf management controversy. These people, who fall on different sides of the wolf issue, made suggestions that were incorporated to ensure the greatest objectivity possible. In addition, all material was approved by world authorities on wolves, wolf ecology and wolf management. The International Wolf Center's goal is to provide the most current, scientific, unbiased information available so that people can formulate their own opinions about wolves and wolf management.

The International Wolf Center is committed to supporting wolf educators. Visit our extensive Web site, [www.wolf.org](http://www.wolf.org), where you'll find a host of information and opportunities!

**LEARN:** Accurate information and activities including volumes of wolf facts, curricula, loan boxes, Just for Kids section, outreach program information, Educator section (with our teacher workshop schedule) and more!

**EXPERIENCE:** Join us for the adventure program of a lifetime. Monitor our Wolf Watch Web Cam, or track wild wolves like the researchers do.

**SHOP:** An educator's dream site for purchasing books, audiovisual materials, wolf adoption kits, track packs, wolf curricula and more.

**GRAY  
WOLVES**



**GRAY  
MATTER**



**SECTION 5**  
**Finding  
Solutions**

Lynn and Donna Rogers/[www.bearstudy.org](http://www.bearstudy.org)





# How Do You Know the Wolf?

*Students reflect on the origin of their beliefs and attitudes about wolves, then poll others.*

## **STUDENT OBJECTIVES:**

At the end of this lesson, the student should be able to:

1. Appraise the origin of their beliefs and attitudes about wolves.
2. Analyze the origins of other people's beliefs and attitudes about wolves.
2. Instruct students to complete the first set of questions, on the worksheet on page 162.
3. As a class, discuss the second set of questions, on page 163.
4. Ask students if they think the ideas discussed in class are different from ideas other people would have: their parents, grandparents, people in another part of the country.
5. Instruct students to develop a survey that will investigate what people think about wolves and how they came to think these things. Brainstorm who could be interviewed. Perhaps students can telephone friends or family in another part of the country. Use the questions on the worksheet, or have students develop their own. Be sure to investigate *how* interviewees form their attitudes, both positive and negative.
6. After students have interviewed several people, allow them to report what they learned in the interviews.
7. Discuss: What conclusions can we draw about how people form their beliefs and attitudes about wolves? What categories can be identified? How do the responses differ by age group or region?

## **VOCABULARY:**

belief • attitude

## **TEACHER BACKGROUND:**

How do we come to know the things we know? Beyond formal learning settings, much of our information comes through informal channels: conversations, advertisements, movies, fictional books and other sources. Sometimes, without our even realizing, a series of information “scraps” get woven together to form a knowledge base. With reflection, students can analyze the sources of their knowledge and improve their self-awareness.

## **ACTIVITIES:**

1. Ask students to name all the things that come to mind when you say the word *wolf*. Discuss with students why they associated these ideas with wolves.

## SECTION 5 Finding Solutions

### **Subjects:**

*science, social studies*



### **Approximate lesson time:**

*20 minutes plus assignment  
time*



### **Materials:**

*worksheet on pages 162–163,  
paper, pencil/pen*



## **EXTENSION:**

Collect demographic information on survey participants, such as age, location, rural or city resident, male or female, hunter or non-hunter, livestock owner or non-livestock owner. Compare answers of different groups. To what do you attribute the differing answers?

## **ASSESSMENT:**

Instruct students to write a script for an imaginary conversation between two people who have widely disparate views of wolves. The imaginary people should discuss a topic related to wolves or wolf management. Students may select any setting where the conversation can occur. The conversation should include some items where the speakers agree and some items where the speakers disagree.



Daniel Cox, natureexposures.com



Chris Darimont

### ***National Science Education Standards***

#### ***Unifying Concepts and Processes***

*Evidence, models, and explanation*

#### ***Science as Inquiry***

*Abilities necessary to do scientific inquiry*

*Understanding about scientific inquiry*

#### ***Science in Personal and Social Perspectives (9–12)***

*Environmental Quality*

NAME: \_\_\_\_\_



# How do you know the wolf?

## STEP ONE

Answer these questions by yourself:

1. When did you first learn something about wolves?
2. What was it you learned?
3. How did you learn it? (Was it in a book, on TV, on the Internet, from a person?)
4. How else have you learned about wolves? (List as many as possible.)
5. How do you *feel* about wolves?
6. Why do you feel this way?
7. What have you done (big or small) in your life that relates to wolves in any way?





# Values Clarification

*Three activities help students identify values related to wildlife.*

## **STUDENT OBJECTIVES:**

At the end of this lesson, the students should be able to:

1. Identify and articulate values they hold.
2. Dissect arguments made in opinion statements.

## **VOCABULARY:**

value • opinion • belief

## **TEACHER BACKGROUND:**

Value systems are at the root of beliefs, attitudes and, ultimately, actions. Often the value systems held by parents are passed on to their children, and their children after them. Students may not think much about their values or realize how deeply their values influence their everyday actions.

Analysis of values is a very personal venture. These activities should be conducted in an open, accepting atmosphere where everyone has the chance to think, express and be unique.

## **ACTIVITIES:**

### **1. Values Barometer**

Choices that students make in their lives reveal the values they hold. In this activity, the teacher will read a statement. If a student strongly agrees with the statement, he or she stands on the right side of the

classroom. If they strongly disagree, they stand on the left side of the classroom. If they are between these extremes, they stand somewhere in the middle, relative to their level of agreement or disagreement. Ask for volunteers to explain why they chose to stand where they did. Be sure to be clear that there are no right or wrong answers in this activity, just a range of opinions and values.

### **2. The Most Important Things**

Sometimes we don't realize the value of something until it is gone. In this activity, students will rate a number of items with 1 being the most important and 10 being the least important. They will also write a sentence explaining their ratings. Collect and tabulate the answers. Discuss the class's values and why some things were rated highly and some rated lower.

### **3. Opinion Analysis**

By analyzing a person's opinion statements, we get a window into his or her values, since opinions and beliefs grow from the values we hold. In this activity, students read newspaper editorial articles and fill out the Opinion Analysis Worksheet. Each group will give a short presentation about the opinions and values that they infer from the articles.

## SECTION 5 Finding Solutions

### **Subjects:**

*reading skills, public speaking,  
sociology*



### **Approximate lesson time:**

*2 to 3 hours*



### **Materials:**

*Paper and pencil,  
Values Barometer  
Question Sheet,  
Most Important  
Things Worksheet,  
Opinion Analysis  
Worksheet*



## ASSESSMENT:

Worksheets may serve as the assessment for these activities.

## Values Barometer Questions

### 1. Wolves are an important part of the environment.

*Discussion points: Are you thinking of the ecological environment or the economic environment? Lots of ecosystems that used to have wolves now exist without them, so how important are they?*

### 2. I have sufficient knowledge of wolves to formulate an opinion about them.

*Discussion points: How much knowledge is enough? How much knowledge does it take to formulate an opinion? What do you say to people who say they know more than they would like to know about wolves?*

### 3. I want to live in wolf country.

*Discussion points: Why is wilderness appealing or not appealing to people? Why are wolves appealing or not appealing to people?*

### 4. I want to live in a region where there are wild turtles.

*Discussion point: Why are some animals more appealing than others?*

### 5. Livestock owners should be compensated (paid by the government) for livestock killed by wolves.

*Discussion points: Whose fault is it if a wolf eats a cow? What if the wolf is protected and the livestock owner can't take action to protect his/her assets?*

### 6. Livestock owners should be allowed to kill a wolf if they see one.

*Discussion point: What rights should livestock owners have? Is this affected by how many wolves there are?*

### 7. Farmers should be compensated for crop losses due to Canadian geese.

*Discussion points: Nature often causes problems for agriculture. Should we help farmers overcome these problems, or should they have to buy insurance to anticipate problems?*

### 8. I should be able to let my pet run free in rural areas.

*Discussion points: Should people have to watch their pets every second? If a wolf kills a dog, who is responsible?*

### 9. I have a right to raise livestock anywhere, including wolf country.

*Discussion points: Should a livestock owner have to move his or her business and family if wolves are coming back? How much have humans changed the environment?*

### 10. It is safe to live in wolf country.

*Discussion point: How can we know if wolves are dangerous?*

### 11. I have the right to kill an animal if I believe it has the potential to hurt me or my pets.

*Discussion point: Are individual rights more important than the good of the environment or society?*

### 12. Humans are in charge of the environment

*Discussion points: Whose view of the world is right? Is there a way to blend the divergent values?*



Daniel Cox, natureexposures.com

## National Science Education Standards

### Unifying Concepts and Processes

*Evidence, models, and explanation*

### Science as Inquiry

*Abilities necessary to do scientific inquiry*

*Understanding about scientific inquiry*

### Science in Personal and Social Perspectives (9–12)

*Environmental Quality*

NAME: \_\_\_\_\_



# Most Important Things

Rate the following items on a scale of 1-10:

1 = very important and 10 = not very important

- \_\_\_\_\_ a car to drive
- \_\_\_\_\_ a vacation somewhere special
- \_\_\_\_\_ time to spend with friends
- \_\_\_\_\_ the chance to play on a sports team
- \_\_\_\_\_ a walk in the woods or a camping trip
- \_\_\_\_\_ time to shop in a mall
- \_\_\_\_\_ free passes to movies
- \_\_\_\_\_ time to watch your favorite TV show
- \_\_\_\_\_ having urban wildlife (squirrels, rabbits, songbirds) nearby
- \_\_\_\_\_ having rural wildlife (deer, wolves, moose, herons) nearby
- \_\_\_\_\_ time to play computer games or surf the Internet
- \_\_\_\_\_ free CDs and time to listen to them
- \_\_\_\_\_ family
- \_\_\_\_\_ time to read books
- \_\_\_\_\_ being able to decide what to do for a vacation
- \_\_\_\_\_ having a job and making money
- \_\_\_\_\_ going to college or other higher education program
- \_\_\_\_\_ getting exercise
- \_\_\_\_\_ eating whatever you want
- \_\_\_\_\_ spending time with family







# Problem Solving

*A team building exercise highlights problem-solving issues.*

## **STUDENT OBJECTIVES:**

By the end of this lesson, students will be able to:

1. Describe the steps of effective problem solving.
2. Compare hypothetical situations to real wolf controversies.

## **TEACHER BACKGROUND:**

Learning how to solve problems is a basic life skill. Many times in our society, we are taught that conflict is the way to get one's way (shoving to the front of the line, aggressive sporting events). This conflict model breaks down when we have to deal with other people over an extended period of time, as is shown in the conflicts in Northern Ireland and in Israel.

Problem solving is an integral part of wildlife management planning. An example of problem solving in wolf management is the impact wolves have on wildlife tourism. Many communities in wolf country promote the wolf as a symbol of the wild, which attracts people and money for businesses to thrive. Centers like the International Wolf Center in Ely, Minnesota, exist because people want to learn more about the wolf. However, other people living in wolf country dislike

the wolf because it has the potential to kill livestock and pets, and some fear that wolves are hurting deer populations for hunters. How do we solve this problem?

One way to address problems is to follow the S.T.O.P. problem-solving technique.

S – stands for **stop**. Often people rush off to solve a problem before they really understand it.

T – stands for **think**. Think about all of the issues involved in the problem.

O – stands for **observe**. Observe what is happening. Who is on which side of the issue? Are there ways to bring people together to solve this problem?

P – stands for **plan**. Create a plan for how to deal with this problem. Make sure everyone knows the plan before you start.

## **ACTIVITIES:**

1. Divide the class into two teams. Using two ropes, mark off two “safe areas” two feet from the wall on either end of the room. Both teams should stand in the same safe area.

## SECTION 5 Finding Solutions

### **Subjects:**

*physical education, sociology*



### **Approximate lesson time:**

*1 hour*



### **Materials:**

*two ropes,  
two paper bags*



2. Give each team one paper bag. Tell them that they are on the sinking Titanic, and they need to cross this room to get to the lifeboats, but they can't touch the water (floor) because it is icy cold and they will freeze (go back to the beginning). They need to get their team from one side of the gym (or cleared classroom) to the other side without touching the floor.
3. Students can use the bags in whatever way they choose (tearing them apart, putting a foot in the bag), but they can't use anything else to cross the room.
4. Allow the students time to plan and execute their solution. The teacher may remind the students to S.T.O.P. Encourage the students to be creative.
5. Evaluate the students' solutions. Discuss the following:
  - What procedure did they use to come up with their solution?
  - If teams didn't cooperate, ask them why they didn't.
  - Who spoke the most? Who spoke the least?
  - Whose ideas were respected? Why? Who got ignored? Why?
  - What did you do that helped or hindered the situation?
  - What behavior is required in order to come up with a solution agreeable to all?
  - How could our problem-solving skills be improved?
  - In what ways is this activity like or unlike the problem-solving used in wolf controversies?

*Usually, the main problem with life's conundrums is that we don't bring to them enough imagination.*

—Thomas Moore, *Care of the Soul*

### ASSESSMENT:

Tell students to complete the following sentences:

1. This activity surprised me because...
2. By doing this activity I realized...
3. If we used the same strategies to resolve wolf controversies that were used in this activity, it would be...

### EXTENSIONS:

Ask the students if there are other ways they could complete the challenge in less time. Encourage them to develop creative answers (like tearing both team's bags up to make a bridge and walk across). Encourage the group to develop and try several solutions to this problem.

Which solution is the best?

What criteria could a person use to determine the best solution to a problem?

*Additional Resources:*

*Paul Darst.* Outdoor Adventure Activities for School and Recreation Programs. Minneapolis: Burgess Publishing, 1980.

*Andrew Fluegelman.* The New Games Book. San Francisco: Headlands Press, 1976.

*Karl Rohnke.* Cowstails and Cobras. Hamilton: Project Adventure, 1977.



Daniel Cox, natureexposures.com

### National Science Education Standards

#### Unifying Concepts and Processes

*Evidence, models, and explanation*

#### Science as Inquiry

*Abilities necessary to do scientific inquiry*

*Understanding about scientific inquiry*

#### Life Science (5–8)

*Population and ecosystems*

#### Life Science (9–12)

*Interdependence of organisms*

#### Science in Personal and Social Perspectives (5–8)

*Populations, resources, and environments*

*Risks and benefits*

*For more correlations, please see Appendix IV.*

# Survey Says

*Students survey community members about their opinions regarding wolves.*

## **STUDENT OBJECTIVES:**

By the end of this lesson, students will be able to:

1. Describe three opinions that community members hold about wolves.
2. Analyze why it is important to understand public attitudes when developing a wildlife management plan.
3. Evaluate how most people in their community feel about wolves and wolf management.

## **VOCABULARY:**

management • recovery • value • endangered • threatened • opinion

## **TEACHER BACKGROUND:**

In this activity, students will survey their neighbors to determine what they think about wolves. They will use the same survey that a professional researcher used and compare their results with his.

### **Survey Shows Minnesotans' Attitudes About Wolves**

In a democracy, public attitudes help shape government policies, including those concerning wildlife conservation and management. Like public lands, state and federal highways, and other government infrastructure, wildlife is a public resource that is managed for the people by government agencies.

And like other public policy issues, people hold strong and divergent opinions on policies affecting wildlife, especially on the subject of wolves.

To better understand attitudes about wolves and their implications for Minnesota's evolving wolf management plan, the International Wolf Center contracted Yale University Professor Stephen Kellert, Ph.D., to survey Minnesotans' attitudes about wolves and wolf management. This survey was funded by the National Fish and Wildlife Foundation, the Turner Foundation, the Unity Avenue Foundation, the Sweatt Foundation and an anonymous donor.

The survey augments information gathered from public meetings and the citizens roundtable sponsored by the Minnesota Department of Natural Resources in the development of a wolf management plan. While the meetings and the roundtable included the public in the decision-making process, generally only people with a vested interest in wolf management were involved.

The survey results, however, provide a more comprehensive look at public opinion, reflecting both the opinions of the general public and people with strong views about

## **SECTION 5** **Finding Solutions**

### **Subjects:**

*sociology,  
public speaking, mathematics*



### **Approximate lesson time:**

*1 hour (plus survey time)*



### **Materials:**

*list of questions,  
graph paper,  
calculators*

wolves. The objective data in this survey can help develop a more effective, equitable and efficient plan for managing the species.

### **General Feelings About Wolves**

Minnesotans clearly value wolves, viewing the animal as ecologically important, scientifically fascinating, aesthetically attractive, recreationally appealing and significant for future generations. Only a small minority fear and dislike wolves or believe Minnesota would be a more desirable place without this predator.

While many recognize the harvest value of wolves, either for fur or sport, the majority of respondents regard these benefits as of secondary importance. Moreover, a substantial proportion (a majority of non-northern residents and nearly 50 percent of northern residents) remain ethically opposed to harvesting wolves for fur or sport and fear a legal harvest would result in excessive and unsustainable numbers of wolves being killed.

### **Population Expansion and Management Concerns**

The majority of Minnesota residents are divided about the prospect of the wolf spreading much beyond the northern part of the state and do not think this animal should reside in urban areas. Moreover, most believe wolf numbers should remain around 2,000 and the animal should be removed from the federal endangered species list and returned to state management. On the other hand, most of the general public fear this change in management

authority could result in high wolf mortality and believe the state should maintain a moderate to great deal of protection of this species.

### **Wolves and Human Activity**

The majority of Minnesotans do not believe the wolf is an impediment to economic and social development and endorse the protection of needed wolf habitat. Still, most respondents do not want the wolf to interfere with private property rights or result in undue restrictions on private land use. Additionally, a majority of respondents favor protecting livestock from wolf depredation.

Most of the general public endorse, however, the use of nonlethal and humane control techniques and believe financial compensation to farmers should occur only if they engage in livestock practices that discourage wolf attacks and provide clear evidence that wolf depredation occurred. Farmers and, to a lesser extent, northern Minnesota residents express stronger support for wolf control in cases of livestock depredation. Farmers and northern residents tend to see the problem of wolf depredation on livestock and pets as a more extensive and serious problem.

Only a small proportion of Minnesotans report ever killing a wolf. On the other hand, a disturbingly large proportion of farmers, and especially northern residents, indicate knowing someone who they think killed a wolf.



Daniel Cox, naturalexposures.com

## ***National Science Education Standards***

### ***Unifying Concepts and Processes***

*Evidence, models, and explanation*

### ***Science as Inquiry***

*Abilities necessary to do scientific inquiry*

*Understanding about scientific inquiry*

### ***Science in Personal and Social Perspectives (5–8)***

*Risks and benefits*

### ***Science in Personal and Social Perspectives (9–12)***

*Environmental Quality*

### **Consumptive and Nonconsumptive Values Associated with Wolves**

The public expressed strong support for the nonconsumptive value of wolves; most report having read or watched television programs and films about the animal. Most believe the presence of wolves contributes significantly to an outdoor experience and endorse tourism and other forms of nonconsumptive use as ways of increasing the wolf's economic importance.

Farmers expressed far stronger support for the utilization and control of wolves than did the general public, especially in comparison to non-northern Minnesota residents. The general public was characterized by stronger affection, moral concern, and scientific and outdoor recreational interest in wolves than farmers, although little difference occurred in levels of fear or dislike of the animal.

Moreover, farmers tended to be more knowledgeable about wolves than the general public, especially than non-northern residents. Rural, elderly and less educated respondents expressed stronger support for the utilization and control of wolves, and less affection, concern and interest in this species than better educated, younger, non-rural residents.

### **Changes in Public Attitudes Toward Wolves**

Affection for and interest in wolves appear to have increased from 1985 to 1999, especially among farmers. Support also expanded for controlling wolf damage to livestock, although most

respondents continued to favor the use of nonlethal and humane techniques. Opposition to hunting wolves increased along with the perceived nonconsumptive value of this species. The proportion of non-northern residents who believe they know someone who killed a wolf ominously increased.

### **Implications**

The results of this research should assist the state in assuming primary responsibility for managing the wolf. These results suggest that Minnesotans highly value the wolf and favor the protection of the species and its habitat. Most respondents recognize the importance of protecting legitimate human interests, such as livestock production, from damage inflicted by wolves, although in a humane and nonlethal manner.

The wolf is especially appreciated by Minnesota residents for its nonconsumptive value. By contrast, a majority of both northern and non-northern Minnesota residents remain skeptical about harvesting the animal for either fur or for sport and are concerned that these forms of consumptive use could result in excessive and unsustainable mortality. As Minnesota assumes management responsibility for the wolf, the opportunity exists to protect and conserve this animal in a manner that enhances the state agency's ability to manage wildlife in the public interest.

*Editor's note: Portions of this article were compiled from "The Public and the Wolf in Minnesota," 1999, a report of the International Wolf Center, written by Dr. Stephen R. Kellert of Yale University.*

## **ACTIVITY:**

---

Discuss with students why researchers use surveys. Give each student a survey and ask them to complete it. Collect surveys for later.

Divide the class into teams of two. Each team should interview 10 classmates (not in the room) using a modified version of the Kellert survey. This is a good activity to do as homework.

Once each team has surveyed students, tell them to create a table like the survey results table below and determine how students responded to their team's survey. Direct each team to put their results on the board or on an overhead. Individually or as a class, average the survey results. Also average the results of the written surveys collected at the start of this activity. Do the students in this room have opinions similar to or different from the rest of their classmates? Brainstorm reasons why the results may be similar or different.

Was anyone surprised by what they found?

Compare the class results with results from the Kellert survey. Were student responses the same as or different from the adult responses in the Kellert survey? Individually or as a class, brainstorm reasons why student and adult responses would be the same (or different).

## **Discuss:**

- Did you ever disagree with a response that you received from someone else?
- How do you respond to someone who voices an opinion you don't agree with? (e.g., argue, ignore, agree)

- Why is it important to know how people feel about wolves?
- Predict how the responses you received would be different if you surveyed people in Ely (northern Minnesota community), in Worthington (Minnesota farming community), or in Minneapolis (major metropolitan area).
- How could this information help the Department of Natural Resources develop a wolf management plan?

## **ASSESSMENT:**

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Using the survey results from your school, instruct each student to write a one-page summary of the survey responses and come up with three reasons why their results are similar to or different from the Kellert survey.

## **EXTENSION:**

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1. Have students survey 10 adults in their community and compare those results to the Kellert survey and their classmate survey. How is it similar? What are the differences?
2. Instruct the students to do the Values Barometer again but with a twist. After students have chosen a place on the barometer, divide the line in half. Have students find a partner on the opposite side of the barometer and spend one minute describing why they chose to place themselves where they did on the barometer. Make sure all students have the opportunity to speak. Students should not try to persuade one another to change their opinions; they must simply listen to each other. The teacher may challenge students to paraphrase what they have heard to confirm understanding.

# Modified Kellert Survey



(Below are 10 of the questions that Dr. Stephen Kellert used in his survey.)

- A. Overall, how much do you care about wolves?
1. Not at all
  2. Very little
  3. Some
  4. A fair amount
  5. A great deal
- B. How much have you heard or read about the issue of removing wolves in Minnesota from the federal list of threatened and endangered species and largely turning management authority for the wolf from the federal government over to the Minnesota Department of Natural Resources?
1. Not at all
  2. Very little
  3. Some
  4. A fair amount
  5. A great deal
- C. In general, how much do you support or oppose removing the wolf from the federal list of threatened and endangered species, assuming that populations of wolves in Minnesota have met their recovery goal?
1. Strongly support
  2. Moderately support
  3. Moderately oppose
  4. Strongly oppose
  5. Neither support nor oppose
- D. If I were alone in the woods and saw a wolf, I would be afraid that it might attack me.
1. Strongly agree
  2. Moderately agree
  3. Moderately disagree
  4. Strongly disagree
  5. Neither agree nor disagree
  6. No opinion
- E. I think that wolves should be allowed throughout the entire state of Minnesota.
1. Strongly agree
  2. Moderately agree
  3. Moderately disagree
  4. Strongly disagree
  5. Neither agree nor disagree
  6. No opinion



- F. When wolves kill cattle, they should be eliminated.
1. Strongly agree
  2. Moderately agree
  3. Moderately disagree
  4. Strongly disagree
  5. Neither agree nor disagree
  6. No opinion
- G. Seeing or hearing a wolf in the wild would be one of the greatest outdoor experiences in my life.
1. Strongly agree
  2. Moderately agree
  3. Moderately disagree
  4. Strongly disagree
  5. Neither agree nor disagree
  6. No opinion
- H. I am against the wolf expanding to new areas of Minnesota because I believe it will result in restrictions on what people can do on private land.
1. Strongly agree
  2. Moderately agree
  3. Moderately disagree
  4. Strongly disagree
  5. Neither agree nor disagree
  6. No opinion
- I. Private landowners should be allowed to chase away and sometimes kill wolves that trespass on their property.
1. Strongly agree
  2. Moderately agree
  3. Moderately disagree
  4. Strongly disagree
  5. Neither agree nor disagree
  6. No opinion
- J. Farmers whose livestock are killed by wolves should only be financially compensated (by the state) if they are following livestock farming practices that discourage wolf attacks.
1. Strongly agree
  2. Moderately agree
  3. Moderately disagree
  4. Strongly disagree
  5. Neither agree nor disagree
  6. No opinion



**MINNESOTANS' ATTITUDES ABOUT WOLVES**  
(averaged from 525 responses to the 1999 Kellert Survey)

Question	Not at all to Very little	Some to A great deal
A. Overall, how much do you care about wolves?	11%	26%
B. How much have you heard or read about the issue of removing wolves in Minnesota from the federal list of threatened and endangered species and largely turning management authority for the wolf from the federal government over to the Minnesota Department of Natural Resources?	17%	22%
C. In general, how much do you support or oppose removing the wolf from the federal list of threatened and endangered species, assuming that populations of wolves in Minnesota have met their recovery goal?	29%	14%
D. If I were alone in the woods and saw a wolf, I would be afraid that it might attack me.	20%	28%
E. I think that wolves should be allowed throughout the entire state of Minnesota.	22%	24%
F. When wolves kill cattle, they should be eliminated.	28%	17%
G. Seeing or hearing a wolf in the wild would be one of the greatest outdoor experiences in my life.	36%	11%
H. I am against the wolf expanding to new areas of Minnesota because I believe it will result in restrictions on what people can do on private land.	22%	25%
I. Private landowners should be allowed to chase away and sometimes kill wolves that trespass on their property.	28%	18%
J. Farmers whose livestock are killed by wolves should only be financially compensated (by the state) if they are following livestock farming practices that discourage wolf attacks.	35%	12%

Source: Stephen R. Kellert. "The Public and the Wolf in Minnesota, 1999," International Wolf Center.

# Conflict Resolution

*Students practice compromising and building consensus on controversial issues.*

## **STUDENT OBJECTIVES:**

At the end of this lesson, students will be able to:

1. Analyze their experiences with conflict to identify sources and solutions.
2. Formulate a procedure for solving problems.

## **VOCABULARY:**

conflict • cooperation

## **TEACHER BACKGROUND:**

Conflict resolution is an important life skill. The better students can identify and resolve conflicts, the easier they will be able to navigate the oceans of life.

Students will devise their own steps for resolving conflicts. They may include such topics as listening to each side in the conflict (remember, there may be more than two sides), listing each group's goals or needs, looking for ways to compromise so each group gets some of its needs met, building partnerships between groups for a "big plan" solution to the conflict, or looking for ways to address all group concerns, possibly through future projects.

## **ACTIVITIES:**

### **A: Conflict Resolution: Real-Life Scenarios**

1. Distribute a copy of the Conflict Resolution: Real-Life Scenarios Worksheet to each student. Direct each student to individually reflect on their experiences and write detailed examples.
2. Divide students into discussion groups. Have them share their experiences. Then have the group develop a definition for each word.
3. If desired, share group definitions.

### **B. Remembering Conflicts** (The individual portion of this activity may be assigned as homework.)

1. Instruct students to remember a time when they had a conflict with another person. Ask them to focus on an event when they and another person wanted different things or had different ways of handling a situation.
2. Instruct students to summarize the event in a paragraph, answering the following questions in a first-person narrative. Use the Remembering Conflict Worksheet if desired.
  - How did it begin?
  - What was the conflict?
  - Was it resolved? How?
  - How did you determine who "won" or "lost?"
  - Did you like how it ended?
  - Would you do anything differently next time?



## **SECTION 5 Finding Solutions**

### **Subjects:**

*sociology, writing skills,  
physical education*



### **Approximate lesson time:**

*3 hours*



### **Materials:**

*dictionaries,  
copies of worksheets*



## National Science Education Standards

### Unifying Concepts and Processes

*Evidence, models, and explanation*

### Science as Inquiry

*Abilities necessary to do scientific inquiry*

*Understanding about scientific inquiry*

### Science in Personal and Social Perspectives (9–12)

*Environmental Quality*

- In small groups, tell students to briefly describe their “Remembering Conflicts” experience. Reflecting on those experiences, students should brainstorm the skills necessary to effectively resolve conflicts. Have one student record the group’s list of skills on the Resolution Ingredients Worksheet. Then, tell students to formulate a step-by-step procedure for solving conflicts.
- Share your results with the class.

### C. My Spot (This activity requires a large, open space.)

- Instruct students to silently choose a place they feel most comfortable in, but not to go there (establish boundaries if necessary).
- Then gather the students together in the center of the space. Have them link arms facing the center of the circle. Ask them to remain silent for this activity. Tell them that to complete this challenge, they must take everyone to “their spot” while remaining linked. If the circle breaks, they must start over again. Be sure to move slowly and carefully so no one gets injured.
- Make notes during the activity about who shows leadership, as well as who is ignored in the group. After the students have completed this activity, discuss what happened in large or small groups.

### Debriefing Questions

- How did everyone decide on a plan?
- Did anyone feel they weren’t “listened” to?
- Who showed the most leadership?

- What made you feel annoyed or frustrated in this activity?
- How do you know when someone is really listening to you?
- If several people have solutions that seem to work, how would you decide which plan to follow?
- What did we learn from this activity that we can apply to our discussions about wolf management?

### ASSESSMENT:

Individuals will turn in Remembering Conflict. Groups will turn in Resolution Ingredients and Real-Life Scenarios.

### EXTENSION:

*School Lot Debate:* A town resident just donated an empty lot to your school. There are many things the school could do with the property. Divide the class into four groups:

- Advocates for a baseball/softball field on the lot
- Advocates for a nature area with trails, trees and bird feeders on the property
- Advocates for a new parking lot
- Advocates for selling the land and buying new computers for the school

Each group should develop reasons why their use is the best for the property. Then, each group will have a chance to make a presentation to the “school board” (made up of one representative from each interest group).

After groups have made their presentations, challenge the group to resolve the conflict over the use of this property (this might involve further presentations, discussions, bargaining etc.).



Name: \_\_\_\_\_



# Remembering Conflict

On a piece of paper, write a first-person story of a time you experienced conflict with another person.

- How did it begin?
- What was the conflict?
- Was it resolved? How?
- How did you determine who “won” or “lost?”
- Did you like how it ended?
- Would you do anything differently next time?

Group Member Names: \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_



# Resolution Ingredients Worksheet

Brainstorm the skills necessary to effectively resolve conflict. List below.

List the steps necessary for resolving conflict.



Name: \_\_\_\_\_



# Conflict Resolution: Real-Life Scenarios

**Give an example from your life  
when you have experienced:**

**Group Definition:**

*(complete this section in small groups)*

Conflict

Compromise

Creative thinking

Negotiation

Solution

Cooperation

Consensus

Tolerance

Obstinance



# Designing a Management Plan

*Students role-play stakeholder groups in a roundtable decision-making process.*

## **STUDENT OBJECTIVES:**

At the end of this lesson, students will be able to

1. Define the goals of a stakeholder group.
2. Develop a management plan for their “interest group” of stakeholders.
3. Negotiate terms of their plan with other interest groups through compromise.
4. Articulate some difficulties associated with compromise.

## **VOCABULARY:**

compromise • management  
• stakeholder • roundtable  
• livestock • depredation

## **TEACHER BACKGROUND:**

Once students are familiar with the issues surrounding wolf management, this lesson will be their chance to put all of that information together to develop a management plan from the perspective of a stakeholder group. Students will take on wolf management in the state of Colorado. At the time of publication, wolves had not returned to Colorado, either by

reintroduction or natural recolonization. However, because wolf populations exist in states both north and south of Colorado, wolves may soon establish a population there.

In Part One of this activity, students will research the position of an assigned stakeholder group and then propose a wolf management plan for the state of Colorado from the point of view of that stakeholder group. In Part Two, the groups will shuffle, and the new groups will have at least one representative of each stakeholder group, simulating a roundtable meeting. During the roundtable meeting stakeholder representatives will submit their wolf management proposals to each other, and each group must develop a solution agreeable to all stakeholders.

To be more effective problem solvers for wolf management, we need to analyze both the natural and social systems in which we live. We need to look very carefully to identify all of the parts and relationships within these systems and between these systems. Many times, our solutions do not account for all of these interrelationships, and as a result, the solutions may not work very well. The more parts

## SECTION 5 Finding Solutions

### **Subjects:**

*biology, sociology, government, economics, geography, public speaking*



### **Approximate lesson time:**

*2 hours*



### **Materials:**

*map of Colorado*



and relationships we can identify and account for, the better chance we will have for a more successful solution.

When first analyzing a situation that needs to be resolved, all parties must agree on the basic facts. What has happened in the past? What is currently happening? In the case of wolf management, some stakeholder groups disagree on an estimate of the number of wolves in the population, so it is difficult to formulate a plan for their management when the foundation is disputed.

It is also important to identify all parts of the natural and social systems involved in the issue. Who/what will be affected by the decisions made? These will include human groups and non-humans such as plants and animals. The humans who are affected by an issue are called stakeholders. They have a stake in what happens. To understand the issue, you must find out what the needs and/or desires of all the stakeholder groups are. At this point, it may become apparent that appeasing one kind of stakeholder may lead to the detriment of another stakeholder.

Once all the stakeholders are known, you can begin to identify possible solutions. By considering many alternatives, you can anticipate outcomes that may be satisfactory. Involving stakeholders in the identification and selection of solutions helps all parties to become invested in the result. Because they had a hand in choosing the solution, they will want to see it succeed.

If the issue is contentious, it may seem that there is no solution that will satisfy everyone. This is the point where many issues become mired in controversy. Finding a compromise can be difficult, even painful at times, but skills such as negotiation, leadership, cooperation and listening can smooth the road.

Once a solution is defined, it must be refined and then communicated. Predicting the long-term impacts of the solution on both the social and natural systems involved helps to anticipate any domino effects that may occur with implementation of the solution.

## ACTIVITIES:

### PART ONE:

1. Divide the class into six groups.
2. Assign each group one stakeholder group to represent. The position each group is assigned to is the position that all the group members will espouse for the remainder of this lesson.
3. Instruct each group that they are to create a wolf management plan for the state of Colorado from the perspective of their stakeholder group. Students may research the activities and perspectives of their assigned group using the Web links provided below.

*Each group should answer the following questions:*

- Where will wolves be allowed to live? What if wolves go outside of this area?
- How many wolves will you consider “enough”?



Daniel Cox, natureexposures.com

## **National Science Education Standards**

### **Unifying Concepts and Processes**

*Systems, order, and organization*

*Evidence, models, and explanation*

*Change, constancy, and measurement*

### **Life Science (5–8)**

*Structure and function in living systems*

*Reproduction and heredity*

*Regulation and behavior*

*Population and ecosystems*

### **Life Science (9–12)**

*Interdependence of organisms*

*Behavior of organisms*

### **Science in Personal and Social Perspectives (5–8)**

*Populations, resources, and environments*

*Risks and benefits*

*For more correlations, please see Appendix IV.*



- How will you respond to problems with livestock?
- Will wolves be protected? How?
- Will hunting be allowed?

*If there is time, have the students predict the following based on their proposal:*

- How might the citizens of rural Colorado view this plan? Livestock owners? Urban residents?
- What are the positive and negative economic impacts of implementing the plan? (Think about big-game hunting, tourism, depredation etc.)
- How would this plan impact the elk population in the state?
- How will this plan affect the biodiversity of the state?
- Which other stakeholder groups will support this plan? Oppose it?

#### **PART TWO:**

4. Representatives from each stakeholder group should join new “roundtable” groups, made up of at least one member of each stakeholder group. These new groups should explain their proposed wolf management plan to the others in the group.
5. The roundtable group should discuss all the plans and devise a combined plan that all stakeholders agree to.

6. A spokesperson from each group will present their group’s plan to the class or a “legislature” of parents and other volunteers. The class can ask questions or provide the group with feedback on their plan after the presentation.

#### **Discussion:**

- What happened as you tried to come to consensus?
- How would this process be different if real feelings and money were at stake?
- What would it take to come to agreement? Is that possible?
- What problems do we have to solve yet?
- What would you like to see happen?
- What advice do you have for the people in charge of developing wolf management plans?
- How does your learning about this issue help the process?
- How can you be part of the solution?

#### **ASSESSMENT:**

1. Instruct each roundtable group to submit a full report of their group’s proposal. Be sure they include answers to the questions in #3 above. Require every group member to sign the proposal, indicating their satisfaction with the plan.



2. Teachers may assess the project using the following characteristics:
- To what extent did each student sincerely and fairly represent their assigned stakeholder's interests?
  - To what extent did the groups calmly and fairly negotiate a solution?
  - To what extent does the plan accommodate all stakeholder needs?
  - To what extent will this plan guarantee a long-term, stable wolf population?

### **STAKEHOLDER GROUPS:**

Colorado Division of Wildlife:  
<http://wildlife.state.co.us>

Rocky Mountain Elk Foundation:  
<http://www.rmef.org>

Colorado Cattlemen's Association:  
<http://cca.beef.org/>

Colorado Wool Growers Association:  
[http://www.wolfforum.org/position\\_statements/WolfPositionPaperFinal04.13.04.pdf](http://www.wolfforum.org/position_statements/WolfPositionPaperFinal04.13.04.pdf)

Sinapu: <http://www.sinapu.org/>

Southern Rockies Wolf Restoration Project: <http://www.rockywolf.org/>

*NOTE: Some of these stakeholder groups have official position statements on wolf recovery in Colorado posted on the Web site of the Wolf Forum of the Southern Rockies: [www.wolfforum.org](http://www.wolfforum.org).*

### **EXTENSION:**

Students may research wolf management plans approved by other states to see how their plans compare. Most states have their plans posted on the Internet. The Web links listed here were correct at the time of publication, but if some links don't work, try the International Wolf Center's Web site at [www.wolf.org](http://www.wolf.org) for updated information.

State wolf management plan information:

#### **Colorado**

[http://wildlife.state.co.us/species\\_cons/GrayWolf/](http://wildlife.state.co.us/species_cons/GrayWolf/)

#### **Idaho**

[http://www.accessidaho.org/species/id\\_wolf\\_cons\\_plan.pdf](http://www.accessidaho.org/species/id_wolf_cons_plan.pdf)

#### **Michigan**

[http://www.dnr.state.mi.us/publications/pdfs/huntingwildlife-habitat/wolf\\_mgmtplan.pdf](http://www.dnr.state.mi.us/publications/pdfs/huntingwildlife-habitat/wolf_mgmtplan.pdf)

#### **Minnesota**

[http://files.dnr.state.mn.us/natural\\_resources/animals/mammals/wolves/wolfplan2000.pdf](http://files.dnr.state.mn.us/natural_resources/animals/mammals/wolves/wolfplan2000.pdf)

#### **Montana**

<http://fwp.state.mt.us/wildthings/wolf/default.html>

#### **Oregon**

<http://www.dfw.state.or.us/wolves/>

#### **Utah**

<http://www.wildlife.utah.gov/wolf/>

#### **Wisconsin**

<http://www.dnr.state.wi.us/org/land/er/publications/wolfplan/toc.htm>

#### **Wyoming**

<http://gf.state.wy.us/downloads/pdf/WolfPlanFinal8-6-03.pdf>