

Lesson Plan 6:

Coordinated Resource Management Exercise

A facilitated meeting of the minds. The following lesson plan is best for grades 3-12. Please make adjustments according to the grade level of your students.

Basic Principles:

- Each ecosystem hosts a variety of plants and animals that are uniquely suited to that environment.
- Sustainability, or a renewable balance between man and nature, is necessary for a healthy ecosystem.
- People interact with and impact their environment in both positive and negative ways.
- Healthy rangelands depend on maintaining the water, soil, plant, and animal resources.
- Active management by ranchers maintains healthy ecosystems.
- Livestock grazing is compatible with wildlife use and recreation.
- The aspects of an ecosystem (soil, water, vegetation, animals, etc.) impact and rely upon each other.

Fundamental Concepts:

- Land use / multiple use
- Conservation
- Grazing
- Ranching
- Ecosystems
- Natural resource ecology
- Sustainability
- Erosion
- Monitoring

- Consensus
- Cooperation
- Connectivity
- Coordinated Resource Management
- Livestock / Wildlife
- Recreation (e.g., Hunting, Fishing)

Montana Content Standards Met By This Lesson:

End of Grade 4

- Science #3: benchmarks 1 & 4
- Science #4: benchmark 2
- Science #5: benchmarks 1, 2, 3, & 4
- Math #6: benchmarks 1, 2, & 3
- Social Studies #1: 1, 2, & 3
- Social Studies #3: 1, 2, 3, 5, 7
- Writing #6: benchmarks 1, 2, 3, & 4
- Speaking/Listening #2: 2, 3, 4, 5
- Speaking/Listening #3: 1, 2, 3, 4, 5, 8
- Reading #1: benchmarks 2 & 4
- Reading #4: benchmarks 2 & 6
- Reading #5: benchmarks 1, 2, 3, & 4
- Workplace #1: benchmarks 1, 3, & 4
- Workplace #2: benchmarks 1 & 4
- Workplace #3: benchmark 4
- Library Media #1: 1, 2, 3, 4, 5, & 6
- Library Media #2: 1, 2, 3, & 4
- Library Media #4: 1, 2, & 3

End of Grade 8

- Science #3: benchmarks 2 & 4
- Science #5: benchmarks 1, 2, 3, & 4
- Math #6: benchmarks 1, 2, & 3
- Math #7: benchmark 2



Photo by Tamara Fisher

- Social Studies #1: 1, 2, & 3
- Social Studies #3: 1, 2, 3, 5, & 7
- Writing #6: benchmarks 1, 2, 3, & 4
- Speaking/Listening #2: 2, 3, 4, & 5
- Speaking/Listening #3: 1, 2, 3, 4, 5, 8
- Reading #1: benchmarks 2 & 4
- Reading #4: benchmarks 2 & 7
- Reading #5: benchmarks 1, 2, 3, 4, & 5
- Workplace #1: benchmarks 1, 3, & 4
- Workplace #2: benchmarks 1 & 4
- Workplace #3: benchmarks 3 & 4
- Library Media #1: 1, 2, 3, 4, 5, & 6
- Library Media #2: benchmarks 2 & 3
- Library Media #4: benchmarks 1, 2, & 3

Upon Graduation-End of Grade 12

- Science #5: benchmarks 3 & 4
- Math #6: benchmark 5
- Math #7: benchmark 4
- Social Studies #1: 1, 2, & 3
- Social Studies #3: 1, 2, 3, 4, 5, & 7
- Writing #6: benchmarks 1, 2, 3, & 4
- Speaking/Listening #2: 2, 3, 4, & 5
- Speaking/Listening #3: 1, 2, 3, 4, 5, 8
- Reading #1: benchmarks 2 & 4
- Reading #4: benchmarks 2, 3, & 7
- Reading #5: benchmarks 1, 2, 3, & 4
- Workplace #1: benchmarks 1, 3, & 4
- Workplace #2: benchmarks 1, 3, & 4
- Workplace #3: benchmarks 3 & 4
- Library Media #1: 1, 2, 3, 4, 5, & 6
- Library Media #2: benchmarks 2 & 3
- Library Media #4: benchmarks 1, 2, & 3

Student Inquiries: (add any others relevant to the local issue of focus in this lesson)

- What is an ecosystem?
- How do ranchers maintain healthy ecosystems?
- Why do ranchers care about the environment?
- What is a rangeland?
- How do rangelands affect water quality?
- Where does my food come from?
- What does grazing do to the plants?
- Where does grazing occur?
- How does grazing affect the ecosystem?
- Do livestock and wildlife graze the same?
- How do livestock and wildlife live in the same ecosystems together?
- How much grazing can occur each year?
- What types of recreational uses can occur in conjunction with grazing?
- How do grazing and ranching impact me?

- How does overgrazing wear out rangeland resources?
- How do ranchers know what the conditions of their rangelands are?
- How does ranching benefit wildlife?
- How much land area is covered by rangeland in America?
- How do the parts of an ecosystem rely upon each other?
- What are important skills to exercise when working with people who have a different viewpoint than yours?

Instructional Objectives:

- Students will research an ecology-related issue of local significance.
- Students will analyze and interpret the viewpoints and objectives of interested groups.
- Students will collaborate in order to propose a solution of consensus to the problem/issue.
- Students will develop and monitor their speaking, listening, and mediation skills.

Materials:

- a variety of research materials, including Internet access, library resources, and local topic “experts”
- folders/notebooks in which students can store their researched information
- topographical and other maps of the area being studied (if available)
- a space conducive to a large, circular group discussion
- Helpful References:

“Building Common Ground: Planning for Change”

“Building Common Ground: Bringing A Group Together”

“Building Common Ground: Communicating With A Group”

“Building Common Ground: Negotiating & Creative Problem Solving”

All available through: On Common Ground

National 4-H Council
7100 Connecticut Avenue
Chevy Chase, MD 20815
(301) 961-2800

Web Sites of Interest:

The Nature Conservancy: <http://nature.org/>

Montana Stockgrowers Association: <http://www.mtbeef.org/>

Montana Fish, Wildlife & Parks: <http://www.fwp.state.mt.us/>

The Nature Club
Prodigy PTA
Slow Flow Irrigation District
West Ridge Stockgrowers Association
Blossoming Botany Society
Brisk Bird Watchers Society
Castle County Conservation District
Hilltop Hikers Association

Lesson Activities

1) The object of this lesson is to place students in the shoes of groups that have a particular vested interest in natural resource ecology. Through playing the roles of the different groups, students will conduct a problem-solving session concerning the varying viewpoints of a local problem.

2) The teacher selects an issue of importance to the local community that deals with some aspect of the natural environment in which different groups have varying ideas of what should be done about the issue.

3) Assign each student to one of the groups listed below. (Not all groups need to be used.) Depending on the number of students in the class, they can be assigned individually or in groups of two or three students. It is not recommended for these discussions that more than three students represent any organization. Names given to organizations are hypothetical and could be altered to fit the issue/situation that is developed by the teacher, but the original intent of what the organization stands for should be maintained. Students will be researching what a group of that type believes and promotes, the stance it would likely take on the assigned issue, and how that group would defend its position. This can be accomplished by having them contact real-life organizations with similar goals, researching the particular aspect the group promotes (e.g., bird watching or backcountry hiking), and interviewing someone they know who is more aware of that area/topic.

Off-Road Vehicle Riders Association
Happy Hunters Organization
Red River Water Users Association
Pioneer Land and Cattle Company
White Caps Rafting Company
Wildlife Wizards

4) Provide students with up to three weeks of time to research the viewpoint of the organization that they hypothetically belong to. The bulk of their research will need to be done before the actual CRM's begin. They will need enough time to find out how that organization would feel about the chosen natural resource issue in your local area. Information about the local issue that would be helpful in order for the students to narrow down their assigned group's viewpoint would be the following:

- A brief history of the area and issue
- General climate of the area (annual precipitation, temperature, etc.)
- Water resources in the area (rivers, lakes, irrigation reservoirs, etc.) and current & potential uses of them
- Types of vegetation, timber, minerals, and other natural resources found in the area
- Wildlife that live in and use the area
- Recreational use of the area (current &/or potential)
- Livestock use of the area (current &/or potential)
- Any current/potential use or natural resource harvesting of the area (grazing, logging, mining, hunting, fishing, haying, real estate, etc.)

A field trip, if possible, to the actual location may also be helpful to their research. Interviewing people who live and work in the area could be another beneficial source of information and insight.

5) Each student (or group of students) representing an organization will need to prepare a short statement which outlines the group's goals and objectives. The length and depth of this statement will vary depending on student grade level and should be set by the teacher. The purpose of this introduction is to provide the

other students (i.e. groups) with a basis for knowing and understanding what each of the groups represents. Students may also want to prepare charts, graphs, tables, etc. of data that supports their group's stance.

6) The teacher acts as the mediator or facilitator for all meetings. Be sure each student/group has an adequate opportunity to participate and represent the organization's views. During the meeting(s), students will be role-playing in the shoes of their organization and should set aside their own personal viewpoints. This lesson will not only educate students about the local natural resource issue, but will teach them life skills such as listening and respecting other viewpoints, sticking to the game plan, patience, and maintaining composure when placed in situations where people disagree with them.

7) A series of 30-50 minute meetings would be ideal for the students to work through the CRM process. Ideally, 3-4 meetings would be adequate. Students should share their group's viewpoints and goals for the issue, determine a list of comprehensive objectives, have quality discussion, and come to a conclusion that all organizations can agree with (in part or in whole). Students should be aware that not everyone will be *completely* satisfied with the solution they reach, but rather, that the best possible consensus incorporates the concerns of all and reflects an understanding of the issue's many aspects.

8) Conduct a 'debriefing' meeting at the conclusion of the process. Ask students to share and reflect upon the skills they learned, the process itself, and the solution they collaboratively reached.

Assessment:

- Review prepared statements for accuracy, organization, and clarity.
- Monitor students' research processes and skills.
- Use the attached rubric/checklist to further assess specific skills.

Ascending Levels of Intellectual Demand:

- Have the class present their solution to a local community board charged with determining a real-life solution for the same issue.
- Select another issue, with student input this time, and have students go through the CRM process again.
- Have each student write to a real-life group that represents views similar to those of the group they 'belonged' to for the CRM. Students could offer that group their personal reflections on the CRM mediation process, the local issue they researched, and the solution the class generated.

Coordinated Resource Management Exercise Rubric

Student's Name: _____ Date(s): _____

Skills Developed	Degree of Mastery (5 is highest)				
Demonstration of knowledge of how living organisms interact with each other and their environment	1	2	3	4	5
Understanding of the interactions of science, technology, and society	1	2	3	4	5
Demonstration of understanding of data and other information sources	1	2	3	4	5
Research skills of accessing, synthesizing, evaluating, and communicating information	1	2	3	4	5
Application of geographic knowledge and skills (human/environment interactions, region, etc.)	1	2	3	4	5
Use of an inquiry process, problem solving strategies, and resources to synthesize & communicate information	1	2	3	4	5
Application of appropriate speaking and listening skills and strategies	1	2	3	4	5
Selection and responsible use of appropriate resources for investigation	1	2	3	4	5
Development of negotiation skills and conflict resolution	1	2	3	4	5
Application of gained knowledge to the problem needing to be solved	1	2	3	4	5
Total _____					