

MINING, MINERALS AND RECLAMATION EDUCATION

by

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Abstract: Much of the general public has a poor understanding of modern mining and reclamation techniques as well as of the minerals that are mined and the uses for these minerals. Lack of accurate information affects public attitude towards mining and the role of regulatory agencies. Today there are many opportunities for providing this information, particularly to school age children. In Illinois, these include Earth Day programs, Conservation Fairs, Eco-Meets, State Fairs, teacher education workshops, and class presentations. Education programs which have been the best received to date have been the "Mining, Minerals, and Reclamation Jeopardy" game and the development of a Teacher packet. The packet provides a review of a comprehensive list of audio visual and printed resources available for teachers. The presentation will include a discussion of the existing programs with special emphasis on the "Jeopardy" game used by the Division.

Introduction

Many people in today's world have little idea where the raw materials originate that make up consumer goods, or what natural resources are used to produce the electricity used in their homes or to make up the roads they drive on or buildings they work in. Equally lacking is information about modern reclamation laws and efforts by the mining industry to reclaim the land. Public opinion about mining is in a large part based on what they see of unclaimed past mining and from the news reports about problems or controversies at modern sites. Local opinion about mining is based largely on past experience with individual companies and how good of a neighbor they were. The same public opinion of the mining industry also rubs off onto the regulatory agencies as their effectiveness is perceived in terms of how "good or bad" the industry is. Lack of accurate information about current laws and ongoing reclamation strongly influences this opinion.

In educational programs, regulatory agencies in reclamation must walk a fine line when explaining programs, the uses and needs for minerals and yet not be perceived as an advocate for the mining industry. If this becomes the case then public mistrust of the agency undermines the entire program and it merely becomes feel good propaganda.

Several years ago the Land Reclamation Division decided it needed to expand its educational outreach beyond the typical hastily assembled slide show given to garden clubs and for your child's third grade science class. This was due to an increasing number of requests for participation in Earth Days, Eco Meets and Conservation Fairs. The first project in cooperation with the National Association of State Land Reclamationists (NASLR) was to acquire copies of materials already available from such groups as Society of Mining Engineers, National Stone Association, National Mining Association, and the National Energy Foundation, and other state agencies.

All the materials were reviewed and assessed for applicability to our state and the information we wanted to present. It became obvious that these resources were highly variable in terms of their theme, cost, quality, objectivity and target audience (age group). Certain materials were adapted for our program. To save others the time of assembling the list of available materials, the division distributes a list of these audio/visual and printed resources as part of a teacher packet which is given out at events we participate in. The current list includes over 65 items, identifying the medium, target age group, cost, topic, and source. An example is given in Table 1. Copies of the list can be obtained from our agency. NASLR will loan copies of the materials for review to its membership.

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A second successful program oriented toward children third grade and older has been the creation of the "Mining, Minerals, and Reclamation Jeopardy" game. The game is useful in a classroom atmosphere as well as in EcoMeet, or Earth Day programs.

Table 1. MINING, MINERALS & RECLAMATION EDUCATIONAL MATERIALS AVAILABLE FOR TEACHERS

<u>ITEM</u>	<u>TITLE GROUP GRADE</u>	<u>AGE</u>	<u>COST</u>	<u>COMMENTS</u>	<u>SOURCE</u>
COLOR BK.	LEARNING ABOUT MINING SAND, GRAVEL, AND STONE	K-4	\$1.00	ENTERTAINING REFERENCE	ARCHIBALD MINING & MINERALS, INC 1685 BALTIMORE PIKE GETTSBURG, PA 17325 FAX (717) 337-9092 PH (717) 337-9292
BOOKLET	NATURAL AGGREGATES BLDG. AMERICA'S FUTURE USGS CIRCULAR 1110	HS-ADULT	FREE	EXCELLENT REF., GOOD PICTURES GEOL., USES, & REGULATION	USGS MAP DISTRIBUTION BOX 25286, BLDG. 810 DENVER FEDERAL CTR DENVER, COURTHOUSE 80225
BOOKLET	CRUSHED STONE: OUR NATURAL RESOURCE	HS-ADULT	\$3.50	GOOD REF. GOOD PICTURES	NATIONAL STONE ASSOC. 1415 ELLIOT PLACE NW WASHINGTON, D.C. 20007 (202) 342-1100
PAMPHLET	CRUSHED STONE: OUR NATURAL RESOURCE	HS-ADULT	\$0.40	GOOD HANDOUT GOOD PICTURES	NATIONAL STONE ASSOC. 1415 ELLIOT PLACE NW WASHINGTON, D.C. 20007 (202) 342-1100
POSTER	STONE AND ITS MANY USES	2 ADULT	\$0.50	GOOD PRESENTATION	NATIONAL STONE ASSOC. 1415 ELLIOT PLACE NW WASHINGTON, D.C. 20007 (202) 342-1100
VIDEO	IN THE PUBLIC'S INTEREST: CRUSHED STONE 15 MIN.	3-ADULT	\$20.00	GOOD PRESENTATION	NATIONAL STONE ASSOC. ON MINING USES, RECL. COMMUNITY RELATIONS
BOOKLET	MINING GLOSSARY & GAMES	3-8	\$5.00	ENTERTAINING	NATIONAL ENERGY FOUNDATION 5225 WILEY POST WAY, SUITE 170 SALT LAKE CITY, UT 84116 (801) 539-1406

This program is divided into two parts. The first starts with an educational session about coal mining, reclamation and Illinois minerals and their uses. The number of topics is highly dependent on the amount of time available. It is adaptable to any state, minerals, or other subject matter. The second part of the program tests the students, using the Jeopardy game format. The game uses mining related categories and is complete with buzzers and lights.

The educational portion may be done by narrating from slides or displays. The Jeopardy portion may be done by displaying the questions with an overhead projector or by reading off a sheet. Slides and overheads are preferable in a classroom session. The display and reading of questions have been successfully used in a less controlled environment such as eco-meets and conservation fairs. The preferred time needed for

this program is 60 minutes, however it has been adapted for as little as twenty minutes.

The Jeopardy portion is done by dividing the group into four teams. One student from each group comes up to the button board. There are five questions of varying degrees of difficulty per category. The easier questions are worth less points, the harder the more points. One student picks a category and a point card. The question, in answer form, is read and/or displayed. Students will press the button if they think they have the answer. The first button pressed will light and lock out the other lights. If correct the point card is placed in front of that button. The four students go back to their seats and four more come up. The team that wins that question picks again. If the question is answered incorrectly, a buzzer sounds and the remaining three players are asked if they wish to ring in. The question is

repeated. If no one is interested, the answer is given and a new group is called up. For younger children, giving multiple choice answers for the questions, may be advisable.

Twenty to thirty students, split into the four teams, will have several turns at the board within a ten minute period. The winning team may be given a prize if desired. For Eco-Meets the format can be designed to use the entire meet presentations as the educational program and to use the game with questions from the entire program to determine which school learned the most. Construction specifications for building a Jeopardy game can be obtained from our agency.

We have found that the competitive spirit is an effective tool to teach children about our program through the use of this game.

The most successful educational programs to date for adult groups have been simple slide show or video programs for civic groups or at community meetings where mining issues are present and having agency exhibits at the two state fairs. Exhibits at the

fairs include a mineral museum, models of mines, pictures of reclamation award program winners. In addition brochures explaining programs written in laymen terms also are effective.

Although it is an indirect method for the general public, the program, likely to be the most effective, is having workshops for the industry and participation in company sponsored seminars for people in the industry who are the decision makers. At these workshops and seminars, the industry can be educated that mining and reclamation can both be desirable and profitable and that communication and cooperation with the "neighbors" can be reasonably accomplished.

Conclusion

Through the use of these programs, there will be an increase in public understanding how mining and reclamation occur. The public will also understand the fact that there are some trade offs between the impacts of mineral extraction and the need for the consumer goods made from these minerals. As a result, life for regulatory agencies, the public, the environment and the miner is made easier.