

# **CEDAR**

## ***COAL STUDY UNIT PROGRAM***

**2007-2008 School Year**

**Pike, Floyd, Knott, Martin, Johnson,  
Magoffin, Letcher and Lawrence Counties, Kentucky**

## COAL STUDY UNIT PACKET CONTENTS

Enclosed you will find information that will explain the program, along with instructions on how to apply for a grant. This packet contains the following:

- Page 1 Coal Study Unit Packet Contents
- Page 2 Coal Study Unit Guidelines
- Page 3/4/5 CSU Application/Grant Request Form
- Page 6/7 Grant Request Itemization Forms  
*These forms must be completed showing individual items and description of use, necessary to implement your unit. **NOTE: Only line items will be approved for purchase by the Grant Review Committee. Also, please be advised that the grant recipient must reimburse any expenditure not pre-approved by CEDAR.***
- Page 8 Notice of Non-Approved Items
- Page 9/10 Resource List  
*This is a list of items that CEDAR has that may be of use in the implementation of your unit.*
- Page 11 Resource Order Form  
*Must be completed in order to receive coal education resources from CEDAR.*
- Page 12 Time Line
- Page 13/14 CSU Reporting Format/Guide  
*Informational guide to completing a Coal Study Unit report.*
- Page 15 CSU Grant Reconciliation Form  
*Report required by CEDAR.*
- Page 16 Judging Criteria/Scoring Sheet

If you should have any questions, please do not hesitate to contact:

Karen L. Smith, Coal Study Unit Manager  
(606) 791-0557 (office)  
(606) 478-9260 (home)  
(606) 433-7763 (fax)  
[klsmith@mikrotec.com](mailto:klsmith@mikrotec.com) Email

## COAL STUDY UNIT GUIDELINES

**PURPOSE:** Design a unit to teach students about the importance of coal in their daily lives. To facilitate the increase of knowledge and understanding of the many benefits the Coal Industry provides.

**DESCRIPTION:** Develop a unit of study based on coal involving as many students as possible. Suggested topics:

<i>Science of coal</i> <i>Mining methods</i> <i>Coal preparation</i> <i>Transportation of coal</i> <i>Uses of coal</i> <i>Coal To Electricity</i>	<i>Economics of Coal</i> <i>Culture changes affected by</i> <i>the coal industry</i> <i>Environmental or Safety Concerns</i> <i>Coal Careers</i> <i>Or one of your own creation</i>
--	--

Coal Units may include activities outside as well as in the classroom.

Grant Applications are due November 9, 2007. CEDAR will make every effort to respond by December 14, 2007. Unit implementation will be January through April 16th of the 2007-2008 school year.

**RECOGNITION** The first, second, and third place awards for each of the three grade levels will be based on percentage points as follows:

1<sup>st</sup> - \$8.00 per Average Percentage Point Scored  
 2<sup>nd</sup> - \$5.00 per Average Percentage Point Scored  
 3<sup>rd</sup> - \$3.00 per Average Percentage Point Scored

The **teacher** of the Coal Study Unit having the highest average percentage score of all units will be invited to the North Carolina Coal Institute's Summer Trade Seminar in Myrtle Beach, South Carolina, July 13-15, 2008. Note: In case of a team of teachers having the highest score, the **team captain** will be invited to the NCCI Summer Trade Seminar. **Note: All awards checks and 1099 Forms will be in the name of the team captain.** In addition to the cash award based on the average percentage score, this teacher will receive \$1,600 for expenses covering the Myrtle Beach trip and the CEDAR Teacher of the Year Award consisting of \$1,000. **Note: The \$1,600 expense check will only be awarded if the winner attends the NCCI conference.**

**NOTE: ALL UNITS SUBMITTED BY THE DEADLINE AND MEETING THE REPORTING CRITERIA WILL BE JUDGED.**

**CEDAR  
COAL STUDY UNIT  
APPLICATION / GRANT REQUEST FORM**

1. Applicant's Name \_\_\_\_\_  
(Individual Teacher or Team Leader Only)
2. Home Address \_\_\_\_\_  
\_\_\_\_\_
3. Home Phone \_\_\_\_\_ School Phone \_\_\_\_\_
4. Email Address \_\_\_\_\_
5. School Name \_\_\_\_\_
6. Grade Level (**Please Circle One Only**)    K – 4        5 – 8        9 – 12
7. Anticipated Number of Students Involved in Study Unit \_\_\_\_\_
8. Coal Study Unit Title \_\_\_\_\_
9. Number of Teachers Teaching This Unit \_\_\_\_\_  
\*\*If more than one (1) list name, address, and e-mail address below.
10. Number of Classroom Teachers at this school \_\_\_\_\_

NOTE: PLEASE LIST THE NAME, ADDRESS, AND E-MAIL ADDRESS OF ANY OTHER TEACHER THAT WILL BE INVOLVED IN THE TEACHING OF THIS UNIT. (**Do not list other teachers in your school who have submitted a grant request.**)

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

**Note: The applicant (#1) is responsible for submitting the written report and financial report per CEDAR Guidelines. All award checks and 1099 forms will be in the name of the applicant. The applicant, if recipient of the CEDAR Teacher of the Year Award, will be invited to the North Carolina Coal Institute's Summer Trade Seminar.**

THIS APPLICATION (Pages 3, 4, and 5) AND THE GRANT REQUEST ITEMIZATION FORM (Page 6), **MUST** BE COMPLETED AND POST-MARKED NO LATER THAN **NOVEMBER 9, 2007**, IN ORDER TO ASSURE CONSIDERATION.

SEND TO:                    CEDAR, INC.  
                                  P.O. BOX 2152  
                                  PIKEVILLE, KY 41502

CEDAR invites you to examine **CURRENT** issues regarding the use of coal in this region of the state, in and/or for Kentucky or at the national and/or international levels. What is happening to this natural resource and how does it impact our lives? *Note: If you choose to include some of the cultural/aesthetic aspects, please weave them into the teaching unit while keeping a focus to **PRESENT** issues related to the coal industry.* All subject areas are encouraged to participate. Complete and thorough responses are very important in considering your request. You may use additional paper, if needed.

FORMAT: You are expected to alter this document when you need to expand your discussion and/or remarks to make your intentions clear. ***Typed submissions, please.***

1. **UNIT GOAL:** What is the **specific focus** of this unit of study about coal? What **current coal issue** will you address. Please be specific.

---

---

---

---

*Examples: (You may choose another aspect as it relates to current issues and Kentucky's Program of Studies and Core Content.)*

- |                              |                                   |                            |
|------------------------------|-----------------------------------|----------------------------|
| -Coal, Impacting Daily Lives | -Uses of Math/Science in Coal     | -Jobs (Women/Men)/Salaries |
| -Transportation              | -Education/Training/Skills Needed | -Electricity and Energy    |
| -Safety                      | -Different Types of Mining        | -Reclamation               |
| -Chemical Analysis of Coal   | -Economics                        |                            |

Anticipated length of time for this unit of study (**# of Weeks and Hours Per Week**)? \_\_\_\_\_

2. **ESSENTIAL QUESTIONS:** (Please include MINIMUM of three.) What do your students **want to know** about coal and current issues regarding this natural resource?

---

---

---

---

---

---

How will you engage students in decision-making about this coal study unit?

---

---

---

---

---

3. **CONTENT:** (Relate to Kentucky's Program of Studies and Core Content documents.) *Remember: You may alter this form as often as you have need.*

---

---

---

---

---

---

4(a). Students will engage in the following activities to learn about topic:

---

---

---

---

---

*Some Examples – Using technology, including internet; research and current reading related materials such as: newspapers and coal journals; watching current televised newscasts; interviews; writing letters to industry leaders and/or officials; learning logs; class presentations; writing to learn and writing to apply; writing for inquiry; writing an editorial for local newspaper.*

(b). Students will demonstrate learning in the following ways. Please make connections which link learning to state assessment. (Open Response, On Demand, Portfolio Entries, Multiple Choice). You may include sample prompts.

---

---

---

---

---

(c). What types of individual student and/or class products will provide evidence of student learning? BE SPECIFIC. BE CREATIVE.

*(Some Examples – Grade appropriate: Technology designed/crafted products, Posters, Time Lines, Brochures, Articles, Models, KWL Chart (s), Class Books, Letters Speeches, Journals, Response Logs, Photo Journals with Commentary, Reclamation Projects, Research, Internet Communications, Skits, Debates, Advertising Campaign etc..)*

---

---

---

---

---

5. ASSISTANCE: Who will assist with this teaching unit? (Community members, teachers, parents, etc.)

---

---

---

---

---

6. Has this unit been taught by you or another teacher prior to this year?  
Yes \_\_\_\_\_ No \_\_\_\_\_

If Yes:  
Teacher's Name \_\_\_\_\_  
School's Name \_\_\_\_\_  
Year Taught \_\_\_\_\_

## NOTICE

Listed below are certain items that CEDAR generally does not approve as expenditures of grant money. Please submit a written explanation if any listed item would prevent you from implementing a unit.

Please note, this list includes but is not limited to the following:

TVs  
VCRs  
Computer Hardware (Printers, Modems, Digital Cameras, etc.)  
Camcorders  
Cameras Other Than Disposable  
Furniture or Fixtures  
Engineering Equipment  
Multiple Copies of Books or Software  
Kitchen Utensils  
Overhead Projectors  
Laboratory Equipment (Kilns, Hot Plates, etc.)  
Miscellaneous Items (Everything needs to be specified)  
Food and/or Meal Expenses  
Local School Fair Awards, Displays, Ribbons, etc.  
T-shirts or Hats  
Guest Speaker Fees or Gifts

Note: Field trips to the Regional Coal Fair will be reviewed for approval on an individual basis. Items that will be allowed, within reason, are Driver, Gas, and Mileage Fees. ***(Meal expenses will not be approved.)***

## CEDAR RESOURCE LIST

**BOOKLETS**

- **What Everyone Should Know About Electricity From Coal** – 15 page illustrated booklet that explains how electricity is generated from coal and delivered to homes (Grades 4-12).
- **What Everyone Should Know About Land Reclamation** – 15 page illustrated booklet that describes the land reclamation process. (Grades 4-12).
- **What Everyone Should Know About Coal** – 15 page illustrated booklet which describes the types of coal, the basic ways to mine coal, how coal is used, how it affects the environment and new technologies. (Grades 4-12).
- **Let's Learn About Coal** – 16 page booklet that uses activities, such as puzzles and word games to explain how coal is formed, produced and used in the United States. (Grades 3-6).
- **Power From Coal** – 16 page booklet with text and activities that describes the formation, history, production, transportation, and current uses of coal. Each set includes a teacher's guide and suggested additional activities. (Grades 6-9).
- **Mining Glossary and Games** – An easy-to-use collection of more than 600 mining terms designed to help students learn the basics of mining. Also included - 28 games and activities that help students learn and retain significant words dealing with mining and minerals. (Grades K-8).
- **The Energist – Coal** – Newspaper format publication which discusses the formation and types of coal and their locations; coal production/mining technologies; coal uses; synthetic fuels from coal; new coal technologies; coal and the environment; and coal characteristics. (Grades 6-12).
- **Coal, Careers and You** – A 20-page booklet about the modern coal industry, coal's importance to our daily lives and careers within the coal industry. (Grades 6-12).
- **Mining Reclamation Primer** – An 8 page newspaper format publication that discusses Mining Reclamation, the laws that impact reclamation, phases of reclamation, etc. This is a companion piece for the Mining Reclamation Poster. (Grades 6-12).
- **The Energist – Getting to Know Electricity** – Electric current and resistance; chemical, thermo, and static electricity; transformers, motors, and generators; circuits, generation, and distribution; load management, billing, safety, and conservation.
- **Energy Glossary and Games** – An easy-to-use, easy to understand, 32-page reference for approximately 900 energy related words. The glossary also includes 19 pages of word games, puzzles, activities and creative ways to make the glossary fun and instructional.

**EXPERIMENTS**

- **Coal Science Fair Brochure** – Project ideas associated with coal's production and use will help spark interest and a few tips to help get started. (Grades 4-12).
- **Coal Sample Kit** – Samples of peat, lignite, bituminous coal and anthracite in resealable bags, including a brief description of the formation and different types of coal. (Grades K-12).

**POSTERS**

- **Mining Reclamation Poster** – Colorful poster with a technical focus on the process of reclamation from pre-mining activities to future beneficial use of the reclaimed land.
- **From The Mine To My Home** – Created to teach five stages relating to mineral resources: exploration, mining, processing, consuming, and recycling.
- **Coal Technology: The Future Is Now** – Poster with full color illustrations tells the technological story of coal from exploration to reclamation.
- **Coal Poster** – Attractive, colorfully illustrated poster is used to convey information on the formation, exploration, extraction, transportation, and uses of coal. **(Updated)**
- **Electrical Generation Poster** – Illustrates the energy sources of electricity – fossil fuels, nuclear, hydro and renewable – and the transmission and distribution of electricity.
- **Reclaimed Mine Site Poster** – Highlights the many uses of fully reclaimed mine sites: golf courses, recreation areas, schools, prisons and airports.
- **Act Responsibly: Stay Out & Stay Alive** – Highlights a series of safety situations that one may encounter around abandoned, idle, and inactive mines.



**VIDEOS**

- **All About Coal (12 Minutes)**. An entertaining and informative look at how coal is formed, mined, washed, transported, and used in electricity generation. A puppet, dressed as a miner, takes viewers on a tour of an underground and surface mine and power plant. (Grades K-6). (American Electric Power).
- **Coal: The Inside Story (16 Minutes)**. This video covers the formation, washing, transportation, and burning of coal to produce electricity. Host Tim Eisert walks through the phases of coal production at both underground and surface mining operations. (Grades 7-12). (American Electric Power).
- **America's Fuel (11 Minutes)**. This video demonstrates the importance of coal to the American economy and overall quality of life. A utility executive, a businessman, a former mayor and an economist/physicist each describe the benefits they have found from using coal as the source for their electricity. (Grades 7-12). (CEED).
- **Coal People: A Century of Pride (23:51 Minutes)**. A tribute to coal mining people, This video is a cinematic journey that celebrates a proud workforce and its contributions to American progress. (Grades 5-12). (Peabody Coal Co.).
- **Mining – Discoveries For Progress (10 Minutes)**. Video showing what today's mining industry is all about. (Grades K-12). (National Mining Assoc.).
- **Coal Today -** A modern story about the new technologies and the people who produce coal and generate the power that is the foundation of our nation's economy. (Grades 6-12).
- **Common Ground – Modern Mining and You (26:30 Minutes)**. Contains information on all forms of mining, including coal. (Grades K-12).
- **Underground Mine Tour (50 Minutes)**. Shows all aspects of underground continuous mining from outside the mine to the face. Filmed at a Pike County mine. (Grades 5-12).
- **From Mines to Lines (26:30 Minutes)**. Shows coal being mined and followed to its final destination....the power plant. (Grades 5-12).
- **Coal Into Kilowatts (16:00 Minutes)**. A tour of American Electric Power's Big Sandy Plant. (Grades K-12).
- **The Greening of Planet Earth (27:50 Minutes)**. Shows the positive effects of carbon dioxide on our forests and plants. (Grades 9-12).
- **Balancing the Needs – Coal and the Environment (13:25 Minutes)**. Coal's role in the past and future. (Grades 9-12).

**GUEST SPEAKERS**

1. **Specialized Speakers (engineering, reclamation, underground mining, trucking, etc.)** will be scheduled upon request to Karen L. Smith at (606) 433-7742.

## RESOURCE ORDER FORM

The following materials are available at no charge. Check items you wish to receive and indicate number of copies you will need (based on number of students). Please note that due to the expense of some of these items, only one or two will be provided per class.

RESOURCE	COPIES
What Everyone Should Know About Electricity From Coal	
What Everyone Should Know About Land Reclamation	
What Everyone Should Know About Coal	
Let's Learn About Coal	
Power From Coal	
Mining Glossary and Games ( <i>Limit One Per Class</i> )	
The Energist – Coal ( <i>Grades 5-12 Only</i> )	
Coal Careers and You ( <i>Limit One Per Class</i> )	
Mining Reclamation Primer ( <i>Grades 6-12 Only</i> )	
The Energist – Getting to Know Electricity ( <i>Grades 5-12</i> )	
Energy Glossary ( <i>Limit One Per Class</i> )	
Coal Science Fair Brochure	
Coal Sample Kit ( <i>Limit Two Per Class</i> )	
Mining Reclamation Poster ( <i>Limit Two Per Class</i> )	
From The Mine To My Home Poster ( <i>Limit Two Per Class</i> )	
Coal Technology: The Future is Now Poster ( <i>Limit Two Per Class</i> )	
Coal Poster ( <i>Limit Two Per Class</i> ) <b>**UPDATED**</b>	
Electrical Generation Poster ( <i>Limit Two Per Class</i> )	
Reclaimed Mine Site Poster ( <i>Limit Two Per Class</i> ) <b>**NEW**</b>	
Act Responsibly: Stay Out & Stay Alive ( <i>Limit Two Per Class</i> ) <b>**NEW**</b>	

*Allow 4 to 6 weeks for processing and delivery*

Name \_\_\_\_\_ School \_\_\_\_\_ Grade \_\_\_\_\_

Address \_\_\_\_\_

Home Phone Number \_\_\_\_\_ Date Needed \_\_\_\_\_

***Before ordering the following resources, check to see if they are in your school's library.***

*Requested videos will be provided, at no cost, to your school's library.*

ITEM #	TITLE	COPY NEEDED
V-1	All About Coal	
V-2	Coal: The Inside Story	
V-3	America's Fuel	
V-4	Coal People: A Century of Pride	
V-5	Mining – Discoveries For Progress	
V-6	Coal Today	
V-7	Common Ground – Modern Mining and You	
V-8	Underground Mine Tour	
V-9	From Mines To Lines	
V-10	Coal Into Kilowatts	
V-11	The Greening of Planet Earth	
V-12	Balancing the Needs – Coal and the Environment	

**CEDAR, INC.  
COAL STUDY UNIT  
TIME LINE**

October 1 – November 9, 2007

Planning and development of unit - -  
Writing of grant

November 9, 2007

To assure consideration - grant request forms  
must be **POST-MARKED NO LATER THAN  
THIS DATE** and mailed to:

CEDAR, Inc.  
P.O. Box 2152  
Pikeville, KY 41502

December 14, 2007

CEDAR's response to grant requests to be  
mailed

January 2 – April 16, 2008

Unit implementation

April 18, 2008

Unit report to be postmarked **NO LATER  
THAN THIS DATE:**

Mail to: CEDAR, Inc.  
P.O. Box 2152  
Pikeville, KY 41502  
Phone (606) 791-0557

May 8, 2008

Teacher recognition and awards banquet  
Landmark Inn – Pikeville, Kentucky  
6:00 P.M.

**CEDAR, INC.  
COAL STUDY UNIT  
REPORTING FORMAT**

Your report ***must be*** in the following format:

- Double-spaced on 8 ½ x 11 paper. Typed in a professional font (Times, Geneva, Helvetica, other) and body of text must be size 12.
- Minimum of two (2) pages and maximum of six (6). (Not including the cover sheet or pages with photographs).
- A cover sheet including grant recipient's name, home address, and home telephone number, school and unit title must be included.
- This report must contain the following sections, with each section clearly identified:

**1. An introduction**

The purpose of the written summary is to “tell the story” of the teacher’s coal study unit. The “story” should include an introduction, a description of the activities and goals, and a summary. ***(Note: Please do not place your name or the schools name on any page of the report other than the cover sheet.)***

The Introduction should be a brief statement of “why” and “how” the unit started. This might include a description of how the specific unit topic was selected. For example, one award-winning teacher began with a description of how she and her students did a KWL (know/want/learned) activity before deciding on the unit topic. The teacher described how she and her students discussed what they KNEW about coal, what they WANTED to know about coal, and what they would LEARN as a result of the unit. This became the foundation from which the coal unit was developed.

The Introduction is extremely important as it provides the foundation for the remainder of the story. Teachers may want to consider the following questions when developing their introduction.

- How and why was the topic for the coal unit selected?
- Were educational objectives established for the unit? If so, what were they?
- Were students involved in planning the unit?

**2. A description of the activities and goals(Including one (1) picture of each activity)**

The next section of the report should show students actively engaged in the Coal Study Unit. Because of the variety of topics in the coal units, these student activities can range from regular classroom events to real-life activities, such as outdoor experiences, field trips, etc. The most important thing about this section is to show what the students “DID” as a result of the coal unit. ***Note: A photograph of each activity performed in the unit is to be included with the report. Please submit only one (1) photograph per activity.***

CEDAR is interested in seeing a variety of meaningful student activities, but only needs to see a glimpse of them and not an entire picture.

- What activities were the most meaningful?
- Will the description of the activities show a clear relationship to the educational goals of the coal unit?

### 3. A summary

Every story needs a conclusion or summary, and this is especially true of the coal units. This section should provide information on the success of the unit through an examination/evaluation to determine if the educational goals were met. This examination of the unit's success should be conducted by the teacher and students. This component of the coal unit is, by far, the most overlooked one of a fully implemented and successful unit. The success of the unit should be determined, partially or in whole, by the goals and activities established at the beginning. A comprehensive evaluation can be achieved by answering the following questions:

- Were the educational goals of the unit accomplished?
- What, if anything, was not accomplished? Why?
- How was the unit evaluated? (i.e. teacher observation, completion of educational objectives and activities; student evaluation such as paper and pencil tests, performance events, open-response questions, community and/or parental input; surveys of participants, etc.)
- Did the students have an opportunity to evaluate the unit? If so, were their comments favorable? If not, did they have an opportunity to make suggestions for improvements?
- Will the unit be taught again? If so, will there be any changes?

## CEDAR GRANT FINANCIAL ACCOUNTING

---

A. Original Grant Amount \_\_\_\_\_

B. Itemization of Materials Purchased/Amount  
*(Note: Receipts for ALL Purchases Must Be Attached)*

- 1.
- 2.
- 3.
- 4.
- 5.
- 6.
- 7.
- 8.
- 9.
- 10.
- 11.
- 12.
- 13.
- 14.

Total \_\_\_\_\_

C. Itemization of Field Trip Costs:

- 1.
- 2.
- 3.
- 4.
- 5.

Total \_\_\_\_\_

**Total Amount of Expenditures** \_\_\_\_\_  
*(Total From B & C)*

D. Amount to be returned to CEDAR \_\_\_\_\_

\_\_\_\_\_  
(Grant Recipient's Signature)

\_\_\_\_\_  
(School)

**CEDAR, Inc.  
Coal Study Unit  
Judging Criteria/Scoring Sheet**

**CSU No.** \_\_\_\_\_

**Grant Amount** \_\_\_\_\_

**No. of Students** \_\_\_\_\_

**Cost Per Student** \_\_\_\_\_

**Points  
Possible**

**Points  
Awarded**

**Authenticity of Unit**

Did the unit address meaningful issues and concerns of students? Were the students actively involved in problem solving and analysis of issues? Were students asked to apply their knowledge and create possible solutions to problems? Did the unit require students to apply creative and critical thinking skills?

**25**

\_\_\_\_\_

**Topic**

Was the topic timely and age-level appropriate for the students? Was the information accurate?

**25**

\_\_\_\_\_

**Student Involvement**

The degree to which students were involved in the planning of the unit. Also, did the students have input in the way their learning was evaluated?

**25**

\_\_\_\_\_

**Number and Types of Topics Studied**

Were the coal topics meshed with other topics relevant to the coal industry? Was there integration of the topic(s) into different subject areas of the curriculum?

**25**

\_\_\_\_\_

**Evaluation of Unit**

How was the unit evaluated regarding its effectiveness? Were students involved in evaluating their unit?

**25**

\_\_\_\_\_

**Cost Effectiveness**

Correlation between cost per student and final product.

**20**

\_\_\_\_\_

**Judge's Initials** \_\_\_\_\_

**Total Points**

\_\_\_\_\_

**COAL STUDY UNIT  
GRANT REQUEST ITEMIZATION FORM**  
CSU # \_\_\_\_\_

	To Be Completed By the Grantee	For CEDAR's Use Only	To Be Completed By The Grantee in the Reconciliation Process
Item Name/Description of Use	Amount Requested	Amount Granted	Amount Spent

NOTE: If more space is needed, you may copy this form. Please make sure requested items are related to the focus/theme of the Coal Study Unit. If not, please explain their use.



