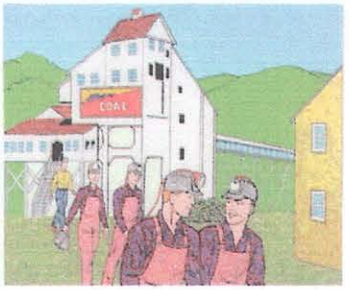
KF-07-13

- Coal

- Our

- Appalachian

- Livelihood



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INTRODUCTION

Come and listen to a story about a man named Fred, A poor coal miner who barely kept his family fed. They lived in a holler about 3 miles deep, Working hard for every dollar and a job he couldn't keep. There is no rhyme or reason for this real life scenario, but just an example of how "trickle down economics" has hit the families of this coal mining community very hard. The theme for my 2008-2009 Cedar Coal Study Unit is an acrostic which took a life of its own, entitled Coal Our Appalachian Livelihood (see cover).

I am the 'guide on the side' for my twenty inquisitive and eager third graders of varied abilities. They had no idea what inspired me to teach this unit. It was largely based on a job survey that one of my students had done in the classroom for his Coal Project (sw-20). It was astounding to see how many children had a parent that has lost a job. What students were about to learn is what the different jobs are in a coal mine and just how many people can be affected if mines close down (sw-15-19). These jobs all depend upon one another (interdependence) to stay afloat.

Each year I write a completely new coal unit that has never been taught before, but my themes are usually based on the core content area of economics because it is so vast and such a wonderful avenue to teach coal. Our unit always lends itself to enriched vocabulary (ph-1 / sw-21). The students completed a graphic organizer, K-W-L (ph.- 9)based on what they Know about coal, What they Want to know, and What they learned from the unit. This is a way for students to demonstrate their learning and reflect on the unit over a period of time.

All lessons in this coal unit were aligned with the Pike County Curriculum Document (sw-1-4).

After careful review of the K-W-L, I could see that my students had an understanding of Coal's Origin and How it is Mined so the background information was intact (sw-12). This coal study unit took four weeks to complete and covered a wide range of content. The main goal is to show children how "trickle down economics", which in this unit I am referring to as how when one industry shuts down another one

suffers. This affects those interdependent businesses.

The educational objectives for this lesson are:

- **Students will read for information and meaning of texts based on coal as a natural resource.**
- **Students will become active participants while setting the tone for our unit of study.**
- **Students will increase their vocabulary about economics and coal, by the use of phonemic awareness and phonics activities (decoding) while working with coal terms.**
- **By being exposed to a wide range of print materials, students will comprehend real-life experiences as they relate to coal as a natural resource.**
- **Students will be exposed to many forms of technology while learning about coal.**

As we began our unit, the students put up our new vocabulary words on the Word Wall (ph-1). The Tiered Vocabulary Pocket Chart (ph.-2). Tier I, enables students to use high-frequency words in our unit. Tier 2, are Reading Content words, and Tier 3, is Content Area words. These were used throughout the unit as a part of the school's Four Block Reading Method. Students were responsible for gathering and organizing our Coal Books based on Coal, Appalachia, Kentucky, Economics, etc. which were provided by Cedar, Inc (ph.-6).

ACTIVITIES AND GOALS

One of the very first things my class participated in was going to visit the Historic Stone Museum, which use to be a coal mining community. The Company Row Houses provide shelter today for many. The children could see firsthand what growing up in a coal camp might have been like (ph.-36). This trip inspired two of my students to do their coal fair projects in Technology-Multi-Media (ph.-37, 38). The children got to see an old payroll book of the miners, and realized that they were paid very little. So many of my students have a father that has lost a job either in the coal mines or a relative field to the coal mines. My students have seen first hand the very same struggles that miners of the 1900's endured.

Many of the activities were related to that of the old coal camps, so heritage played a huge role in this unit. It was like a field trip back in time. During this shared read aloud, this student read the book, In Coal Country to his peers (ph. 8) the students saw how children in the coal camps entertained themselves. As an after reading activity, students completed a web on the Interactive SmartBoard on Games of the Coal Camp Children (ph.33). As Technology meets the needs of our Digital learners, it also played a huge role in most of the things we did this year to cut down on the amount of paper we use. Students read articles online about how the President's Cap and Trade (s.w. 44) program will starkly impact the coal companies in Appalachia or at least bankrupt them, meaning the "trickle-down theory" loss of jobs, wages, companies, causing a town which thrived on coal to turn in to a ghost town, Hence NO COAL, NO LIVELIHOOD.

In the Class Photos Section, the pictures are numbered to correspond with the activities listed here. Many of the activities have been mentioned throughout this unit already, so a brief description will ensue. All of the activities met the needs of ALL learners. Some activities were modified during center rotation to accommodate and differentiate instruction for (RTI) Response To Intervention students. Many of the class photos have a corresponding worksheet that goes with it under the Student Work Samples section.

1. The Class Word Wall has Coal Unit Words from A to Z listed on it, these are for the students to use in their writing samples during the unit (s.w. 38) They also take tests on them for mastery.

2. The Tiered Vocabulary is used in a lot of Reading First schools to teach children vocabulary from various content. Tier I: High-Frequency Words; Tier 2: Reading Content; Tier 3: Content Area Words.

3. Students brainstormed a list of words from A to Z about coal that they already knew.

4. This hands-on activity involved using rubber ink stampers to write coal words.

5. In the Reading Tree is a list of Coal Books that the students tested on in the Accelerated Reader Program.

6. Students are utilizing the Cedar Resources as they look for a book to read during Self-Selected Reading time.

7. When the students read the book From Swamp To Coal they used tracing paper to draw a Turbine.

8. During the After Lunch Bunch, we read aloud a book each day related to the coal content we are learning about. This book was about how times were difficult.

9. These students construct a "T"-Chart to compare and contrast how the economy has changed the lives of people from the time of the Coal Camps to Today. With this activity the students created a Paper Towel Timeline using the dates on this sheet (s.w.50, 51).

10. Students used Let's Learn About Coal Coloring Booklets to read some background information.

11. In Writer's Workshop students used a lump of coal and sensory details to describe the coal using adjectives.

12. In this Smart Board teacher made activity, students had to use beginning, medial, and ending consonants to make new words from the word coal.

13. Courtney works diligently on her Sticky-Note Reading Activity on Coal found in the 3rd Grade Social Studies text.

14. The students shown here each have a group task as they get ready for center rotation on coal activities. We have the reader, the recorder, the reporter, and the researcher.

15. -22. In Art, Students got to sculpt coal figurines out of modeling clay. They created everything from the word "Coal" to Coal Miners, Coal Carts, The Dog-Tags to Hang Outside the Mine, Coal Trains, Pick and Shovels, Conveyor Belts, and a Miner's Cap Light.

23. This girl is shown with her pencil drawing of a Preparation Plant. Which she entered in the Coal Fair.

24. Taylor painted this Oil on Canvas painting of a Miner's Hat, Pick and Shovel.

25. Benjamin brought in his father's mining gear for Show and Tell.

26. After, we had discussed the different types of coal mines, Peyton was inspired to create a papier mache' drift mine for his 3-dimensional Art Project for the Coal Fair.

27. This child used recyclable items to create his coal project.

28. Jacob is displaying his persuasive poster about the resourcefulness of coal.

29.-30. These students worked together in a group to create a coal picture.

31. In Social Studies, these students are creating a web of jobs that are dependent upon coal.

32. This child worked with her father on this 3-d model of how air flows through the mines.

33. Holly is using the interactive pen to write her answer on the web about Coal Camp Games, using the Smart Board.

34. The computer was used frequently to research many topics surrounding how coal impacts our community in a positive way.

35. This interactive game found on the internet was on a site called When Coal Was King The Memory Game is like Concentration but teaches cool coal facts when you find the matching picture.

36. This student made a DVD about Coal Heritage and won first place in Technology-Multi-Media in the School Coal Fair.

37.-38. This child's coal project was uploaded to YouTube and has had many hits. It is about Coal's role in our community. He named it Coal Makes Cents .

39. I taught my students a dance routine to go to the music by Tennessee Ernie Ford's, Sixteen Tons. Here they are seen on bended knee telling St. Peter don't you call me cause I can't go, I owe my soul to the company store. They watched the video on YouTube on the Smart Board.

40. This child is doing just one of the Math sheets we did during our unit. Others can be viewed at (s.w. 23, 40, 41, and 42).

41. -44. These Social Studies projects truly exemplified the importance of coal in a positive aspect.

45. Matthew won 1st place in the School Coal Fair for his project on Testing and Comparing Coal Samples in various liquids to test the density of coal.

46. Our School Coal Fair was one of the culminating events to end our unit of study. It was very successful this year, with over 220 projects. We had the most winners this year than any other.

47. Eight of my students placed first in all seven categories in the School Coal Fair.

48. These boys placed 2nd in the Social Studies Category for their projects.

49. These boys placed 3rd in the Art Category for their projects.

The activities that were the most meaningful were the ones where a real-world experience fueled the

minds and imaginations of my 8 and 9 year olds. Also, I realized that the field experiences were truly a gift to those children who never get to leave their backyards because of their family's economic struggles.

SUMMARY

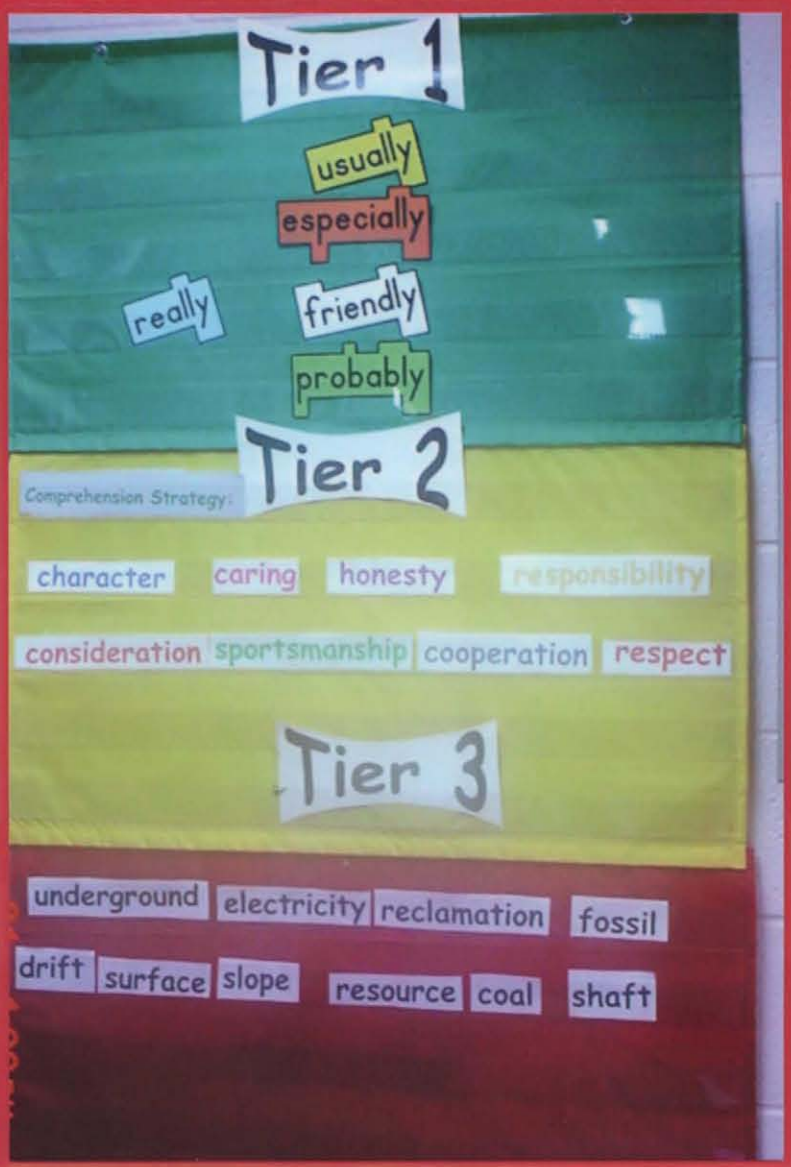
Our Coal Unit came to a close with students traveling to the Regional Coal Fair in Pikeville to view the Coal projects. To see where we came from in this unit and where we are now is truly amazing how much detail students used in their tasks and projects. The Curriculum Map outlined our unit and made it possible for our goals to be achieved. The real-life experience of traveling to a coal camp brought my students closer to how coal impacts our communities here in Appalachia. As evidenced in my student work samples, children completed paper-pencil tasks, reflective writing, open responses, surveys, videos, computer activities, and hands-on activities based on the economic impact of coal. My students understand economic principles so much better when it is applied to something real. The coal unit makes teaching my economics unit so much more exciting for me and my students. If I teach this unit again will solely depend on my class next year and their needs. Taking a moment to reflect on the beginning of our unit, I think that the reason I chose this topic was truly a personal one. I was born in Appalachia, I am a coal miner's daughter, I know how hard they work for very little pay. I look at those students in my classroom on a daily basis that live in dire conditions and know that they are depending on me to give them something to believe in. The harsh reality is this, we are in a crisis, it will get worse before it gets better, but there is one thing you can know for sure that that little lump of coal, lying by the road, got many people whether directly or indirectly to where they are today. Maybe the trickle down economy will ultimately be a trickle. The next time you see a miner, remember his job is a risky one, thank him for the lights you turn on, the heat that warms your home, and while he's in that deep mine tunnel just know he is digging for home!

NO COAL, NO LIVELIHOOD!

KNOW COAL, KNOW LIVELIHOOD!

LANGUAGE ARTS

1



2

A is for...	B is for...	C is for...
ash anthracite abandoned	battery pack by-products bits bituminous bulldozer barges blast black	carbon coke continous miner coal conveyor belt coal truck Converse
D is for...	E is for...	F is for...
dr		

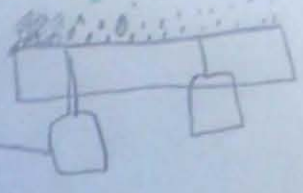
3

Booklet

Ben

4-24-01

1. battery pack



2. barges

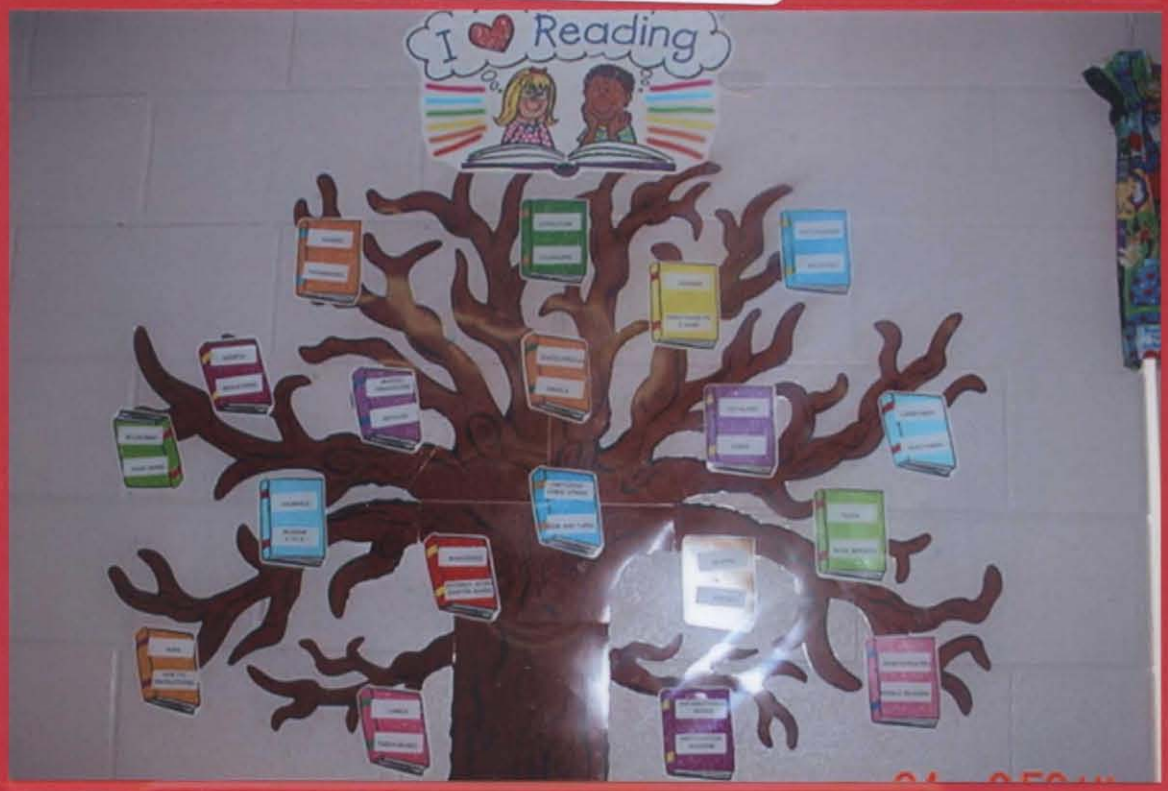
3. bits

4. black

5. blast

4

READING



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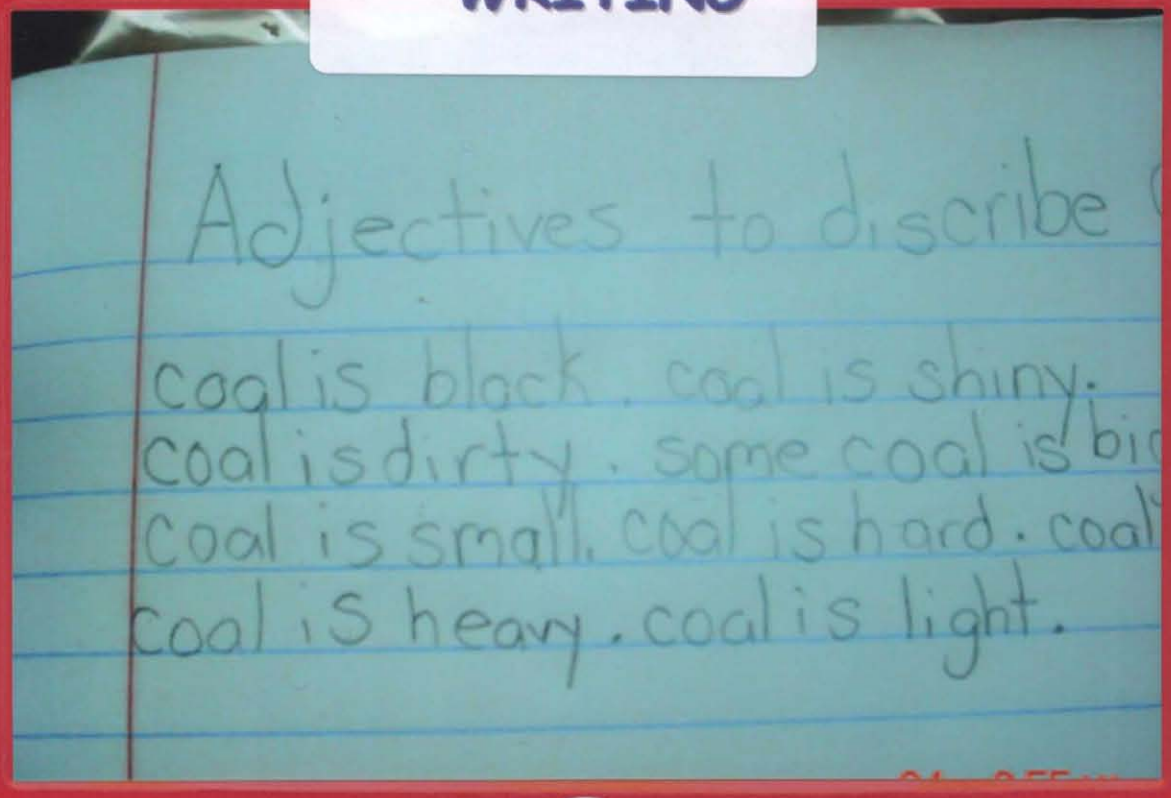
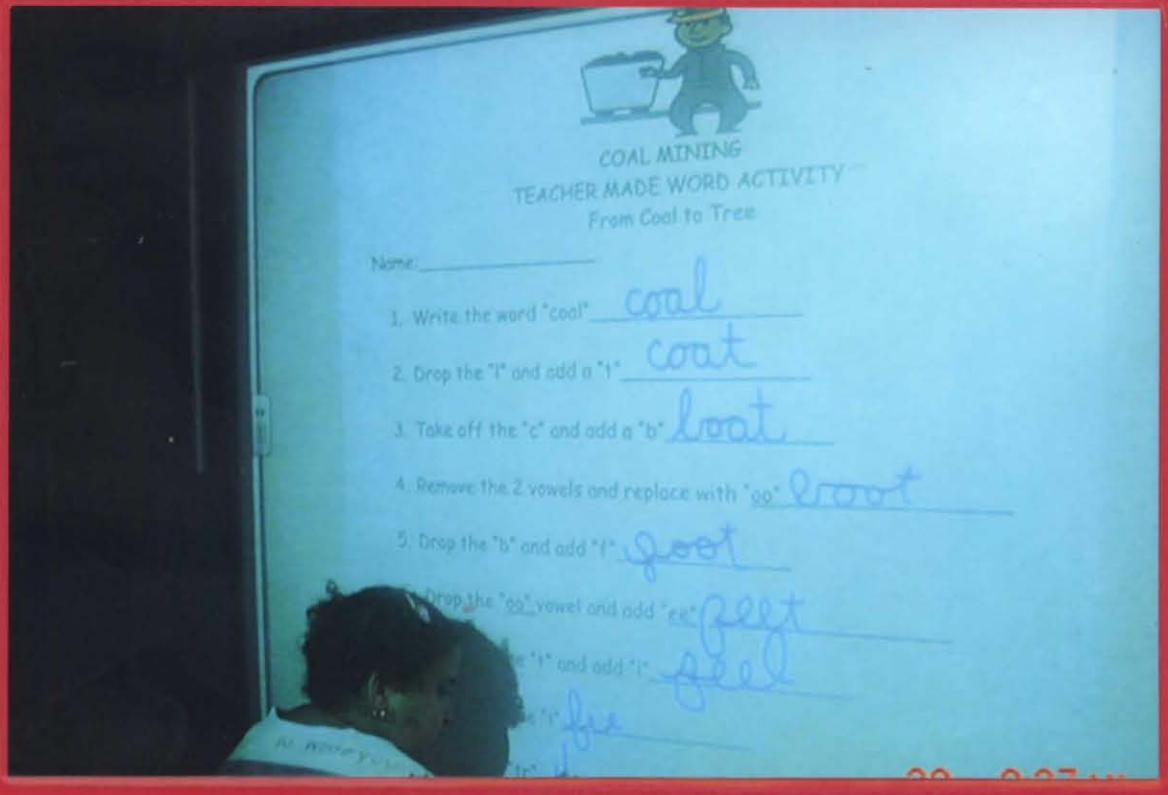
WRITING



Adjectives to discribe

coal is black. coal is shiny.
coal is dirty. some coal is bi
coal is small. coal is hard. coal
coal is heavy. coal is light.

11



COAL MINING
TEACHER MADE WORD ACTIVITY
From Coal to Tree

Name: _____

1. Write the word "coal" coal
2. Drop the "l" and add a "t" coat
3. Take off the "c" and add a "b" boat
4. Remove the 2 vowels and replace with "oo" broot
5. Drop the "b" and add "f" foot
6. Drop the "oo" vowel and add "ee" feet
7. [illegible] "t" and add "l" feel
8. [illegible] "l" fee
9. [illegible] "tr" [illegible]

12


Europe
Africa
Indian Ocean
28 04 2009

13


Atlantic Ocean
Indian Ocean
28 04 2009

14

ART

15

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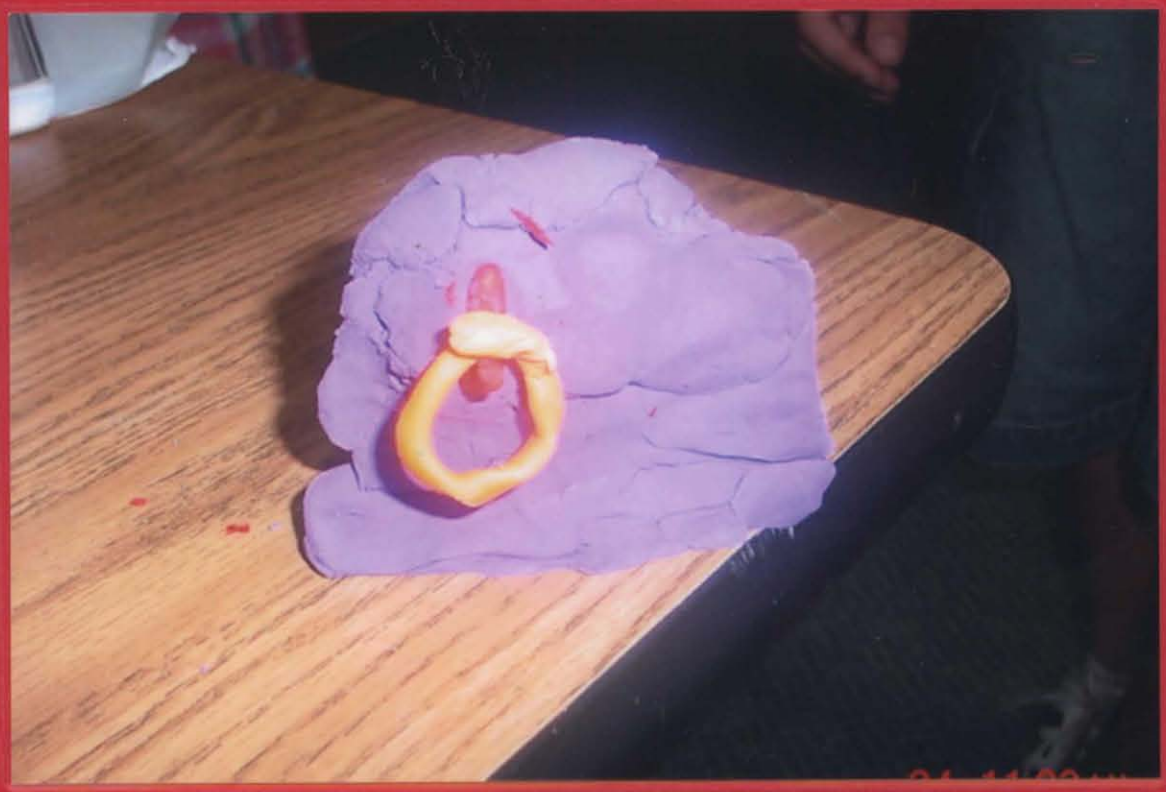

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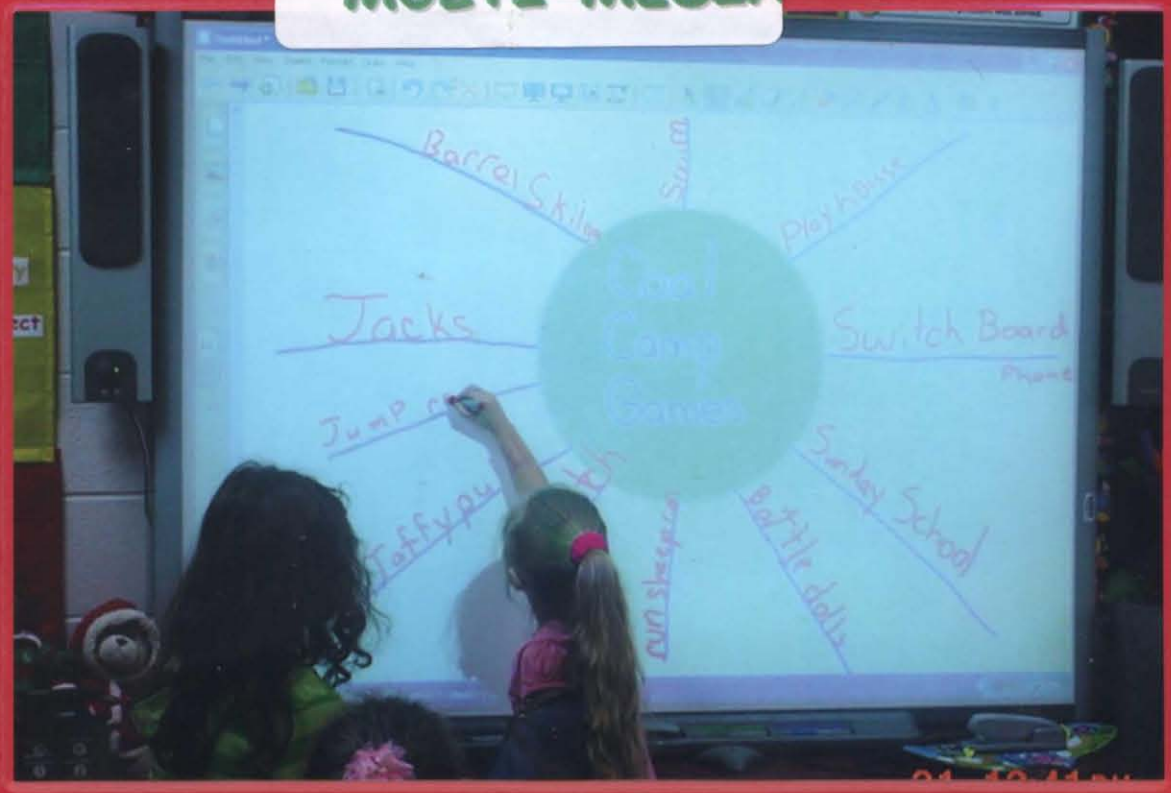
TECHNOLOGY
MULTI-MEDIA



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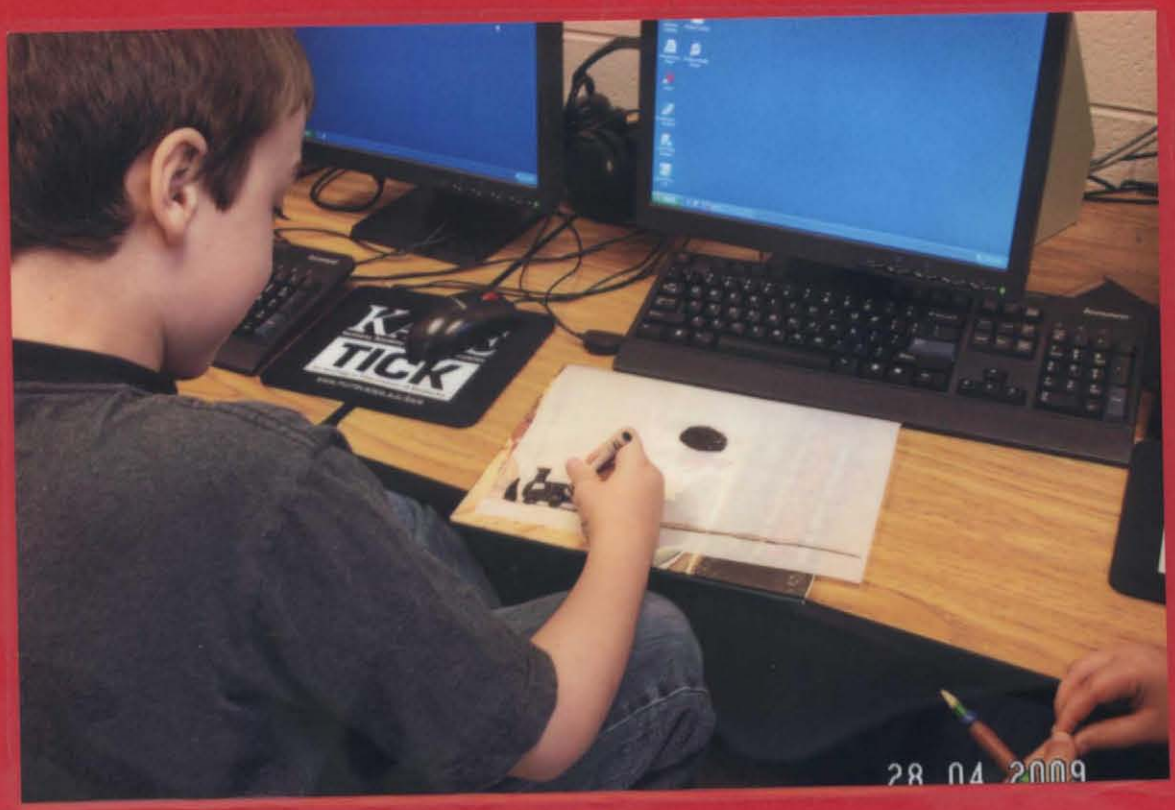
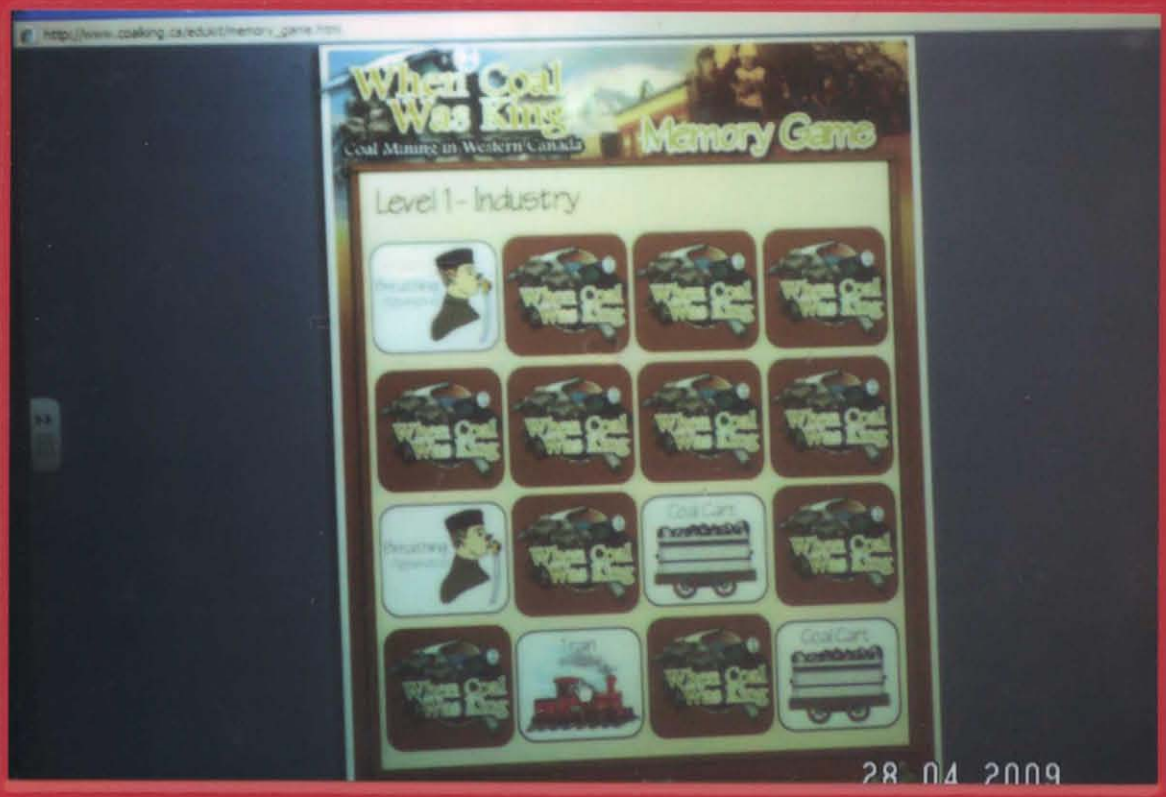
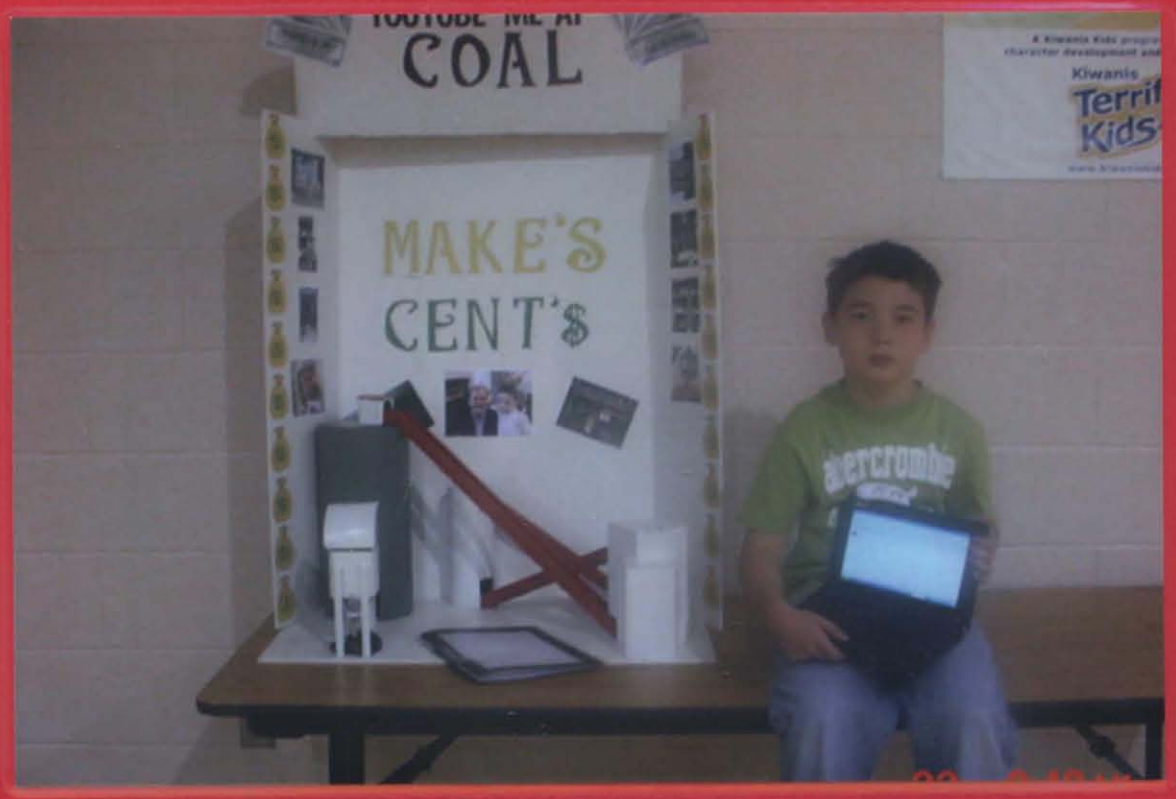


34

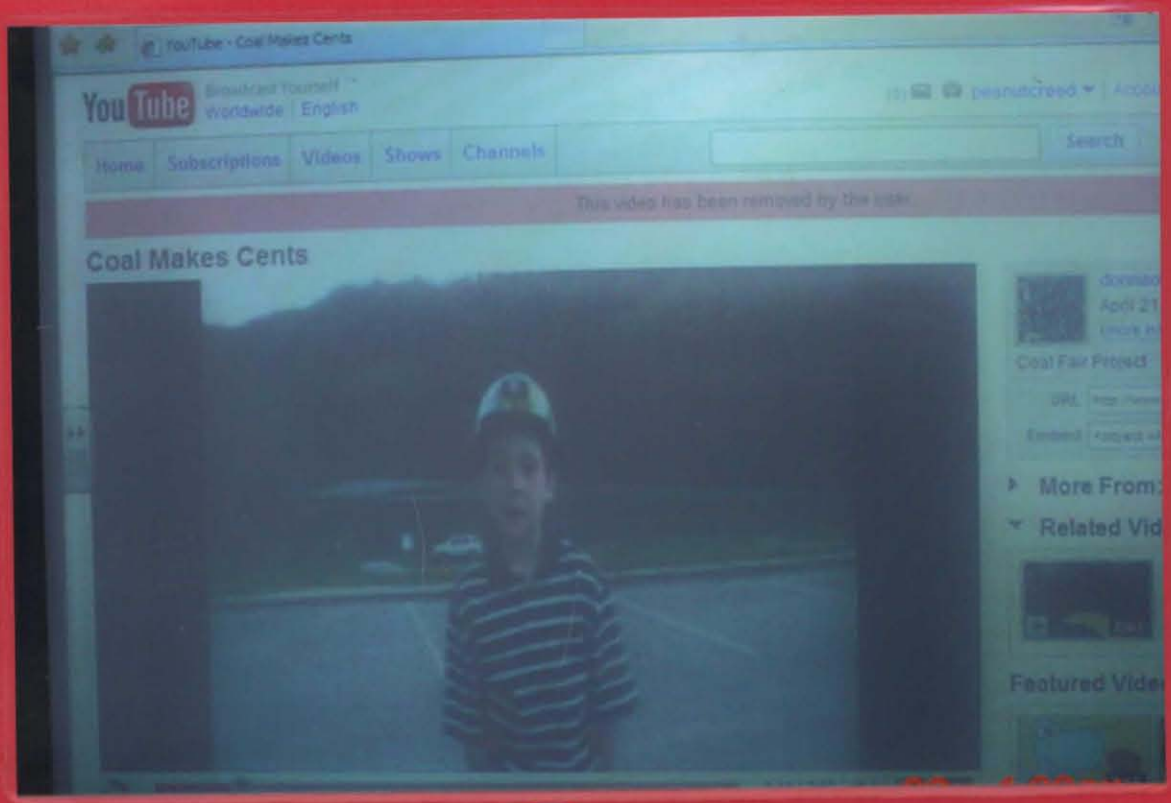

When Coal Was King
Coal Mining in Western Canada
Memory Game
Level 1 - Industry
28 04 2009

35

36


COAL
MAKE'S
CENT'$
Kiwanis

37

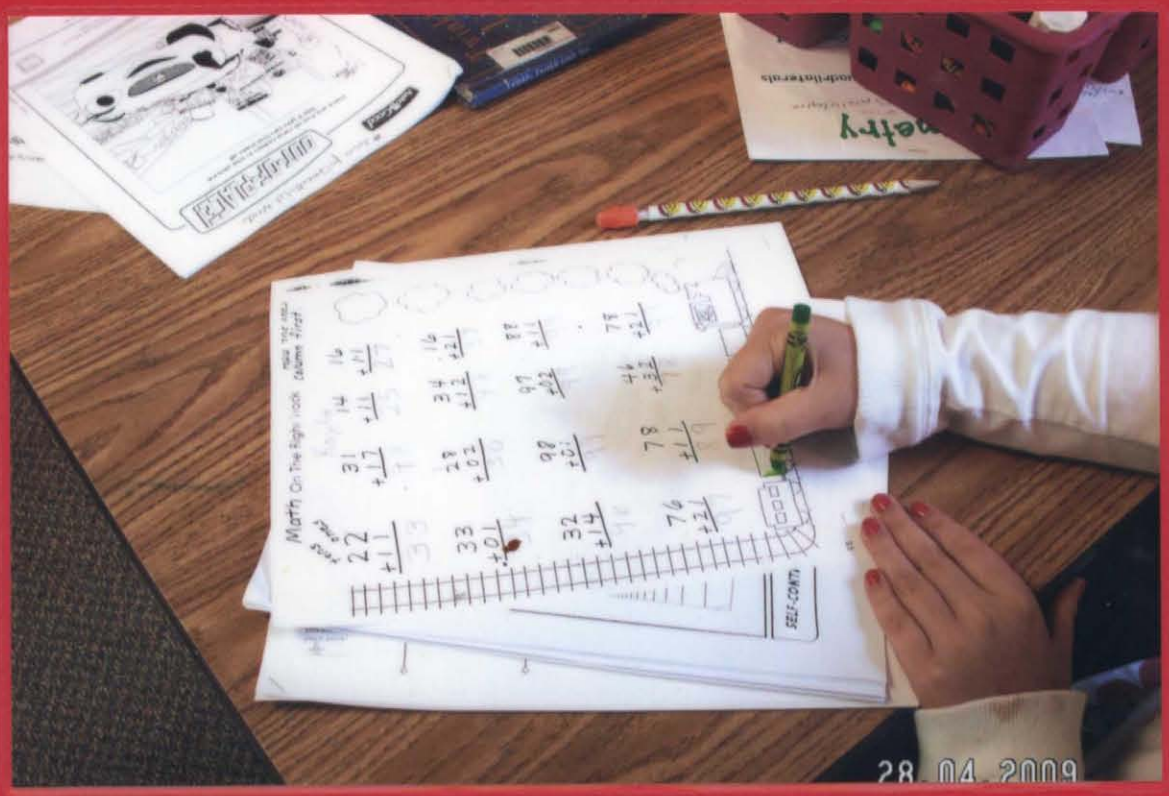

YouTube
Coal Makes Cents
Home
Subscriptions
Videos
Shows
Channels
Search

38

MUSIC AND DANCE

39

MATH



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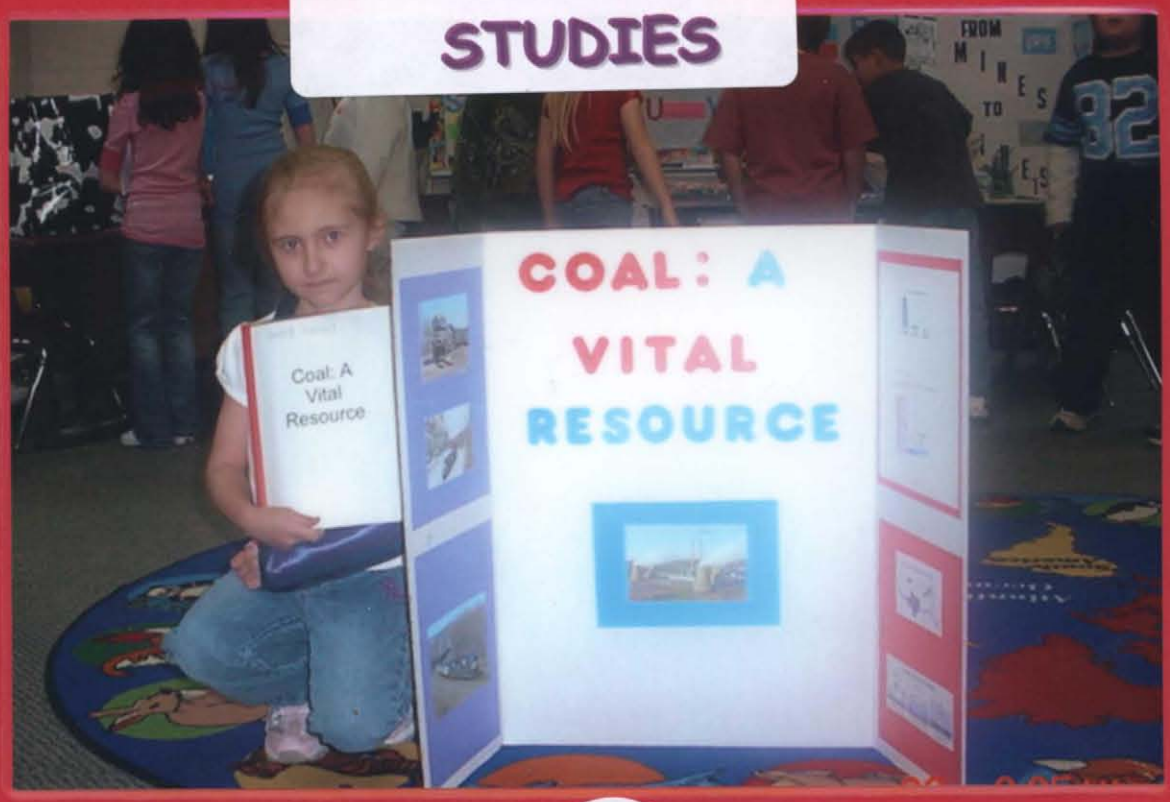
SOCIAL STUDIES



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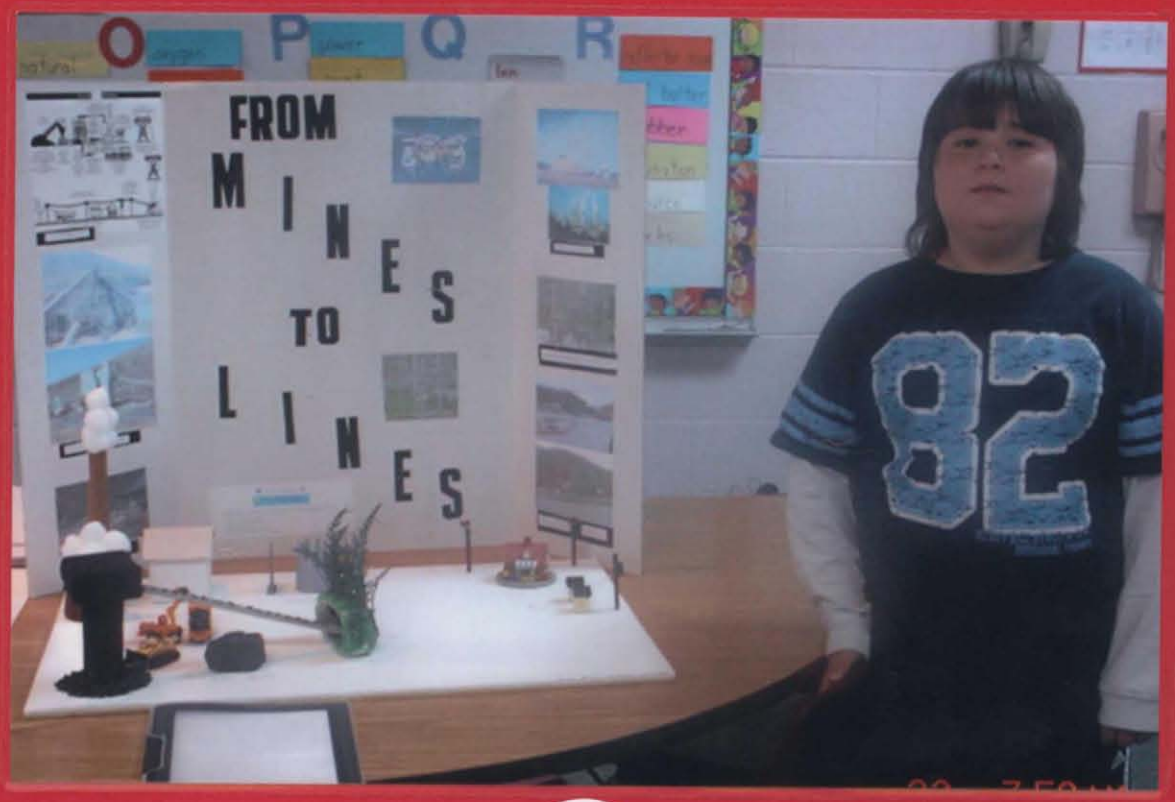
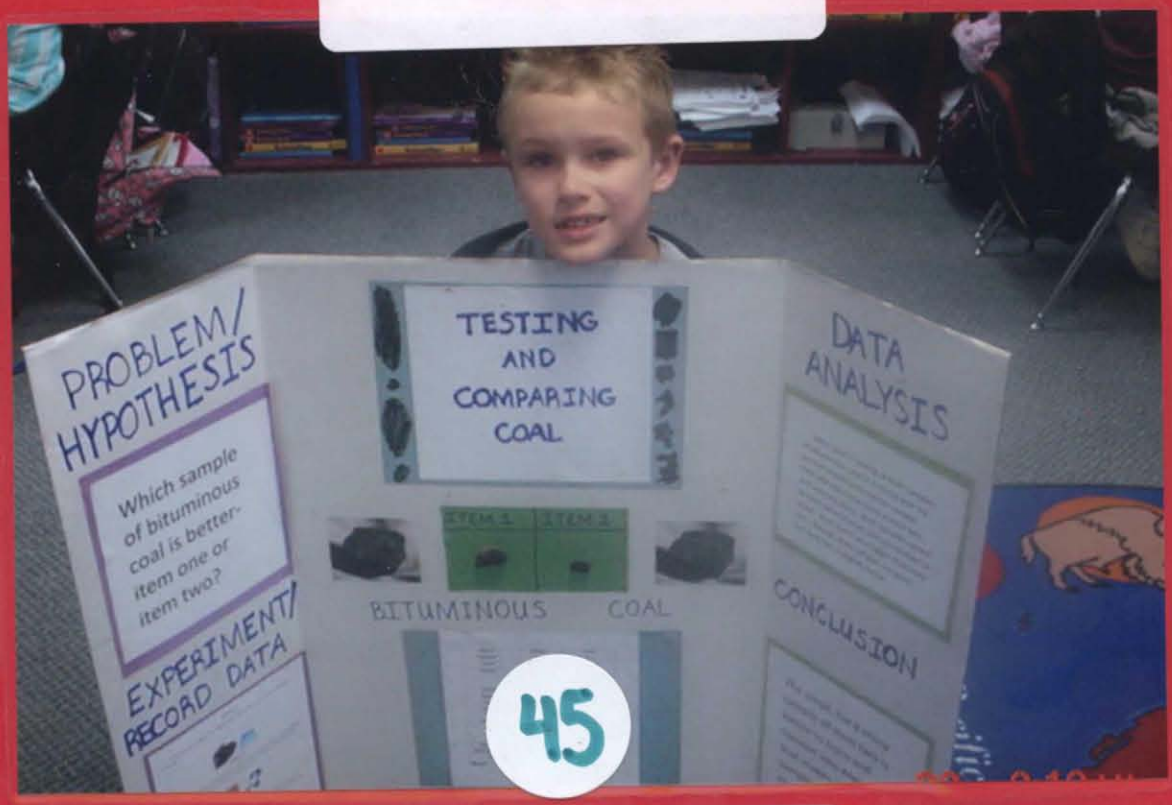

O
P
Q
R
FROM
MINES
TO
LINES
82

43


NY
NEW YORK
THE
HEARTLAND
CORRIDOR
WHY IS THE RAILROAD RAISING THE ROOF?

44

SCIENCE



45

CULMINATING EVENT

46

47

48

49

Student Work Samples & Coal Unit Activities

Coal Unit Planning Map

Background Information	**AR Testing / Teacher Read-Alouds**
• KWL Charts • Surveys • Let's Learn about Coal- Coloring Book • Relating to Student Experiences-Parents • Graphic Organizers of Coal Mining Jobs • Coal Word Wall Tiered Vocab. From A to Z	• Mama is a Miner-George Ella Lyon • From Swamp to Coal-Ali Mitgutsch • Coal Mine Peaches-Dionetti • Danger at the Breaker-Catherine Welch • In Coal Country-Judith Hendershot
Resources Provided by C.E.D.A.R. • Multiple Copies of Coal Related, Kentucky, and Appalachian Fiction Books for classroom library. • Let's Learn About Coal- Coloring Book • Videos • CD Roms • DVD's • Coal Samples • Classroom Posters to Teach from • Kentucky Coal Facts Book •	**KCCT/C.A.T.S.-Like Assessments/M.C./O.R.** • Natural Resources • Anthracite-A Natural Resource in Pennsylvania • Fossil Find • Fossil Fuels

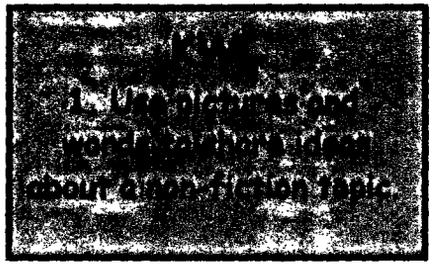
Word Wall	**Writer's Workshop**
• Coal Phonics (Marking short or long vowels) • Alphabetize Coal Words • Making Words from **Surface** • Word Search of Coal Words (puzzlemaker.com) • Changing Coal in to a Tree-Phonics lesson • Play Flash Light, Flash Light with Word Wall Words.	• Coal Acrostic • Interview an individual working in a coal related job • Various Poems about coal on placemats taken to Food City Cafeteria • Coal Mining A-Z Book • Coal Haikus (5-7-5 Pattern Syllable Poems) • Coal Couplets • Coal Alliteration (Tongue Twisters)
Cursive Writing	**Reading (Guided)**
• Daily Oral Language Coal Sentences to correct. • Coal Words • Using Main Idea, Details, and Conclusion to write a Paragraph about the 4 Different Types of Coal Mines. • Venn Diagram to Compare Coal Mining Then and Now.	• Read aloud of Coal Country • Paragraph Detective on From Swamp to Coal • ERT on "The Magic School Bus Inside The Earth" (auditory students listen to it on tape) • Read aloud of Mama is a Miner (Thematic unit) KTIP Lesson Plan Format • Turn classroom in to a coalmine by covering windows with black paper and reading with flashlights. • A Day In The Life of an Underground Coal Miner- (True or False Test)

Math	**Social Studies**
• Multi-Math Coal Facts (Multiplying by 4 to decode a coal fact • Mixed Multiplication on coal paper • Cookie Mining •	• Reading page 56-63 in Comparing Communities-Silver Burdett Ginn Textbook • Questions about the map of coal and oil resources on page 57 • Kentucky Book • Kentucky Coal Facts-finding facts and main ideas to write a paragraph • Natural Resources Open Response • Community Speaker-Coal Miner/Equipment • Occupations of Coal Mine Workers-Economics Lesson on "Interdependence." • Interview a Coal Miner-KTIP Lesson Plan
Science	**Music / Dance Skits**
• Compare/Contrast Coal and Oil in a Venn Diagram • Observe various types of coal • Kidszone activity on electricity for Promethean board • Growing Coal Flowers under various temperature conditions.	• "Workin' in a Coal Mine"-Devo • "Sixteen Tons" -Tennessee Ernie Ford • "Coal Miner's Daughter"-Loretta Lynn • "Working In a Coal Mine" -Lee Dorsey (original)
Art	**Technology**
• Creating Coal Creatures • Coal and Lumber Cars (familyfun.com) • Coal By-Products Tree with magazine cutouts • Scratch Art Pictures of Coal Mine	• Coal Activity on Promethean Board • Student Center Activity on Rocks • In Coal Country CD Rom at Computer Center • "Coal Today" CD Rom • "Mine To Line" DVD

• Tracing Paper Art of Coal Scenes • Mural of Reclamation Site • Place Mats of Student Celebrated Work on Coal Unit displayed at Food City Cafeteria.	• "All About Coal" DVD • "Mining Discoveries For Progress" DVD • "Common Ground" DVD • "Coal Into Kilowatt" DVD • Student Center- Online Geo-Board Students created a Coal Cart, Conveyor Belt, and Miner.
Webliography • www.eia.doe.gov/kids/classactivities/index.html • www.kidsnet.org/sfkc • http://42explore.com/mining.htm • http://eduscapes.com • www.coaleducation.org • www.eia.doe.gov/kids/energyfacts/spurces/non-renewable/coal.html • http://fossil.energy.gov/education/energylessons/index.html • http://familyfun.com • www.kidszone.com/electricity • http://www.ilstu.edu/~jabraun/socialstudies/coalmining/welcome.html • www.wordplays.com • www.puzzlemaker.com •	**Games** • The Coal Camp Children Games and Activities **Culminating Events** • School Coal Fair Participation • Fieldtrip to Cedar Regional Coal Fair

***Some activities overlap categories**

Taylor H



Coal Mining

K	W	L
What I Already Know	**What I Need to Find Out**	**What I Learned**
•Coal is used for energy. •There are 4 different ranks of coal. •Coal is black and brown. •You can burn coal. •coal is hard.	•What tyep of coal burns the best? •Why is coal black? •How many coal mines are in Kentucky •what is coal made of?	•There are 41,000 coal miners in the U.S. •Anthracite is the hardest coal. •coal is made of [illegible].

[illegible]

Coal Mining

K What I Already Know	W What I Need to Find Out	L What I Learned
• coal is used as a fuel. • coal can make energy. • coal can make [illegible]. • it is a natural resource. • it is found in mines or wilds. • peat is a stage of coal. • coal is black gray or brown. • [illegible] • [illegible] bituminous [illegible]	• how long people have been using coal. • why is coal used. • how is coal made. • why are mines [illegible] wildlife.	• [illegible] miners [illegible]. • as long [illegible] • coal is [illegible]

Interactive Lessons on Coal Done on the SmartBoard

1. When **Coal** Was King - Educational Interactives
Test your memory and learn about The Coal **Industry and the People & Communities involved with the following** interactive game**. See how well you can remember** ...
www.coalking.ca/edukit.htm - 11k - Cached - Similar pages

- **Students did the online interactive word search puzzle of coal words and mazes.**

2. Using the Carbon Cycle **Interactive Game** in the Classroom
Nov 6, 2006 ... **In this** interactive game**, students assume the identify of carbon atoms that are** ... coal**, and fossil fuels, is part of the carbon cycle.** ...
www.windows.ucar.edu/tour/link=/teacher_resources/teach_carbon*game.html* ***- 15k*** - Cached - Similar pages

- **Students played the Interactive Carbon Cycle Game on the Smart Board.**

3. History of **Coal** in the United States ~ Lesson Plans ~ American ...
Purchase the Coal **Today CD ROM and allow students to play** interactive games **that introduce** coal**, its use, and the importance of electricity to our lives.** ...

- **Students made a paper towel timeline of *The History of Coal Mining***

4. **http://www.energyquest.ca.gov/wattsthat_flash/wattsthat_1.html**

- **After learning about turning coal in to Kilowatts students played this online interactive game on the SmartBoard similar to that of Jeopardy called *Watt's That?***

5. **http://marketplace.publicradio.org/display/web/2007/10/11/coal_debates_light_up_town_meetings/**

- **Students got to listen to 2 sides of a debate about Coal Fired Plants during a town hall meeting.**

6. ***www.eastglasgow.co.uk/Pathfinder/geln/lochend_fam_learn/LFL_subjects/local_history/****coal_mine_victorian.html* ***- 23k*** - Cached - Similar pages

Earobics Step 1

Earobics Step 1 is designed for developmental ages 4-7 and features six interactive games with over 300 levels of play. It systematically teaches the critical phonological awareness, auditory processing and introductory phonics skills required for learning to read and spell. The games also develop general cognitive skills that support learning, such as attention and memory.

Karloon's Balloons, 38 levels
Students save the clown's balloons by remembering the order of sounds they hear. The balloons don't pop if the student correctly recalls a series of one to four sound effects, words, digits or speech sounds presented against three levels of background circus crowd noise.
Primary skills: auditory attention, auditory short-term memory, sequential memory and auditory performance with competing signals.

C.C. Coal Car, 74 levels
Students load the C.C. Coal Car with coal by identifying long vowels, short vowels and consonant sounds. They identify sounds heard in isolation, in the context of a word and by identifying the position of a sound within a word.
Primary skills: phoneme discrimination and identification, phonological sequencing, sound-symbol correspondence.

Rap-a-Tap-Tap, 16 levels
Students keep the beat by breaking words into sounds. They click once for each drumbeat or speech sound they hear, then for each syllable in a word, then for each phoneme in a word.
Primary skills: phonological segmentation, auditory short-term memory and temporal resolution.

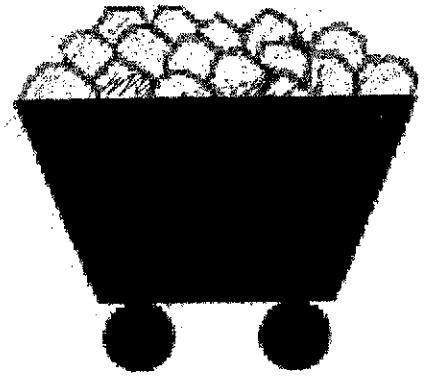
Caterpillar Connection, 56 levels
Students are delighted when they successfully blend sounds into words and Katy-Pillar transforms into a beautiful butterfly. Students begin by blending words into compound words, then syllables into words, then phonemes into words.
Primary skills: phonological blending, auditory attention, auditory short-term memory and sequential memory.

Rhyme Time, 11 levels
Students visit Bog Frog and friends to identify which frog says the rhyming or non-rhyming word. As they progress, students must choose from two to five frogs speaking against increasing levels of background swamp noise.
Primary skills: rhyming, auditory attention, sequential memory and auditory performance with competing signals, auditory short-term memory.

Basket Full of Eggs, 114 levels
Students help Farmer Fardell collect eggs by discriminating between different sounds. Real speech and acoustically modified, computer-generated speech are used to develop discrimination of vowels and consonants.
Primary skills: auditory and phoneme discrimination, auditory attention, auditory short-term memory, sequential memory, pattern recognition, temporal ordering.

Coal from A-Z

By: Holly Varney



A is for...

ash
anthracite
abandoned

B is for...

battery pack
by-products
bits
bituminous
bulldozers
barges
blast
black

C is for...

carbon
coke
continuous mining
coal
conveyor belt
coal train
conserve

D is for...

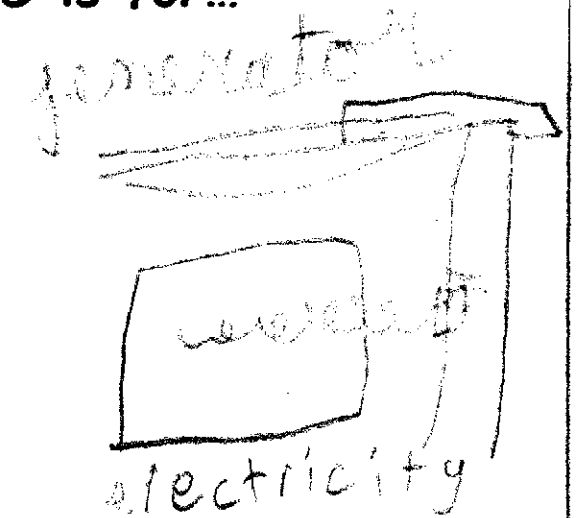
drilling
dig
dragline
draft

E is for...

excavator
exhaust
energy
electricity

F is for...

floor
fossil fuel
film

G is for... 	**H is for...** hard hat light	**I is for...**
J is for...	**K is for...**	**L is for...** long lignite

M is for...

[illegible]

mine

N is for... natural

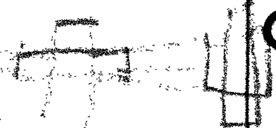
O is for...

oxygen

[illegible]

P is for...

power plant



[illegible]

preparation plant

pick

Q is for...

R is for...

Reflector tape

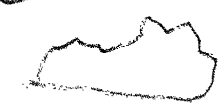
roof bolter

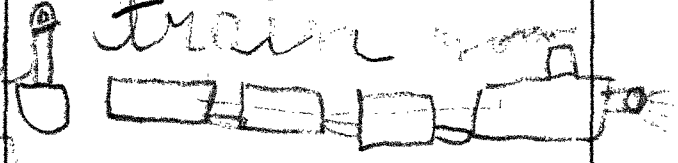
rubber

reclamation

resource

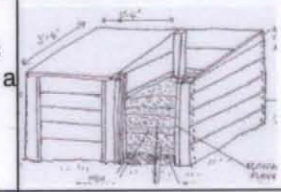
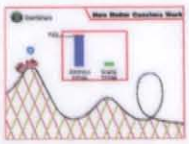
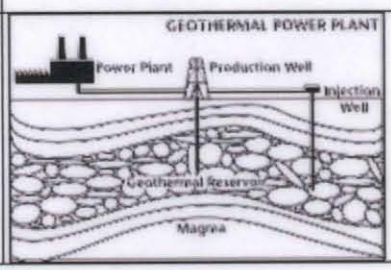
rocks



S is for... sun surface seam shuttle car [illegible] as shovel stairs steel toe boots shaft soil steel slope	**T is for...** truss tan train 	**U is for...** underground
V is for...	**W is for...** wall	**X is for...**

Y is for...	Z is for...	

ENERGY UNIT VOCABULARY

Term	*Definition*	*Example*
Biomass	The living or once living material in an ecosystem.	Dead trees, yard clippings, wood chips, bark.
Chemical energy	*Energy stored in the chemical bonds of* molecules and compounds… energy that is given off during a chemical reaction.	A battery, a match (light/ heat), burning coal, gas in a lawnmower.
Compost bin	A container in which plants and other organic matter decay to be later used by gardeners as a fertilizer to enriching soil.	
Conservation of Energy (Conserving Energy)	Energy is conserved. This means that energy cannot be created or destroyed, it transforms to another form of energy.	
Decay	The break down or rotting of organic matter through the action of bacteria or fungi; decomposition.	
Electrical energy	The energy of moving charges in electricity.	
Energy	The ability to do work or cause change.	Hydroelectric energy, Solar energy, Nuclear energy, Hydrogen energy
Fossil fuels	Energy-rich substances formed from the remains of dead plants & animals.	Coal, oil, petroleum (gas) & other natural gases.
Geothermal energy	Energy from the heat in Earth's interior.	

Term	*Definition*	*Example*
Gravitational Energy (Gravity)	Potential energy associated with gravity. This varies with height. Greater height = greater gravitational potential energy	
Inexhaustible resource	Any living or nonliving thing in the environment of which there is a limitless supply.	Sun, Soil, Rocks
Kinetic energy	The energy of motion.	
Matter	Anything that has mass and occupies space.	Gases, liquids, solids, plasma
Mechanical energy	Energy from the motion of matter. (*May be stored like in a spring or stretched rubber band.)	
Nonrenewable resource	A natural resource that is not replaced as it is used because it takes hundreds of millions of years to form.	Fossil fuels (coal, oil, & natural gas).
Nuclear energy	The energy stored in the nucleus of an atom… released during a nuclear reaction.	
Potential energy	Stored energy an object has because of its position or shape.	A car waiting at the top of a ramp (not moving).
Radiant energy	Energy that is transmitted in the form of (electromagnetic) radiation. (light)	Solar energy/ flame.
Renewable resource	A resource that is naturally replaced in a relatively short time.	Sunlight, wind, trees, water, biomass, hydrogen, geothermal.
Thermal energy	The internal energy of a substance due to the movement or vibration of its atoms or molecules. (heat)	
Transform	*To convert one form of energy to another.*	A battery power a flashlight.

Mikey Younger

LET'S LEARN ABOUT COAL!

This coloring and activities book belongs to ..... Mikey Younger .....

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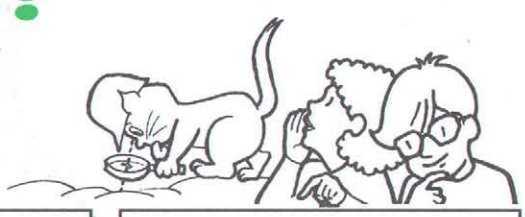
PS62948

(07-05-A)

WHERE IS COAL PRODUCED IN THE U.S.?

Use the secret code below to find the top 10 states for producing coal. (State #1 produces the most coal; state #10, the least.)

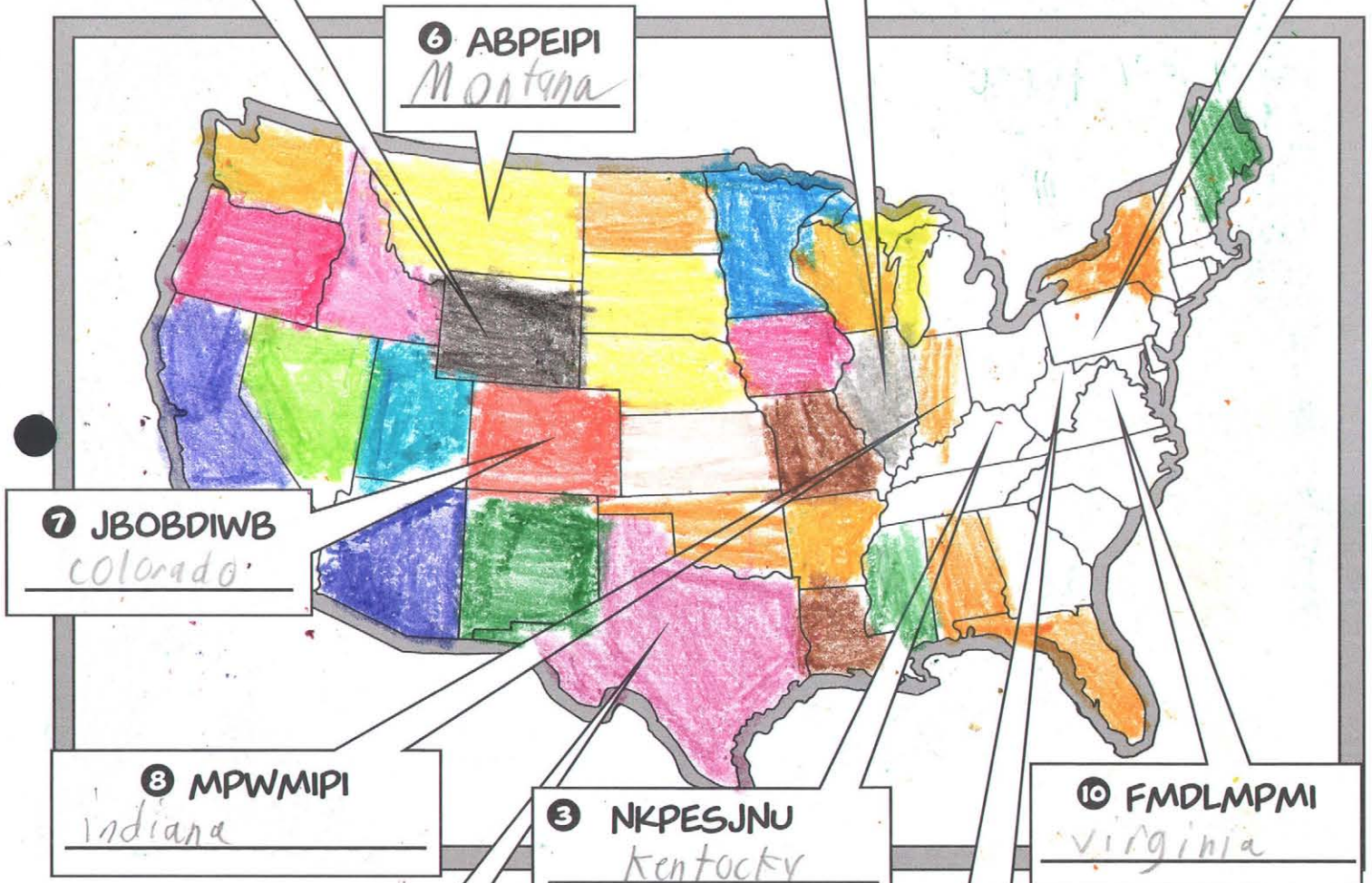


❶ TUBAMPL
Wyoming

❾ MOOMPBMR
Mondiana

❹ CKPPRUOFIPMI
Pencil vangia

❻ ABPEIPI
Montana



❼ JBOBDIWB
colorado

❽ MPWMIPI
Indiana

❸ NKPESJNU
Kentocky

❿ FMDLMPMI
virginia

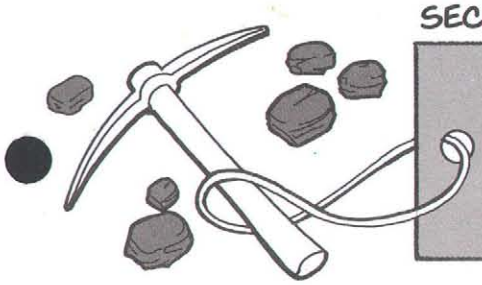
❺ EKGIR
Texas

❷ TKRE FMDLMPMI
West Vergnia

SECRET CODE

A=M	F=V	K=E	P=N	U=Y	X=F
B=O	G=X	L=G	Q=Q	V=B	Y=H
C=P	H=Z	M=I	R=S	W=D	Z=J
D=R	I=A	N=K	S=U		
E=T	J=C	O=L	T=W		

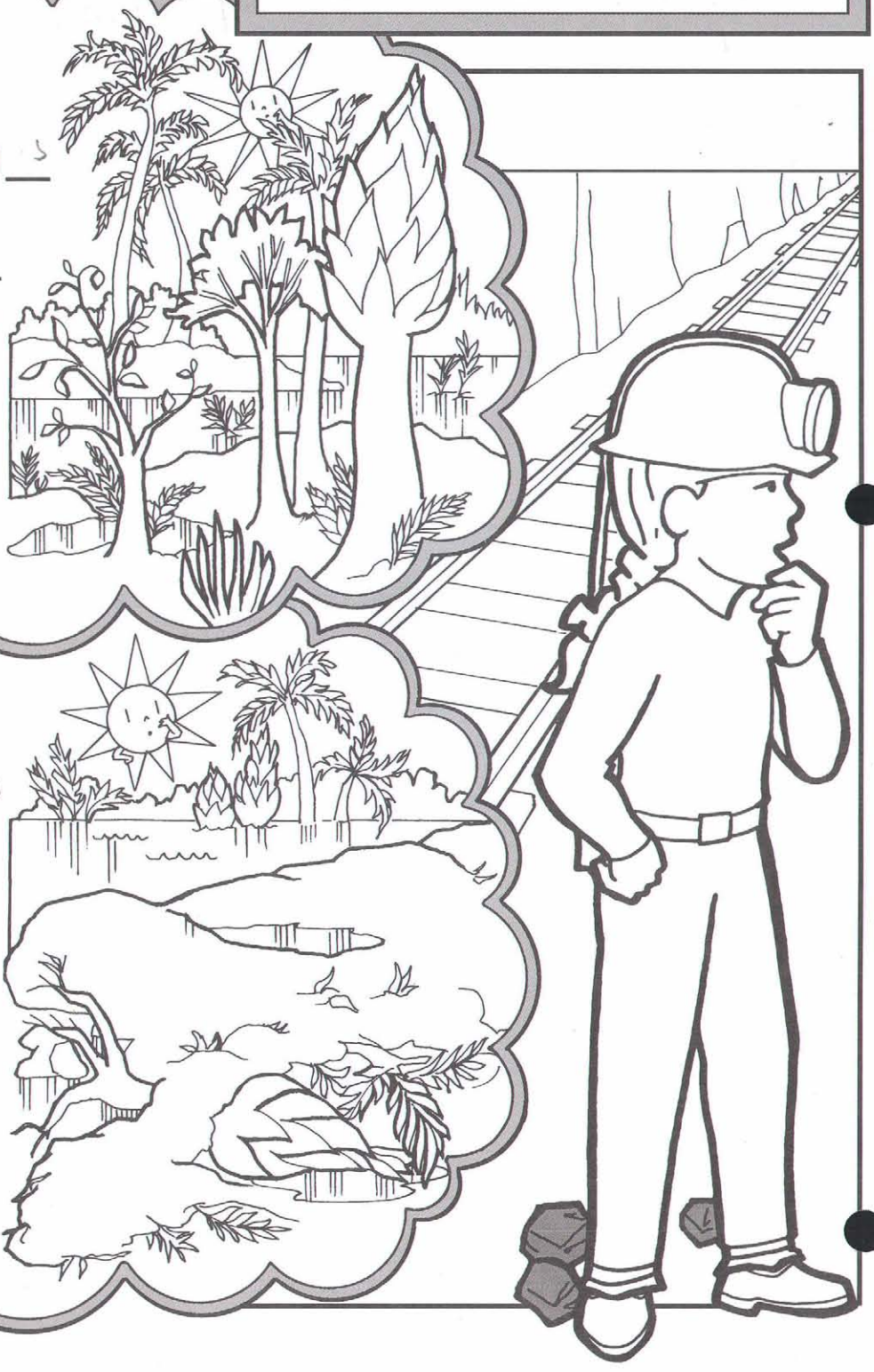
The answers are on page 15.



COAL COMES FROM INSIDE THE EARTH!

Use this word list to complete the sentences below.

MUD	PRESSURE	MILLIONS
COAL	SAND	WEIGHT
PEAT	SWAMPS	HEAT



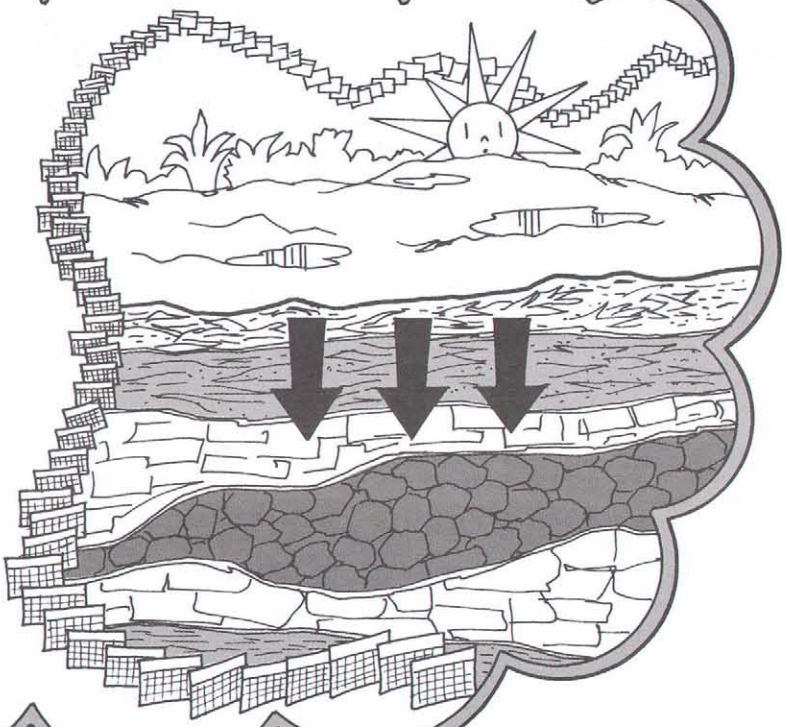
❶

M i l l i o N s of years ago, s W A M p s covered much of America. Giant trees and plants grew here.

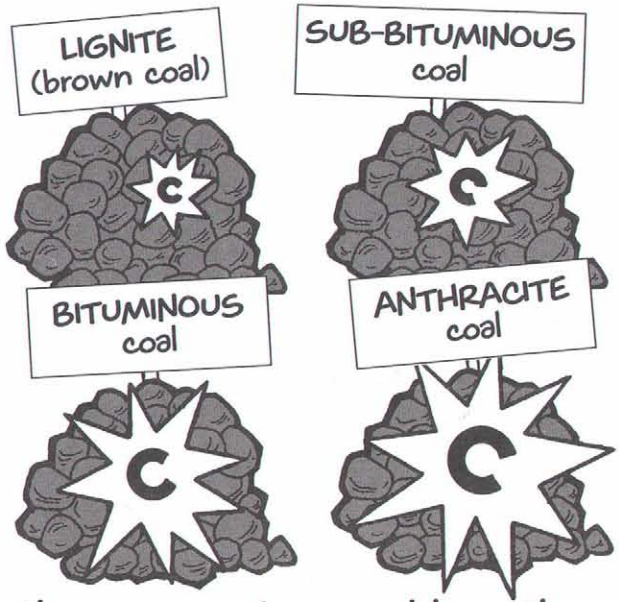
❷

When the plants died, they were buried by s a n D and M U d. A spongy material called P E A t was formed from the rotting plants.

The Weight of the mud and sand created great Pressure and heat. Over time, this caused the peat to turn to coal.



There are
4 DIFFERENT TYPES
of coal.



The more carbon coal has, the more energy it has.
Lignite has the least. Anthracite has the most energy.

The answers can be found on page 15.

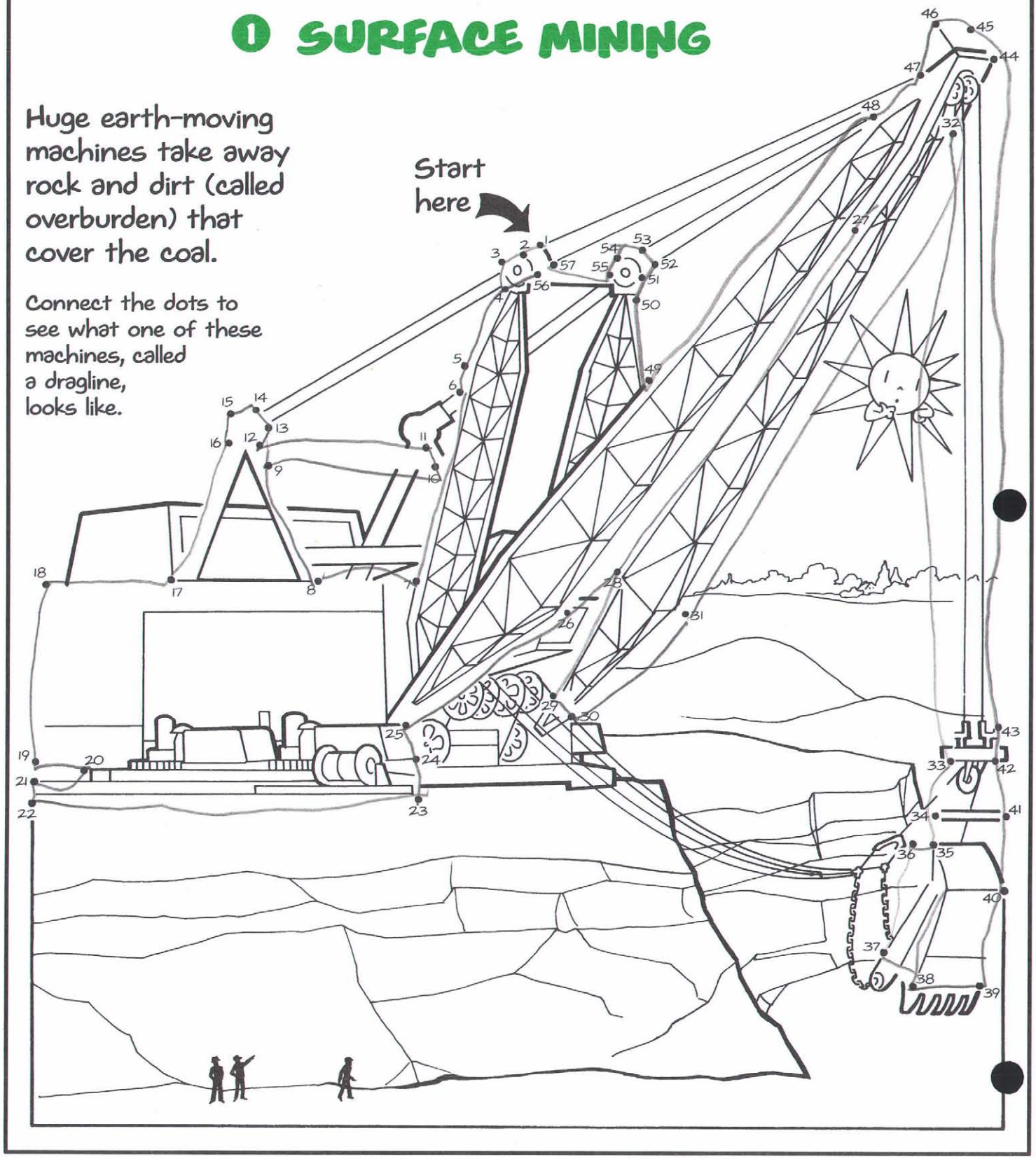
WE GET COAL

by digging it out of the earth. This is called mining. There are 2 kinds of mining:

1 SURFACE MINING

Huge earth-moving machines take away rock and dirt (called overburden) that cover the coal.

Connect the dots to see what one of these machines, called a dragline, looks like.



❷ UNDERGROUND MINING

To reach the messages, start at the end of each sentence and read each letter back toward the beginning.

The answers are on page 15.

❶ .srac cirtcele ni yad hcae slennut otni og srekroW

workers go into tunnels each day in electric cars

❷ .ria hserf ni gnirb stfahs riA

air shaft bring in fresh air

❸ .ytefas rof detset si lennut eht ni ria ehT

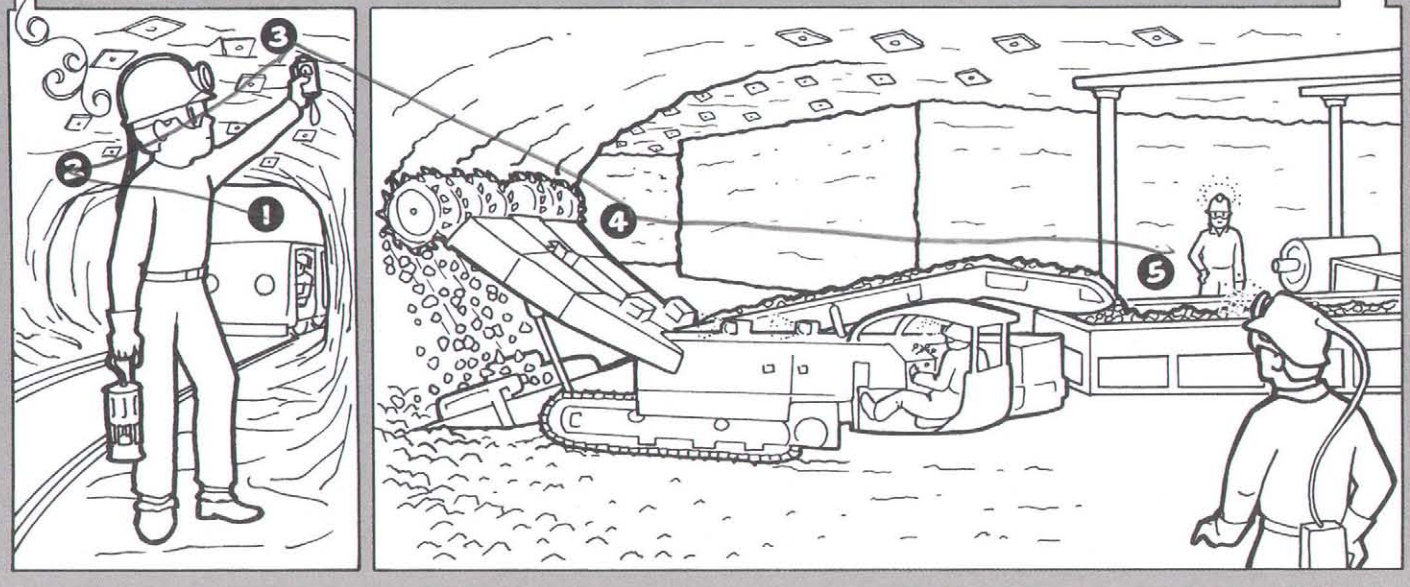
the air in the tunnel is tecyed for saffy

❹ .(laoc fo llaw a) "maes" a morf laoc spir enihcam A

A michene rips coal

❺ .stleb royevnoc otno ro srac elttuhs otni laoc eht sdaol enihcam eht ,emit emas eht tA

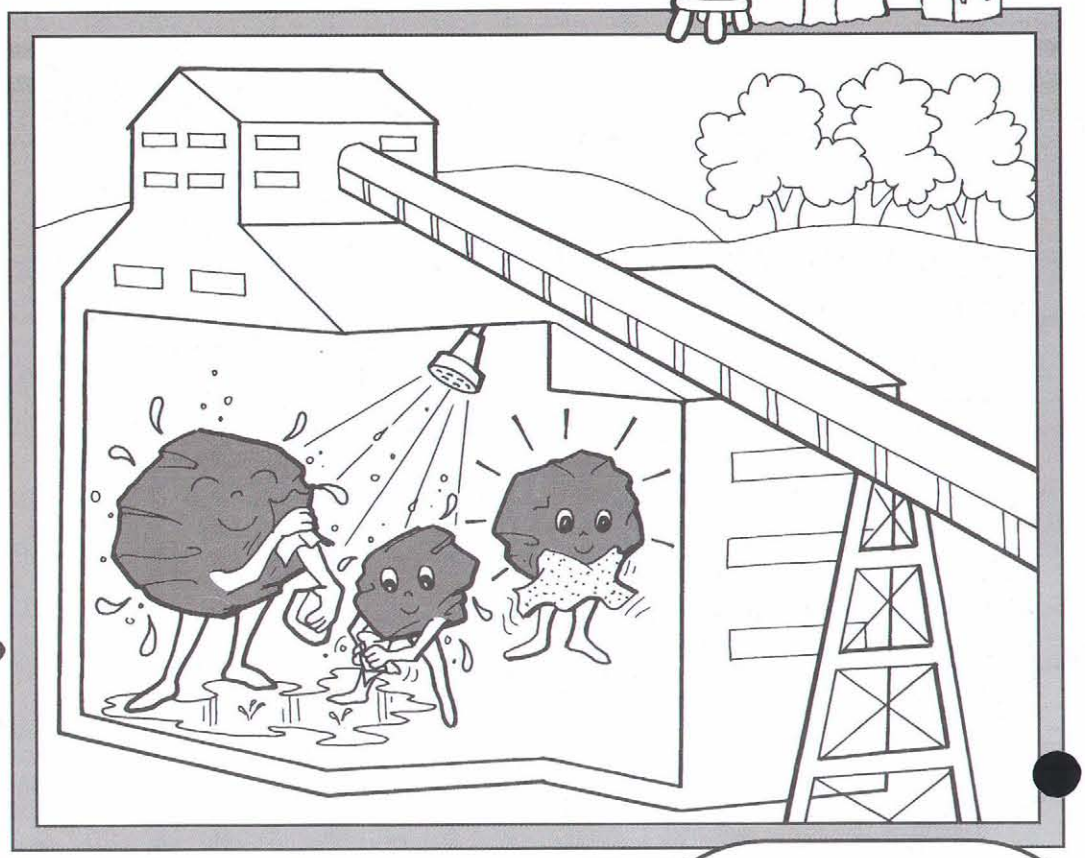
air the same time, the michene load the coal into shuttle cars or onto conveteryon Belts.

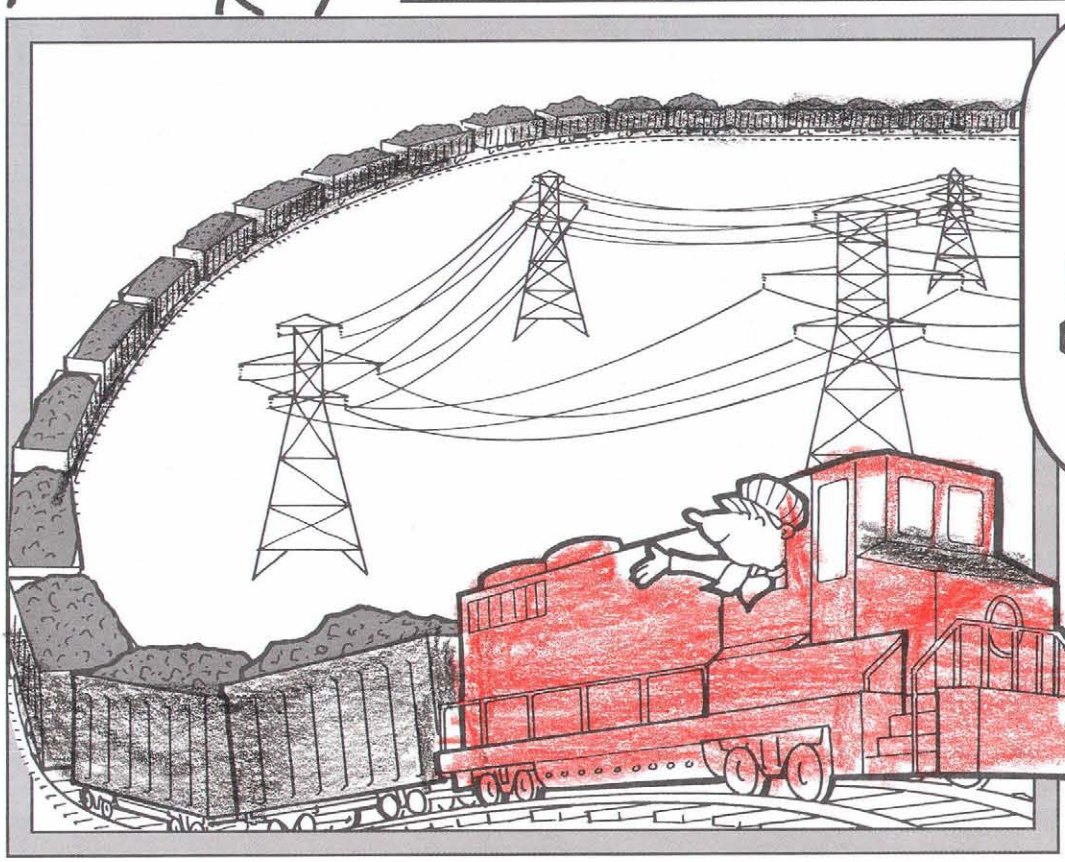


With longwall mining, a machine is pulled along a wall of coal that may be more than 1,000 feet long. The machine breaks up the coal and drops it onto a conveyor.

AFTER COAL IS MINED

MOST COAL IS WASHED and then sorted by size at the preparation plant, or "tipple."





RAILROADS carry the coal to electric plants or other places in long "unit trains." Barges and trucks may carry the coal, too.

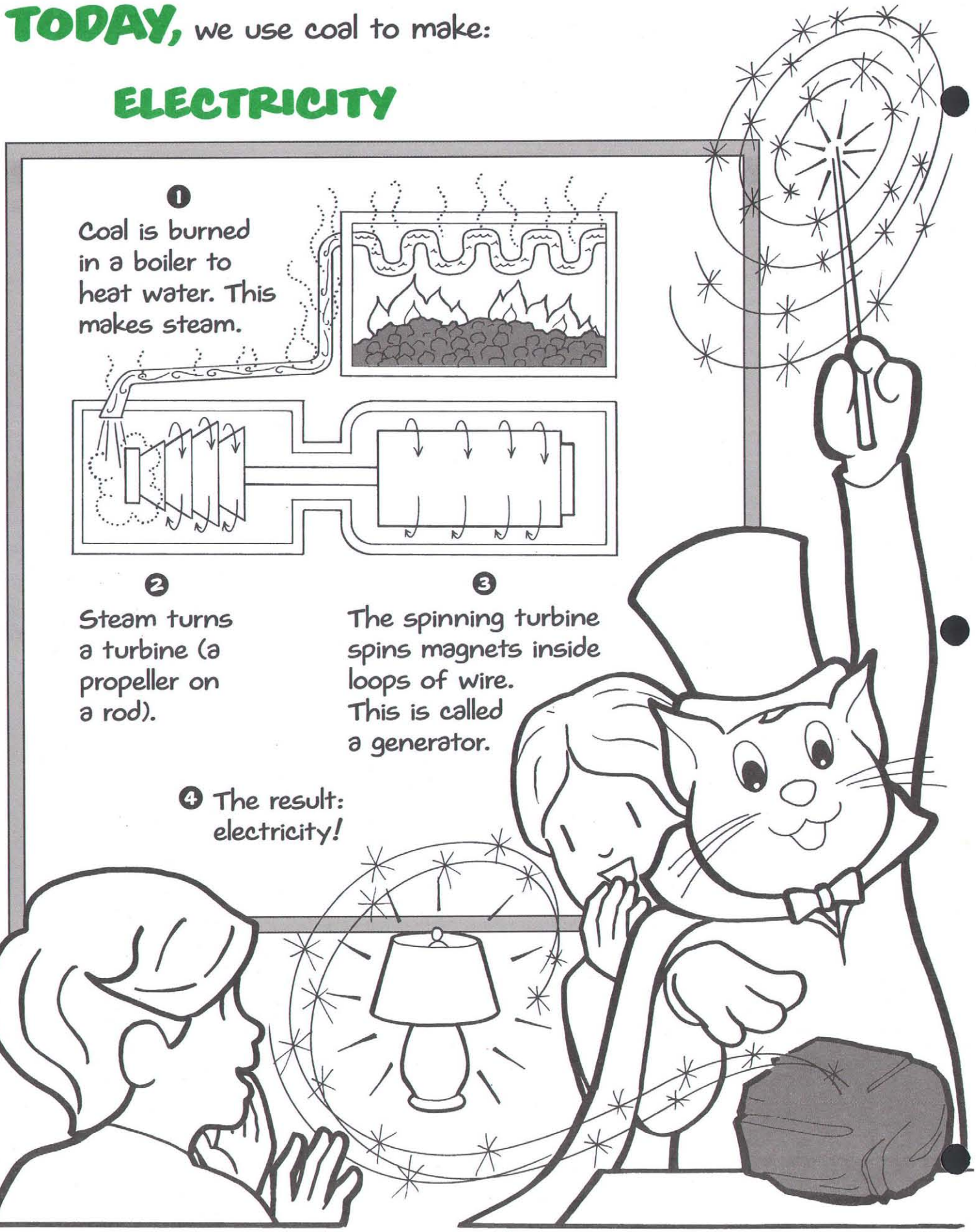
AT ONE TIME

in our history, everyone depended on coal for vital basic needs. That's why it was known as "King Coal"!

The answers can be found on page 15.

TODAY, we use coal to make:

ELECTRICITY



OTHER THINGS

Find and circle the one thing in each box that coal helps produce.

STONES TREES SUN
LEAVES STICKS
MOUNTAINS STEEL
CLOUDS HILLS PLANTS
FOREST SUN MEADOW
ANIMALS JUNGLE
SWAMPS MOUNDS
VALLEYS CANYONS
MARSHES STONES
TREES LEAVES SUN
STICKS MOUNTAINS
CLOUDS HILLS PLANTS

OCEANS WAVES SAND ISLANDS
PEBBLES WIND BREEZES
BEACHES TIDE SEAGULLS
WHALES SUN SHELLS SEAWEED
CLOUDS RAINBOWS FERTILIZERS
WIND WARM HOT WET GLARE
SEA SURF FLOAT SEASHORE
COASTLINE SEACOAST STONES
DEEP WHITECAPS SAIL SWIM

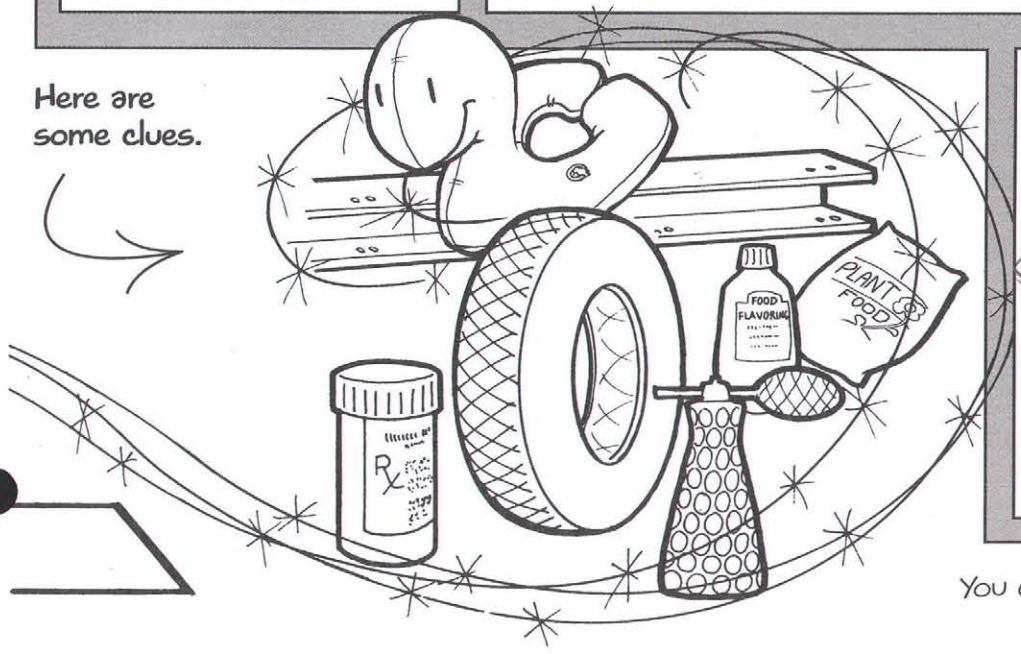
FLOWERS PLANTS SHRUBS
VINES LILACS ROSES
BUTTERCUPS DAISIES
FERNS GRASS CLOVER
WEEDS LILACS IRISES
MARIGOLDS PANSIES
VIOLETS PLASTICS
DAFFODILS FLOWERS
PLANTS SHRUBS VINES
ROSES WEEDS
BUTTERCUPS DAISIES

TREES MAPLES ELMS PINES
CEDARS DOGWOOD ASH OAKS
MEDICINES
COTTONWOOD SPRUCE
BIRCHES WALNUT TREES
PUSSY WILLOW SUMAC ASH
HICKORY CHESTNUT ELMS
HEMLOCK BEECH MAPLES
PINES CEDARS DOGWOOD ASH
OAKS FIRS
COTTONWOOD

RED BLUE GREEN PINK WHITE
YELLOW ORANGE PURPLE
FOOD FLAVORS RED VIOLET
TURQUOISE GREEN CRIMSON
ROSE BLACK BROWN GOLD
LAVENDER SCARLET TAN RED
BLUE PINK WHITE YELLOW GOLD
ORANGE PURPLE VIOLET
TURQUOISE CRIMSON RED

FRUITS BERRIES PEARS
RASPBERRIES CHERRY APPLES
BLUEBERRIES LEMON
STRAWBERRIES CITRUS
PEACHES GRAPES BANANAS
ORANGES PINEAPPLES
TOMATOES MELONS OLIVES
LEMON PERFUMES PEARS
MANGO CRAB APPLES
LIMES GRAPEFRUIT
CUCUMBERS PAPAYA

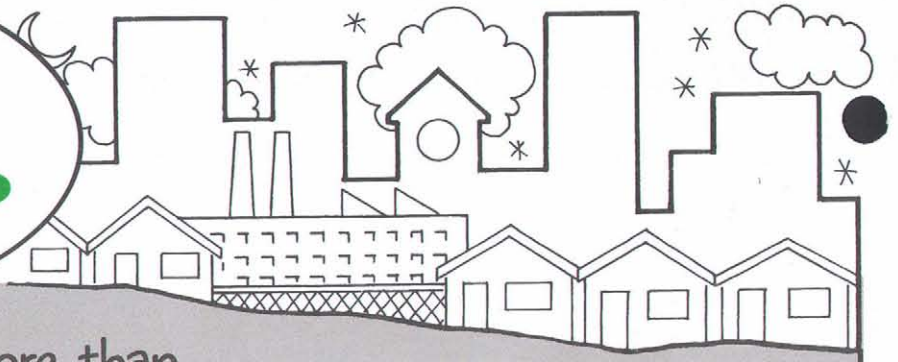
Here are some clues.



ANIMALS BIRDS ROBINS
BLUEBIRDS BLUE JAYS
CARDINALS DEER
RACCOONS FISH
EAGLES SPARROWS
RUBBER RABBITS
BEARS FISH HAWKS
MOUSE SQUIRRELS
BLACKBIRDS CANARIES
FOXES CHICKADEES
TIGERS ROBINS FISH
BLUEBIRDS BLUE JAYS

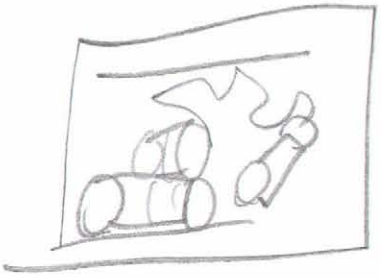
You can find the answers on page 15.

WHY IS COAL IMPORTANT?



Because coal provides more than half of our nation's electricity!

Draw a picture of one important use of energy.



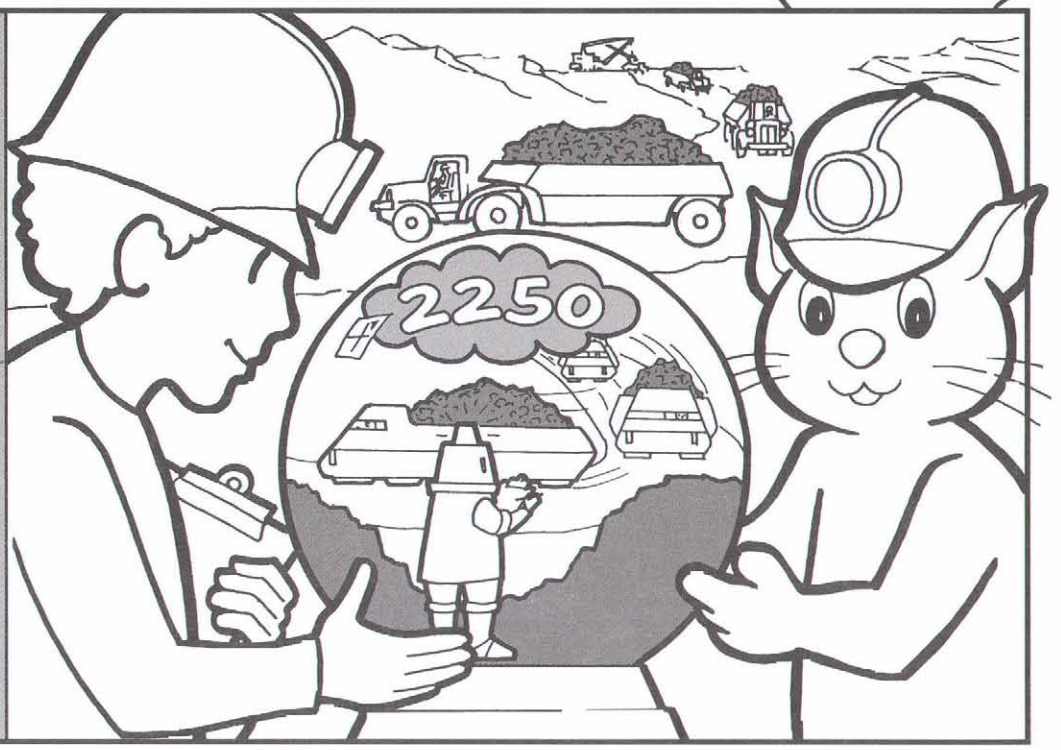
THE ADVANTAGES OF COAL

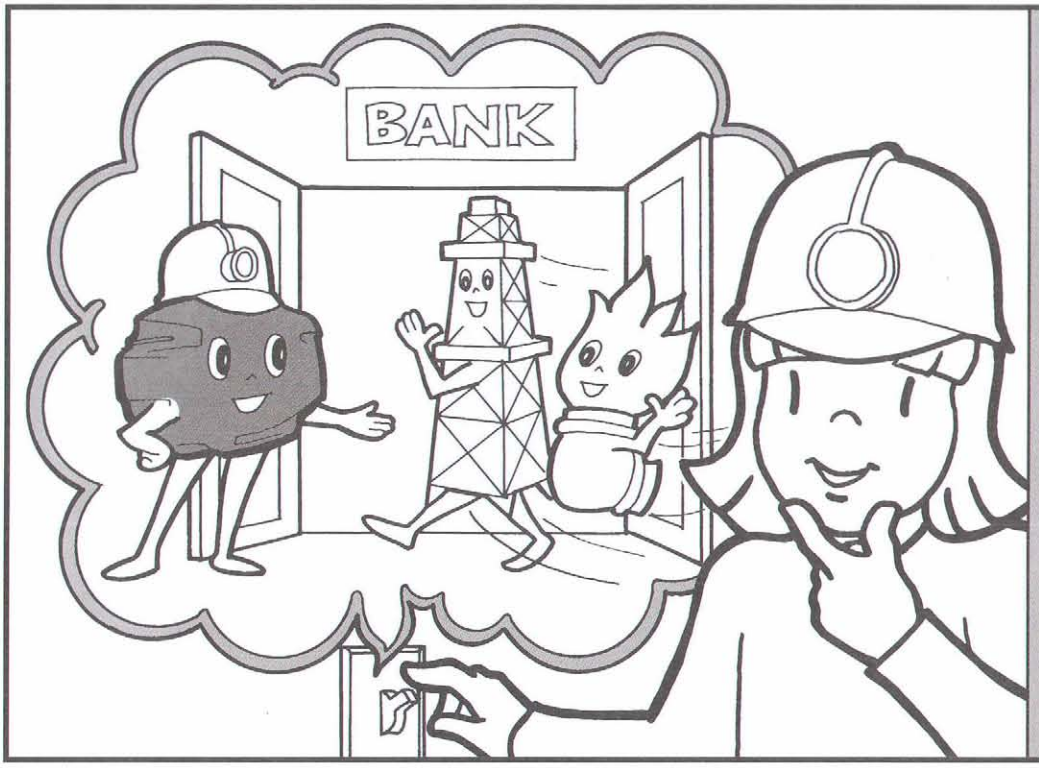
Unscramble the sentences below to find out why coal is such a good source of energy.

❶

Lots coal we of have!

we have lots of coal





❷

Than coal other cheaper is fuels!

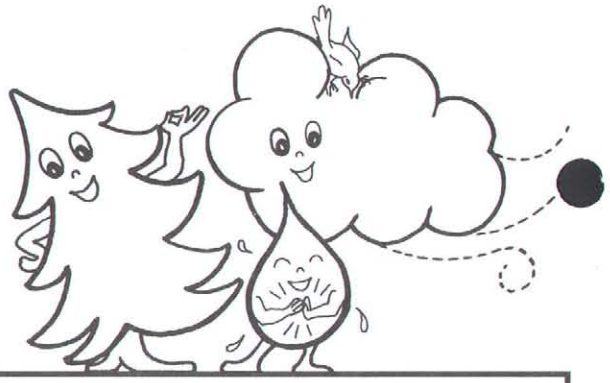
Coal is cheaper than other fuels

In other words, if we use coal found in the U.S., we don't have to depend as much on other countries for our energy!

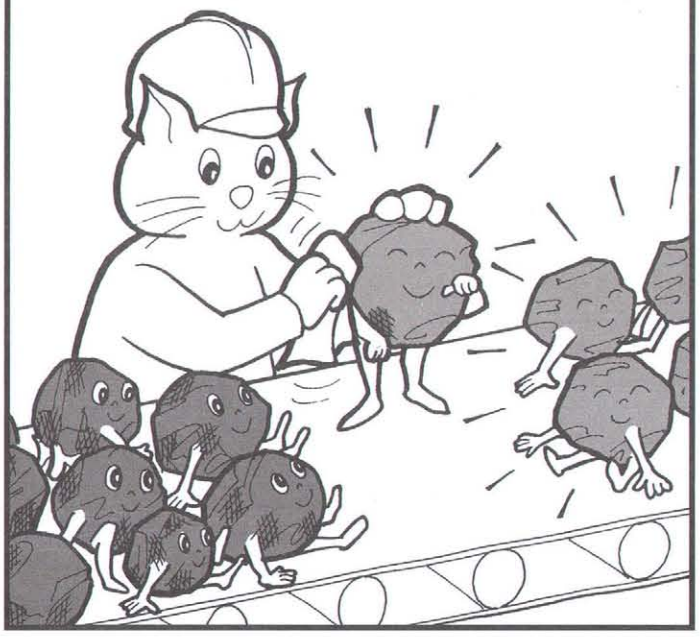
The answers are on page 15.

COAL AND OUR ENVIRONMENT

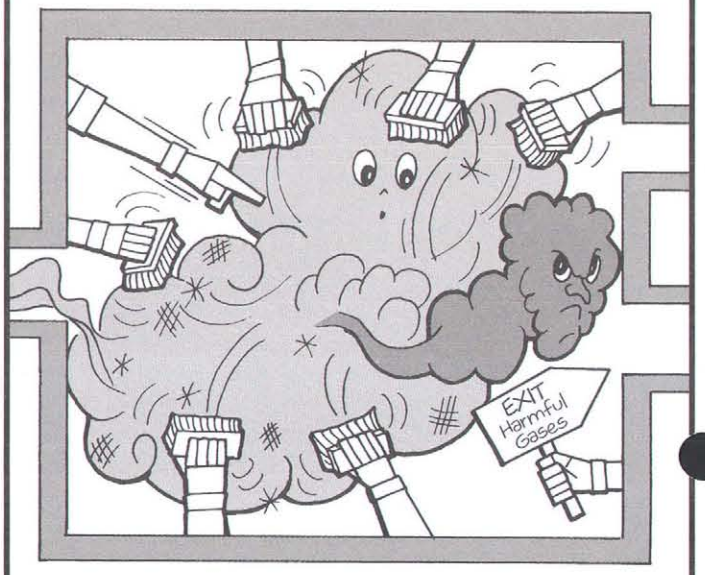
To keep coal from harming our land, air and water:



Coal is cleaned before being burned.

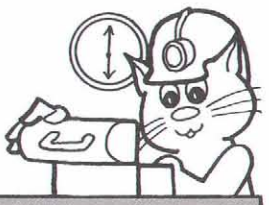


"Scrubbers" take out most of the harmful gases.

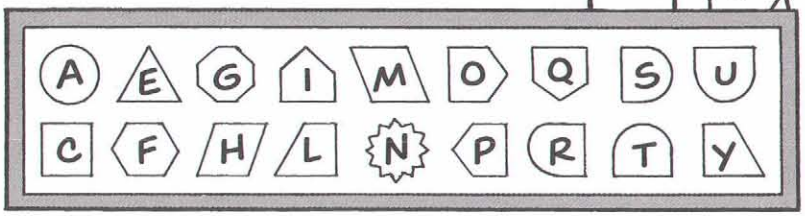


Soil is replaced. Grass and trees are planted after surface mining.

COAL MINING PROVIDES JOBS FOR LOTS OF PEOPLE!



Match each shape in the messages below to one in the box to the right. Write down the letter inside the shape.

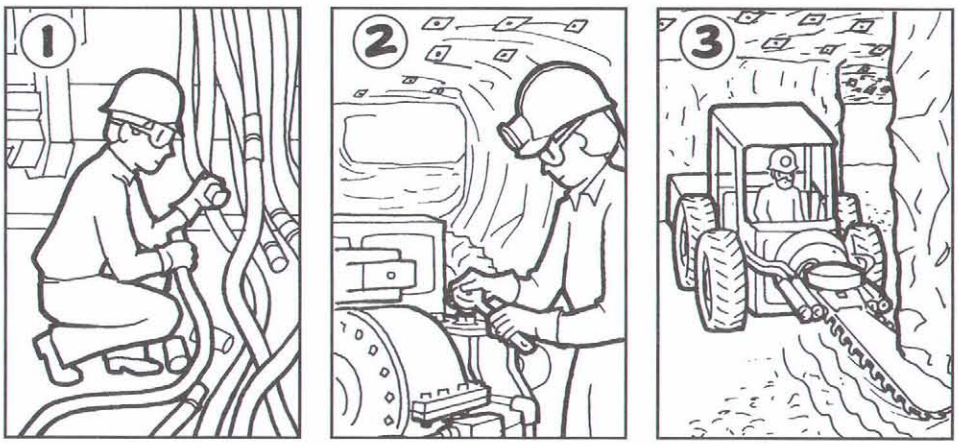


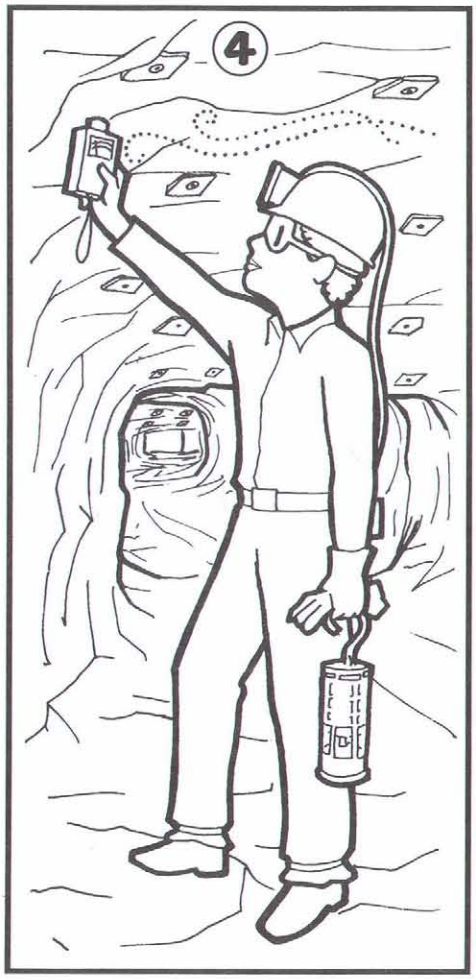
❶ electrician

❷ machine

❸ equipment operator

❹ safety engineer





The answers are below.

ANSWERS

PAGE 3

❶ Wyoming
❷ West Virginia
❸ Kentucky
❹ Pennsylvania
❺ Texas
❻ Montana
❼ Colorado
❽ Indiana
❾ Illinois
❿ Virginia

PAGES 4–5

❶ Millions of years ago, swamps covered much of America. Giant trees and plants grew here.
❷ When the plants died, they were buried by sand and mud. A spongy material called peat was formed from the rotting plants.
❸ The weight of the mud and sand created great pressure and heat. Over time, this caused the peat to turn to coal.

PAGE 7

❶ Workers go into tunnels each day in electric cars.
❷ Air shafts bring in fresh air.
❸ The air in the tunnel is tested for safety.
❹ A machine rips coal from a "seam" (a wall of coal).
❺ At the same time, the machine loads the coal into shuttle cars or onto conveyor belts.

PAGE 9

heating, cooking

PAGE 11

steel, fertilizers, plastics, medicines, perfumes, food flavors, rubber

PAGE 13

❶ We have lots of coal!
❷ Coal is cheaper than other fuels!

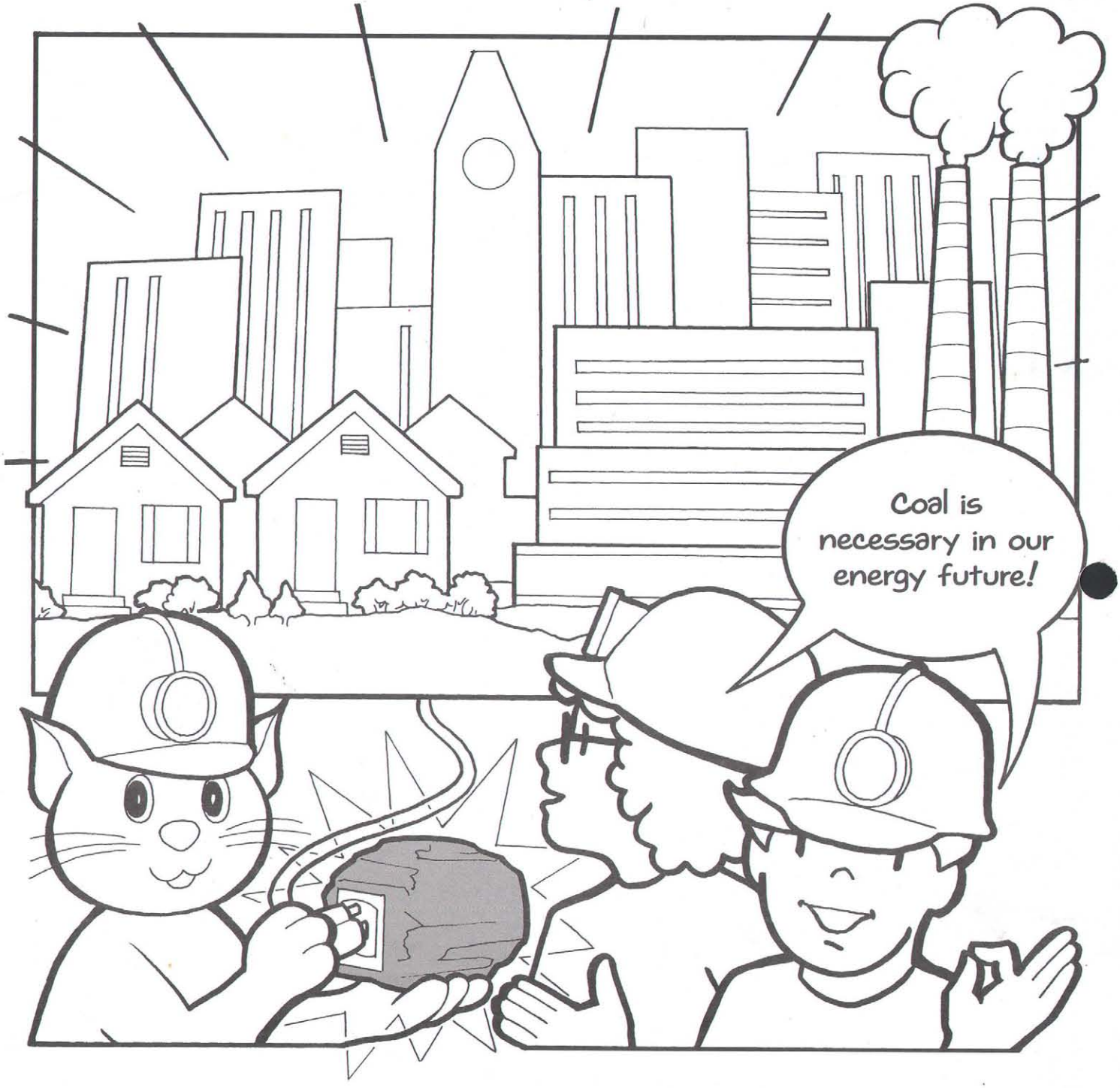
PAGE 15

❶ electrician
❷ mechanic
❸ equipment operator
❹ safety engineer

So... --

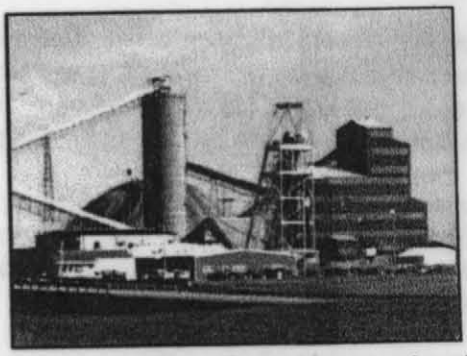
COAL GIVES US POWER

we can all depend on!



WORKING IN AN UNDERGROUND COAL MINE

Bill Smith lives in southern Illinois. Every morning at 5:30, Bill packs his **dinner bucket** and leaves his house for his shift at the underground coal mine. Bill mines underground because the **coal seam** or layer of coal is more than 200 feet below the surface. He has worked in the mine since 1992. Bill works the day shift from 7:00 in the morning until 3:00 in the afternoon.



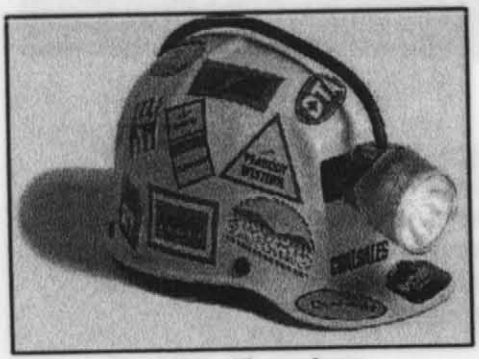
Surface facilities of an underground coal mine.

Inside the wash house work clothes hang from the ceiling.

Bill reports to the mine with his lunch in his dinner bucket. Before going into the mine, Bill enters a large building called a **wash house**. In the wash house, Bill meets his fellow workers and changes into his work clothes and gathers his safety gear.

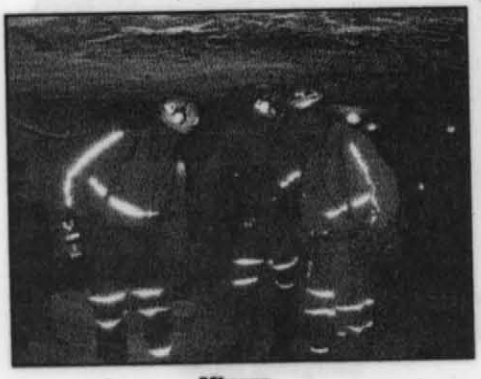
He wears a work shirt, overalls, and steel-toed boots. His clothes are made of heavy, tough material and have reflective strips on them, and the **steel-toed boots** are made with steel in the front and top to protect his feet. Bill completes his outfit by putting on his hard hat, a wide leather belt, a gas detector, a self-rescuer, and safety glasses. The **hard hat** is worn to protect his head and ears. The **gas detector** is used to measure gases in the air. Some of these gases, such as methane, can be dangerous to the coal miners. The **self-rescuer** is a portable respirator that allows a coal miner to breathe safely for one hour if an unacceptable level of dangerous gases is detected in the air of the mine. **Safety glasses** are worn to protect his eyes from dust in the air.

As Bill leaves the wash house with his co-workers, they all take a fresh set of **ear plugs** to protect their hearing from loud noises. Miners operate heavy equipment and work with tools all day; so **gloves** are necessary to protect their hands.



Hard Hat with cap lamp.

Bill pulls on his cap lamp from the rack were the lamps' batteries have been recharging all night. The **cap lamp** is attached to the front of the hard hat and is used to light the way in the total darkness of the underground coal mine. The light is mounted on the hard hat to provide light in the direction the miner is looking.



Miners

With dinner buckets in hand, the coal miners' move toward the cage. The **cage** is the elevator that takes workers down and up out of the mine. Bill opens the gate on the cage, and the coal miners file in. Someone pushes the button to go down, and a loud bell rings out, warning all that they are about to begin descending into the mine. Bill and his friends chat as they go down deeper and deeper into the earth. The ride only takes a minute or two, and the cage slows as it reaches the bottom and

Cage carrying miners below ground.

gently jolts to a stop. The door is pulled open, and Bill thinks about the day of work ahead of him.

Although the room in front of him is big and well lit, Bill knows that he must take a short walk through the dark, so he switches on the light of his cap lamp. He moves through the mine with his cap lamp lighting the way to the **mantrip** loading area.

Mantrip

The mantrip takes 10 to 12 miners deeper into the mine to the location where they will be working that day. Once on the mantrip, the miners turn off their cap lights as the headlights on the mantrip flicker on and it begins to move forward.

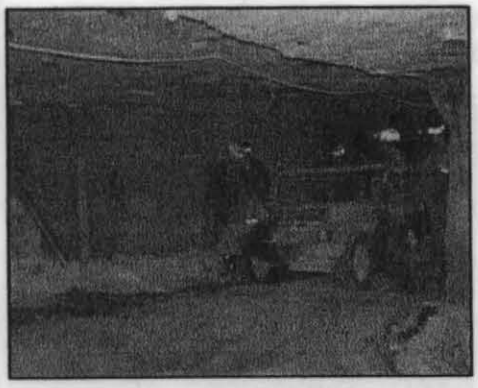
The mantrip travels through the mine and passes under a **conveyor belt** carrying freshly mined coal. A fellow worker is on the side of the conveyor belt, scooping up coal that has fallen onto the floor. Bill travels further into the mine.

Surveyors

They pass **surveyors** who are using technology called Global Positioning System (GPS) to make a map of the mining operation. Finally, as Bill nears the area where he is going to mine coal for the day; he passes a large machine called a scoop. The **scoop** is used to carry materials and equipment around the mine.

Scoop

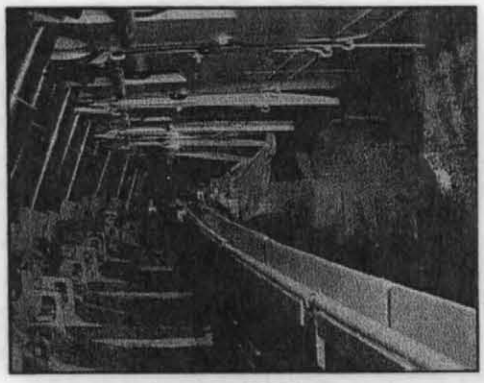
As the mantrip slows to a stop, the crew of miners from the previous shift stops working. They get ready to get on the mantrip as Bill gets off. For these miners, their work day is just ending, but for Bill it is just beginning. The mine is in operation 24 hours a day. The two work shifts exchange hellos and good-byes, and the mantrip pulls away. Bill turns on his cap lamp and is ready to begin his work.



Rock dust has been applied to cover all coal surfaces.

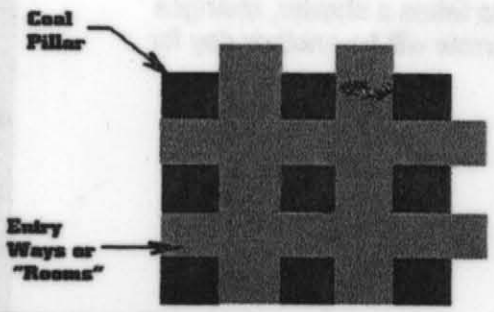
The work crew approaches the **face**, which is where the coal is mined. They each have different jobs. Bill's friend Jim sprays a white dust made of powdered limestone on the mine walls. This is called **rock-dusting**. The purpose of rock-dusting the area in the mine is to contain or minimize coal dust combustions, aid in the lighting of the mine and to reduce health hazards.

Two types of underground mining are used in Illinois. **Longwall mining** is the newest underground mining technique. A "**longwall miner**" is pulled mechanically back-and-forth across a face of coal that is usually several hundred feet long. In longwall mining the roof is allowed to collapse in a planned sequence. More coal is rmoved during longwall mining.



Longwall Miner

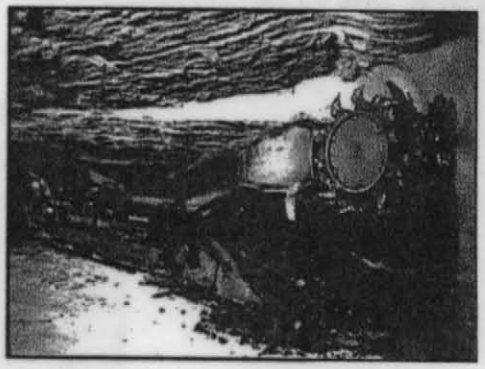
Room and Pillar



Black areas are blocks of coal
Colored areas are mined areas where coal has been removed.

However, Bill works in a mine that uses the "room and pillar" method of mining. **"Room and pillar" mining** refers to the fact that large pillars of coal are left standing in the mine to keep the roof from sagging.

Bill works with a very large machine called a **continuous miner**. He loves working with this machine because he thinks it looks like a dragon. The continuous miner, with its sharp teeth, is a machine that actually breaks the coal loose from the face. As the coal drops to the floor, large steel arms swoosh back and forth, sweeping the coal from the floor and pulling it onto a conveyor.



Continuous Miner

The conveyor pours the coal into a **ram car.** One of Bill's friends, Rosie operates the ram car. When the buggy is full of coal, it is driven to a conveyor belt. Rosie dumps the coal from the ram car onto the conveyor belt where it can be carried out of the mine.

Ram Car carries coal from the continuous miner to the conveyor belt.

When Bill finishes mining in one area, he moves the continuous miner out and moves to a new face where there is more coal. Once Bill has finished in an area, a coal miner goes in with a machine called a roof bolter. The **roof bolter** drills holes up to nine feet into the ceiling, or **roof**, of the mine. After the hole has been drilled, a tube of glue and a long steel bolt is inserted into the hole. The roof bolts support the roof, making it safe for the coal miners.

Roof Bolter

After several more cuts, Bill moves the continuous miner back to the first place he cut. He looks at his watch and realizes it is time for lunch. Just as he leaves the continuous miner, his friend Rosie, pulls up in the ram car. They both leave their machines and get their dinner buckets. They enjoy their lunch together deep in the mine, and after resting for a few minutes, return to their machines. The workers mine coal all day long.

Lunch Break

At the end of the day, Bill is very tired. Just as Bill is thinking about how tired he is, he sees a mantrip pull up with the next shift of workers. Relieved, he leaves his machine, grabs his dinner bucket and heads toward the mantrip. He says hello to the new shift of coal miners, climbs into the mantrip and turns off his cap lamp. The mantrip takes Bill to the cage.

All the miners are tired after a long hard day of work, and they are not talkative as they ride the cage up to the top. Bill loves the feeling of being lifted out of the mine. When the cage stops at the surface, everyone takes a deep breath of fresh air and walks toward the wash house. Bill hangs his cap lamp on the rack so that the battery can charge and be ready for another day. He takes a shower, changes clothes, says goodbye to everyone and travels back to his home. Tomorrow will be another day for mining.

Coal miners walking to wash house

Questions from the Story

1. Bill greets his fellow workers and changes his clothes in the bath house? T F
2. A gas detector measures what type of gas?
3. Miners use a lantern to light their path ahead? If false, explain. T F
4. Discuss the function of a mantrip.
5. Tell the difference between a conveyor belt and a scoop.
6. Bill works in a mine that uses the longwall method of mining? T F
7. Miners mine coal at the seam? If false, explain. T F
8. If miners do not use picks for mining coal in an underground mine, what machinery is used?
9. Define a ram car.
10. A roof bolter drills holes up to nine feet into the ceiling? If false, explain. T F

Taylor's Coal Related Job Survey

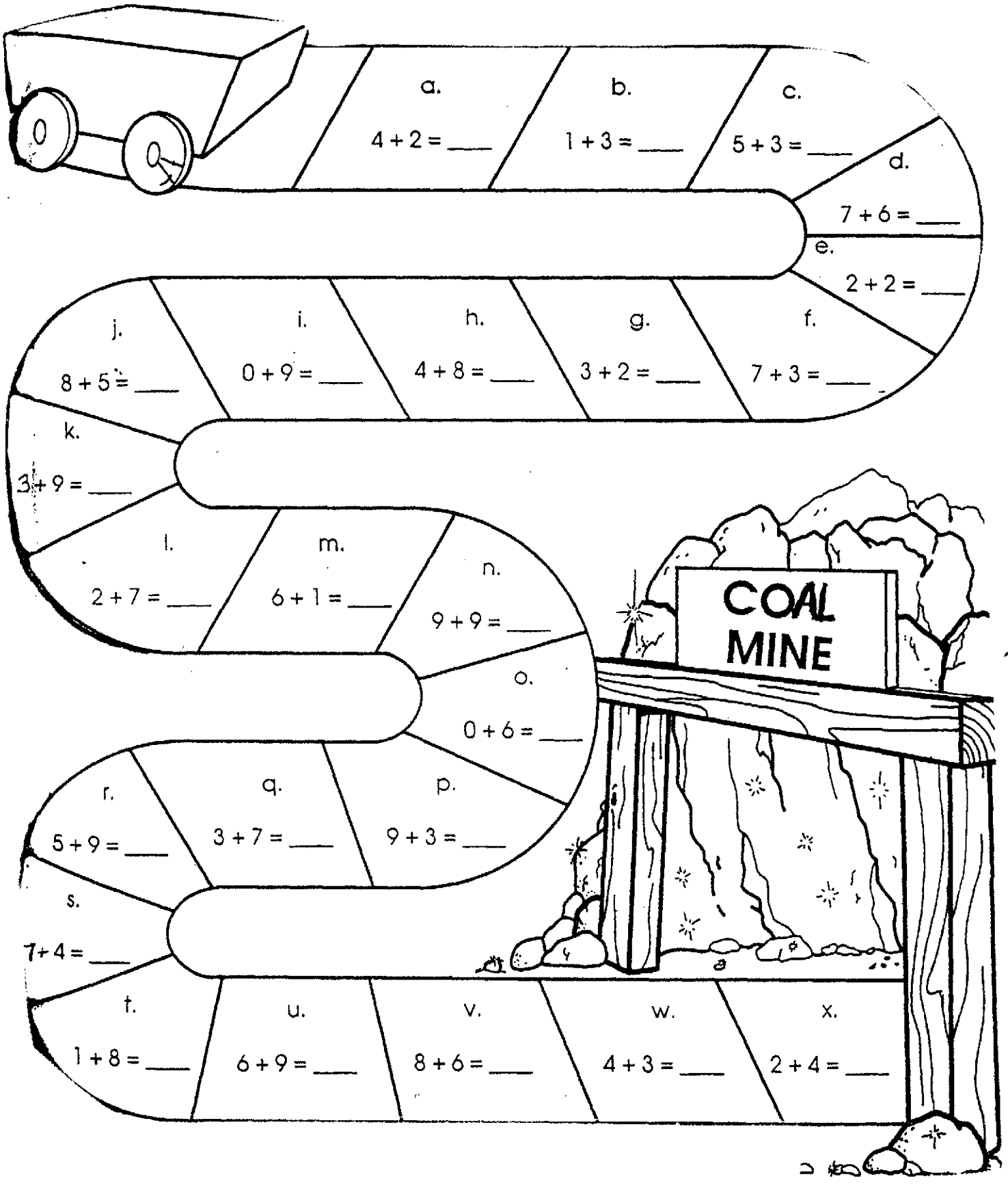
Coal Industry	Railroad	Other
𝍸 𝍸 I	III	𝍸 III
11	3	8

COAL UNIT Language: English Alphabet: DEFAULT

Word	Clue
peat	The top or first layer of coal
lignite	the second layer of coal
bituminous	the third layer of coal
anthracite	the hardest and fourth layer
seam	coal is excavated from these
transport	carry from 1 place to another
swamp	where coal was first formed
drift	a mine that is cut across
shaft	a mine that is straight down
trucks	a vehicle that carries coal
trains	method of carrying coal by rail
barges	method to carry coal in water
resource	things taken from the land
reclamation	to restore land to its original
miner	men or women who work in mines

Coal Unit Test Friday

1. peat
2. lignite
3. seam
4. swamp
5. drift
6. shaft
7. trucks
8. barges
9. miner


a.
4 + 2 = ___
b.
1 + 3 = ___
c.
5 + 3 = ___
d.
7 + 6 = ___
e.
2 + 2 = ___
f.
7 + 3 = ___
g.
3 + 2 = ___
h.
4 + 8 = ___
i.
0 + 9 = ___
j.
8 + 5 = ___
k.
3 + 9 = ___
l.
2 + 7 = ___
m.
6 + 1 = ___
n.
9 + 9 = ___
o.
0 + 6 = ___
p.
9 + 3 = ___
q.
3 + 7 = ___
r.
5 + 9 = ___
s.
7 + 4 = ___
t.
1 + 8 = ___
u.
6 + 9 = ___
v.
8 + 6 = ___
w.
4 + 3 = ___
x.
2 + 4 = ___
COAL
MINE

COAL MINING

TEACHER MADE WORD ACTIVITY

From Coal to Tree

Name: Whole Group

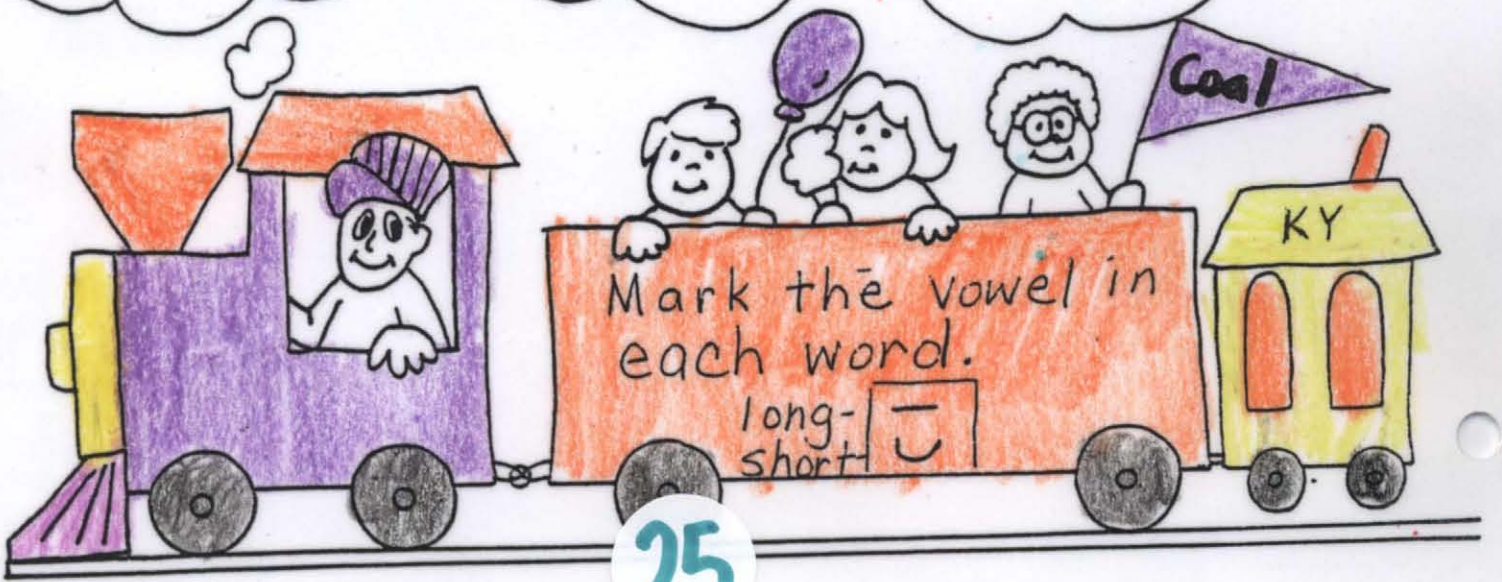
1. Write the word "coal" coal
2. Drop the "l" and add a "t" coat
3. Take off the "c" and add a "b" boat
4. Remove the 2 vowels and replace with "oo" boot
5. Drop the "b" and add "f" foot
6. Drop the "oo" vowel and add "ee" feet
7. Subtract the "t" and add "l" feel
8. Take away the "l" fee
9. And add a "tr" tree
10. Write your new word: tree

Ben

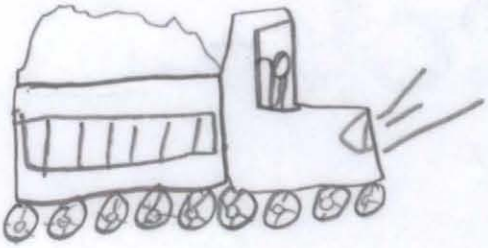
-1 11/12

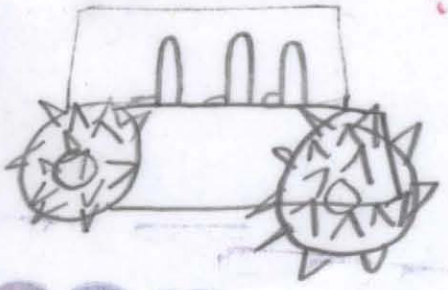
Coal Phonics

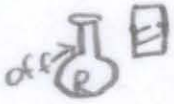
1. truck
2. dig
3. black
4. heat
5. coal
6. miner
7. ton
8. fuel
9. burns
10. carries
11. mines
12. supply

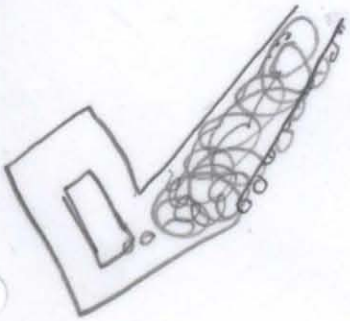


ABC order Hannah

1. carbon
2. coal 
3. coal truck 
4. coke 
5. continuous miner



6. conserve 
7. converbelt



1. carbon
2. coke 
3.

Write each pair of words in ABC order.

Holly C.

1. heat coal
   1. coal
   2. heat

black fuel
1. black
2. fuel

3. train dig
   1. dig
   2. train

4. ton miner
   1. miner
   2. ton

5. miner heat
   1. heat
   2. miner

6. heat coal
   1. coal heat
   2. heat

-0
24/24

7. coal black
   1. black
   2. coal

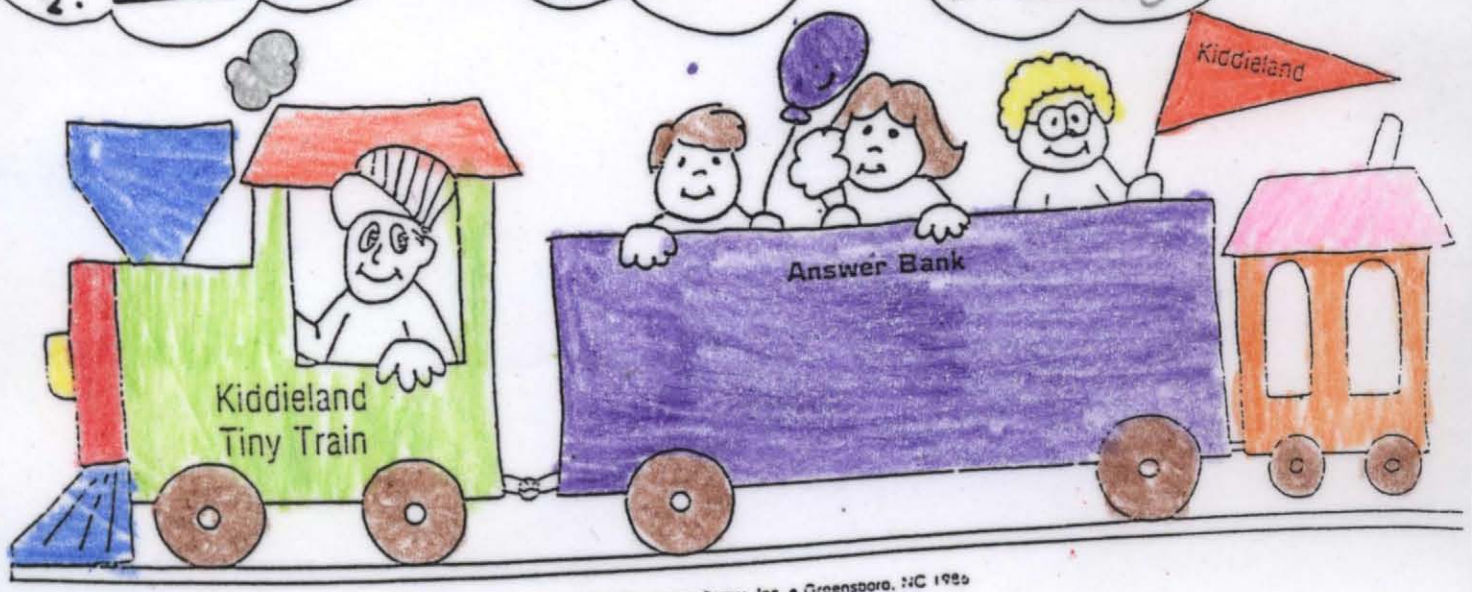
8. fuel train
   1. fuel
   2. train

9. dig ton
   1. dig
   2. ton

10. miner coal
    1. coal
    2. miner

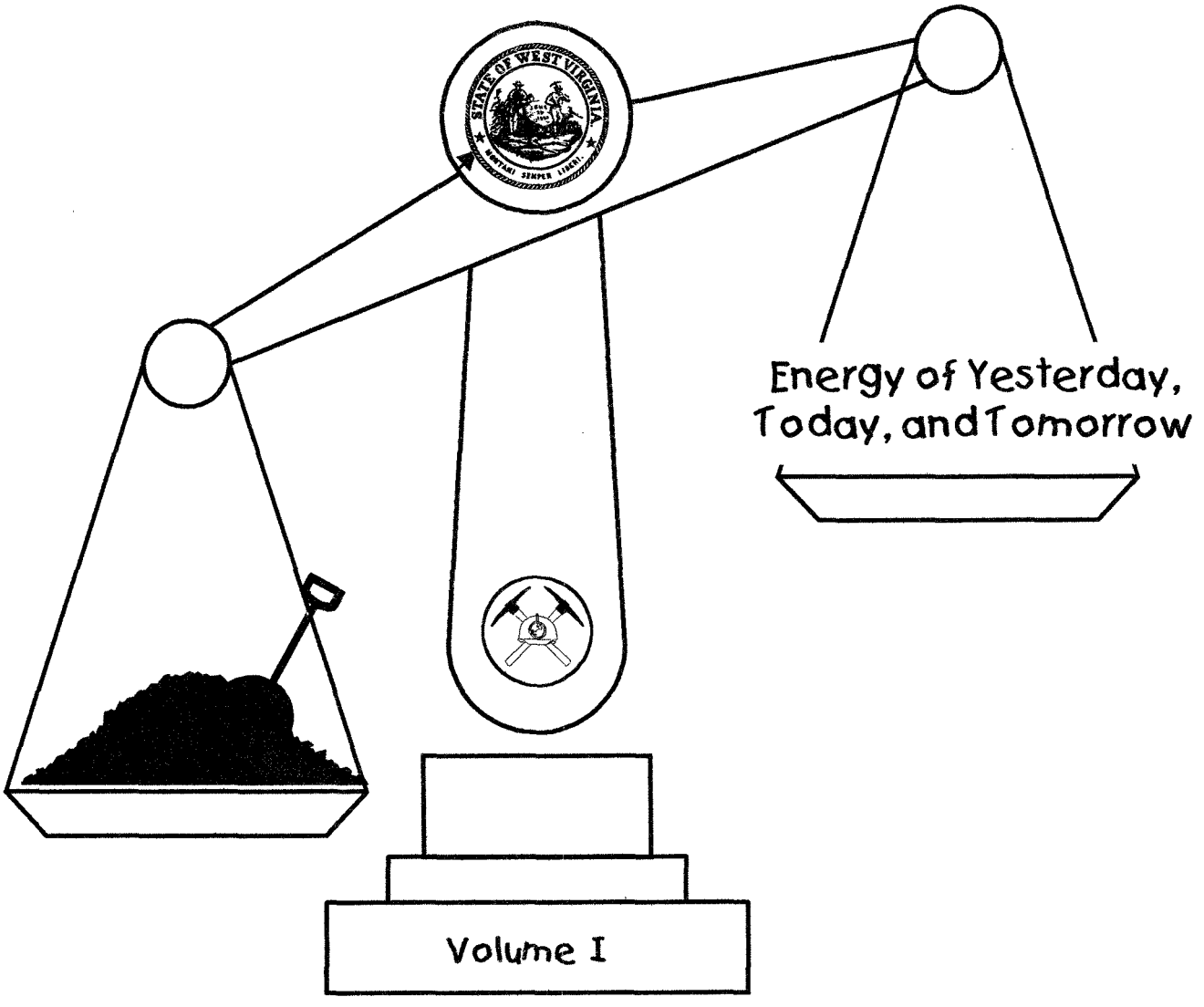
11. ton fuel
    1. fuel
    2. ton

12. dig coal
    1. coal
    2. ding



KF-07-13

Coal Mining Counts!



Coloring and Activity Book

West Virginia Office of Miners'
Health, Safety and Training

This booklet is dedicated to the children of West Virginia in which our future lies.

Upon request, safety professionals from the Office of Miners' Health, Safety and Training will come to your school or youth organization and present coal-related programs and/or seminars. Contact any of our offices listed below for this information:

WV Office of Miners' Health, Safety and Training

John Spatafore
Region 1 – Fairmont
109 Adams Street
Fairmont, WV 26554
(304) 367-2706

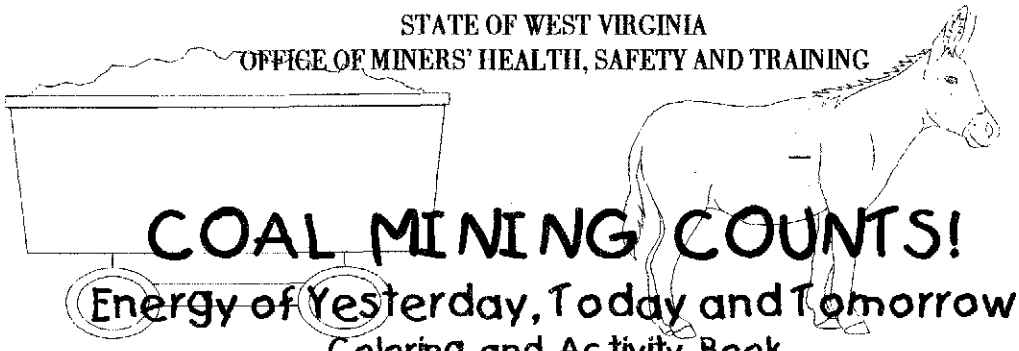
Ed Peddicord
Region 1 - Satellite
16 South Kanawha Street
Buckhannon, WV 26201
(304) 473-4270

Garry McComas or Leon Bailey
Region 2 – Welch
891 Stewart Street
Welch, WV 24801
(304) 436-8421

Boyd Vance or David Rowe
Region 3 – Danville
425 Lick Creek Road
Danville, WV 25053
(304) 369-7823

Mike Rutledge or Allen VanHorne
Region 4 – Oak Hill
142 Industrial Drive
Oak Hill, WV 25901
(304) 469-8100

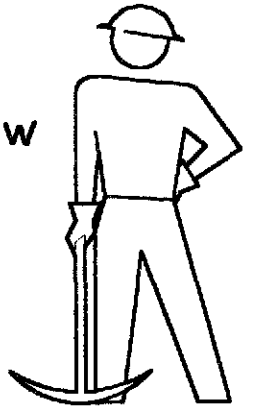
STATE OF WEST VIRGINIA
OFFICE OF MINERS' HEALTH, SAFETY AND TRAINING



COAL MINING COUNTS!

Energy of Yesterday, Today and Tomorrow

Coloring and Activity Book



Governor - Bob Wise
Director - Doug Conaway

To the Parent or Teacher:

Mining is an important part of the West Virginia economy. Most of the electricity used in this state comes from Coal. Sand, gravel, limestone and other rock products are a major resource in construction and are economically vital in certain areas of the state. Almost every county in West Virginia has some type of mining activity. These mines range from large underground mining complexes, to small sand and gravel dredging operations and include all types of surface structures and equipment.

Coal Mining Counts! is intended to help the young people of West Virginia learn more about this vital industry. By reading the text and completing the activity pages, we hope to generate interest and an understanding of the importance of Coal to West Virginia. Listed below are several additional sources of information.

Suggested Internet Sites for Additional Information

For more information on the West Virginia Coal Industry and the West Virginia Office of Miners' Health, Safety and Training, find our home page and explore the linked pages:

www.state.wv.us/mhst

For information on the geology of West Virginia, go to the West Virginia Geological Survey's site:

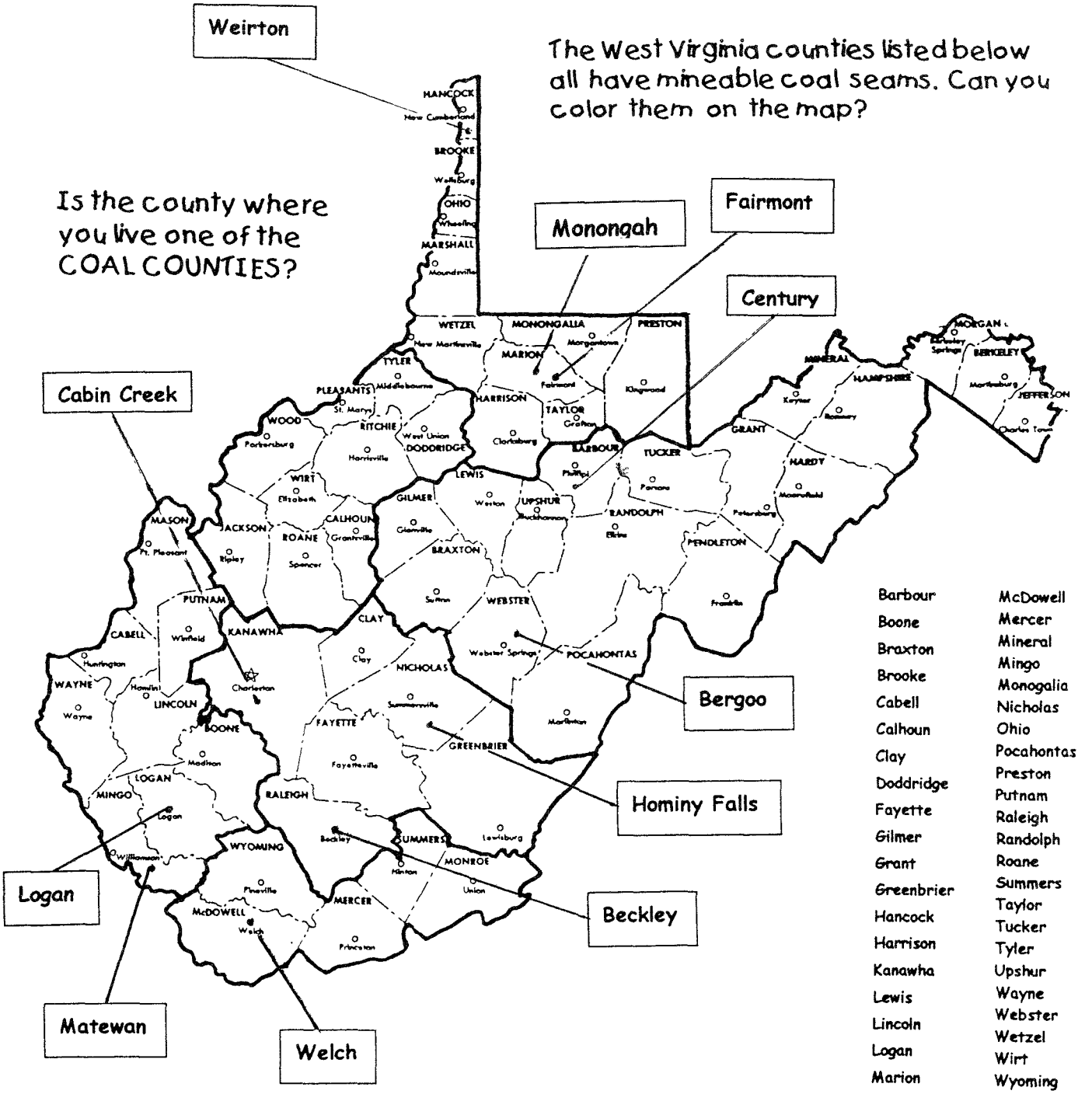
www.wvgs.wvnet.edu

US Department of Labor, Mine Safety and Health Administration (MSHA):
www.msha.gov

US Office of Surface Mining: www.osmre.gov

Coal Information Page: www.coalinfo.com

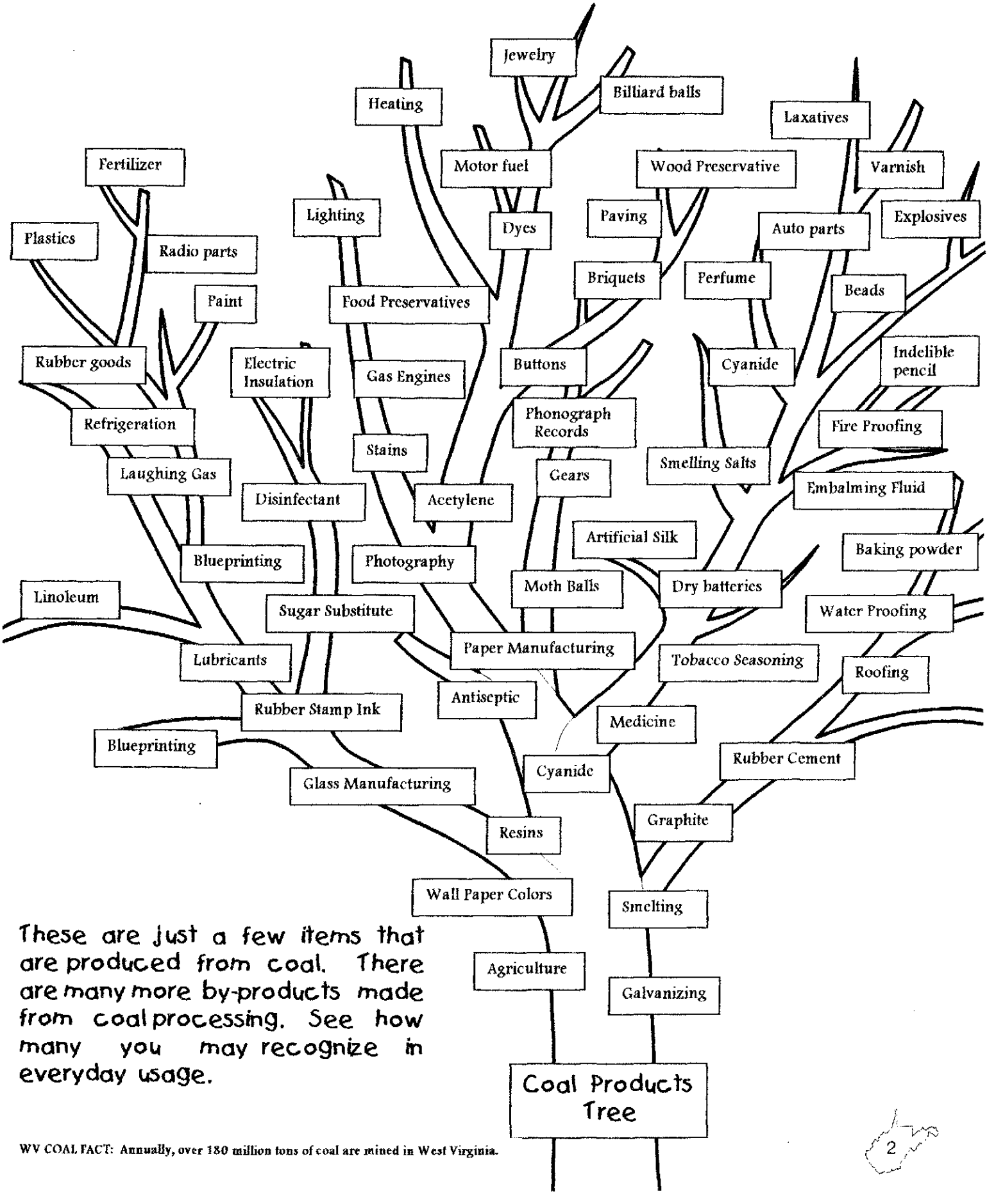
Published by the West Virginia Office of Miners' Health, Safety and Training



Barbour
Boone
Braxton
Brooke
Cabell
Calhoun
Clay
Doddridge
Fayette
Gilmer
Grant
Greenbrier
Hancock
Harrison
Kanawha
Lewis
Lincoln
Logan
Marion
Marshall
Mason
McDowell
Mercer
Mineral
Mingo
Monogalia
Nicholas
Ohio
Pocahontas
Preston
Putnam
Raleigh
Randolph
Roane
Summers
Taylor
Tucker
Tyler
Upshur
Wayne
Webster
Wetzel
Wirt
Wyoming

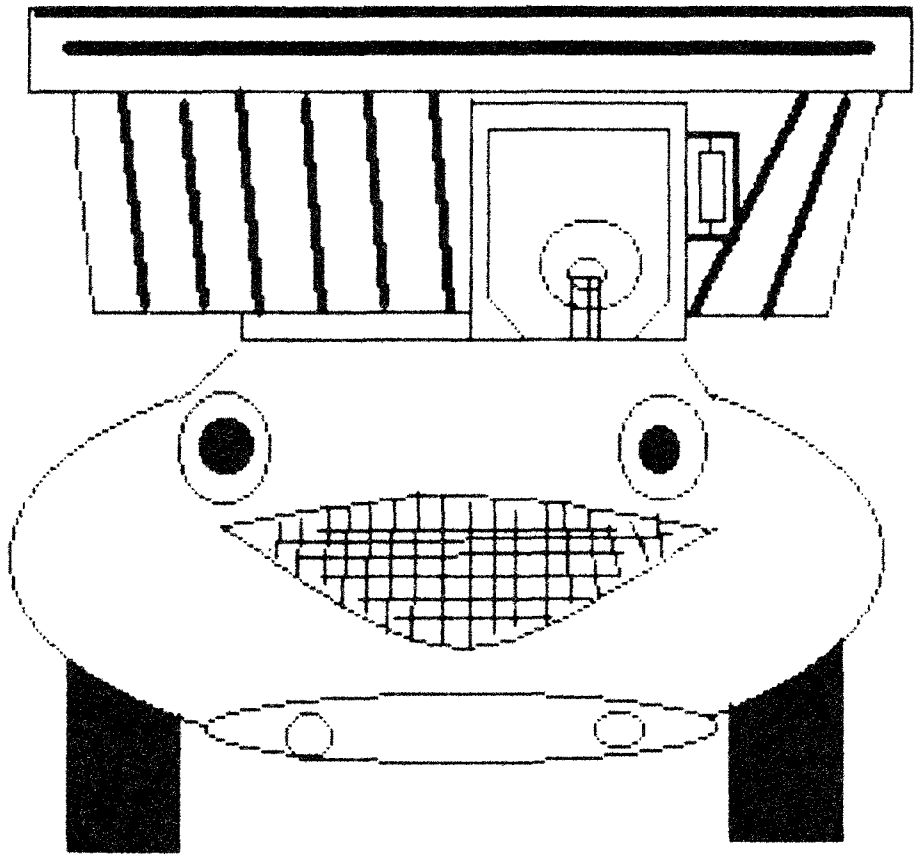
Famous West Virginia Mining Towns
(these are just a few...)

WV Coal Fact: In 1931, West Virginia overtakes Pennsylvania as the leading producer of bituminous coal.



These are just a few items that are produced from coal. There are many more by-products made from coal processing. See how many you may recognize in everyday usage.

WV COAL FACT: Annually, over 180 million tons of coal are mined in West Virginia.



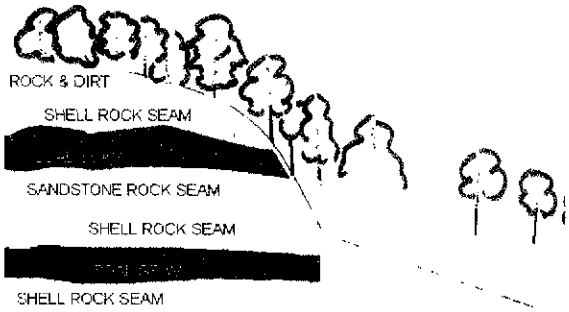
Hello!! I'm Smiley. I'm a rock truck and I work at a surface coal mine. I'm going to introduce you to some mining equipment that is used to mine coal on a surface coal mine.
First, let me tell you a little about how a surface coal mine works.

Ready? Let's go!!

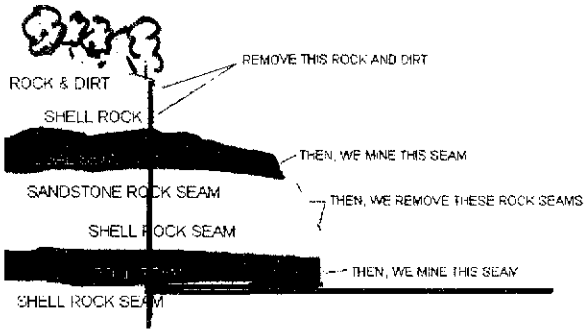
WV Coal Facts: The number one producing WV surface mine in 1998 was the Catenary mine in Kanawha County with 4.9 million tons.

The Process of Surface Mining

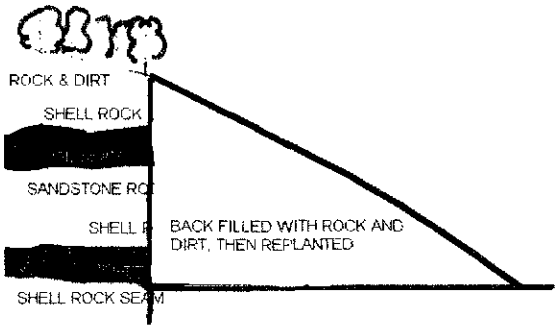
1. When we look at a mountain, we see trees, grass, rocks and flowers.



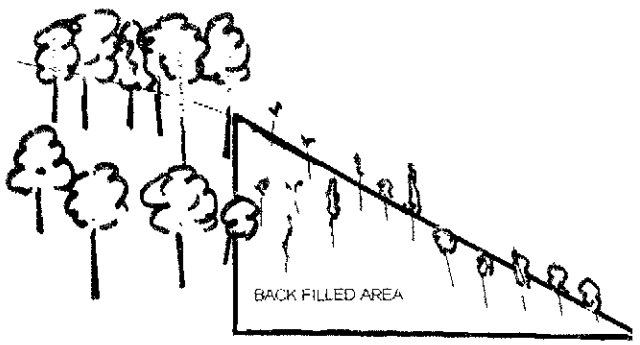
2. Let's slice the mountain and look inside. You see, there are seams or layers of various rocks and coal.



3. To get to the coal, we must first remove the dirt and rock covering it. Then we can mine the coal.



4. After we mine the coal, we must put back the rocks, dirt and plants. This is called reclamation.



5. After a few years, the mountain will have trees, grass, flowers and wildlife such as deer, turkey, rabbits, and maybe a bear or two.

WV Coal Fact: 1975 – First computerization of Department of Mines records (mine permit files)

PRIVATE
PROPERTY
NO TRESPASSING

AUTHORIZED
VEHICLES
ONLY

Can you tell what these signs are trying to safely tell you?

Smiley says to play safely and obey ALL signs!!

NO
TRESPASSING

SAFETY
FIRST

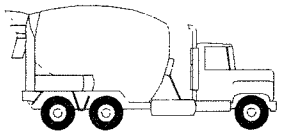
DANGER
Highwall
Mining Activity

WATCH FOR
MOVING
RAILROAD
CARS

DANGER

Underlying
Coal
Feeder

CAUTION



TRUCK CROSSING

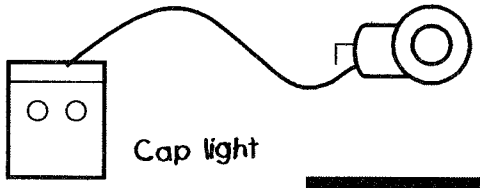
DANGER

Hard Hat
Area

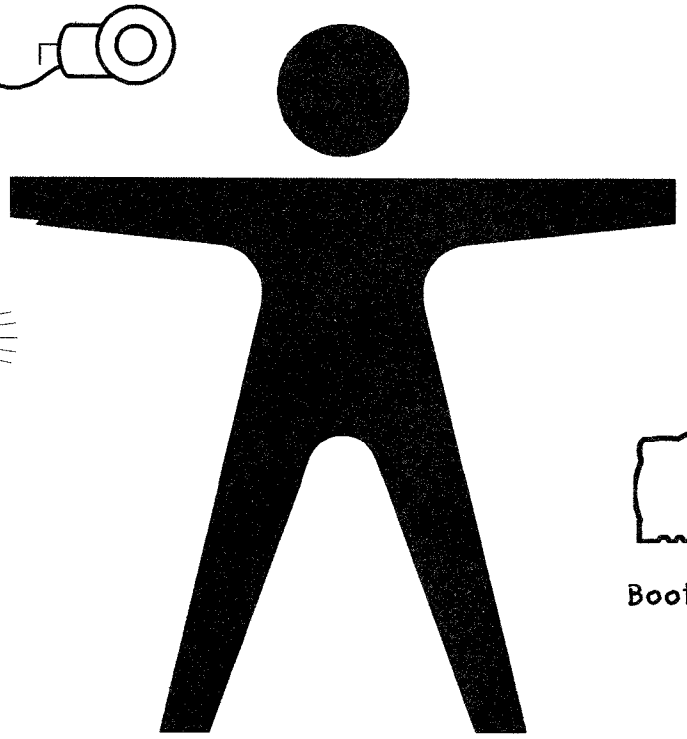
DANGER

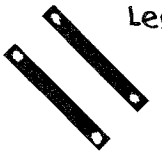
Blasting
Zone

WV Coal Fact: 1742 – First discovery of coal by John Peter Salley in the area now comprising Boone County, West Virginia.



Cap light





Leg straps

Hard hat

Hearing protection

Boots

Gloves

Safety goggles

Can you draw a line to where the equipment should be?

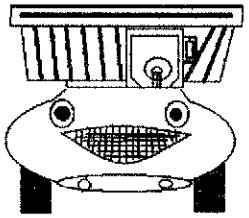
Smiley says if he were a surface coal miner and not a truck, he would wear certain clothing while he works. Try to guess which article of clothing goes on our miner, and answer the questions below.

I wear this on my head to protect it when something falls._____
I wear these on my pants to keep them from getting caught in a piece of equipment._____
I wear these to keep my eyes from getting dirt or other things into them._____
I may need this at night to help me see when I work._____
I put these on my feet for protection from falling objects._____

These things are not all I may need to help protect me at work. I may also need hearing protection. They look like earmuffs to go over my ears or others are plugs put into my ears.

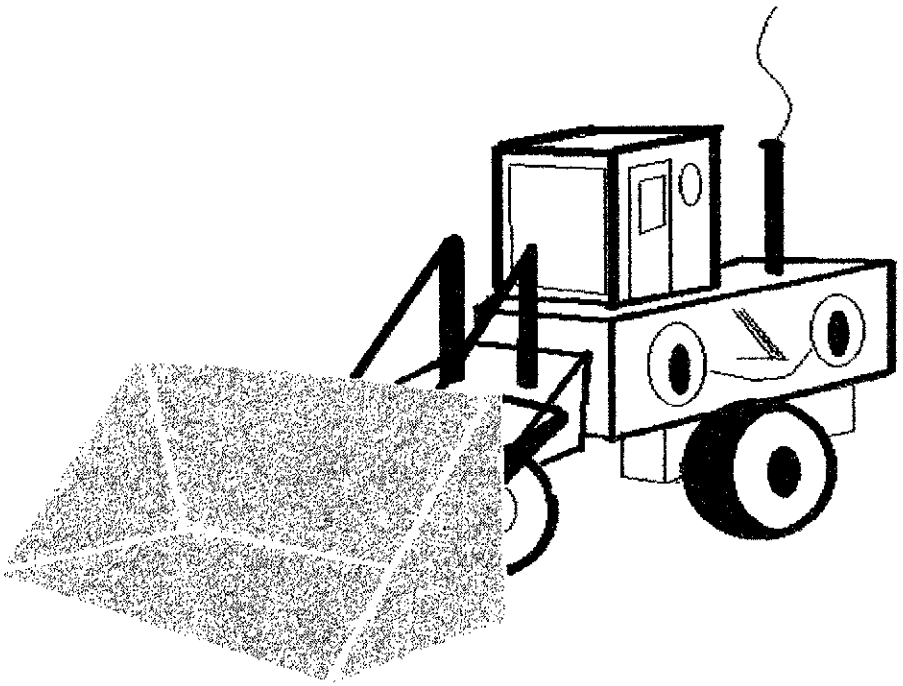
THANKS FOR HELPING. NOW I'M DRESSED SAFELY FOR WORK!!!

WV Coal Fact: Coal is reported to have been mined as early as 1810 when a mine was operated in Ohio County near Wheeling.

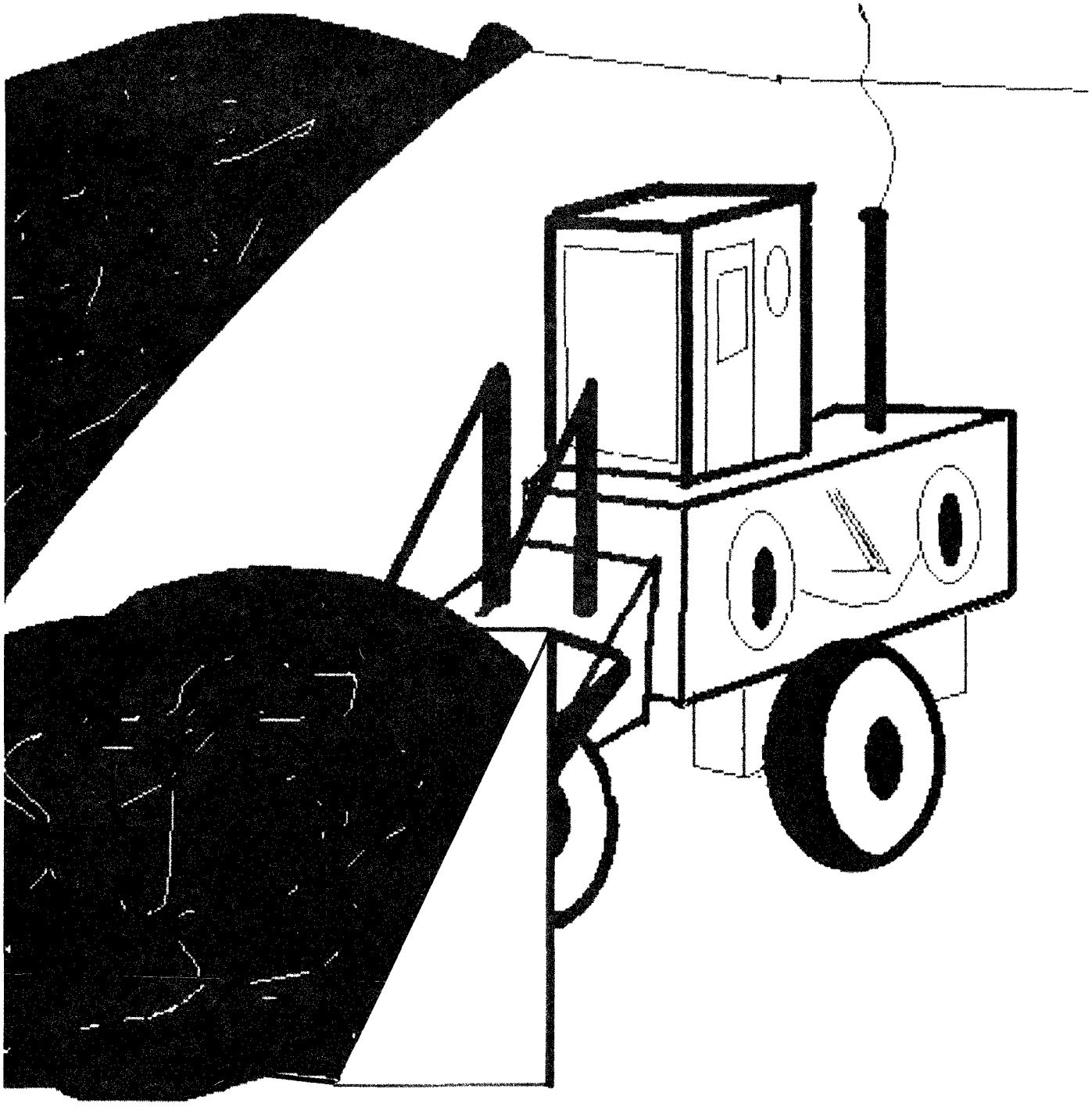


This handsome guy below is Eddie the Endloader.

He mostly loads coal, but sometimes he moves dirt and rocks with his big bucket. He steers kind of funny. You see - his middle bends to make turns. We call this "articulation." Eddie articulates to turn.
Sounds funny to me! How about you?

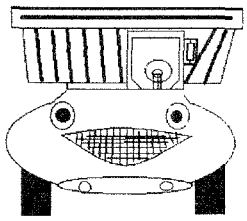


WV Coal Fact: West Virginia has about 85 quarry mines producing limestone, sandstone, and sand.



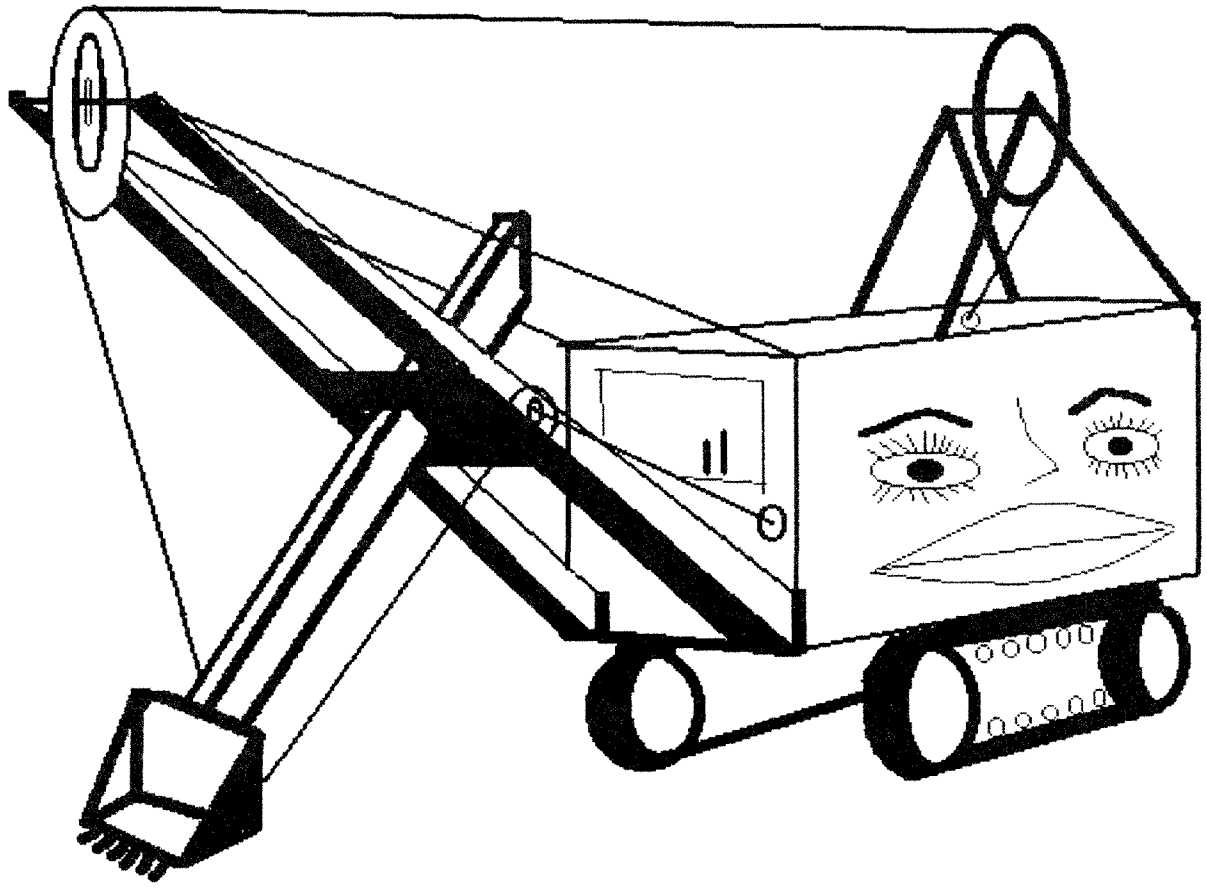
Hi there! I'm Eddie the Endloader, and right now I'm getting coal to load into my friend Clyde. You'll meet Clyde later. Why not color me your favorite color?

WV Coal Fact: The first mine safety laws were passed by the WV Legislature on February 22, 1883.

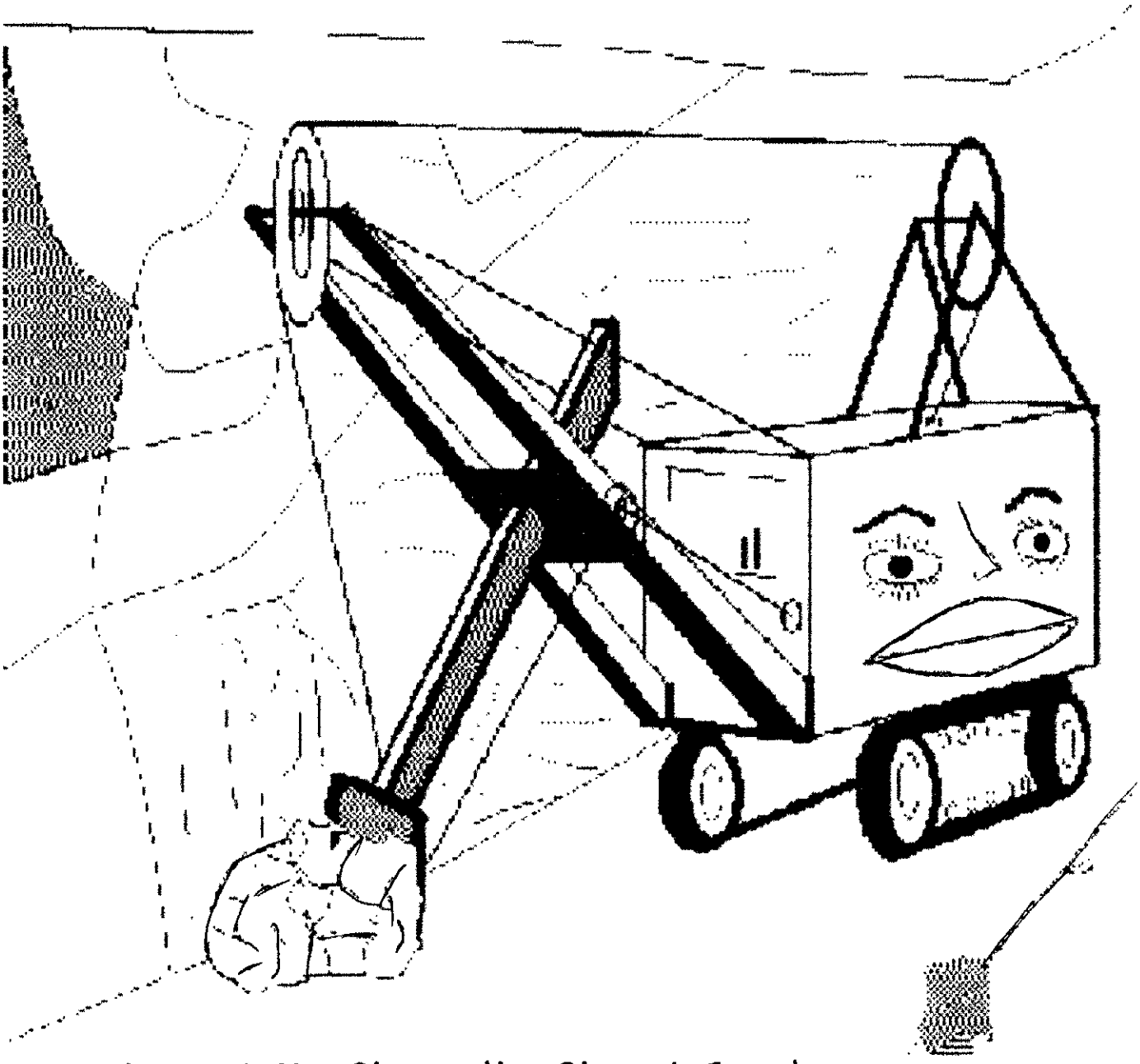


This cute girl below is Sherry the Shovel.

She's the biggest piece of equipment on our surface coal mine. She has a 10 cubic yard bucket, which means she can pick up very heavy rocks and dirt.

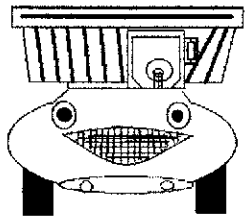


WV Coal Fact: Coal contains many fossils of the plants and animals that lived millions of years ago.



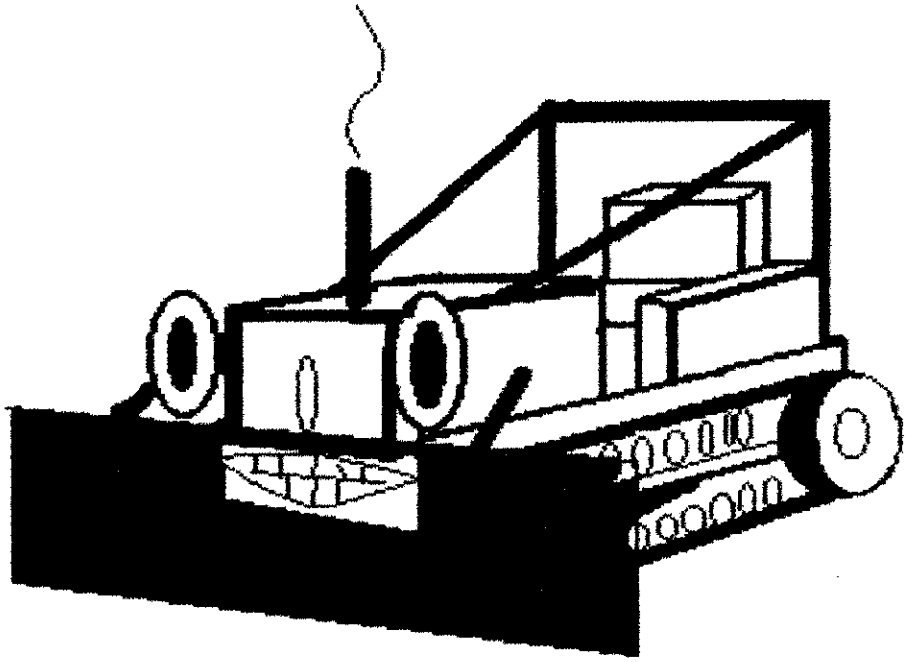
Welcome! I'm Sherry the Shovel. I get my power from electricity. Shovels used to be called steam shovels because they were powered by steam engines. Now, we are called power shovels. I dig rocks and dirt, and load rock trucks like Smiley and Ron. You'll meet Ron later.

WV Coal Fact: Bituminous is the only type of coal mined in West Virginia. Anthracite and Lignite are mined in other states.

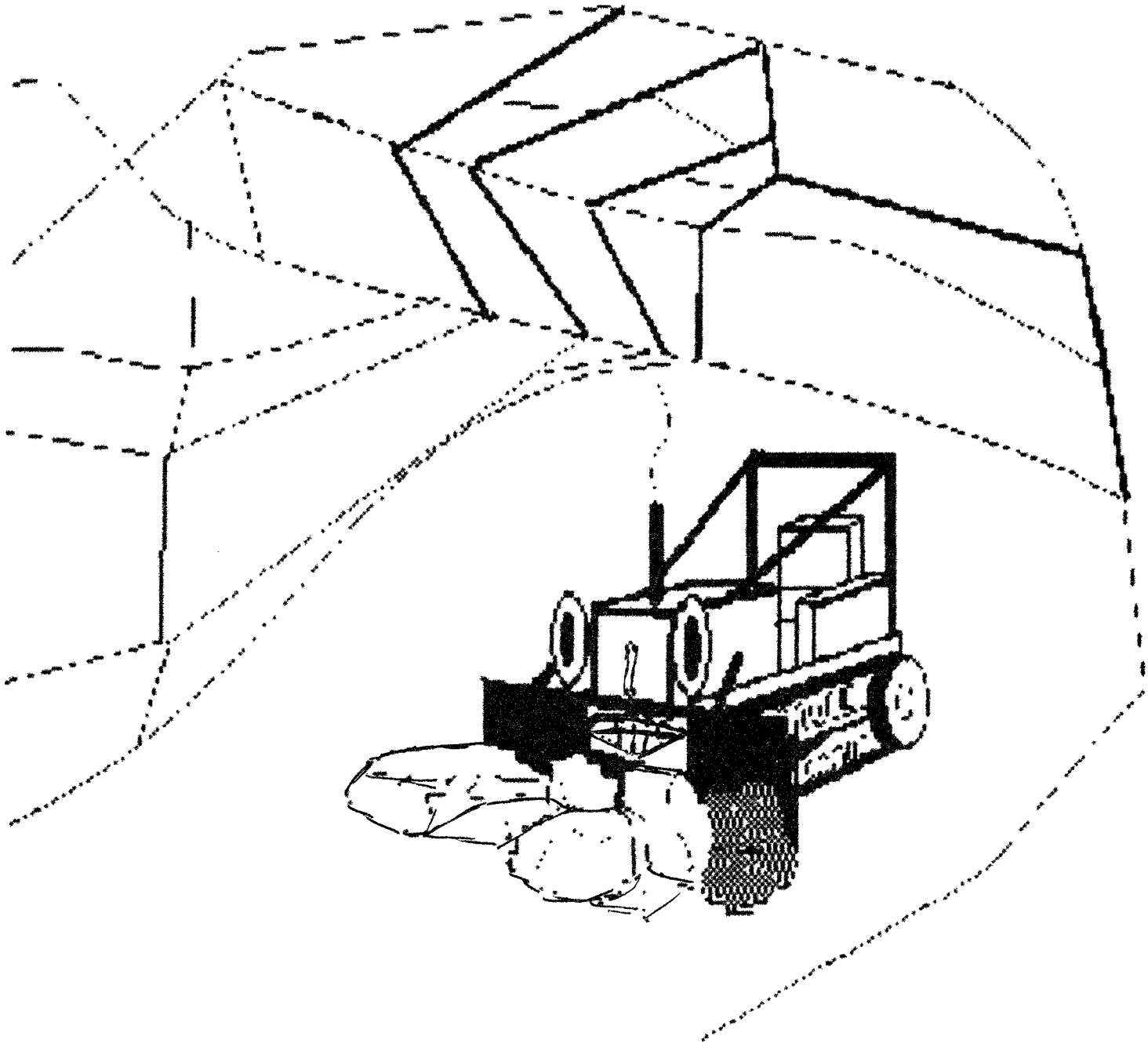


This guy below is Dakota the Dozer.

Sometimes he's called a bulldozer. He is the most well known of all the equipment of a surface coal mine. You will see his family all over the place, not just coal mines. Some dozers are big, and some are small.

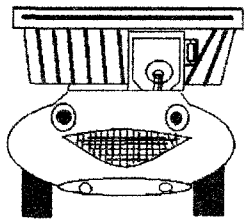


WV Coal Fact: Historically, McDowell County has produced more coal than any other county in West Virginia.



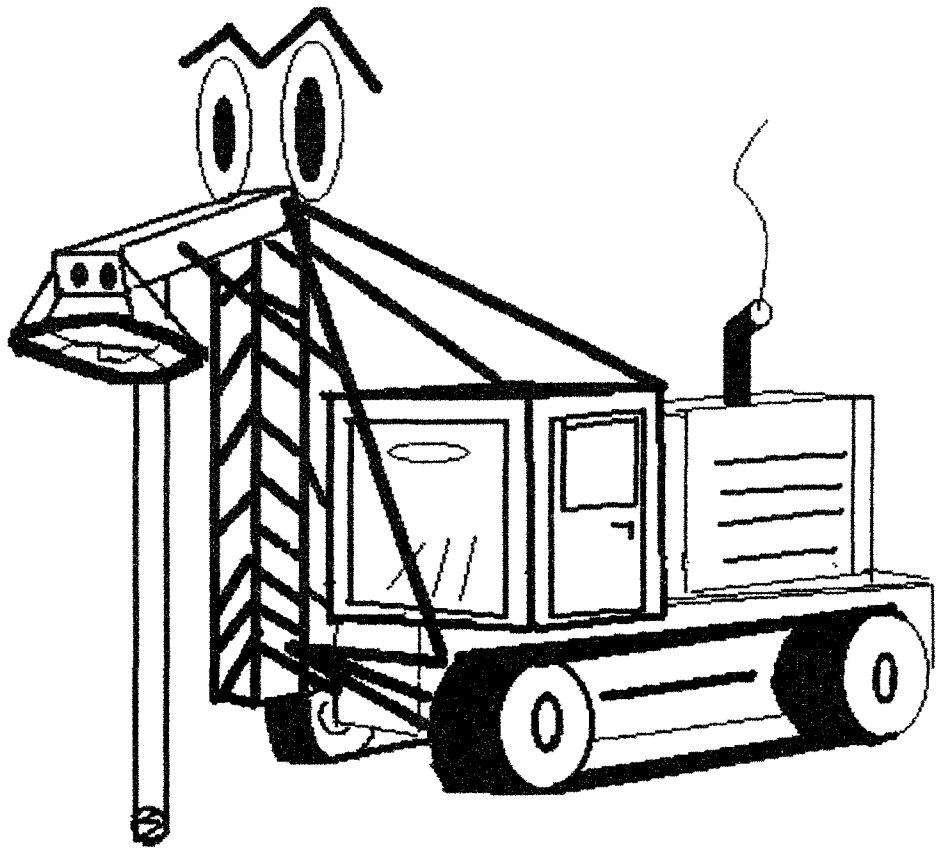
Hey there! I'm Dakota the Dozer. I really push my weight around. I can shove big rocks and big piles of dirt just about anywhere. I help keep Sherry a clean place to work. I also make roads for other equipment. Maybe you've seen some of my brothers helping make highways or cleaning off building lots.

WV Coal Fact: West Virginia surface mines produce over 50 million tons of coal per year.

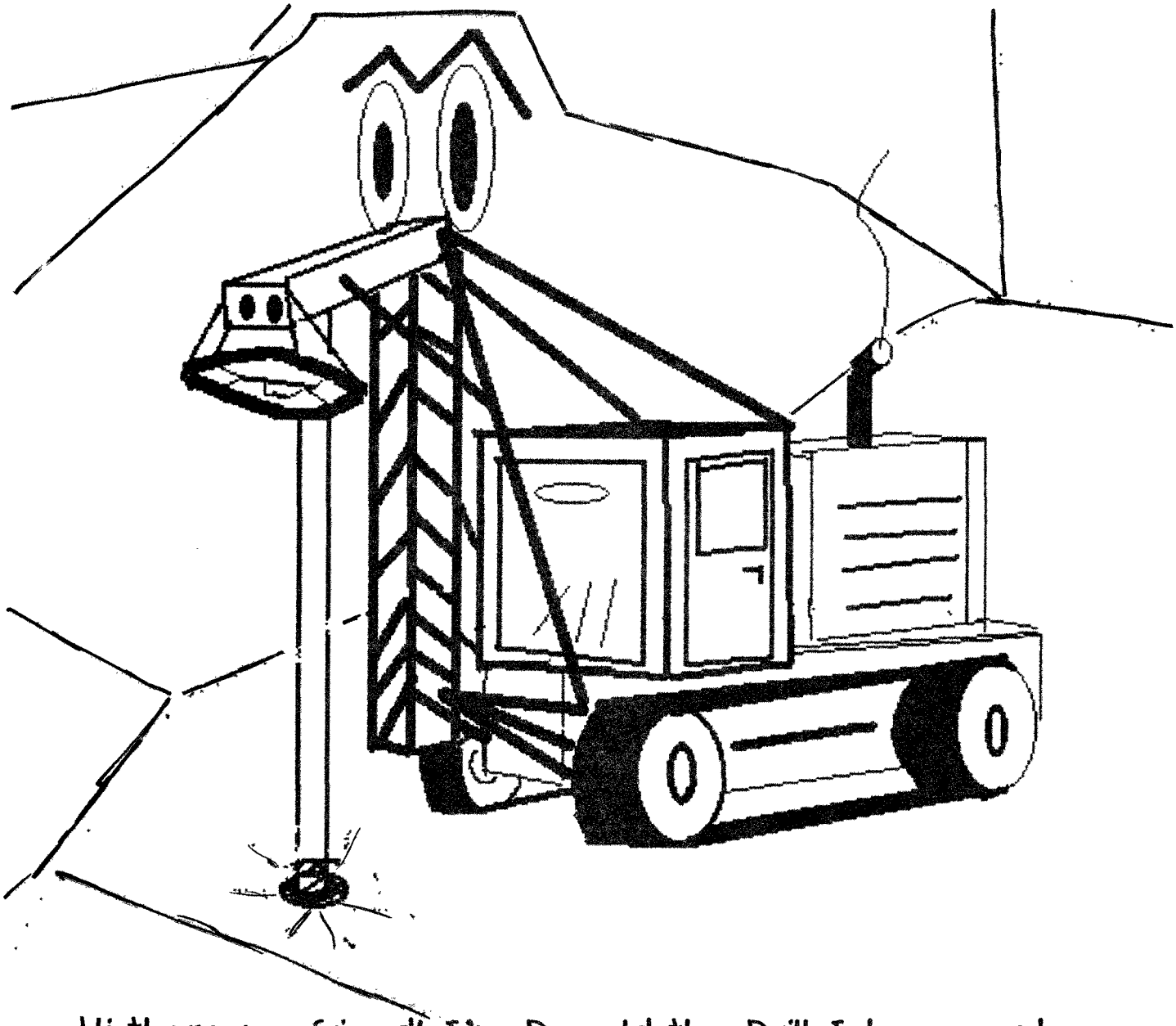


This tall fellow below is Donald the Drill.

Don drills holes into big rocks that are part of the mountain. Explosives are put into the hole and the rock is blown up. This makes smaller rocks that other equipment, like Sherry and Dakota, can move off the coal.

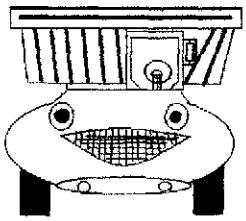


WV Coal Fact: The top producing coal county in West Virginia in 1998 was Boone County. Other top producing counties: Mingo, Logan, Kanawha, and Raleigh.



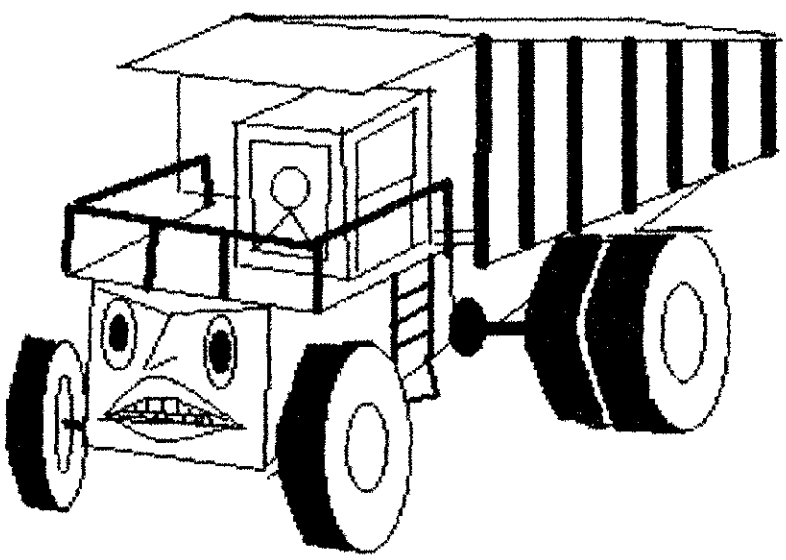
Hi there my friend! I'm Donald the Drill. I have such a boring job, like boring holes in rocks, ya' know?! Ha, ha! Just a joke! My proper name is a Highwall drill. I don't get to move around much, but I usually sit high on the mountain upon a wall and can watch the other equipment work while I drill holes all day.

WV Coal Fact: In 1907, mining laws were printed in the various languages of the miners.

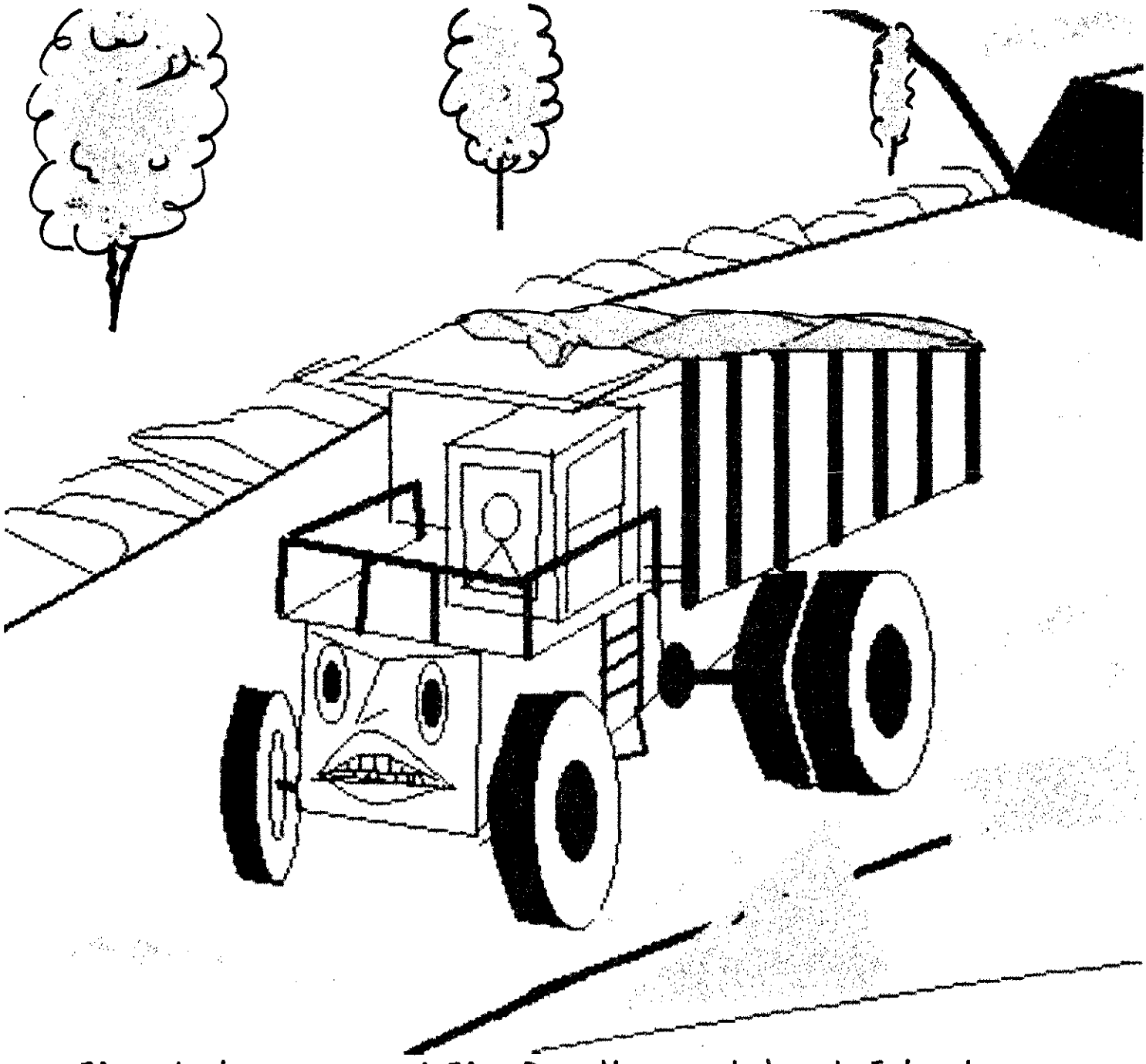


Hey! Here's my best friend, Ron the Rock Truck.

He's a big boy! He hauls 350 tons of rock at a time. Remember, a ton is 2,000 pounds. He is big, but the people that drive him say he rides like a car. Ron is too big to drive on the road. He would take up both traffic lanes.

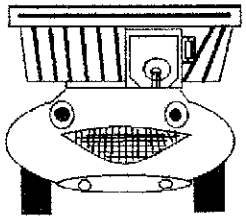


WV Coal Fact: Trucks haul about 45 million tons of coal from West Virginia mines.



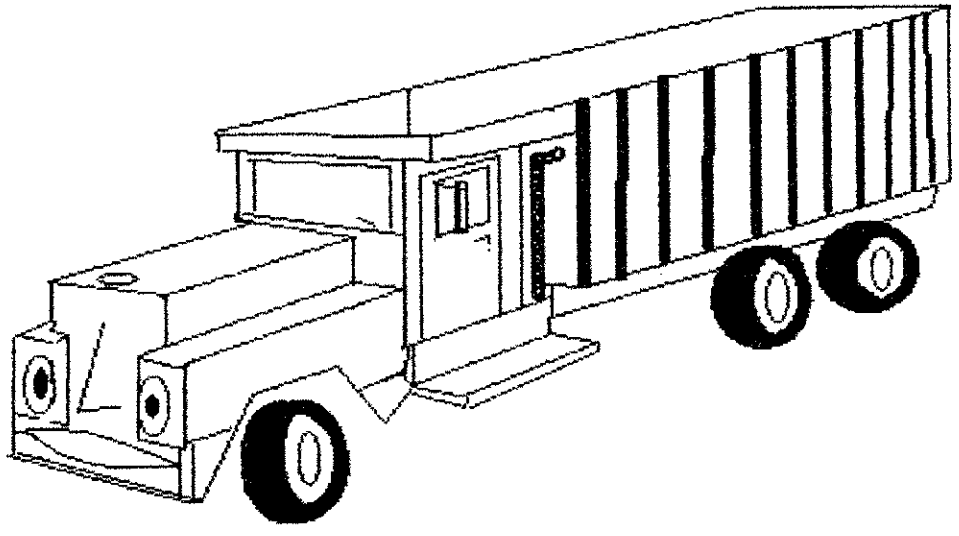
I'm glad you came! I'm Ron the rock truck. I haul big rocks that Sherry the shovel loads into my bed. I take the rocks and put them in a place where we can get them later to backfill with. I have a dump bed. A dump bed raises up in the front and the rocks fall out the back.

WV Coal Fact: 1940 saw peak employment in West Virginia mines, totaling 130,457.

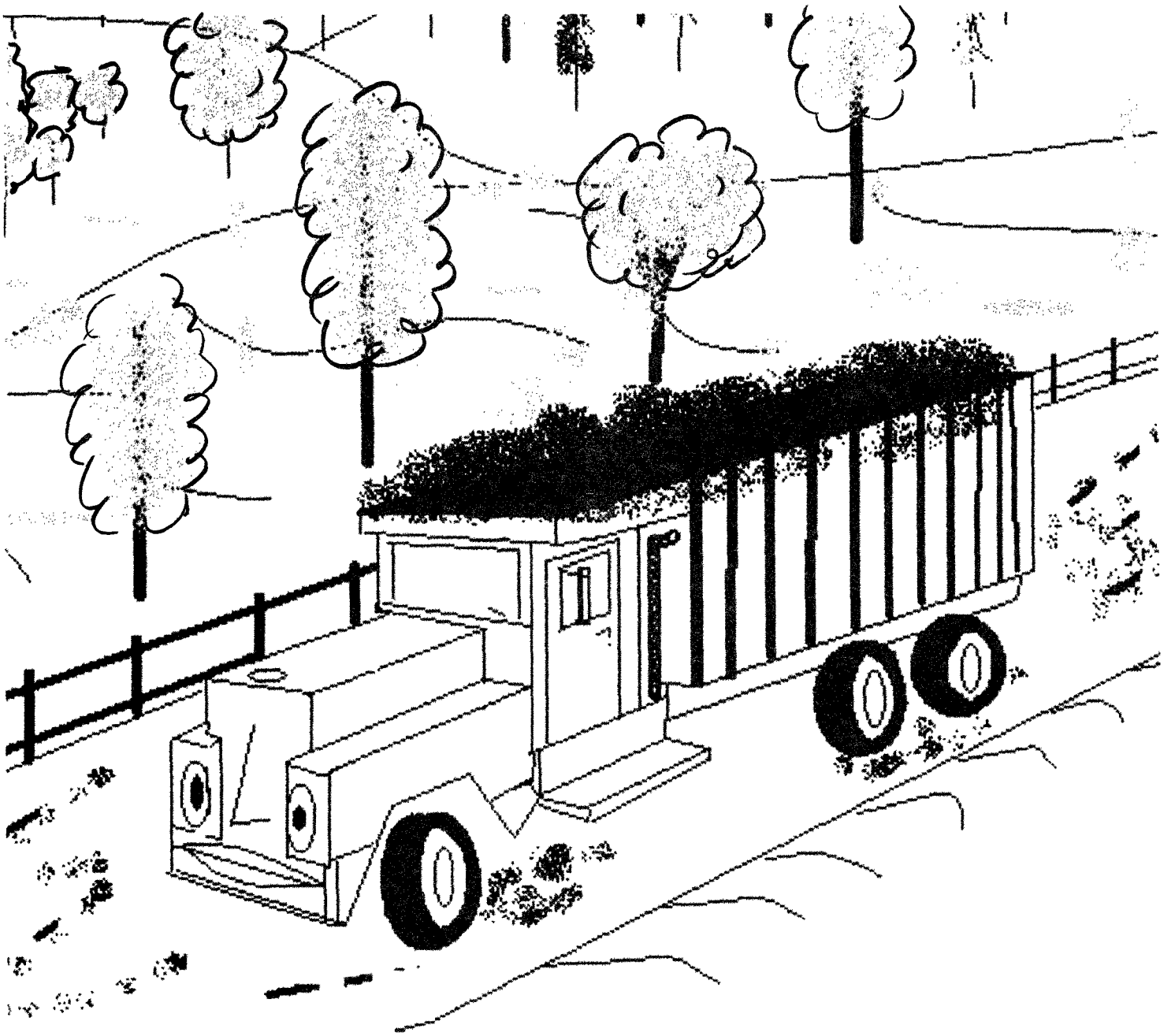


Look at the guy below. He's Clyde the CoalTruck.

Clyde has ten wheels. I'll bet you've seen trucks like him on the road. Some of Clyde's friends haul gravel and sand on the highway. Clyde hauls coal on mine roads and on the highway.

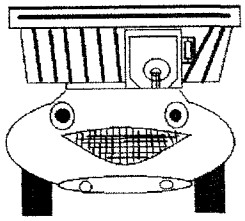


WV Coal Facts: The number one producing WV underground mine in 1998 was the Mountaineer Mine in Mingo County with 7.4 million tons.



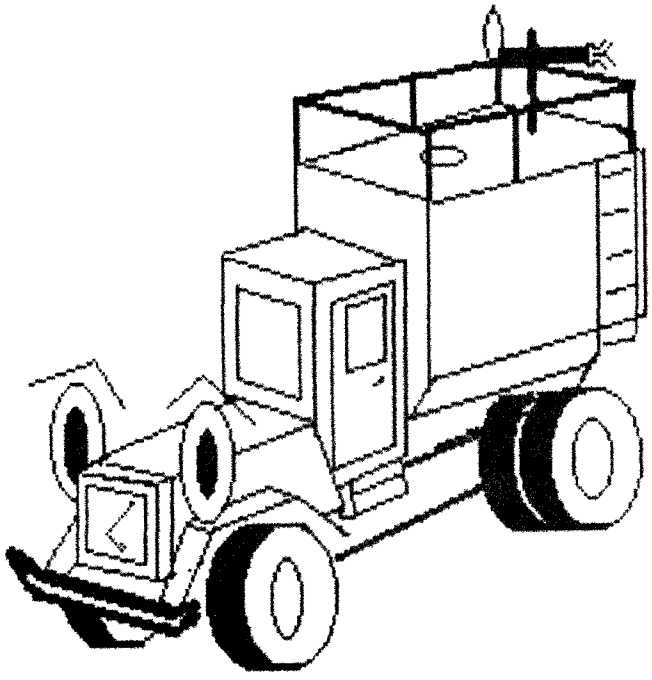
They call me Clyde the coal truck. I haul coal from the surface coal mine to the preparation plant, where the coal is cleaned and loaded into railroad cars or river barges. I can haul 25 tons of coal at a time. Look for me the next time you are riding in a car. Color me any color you like because trucks like me come in many colors.

WV Coal Fact: West Virginia has over 500 mining permits (1999).

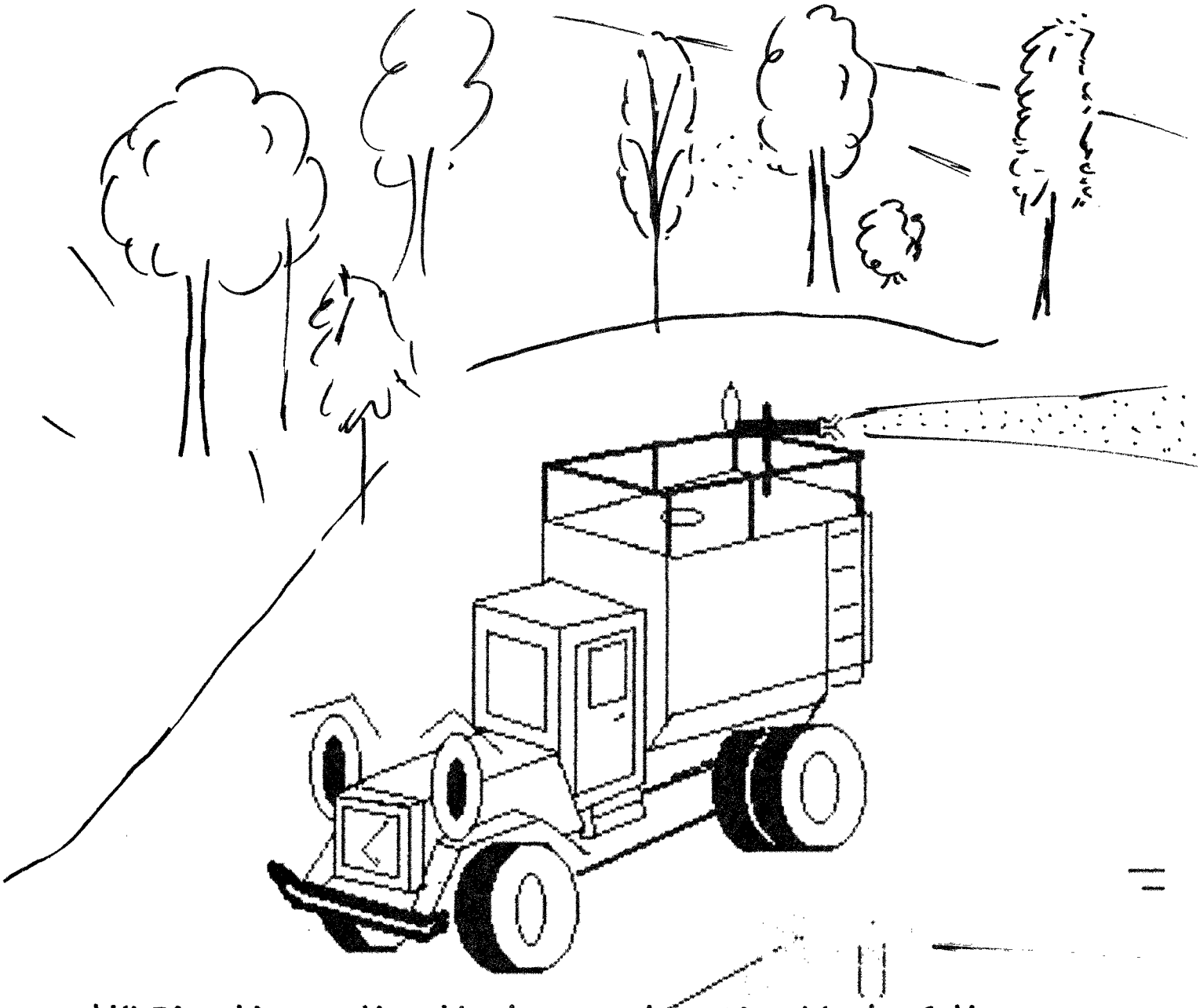


This fellow is Harry the Hydroseeder.

Harry is a Hydroseeding Truck. His job is pretty important. After the coal has been mined and the land backfilled, Harry comes in and sprays a mixture that will help new grass to grow.

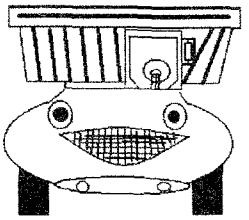


WV Coal Fact: A Hydroseeding truck can hold 5,000 – 10,000 gallons of water, along with several tons of seed and fertilizer.



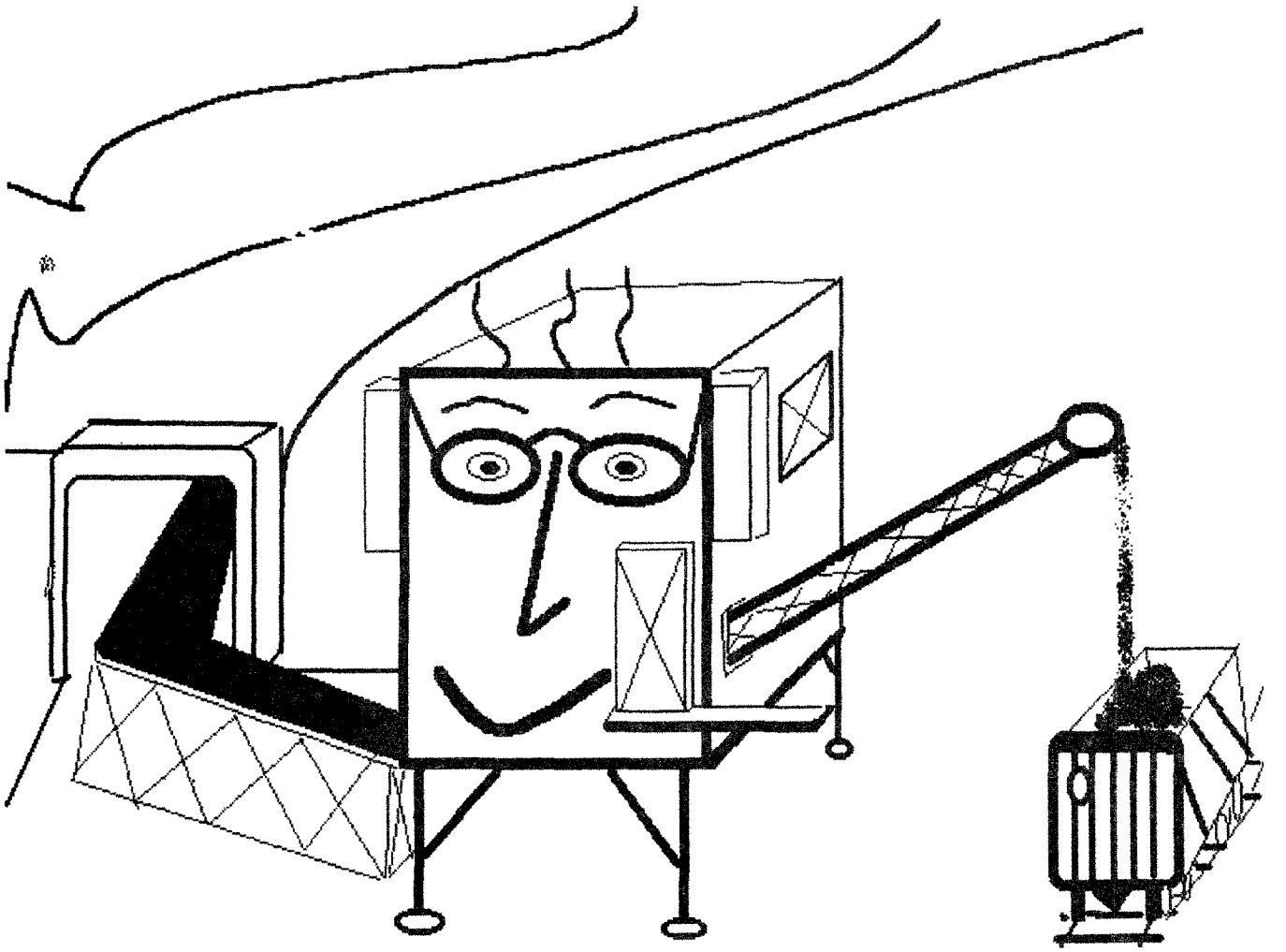
Hi! I'm Harry the Hydroseeder. I'm kind of the last piece of equipment that you would find at a surface mine. My job starts when all the others are through. I release a compound mixture that enables new grass to grow in reclaimed areas. Trees will also be planted to help to restore the land as much as possible to it's original state. After a while, you will notice all sorts of new wildlife occupying the areas that mining equipment once did.

WV Coal Fact: Every mine in West Virginia is required to be reclaimed once mining is completed.



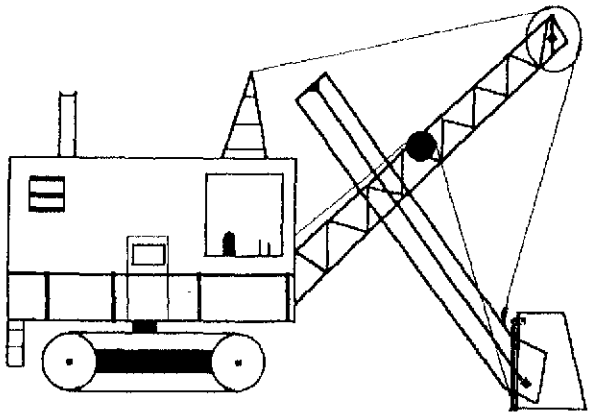
This big fellow below is Peter the Prep Plant.

The coal goes to the plant after it is mined. Peter cleans, sorts, sizes, dries, and then loads it into river barges or coal cars like he's doing here. Peter is a building, so he doesn't move around. He's over 60 feet tall.

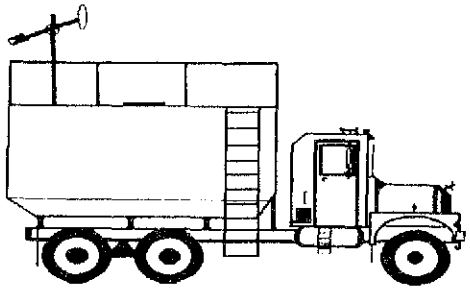


WV Coal Fact: Over 100 million tons of coal is shipped by railroad in West Virginia.

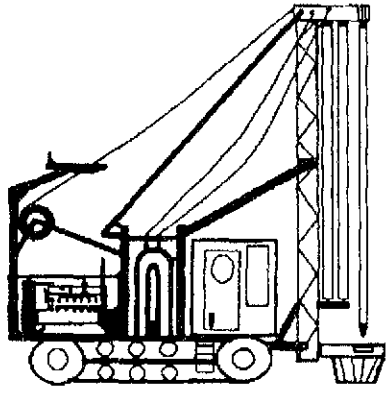
Can you identify the different types of surface mining equipment shown below?



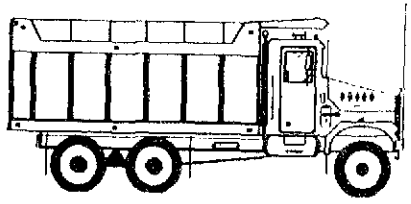
1. _____



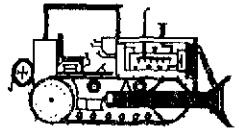
2. _____



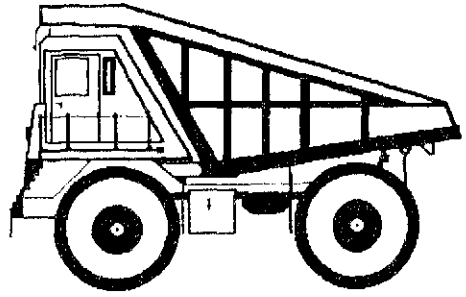
3. _____



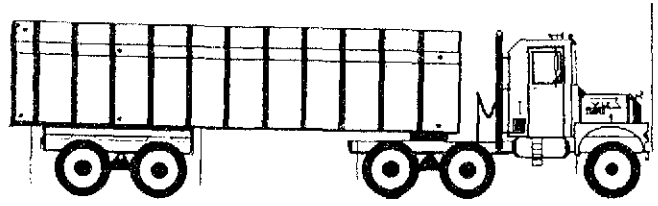
4. _____



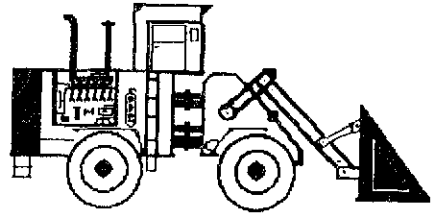
6. _____



5. _____

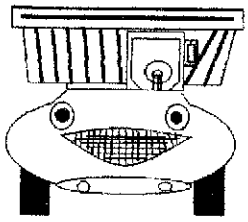


7. _____

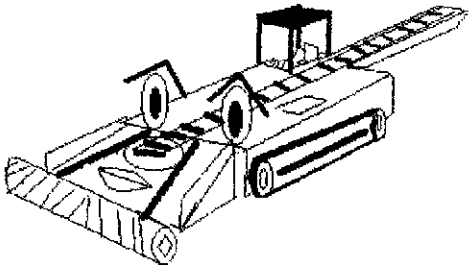


8. _____

WV Coal Fact: Most surface mining equipment is designed for operation only at surface mines, and not on the open highways.

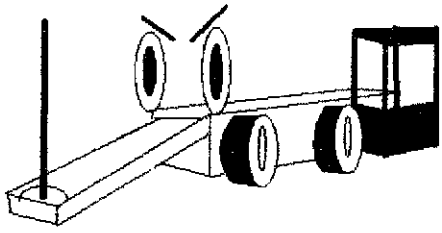


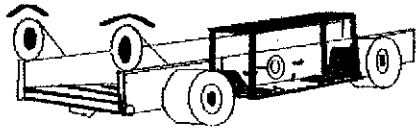
Not all coal is mined at surface mines. Some is mined underground and requires different equipment. Below are some of the machines used in an underground coal mine.



Continuous Miner

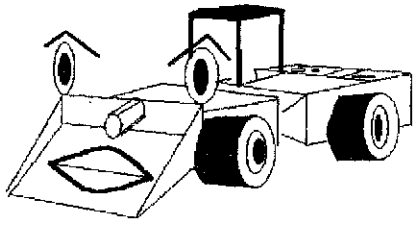
Roof Bolter





Shuttle Car

Scoop



WV Coal Fact: West Virginia is the leading underground coal producing state, producing over 120 million tons of coal per year.

WORD SEARCH

S	Y	P	B	T	T	A	H	D	R	A	H	D
U	T	Z	U	E	N	D	L	O	A	D	E	R
R	B	K	L	J	P	D	A	N	G	E	R	I
F	O	A	L	L	O	N	G	W	A	L	L	L
A	O	C	D	X	H	I	G	H	W	A	L	L
C	T	C	O	A	L	T	R	U	C	K	I	E
E	S	R	Z	N	S	Q	O	Z	O	S	G	V
M	T	E	E	T	U	L	C	T	A	H	N	O
I	N	N	R	H	O	P	K	H	L	O	I	H
N	A	I	T	R	N	E	T	G	S	V	T	S
E	L	M	S	A	I	R	R	I	E	E	E	R
X	P	P	M	C	M	Z	U	L	A	L	O	E
F	P	Q	Y	I	U	R	C	P	M	C	R	W
J	E	M	G	T	T	B	K	A	K	J	Q	O
N	R	S	H	E	I	R	X	C	Z	O	G	P
Z	P	K	N	A	B	L	I	O	P	S	N	I
W	A	R	N	I	N	G	S	I	G	N	S	T

See how many of the mining-related words listed below that you can find in the puzzle to the left.

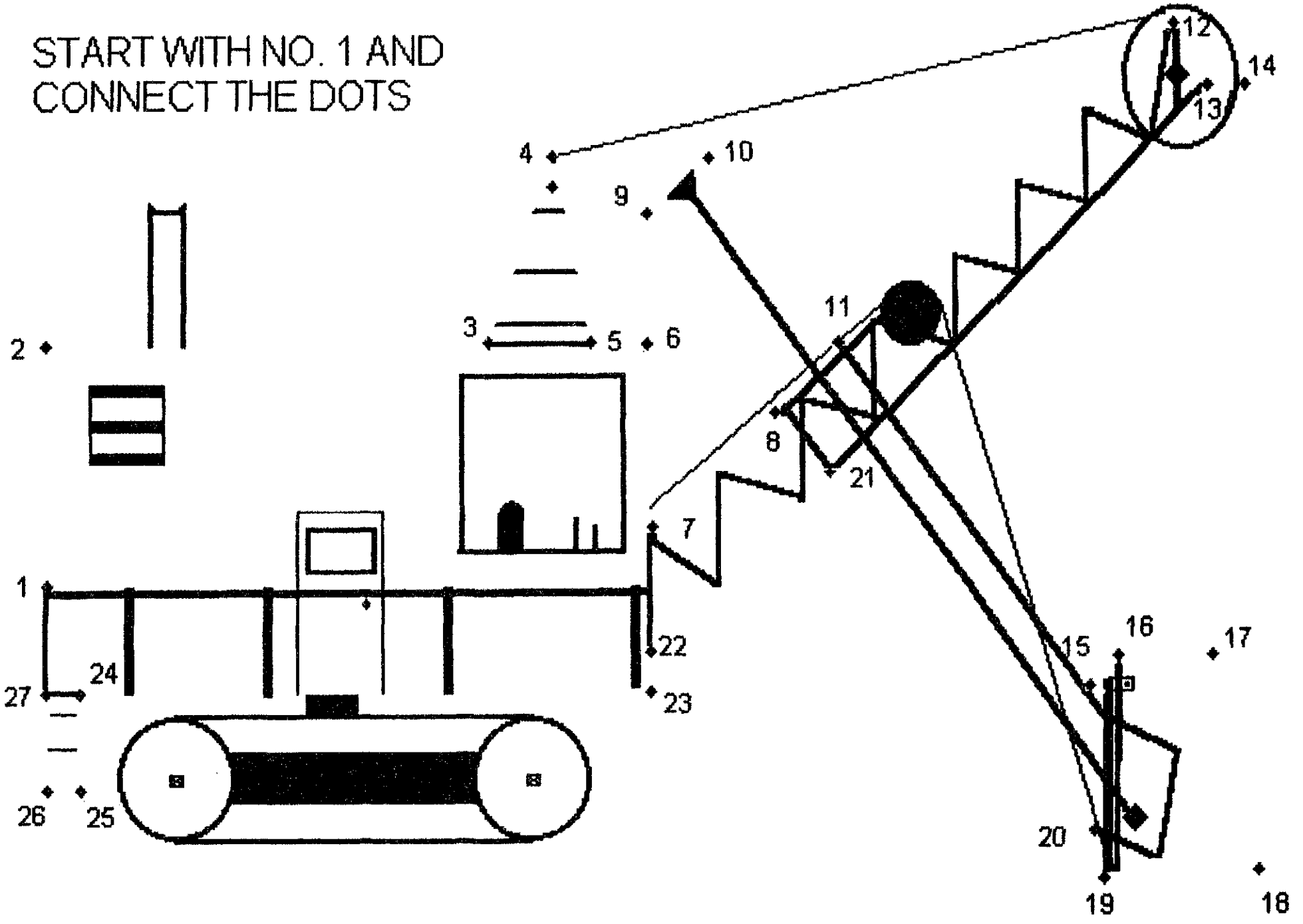
Anthracite
Bituminous
Boots
Bulldozer
Cap light
Coal
Coal Seam
Coal Truck
Danger
Drill
Endloader
Hard hat
Highwall
Lignite
Longwall
Miner
Pit
Power Shovel
Prep Plant
Rock
Rock Truck
Shovel
Spoilbank
Surface Mine
Warning Signs

Word Scramble

See if you can unscramble these mining words:

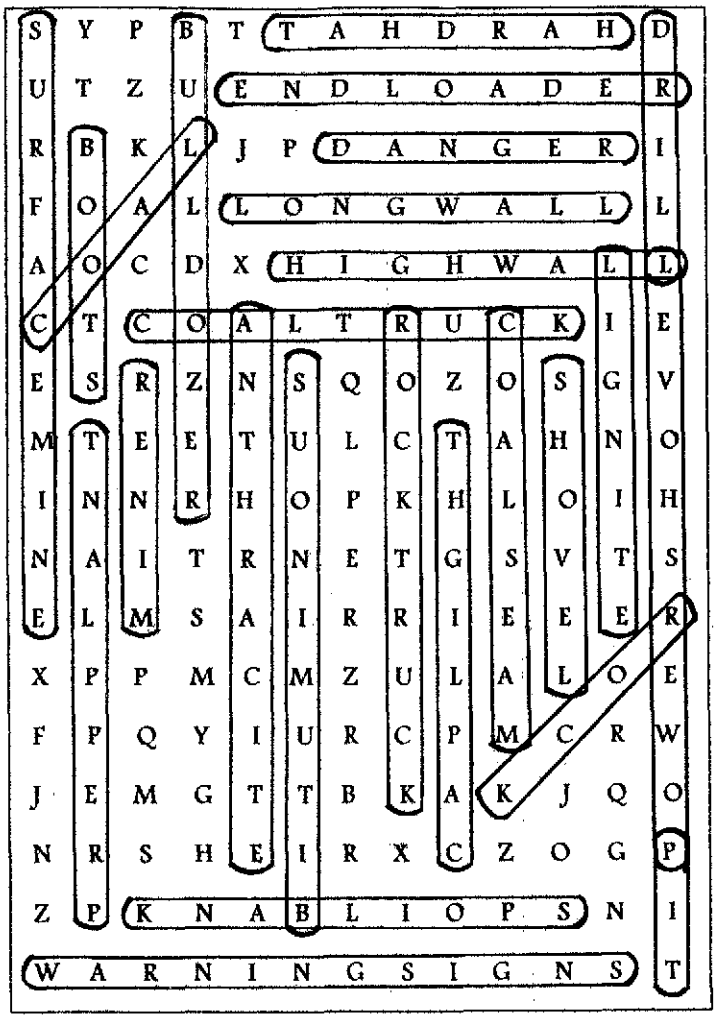
Z B E U R L O L D	_ _ _ _ _ _ _ _ _
R L E E A N O D D	_ _ _ _ _ _ _ _ _
W H H A I G L L	_ _ _ _ _ _ _ _
G N L W A L L O	_ _ _ _ _ _ _ _
S T N I I B U O M U	_ _ _ _ _ _ _ _ _ _
T C A H N R I A T E	_ _ _ _ _ _ _ _ _ _

START WITH NO. 1 AND
CONNECT THE DOTS



Solutions

Word Search



Surface Mining Equipment

1. Power Shovel
2. Hydroseeder
3. Highwall Drill
4. Coal Truck
5. Rock Truck
6. Bull Dozer
7. Coal Hauler
8. End Loader

Word Scramble

Bull Dozer
End Loader
Highwall
Longwall
Bituminous
Anthracite

How to Grow a Crystal Garden

Materials needed:
Piece of charcoal briquette/coal/or brick
Wide/deep soup bowl or similar dish
6 tbsp. (90 ml) laundry bluing
6 tbsp. (90 ml) table salt
1 tbsp. (15 ml) ammonia
Food coloring (if desired)

1) Break up briquette/coal/brick into about 1 - 2 inch pieces and place in bottom of bowl.

2) If laundry bluing is liquid, mix with 1 - 2 tbsp. of water. If bluing is powder, mix with 6 tbsp. water.

3) Add salt and ammonia to laundry bluing.

4) Pour mixture over pieces in bowl. You can either sprinkle drops of food coloring over the chunks and mixture now, or wait until the crystals start to grow.

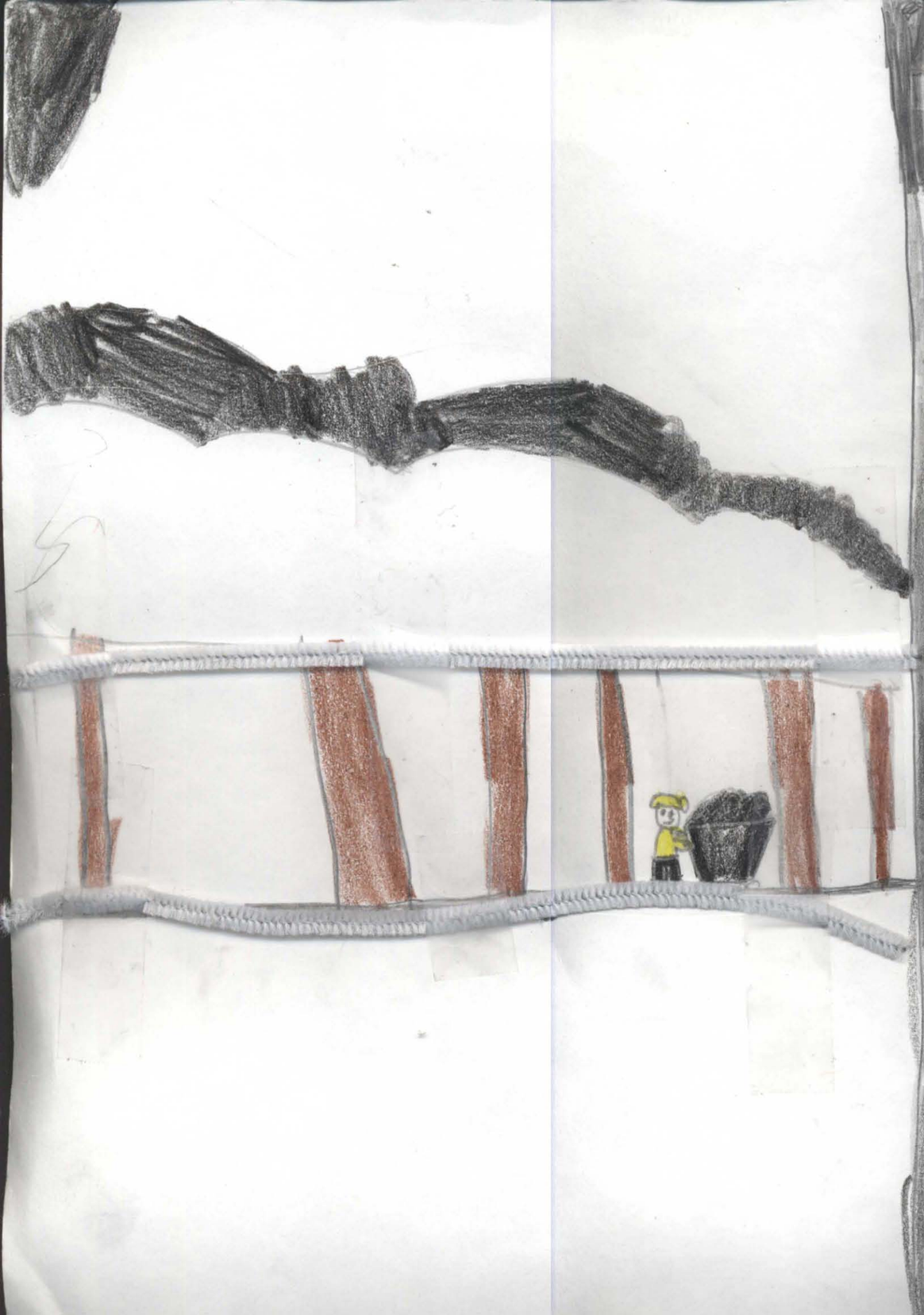
5) Set the bowl someplace where it won't be disturbed. The rate that it grows will depend on the humidity in the air.

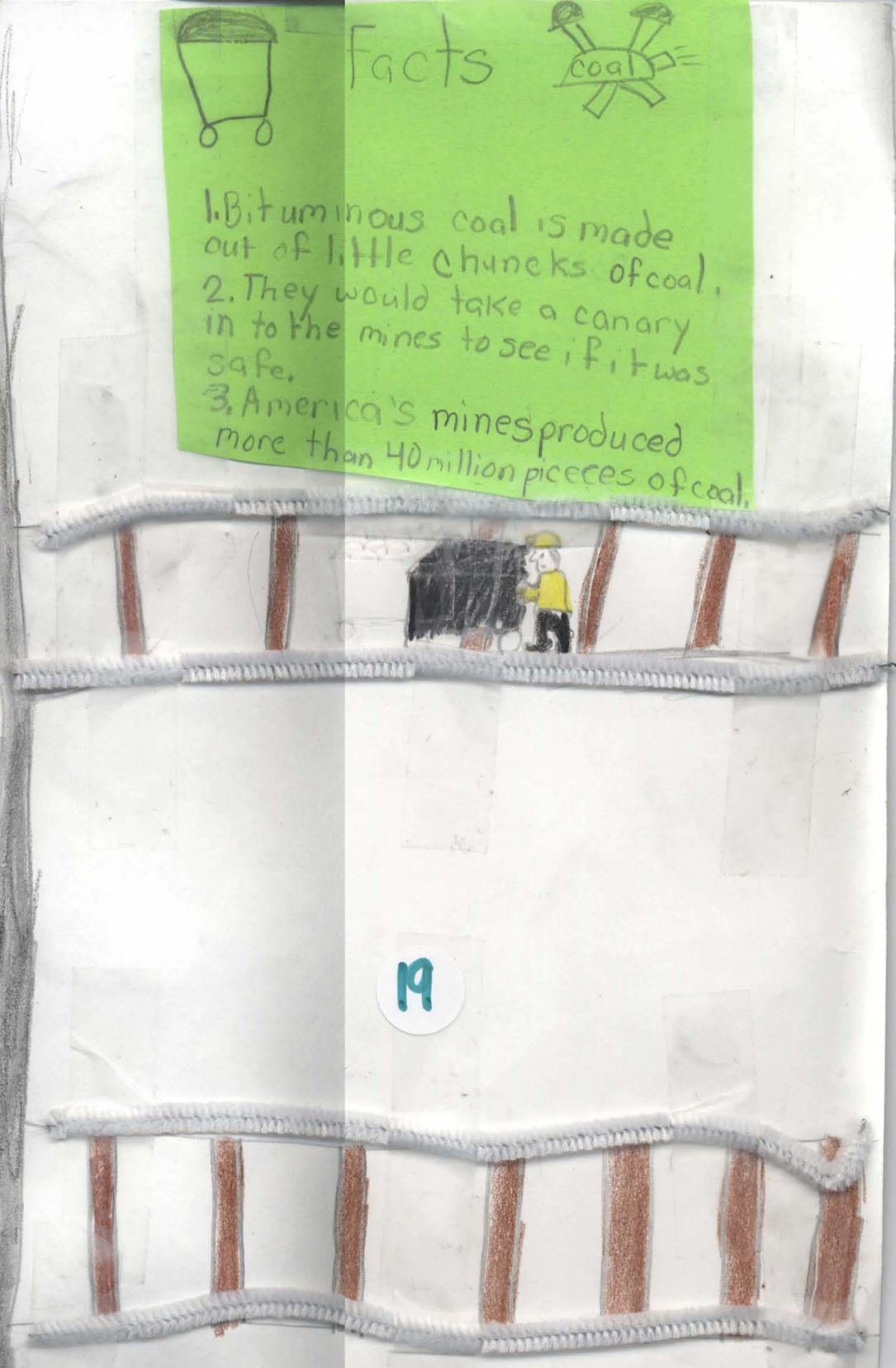
Look for our upcoming issue
dealing with Underground Mining
(Volume II)

Compiled by the employees of the
West Virginia Office of Miners' Health, Safety and Training
in conjunction with the
U.S. Department of Labor
Mine Safety and Health Administration

June, 1999

Edited by: Garry McComas, Tina Estep, and Dave Kessler





Facts

coal

1. Bituminous coal is made out of little chuncks of coal.
2. They would take a canary in to the mines to see if it was safe.
3. America's mines produced more than 40 million pieces of coal.

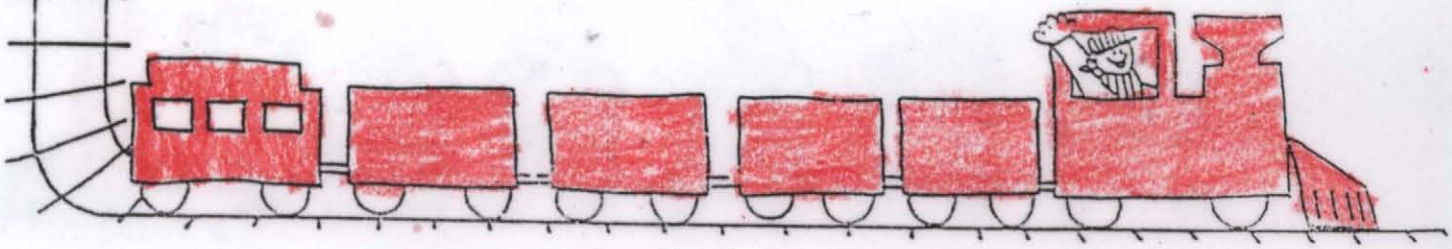
Name Kayla

On The Right Track

Write a Sentence with each Spelling Word.

1. black Coal is black.
2. ton There is a ton of coal
3. fuel Fuel is used for gas
4. miner There are many coal miners
5. heat Coal prouduces heat
6. dig Coal miners dig
7. train Trains transport coal
8. coal Coal is one of Kentucky nautrual resource

Wow!!



28

Name Taylor H

Due Friday

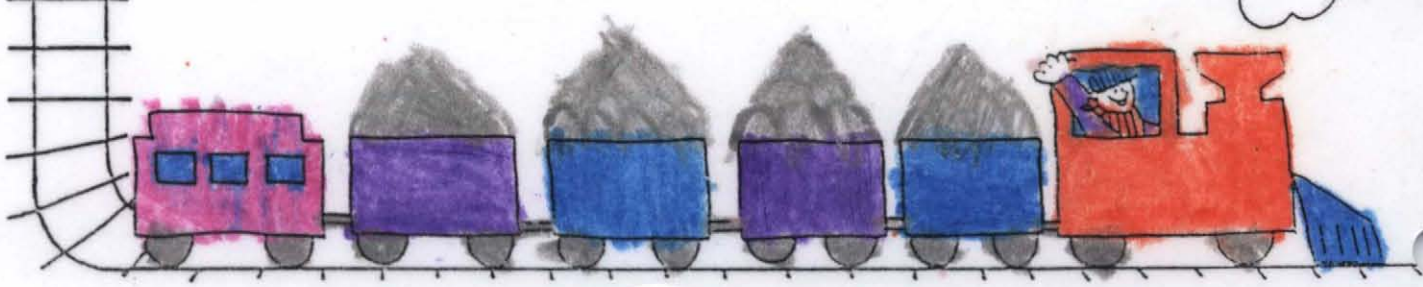
Homework

On The Right Track

Write a sentence with each spelling word.

1. black Coal is black.
2. ton That is a ton of coal.
3. fuel Car run on gas and fuel.
4. miner A miner wears a hardhat.
5. heat We need heat to cook our food.
6. dig I like to dig.
7. train Trains transport coal from here to there.
8. coal Coal is hard.

10 8/8



20/20

English

Put in the correct punctuation and capitol letters.

1. Coal coal was formed millions of years ago.
2. T there are many layers of coal in the earth.
3. C coal is used everywhere.
4. M most coal mined is used to make electricity.
5. C coal is abundant and useful in many ways.
6. C coal is an important source of energy.
7. T trains trucks barges and pipelines carry coal to different industries.
8. F to help air pollution, coal is cleaned before it is burned.
9. M miners are men who work underground.
10. K kentucky is known for coal.

Name Kerri Date _____

[illegible] Date

[illegible] Was King

-0 8/8

Statement	Fact	Opinion
[illegible] are 4 Ranks of Coal.	✓	
[illegible] younger the coal the higher the [illegible]		✓
[illegible] mining and trains go hand in hand	✓	
[illegible] can be held in coal cart at one time.	✓	
[illegible] was used to detect deadly gases.	✓	
[illegible] lamp was used for over 300 years.		✓
[illegible] equipment is called an apparatus	✓	
[illegible] Pity Pony pulled the coal cart up to Earths surface. They worked 8 hour days.	✓	

Name: Hannah

Write the following alliteration (ɔngue twister) three times in cursive and illustrate.

Continuous Miners crush coal carefully and carts carry chunks of coal to conveyors.

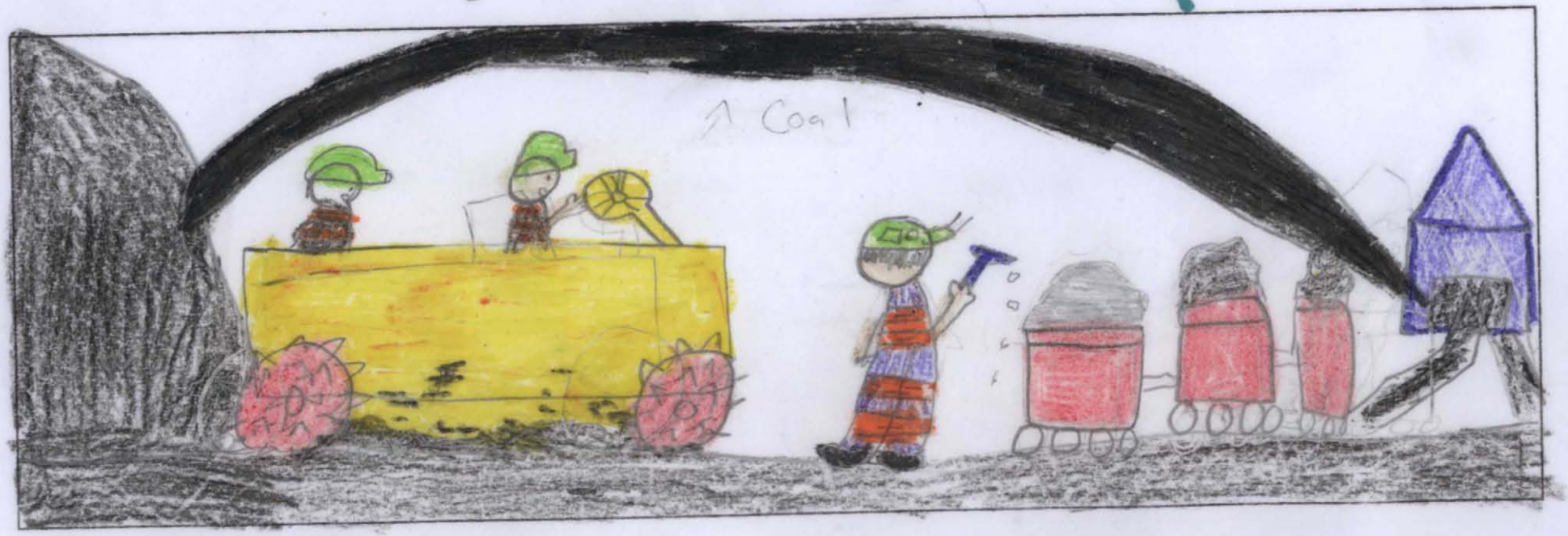
1. Continuous Miners crush coal and carts carry chunks of coal to conveyors.

2. Continuous Miners crush coal and carts carry chunks of coal to conveyors.

3. Continuous Miners crush coal and carts carry chunks of coal to conveyors.

32

4



Name: Tyler

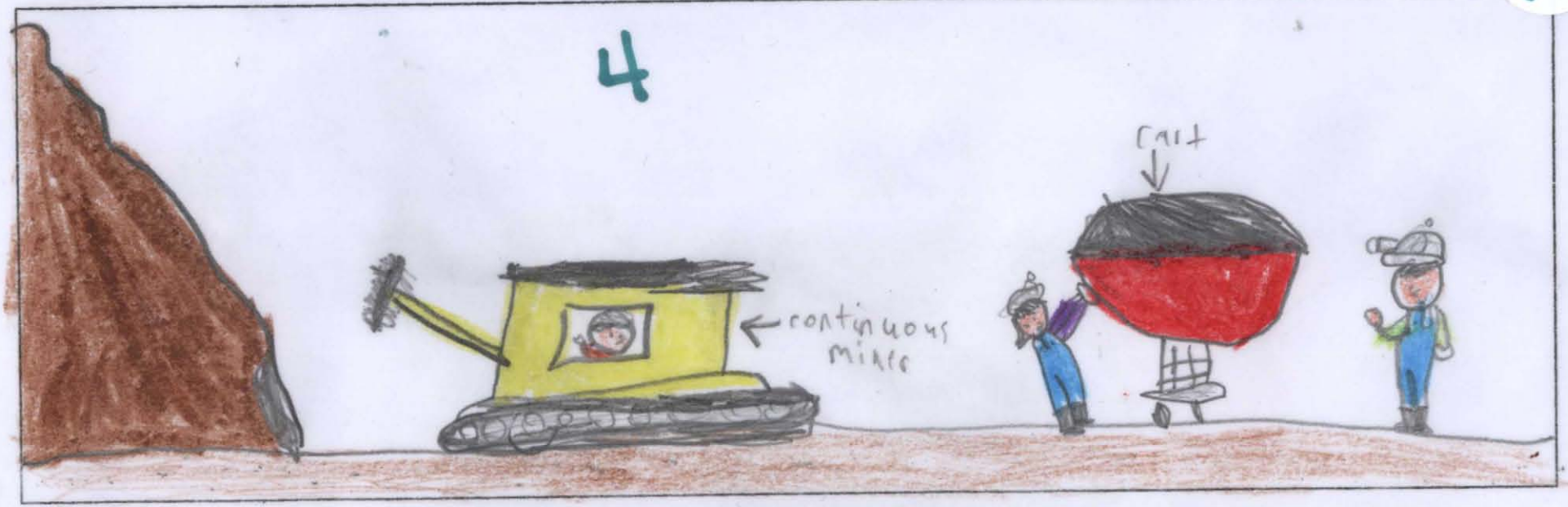
Write the following alliteration (ɔngue twister) three times in cursive and illustrate.

Continuous Miners crush coal carefully and carts carry chunks of coal to conveyors.

1. continuous miners crush coal carefully and carts carry chunks of coal to conveyors.

2. continuous miners crush coal carefully and carts carry chunks of coal to conveyors.

3. continuous miners crush coal carefully and carts carry chunks of coal to conveyors



Coal Couplets

Awesome!

1. Coal lights are homes with glee
this is called electricity.

2. Kentucky's main product is coal
if you want to look for it try digging a hole

3. a coal miner works all the day
leting the time past away

by: Tyler Kinser

Coal Couplets

Super!!:)

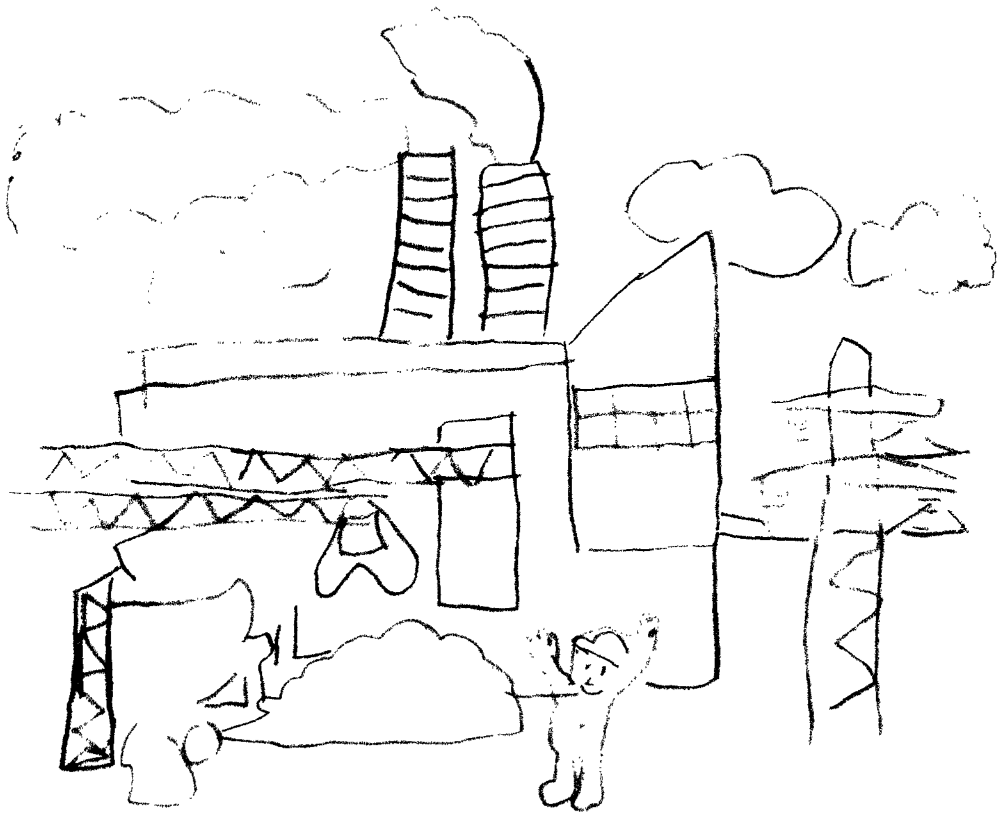
1. [illegible]

2. [illegible]

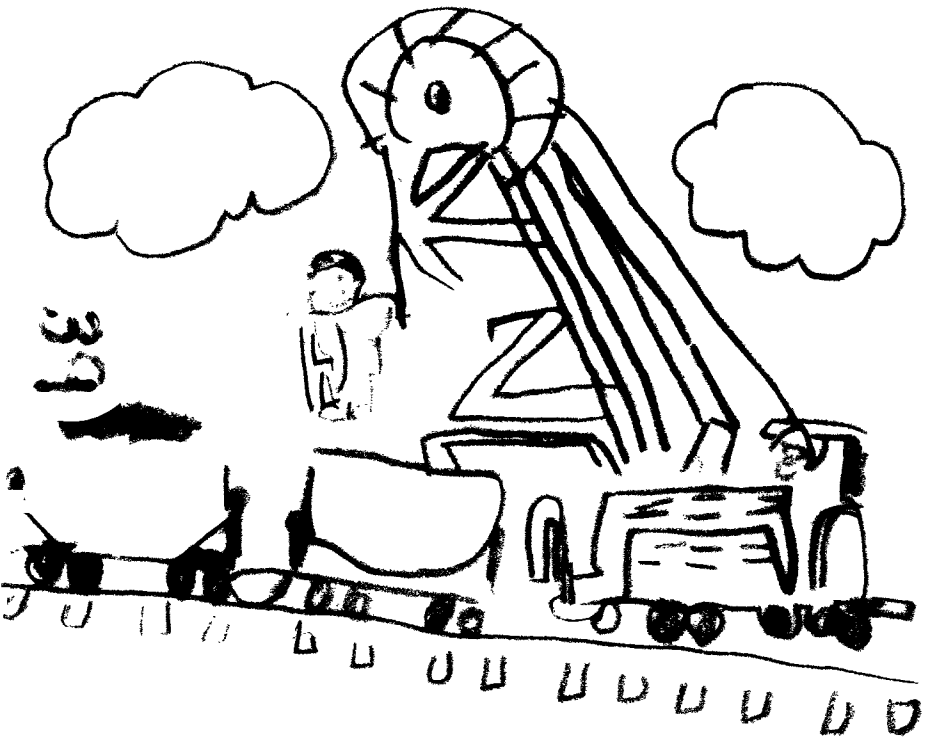
3. [illegible]

by: [illegible]


Coal
Camp
Games
Barrel Skiing
Swim
Playhouse
Switch Board
Phone
Play Pranks
Sunday School
Bottle dolls
run sheep run
hopscotch
Taffypull
Jump rope
Jacks



Today most coal is burnt
into p. owerplants. The
Coal fier bouls wter to
make steam. The steam
drives b
Turbines. engines [illegible]
electricty, that genturs
flos throu power [illegible]
to factors b[illegible] lines
and house



By: Mary Younger.

Above ground the coal cars are emtied into a big funnel.

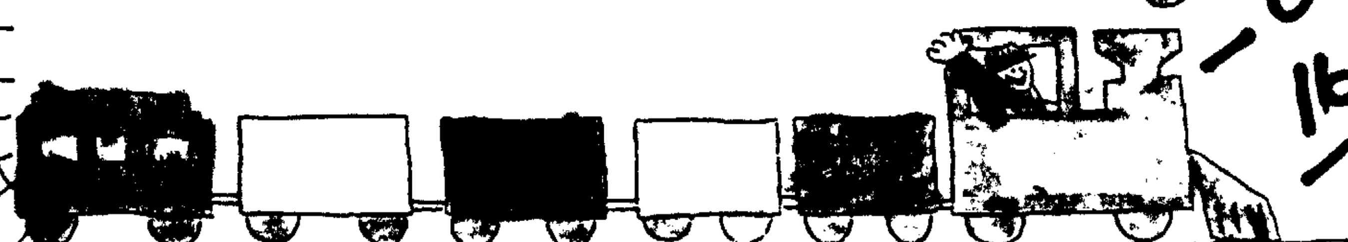
Math On The Right Track

Add the ones column first.

Kayla

tens ones

22 + 11 = 33	31 + 17	14 + 11	16 + 11 = 27
33 + 01	28 + 02	34 + 12	16 + 21
32 + 14	98 + 01	97 + 02	88 + 11
76 + 21	78 + 11	46 + 32	78 + 21



-0

16/16

Wow!

22/22 -0

A Math Magic Word Puzzle

COAL = SUM DIFFERENCE

U 15	I 16	N 17	M 18	L 19	N 20	E 21	L 22
O 23	T 24	R 25	C 26	D 27	E 28	I 29	N 30
D 31	G 32	O 33	R 34	E 35	A 36	O 37	T 38
I 39	R 40	A 41	O 42	U 43	R 44	C 45	D 46
P 47	N 48	D 49	E 50	T 51	L 52	T 53	U 54
N 55	U 56	S 57	C 58	R 59	C 60	I 61	A 62

14	36	41	47	22	36	19	37	44	51	62
+11	+14	+17	-28	+19	-18	+17	+16	-28	-18	-14
						A				

DIRECTIONS: Add or subtract the problems and then find the answers in the letter code. Put the letters on the dotted line.

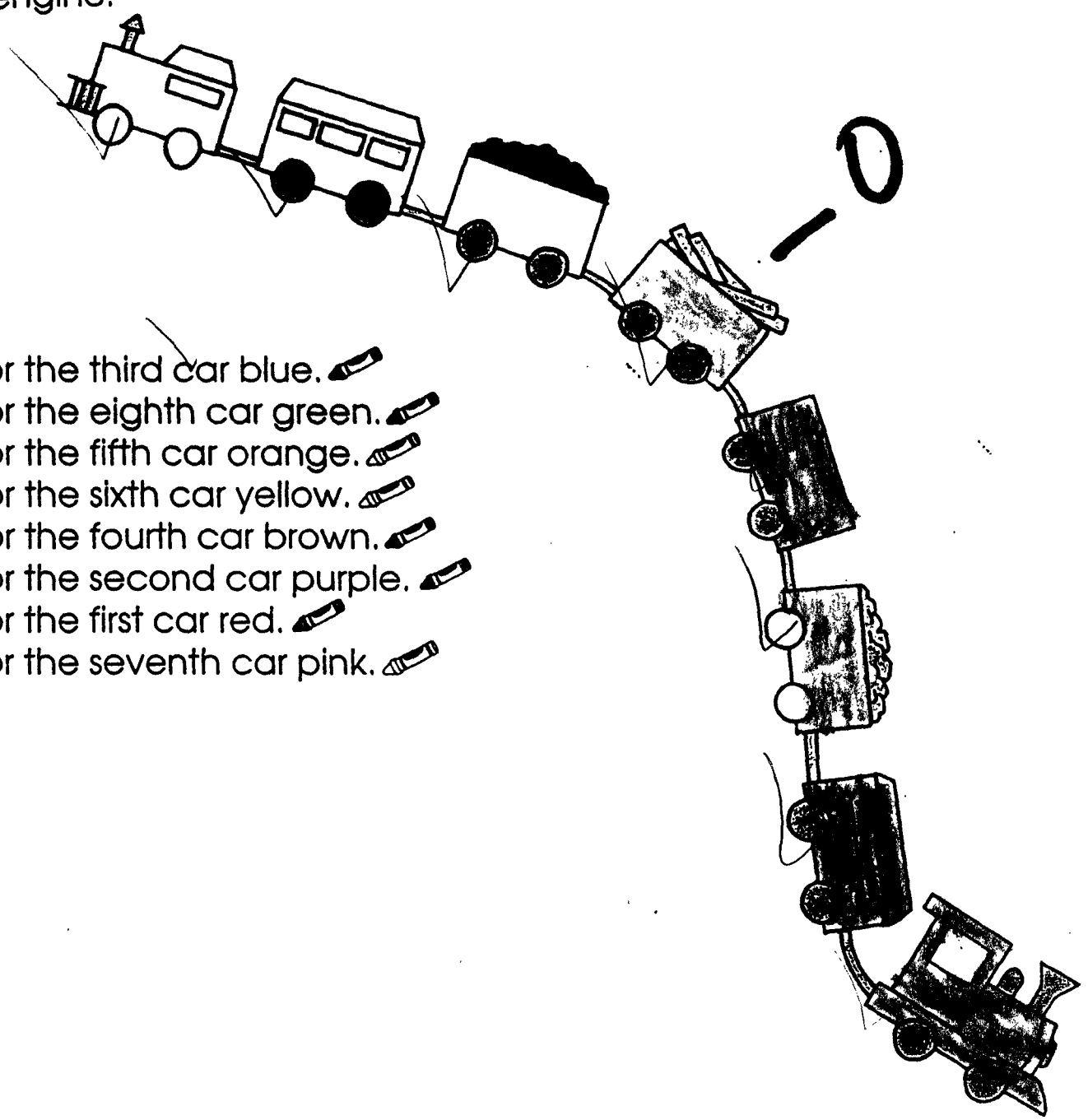
Math

Name: Courtney

Ordinal Numbers

Ordinal numbers indicate order in a series, such as **first**, **second**, or **third**.

Directions: Follow the instructions to color the train cars. The first car is the engine.



Color the third car blue.
Color the eighth car green.
Color the fifth car orange.
Color the sixth car yellow.
Color the fourth car brown.
Color the second car purple.
Color the first car red.
Color the seventh car pink.

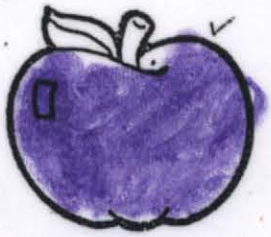
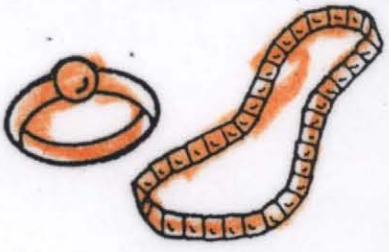
Courtney

Name Lindsey -0 12/12 Skill: Classifying

What Comes From Rocks?

Rocks are made up of minerals. Many things that people use are made from the minerals in rocks.

Look at the object in each picture. If it is a mineral product, color it orange. If it is a plant product, color it purple.

 metal spoon	 apple	 aluminum foil
 soda can	 penny	 wooden chair
 coloring book	 drinking glass	 gold jewelry
 scissors	 n shirt	 china teapot

Two Punches to the Soul of Coal

Posted Thursday, March 26, 2009 ; 06:00 AM | View Comments | Post Comment

President Barack Obama appears prepared to push coal to the margins of the American economy.

Story by Dan Page
Email | Bio | Other Stories by Dan Page

The coal industry's worst fears are coming true. President Barack Obama appears prepared to push coal to the margins of the American economy.

So far, he has shown a two-prong assault.

First, he aggressively has pushed a cap-and-trade program that is aimed at addressing climate change by requiring companies that burn coal and emit carbon dioxide to pay for the right to do so. Such an approach is certain to punish certain businesses, households and regions of the nation. Coal-producing West Virginia is in the crosshairs.

His second punch, delivered March 24, came from the U.S. Environmental Protection Agency in a news release entitled "EPA Acts to Reduce Harmful Impacts from Coal Mining."

The agency said it intends to review permit applications because it is concerned about the effects of certain types of mining -- such as mountaintop mining -- on water quality.

Reaction from West Virginia was swift. Politicians expressed concern. Industry representatives showed outright frustration. They have been through protracted legal battles over mountaintop mining and recently prevailed in an important case in federal appeals court. For a moment, some coal executives may have thought their days of investment-suffocating legal uncertainty were over.

And now this.

After the EPA announcement, U.S. Rep. Shelley Moore Capito, R-W.Va., said: "The EPA must act in good faith in working with the Army Corps of Engineers to find common ground on the hundreds of permits in question. West Virginia's miners deserve a constructive dialogue, not stonewalling at a time when jobs are at stake."

She then came to this sharp point: "I'm concerned about the real prospect of an anti-coal political agenda that blocks permits indefinitely at the cost of West Virginia jobs."

The architects of the anti-coal agenda that Capito mentioned are committed to fight on and on. They have proven that. And now those architects have an ally in the executive branch of government who appears determined to reshape America's power-generation strategy while the nation's economy lurches through a recession.

In Washington, many of our nation's leaders have embraced former Vice President Al Gore and his strident call to address climate change. Few politicians question whether Gore is right. They know a popular political cause when they see it.

Some climate-change religionists are eager for the U.S. Senate to advance their cause on cap-and-trade legislation.

But Sen. Robert C. Byrd, D-W.Va., is resisting. He does not believe the Senate's method of handling budget matters would allow for ample debate on such an important issue. Byrd and 32 of his colleagues -- including seven other Democrats -- made that point in a March 12 letter to the Senate Budget Committee:

"Enactment of a cap-and-trade program is likely to influence nearly every feature of the U.S. economy. Legislation so far reaching should be fully vetted and given appropriate time for debate, something the budget reconciliation process does not allow."

At least some in the U.S. Senate know a stampede when they see one. They know big powerhouses today cannot capture and store carbon dioxide, and that's an expensive problem.

Advocates for climate-change legislation, however, are certain to say the world is at risk if the U.S. doesn't take action. They will proclaim that the science is clear and the debate is over. They want us to believe that solar power and wind power are the answer. They can't prove that.

But Congress represents all Americans, including those who expect their leaders to find some sense of balance before they forge policies that threaten their way of life. That appears to be the intent of Byrd and his colleagues -- to scrutinize a proposal that could drive up energy costs for households and businesses, reduce the nation's demand for coal and decimate regional economies.

Coal companies and the utilities that use their product have a right to operate within the law, but the laws keep changing.

Mining of all kinds changes the earth. So do road construction and mall development. But coal -- the source of more than half of the nation's electricity -- is the target. How is that fair or prudent?

Perhaps members of Congress will ask the obvious question: Are we all sure we understand what we are gaining and what we are losing through this relentless campaign?

Will Congress react to the EPA's latest pronouncement about mountaintop mining? Will coal-state legislators -- including those from West Virginia -- stand with those who go to work each day and provide the energy essential to the nation's economy?

With Washington pushing against coal with its two-fisted assault, I sense that some are awestruck.

Perhaps it's the speed with which a new, inexperienced administration has acted.

Perhaps it's the specter of sweeping change about to hit West Virginia head on, threatening to eliminate thousands of jobs, dramatically erode the state's tax base and drive up the cost of energy to citizens and businesses regionally if not nationally.

Perhaps it's the magnitude of disdain that coal's enemies have for the industry and their willingness to ignore or deny the potential human and economic consequences of their agenda.

Perhaps it's the realization that all of this is going on while the federal government struggles to find balance and rejuvenate the nation's teetering economy.

No one can be sure today what the future will hold because no one in our lifetime has seen such overwrought ambition. We are in choppy and uncharted waters. I hope we have enough lifejackets to save us.

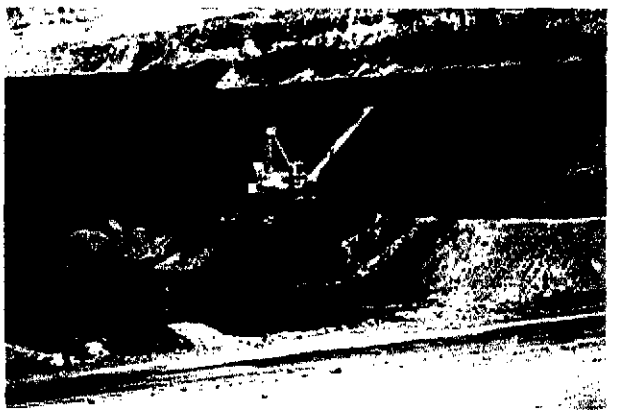
User Comments [post comment]

Uncle Bill Report Abuse
4/8/09 at 7:43 PM

Obamanomics and his attitude towards coal is nothing more than a gooddie two shoes scam to fool the tree huggers into believing he is keeping his commitment to save the planet. Maybe what we all should do is just go ahead and shut off the coal supply for 3 to 6 months and see where they get their power from to power all those air conditioners in Washington, DC. Maybe when these idiots realize what is powering the USA today, then they will be a little more respectful of those that mine it and come up with a long term plan for America!

Fossil Fuels

By Patti Hutchison



[1] *Caption: Mining coal in Wyoming*

[2] Have you heard of peat? How about coal, natural gas, and oil? These are all fossil fuels.

[3] Fossil fuels give us energy. They come from things that were once living. They formed over thousands or millions of years.

[4] Fossil fuels are very efficient sources of energy. Our cars depend on them. Most countries use them to produce electricity to power homes and businesses. They are all formed from decayed organic matter.

[5] Oil can be burned to release energy. Many people use it to heat their homes. It can be refined into other energy products such as gasoline and kerosene.

[6] Where did oil come from? Millions of years ago, the Earth was covered with shallow seas. Rivers carried sediments into these seas. Organisms that died were also washed into the seas as part of the sediment. Scientists believe that oil formed from these decayed plants and animals. It was then trapped in the rocks.

[7] Natural gas was formed in a similar way. Bacteria partially decomposed the organic materials that mixed with the sediment. This released methane gas as a waste product. This gas makes up part of the natural gas we use for energy.

[8] Oil and natural gas are mostly found below Earth's surface. Wells are drilled, and the materials are pumped out. They are transported to other places for use as energy.

[9] Coal was formed in the warm tropical swamps that were located near the equator. As plant material died, it sank to the bottom of the swamp. Layer upon layer built up. Under the great pressure, the material was compressed into coal.

[10] Coal must be mined. Tunnels are dug into the Earth. The coal is then separated from the rocks. It can be burned to produce electricity.

[11] So what about peat? Peat is actually the first stage of coal. But it also can be used as a fuel on its own. It is formed in a bog from decomposed organic matter. Peat is a light, spongy material. It can be cut from the bog and dried. Some people still use peat to heat their homes. It can be burned in fireplaces like wood logs.

[12] Fossil fuels are an efficient source of energy. However, there are drawbacks to using them. They are nonrenewable. They will not last forever. They are expensive to produce. They also cause pollution. Scientists are working to find other sources of energy that are efficient. This will reduce our dependence on oil and other fossil fuels.

Name _____  Date _____

Fossil Fuels

1. What were fossil fuels formed from?	2. Fossil fuels are very efficient sources of energy. (A) False (B) True
3. Oil and natural gas are obtained by: (A) Mining (B) Cutting it from a bog (C) Drilling	4. How was coal formed?
5. How is peat used in homes? (A) To produce electricity (B) To drill for oil (C) For heating	6. Name two drawbacks of using fossil fuels for energy.

Hannah

Social Studies-3rd

Natural Resources

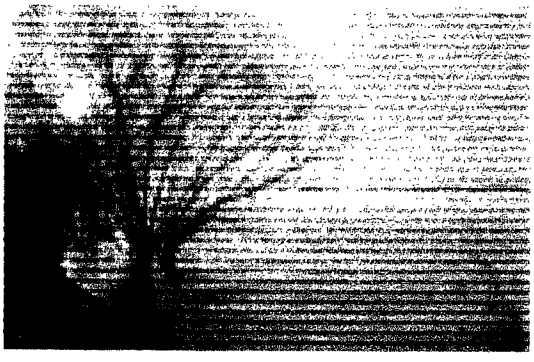
You have been studying natural resources in class. Think about the many natural resources of our country.

A. List three of our country's natural resources.

B. Choose one of the resources listed in part A. Describe two ways that people can help save this resource.

SCORING GUIDE

4	Student gives correct answers for parts A and B. All explanations are clear and complete. There is evidence of clear understanding of the concept.
3	Student gives correct answers for parts A and B. Explanations are correct, but possibly unclear. There is less evidence of clear understanding.
2	Student answers 1 (A or B) part of the question completely correct. There is some evidence of understanding.
1	Student gives only parts of correct answers. There is little evidence of understanding.
0	Response is totally incorrect or irrelevant (does not add any new information to the question)
B	No response



Open Response Answer Sheet

A One natural resourse found in The United states is soil because it is not man-made, it is from nature.

Another Natural resource is water because people can not make water it is a Nature made thing.

The third natural resourse is air because it is impossible to make it was made by Nature.

B. Air by not puluting or using electric or battery powered card.

Timeline of Coal in the United States

1000 A.D. Hopi Indians, living in what is now Arizona, use coal to bake pottery made from clay.

1673-74 Louis Jolliet and Father Jacques Marquette discover "charbon de terra" (coal) at a point on the Illinois River during their expedition on the Mississippi River.

1701 Coal is found by Huguenot settlers at Manakin on the James River, near what is now Richmond, Virginia.

1748 The first recorded commercial U.S. coal production form mines in the Manakin area.

1762 Coal is used to manufacture, shot, shell, and other war material during Revolutionary War.

1816 Baltimore, Maryland becomes the first city to light streets with gas made from coal.

1830 The first commercially practical American-built locomotive, the Tom Thumb, is manufactured. Early locomotives that burned wood were quickly modified to use coal almost entirely.

1839 The steam shovel is invented and eventually becomes instrumental in mechanizing surface coal mining.

1848 The first coal miners' union is formed in Schuylkill County, PA.

1866 Surface mining, then called "strip" mining, begins near Danville, Illinois. Horse-drawn plows and scrapers are used to remove overburden so the coal can be dug and hauled away in wheelbarrows and carts.

1875 Coke replaces charcoal as the chief fuel for iron blast furnaces.

1890 The United Mine Workers of America is formed.

Timeline of Coal in the United States

1896 Steel timbering is used for the first time at the shaft mine of the Spring Valley Coal Co., where 400 feet of openings are timbered with 15-inch beams.

1901 General Electric Co. builds the first alternating current power plant at Ehrenfeld, Pennsylvania, for Webster Coal and Coke Co., to eliminate inherent difficulties in long-distance direct-connect transmission.

1912 The first self-contained breathing apparatus for mine rescue operations is used.

1930 Molded, protective helmets for miners are introduced.

1937 The shuttle car is invented.

1961 Coal becomes the major fuel used by electric utilities to generate electricity.

1973-74 Oil embargo by the Organization of Petroleum Exporting Companies (OPEC) focuses attention on the energy crisis and results in increased demand for U.S. coal.

1977 Surface Mining Control and Reclamation Act (SMCRA) passed.

1986 Clean Coal Technology Act passed.

1990 U.S. coal production tops 1 billion tons in a single year for the first time.

1995 The National Coal Association and the American Mining Congress merge into the National Mining Association, representing coal- and minerals-producing companies.

1996 Energy Policy Act goes into effect, opening electric utility markets for competition between fuel providers.

2002 Coal mining companies reclaimed 2 millionth acre of mined land.

2005 Congress passes and President signs into law the Energy Policy Act of 2005 that promotes increased use of coal through clean coal technologies.

SIXTEEN TONS

Some people say a man is made out of mud.
A poor man's made out of muscle and blood.
Muscle and bood, skin and bones,
A mind that's weak and back that's strong.

CHORUS:
You load 16 tons and what do you get,
Another day older and deeper in debt.
St. Peter don't you call me cause I can't go.
I owe my soul to the company store.

I was born one morning and the sun didn't shine.
I picked up the shovel and I walked to the mine.
I loaded 16 tons of number 9 coal.
The straw boss said "get out of that hole."

REPEAT CHORUS

I was born one morning it was drizzling rain
Fightin' and trouble are my middle name,
I was raised in the cane-break by an old mama lion.
Ain't no high tone woman make me walk the line

REPEAT CHORUS

If you see me comin' better step aside
Alot of men didn't and alot of men died,
One fist of iron, the other of steel,
If the right one don't get you then the left one will.

REPEAT CHORUS

WORKIN' IN A COAL MINE

CHORUS:
Workin' in a coal mine
Goin' down, down, down.
Workin' in a coal mine
Whoop, I'd like to sit down.

REPEAT CHORUS:

5 o'clock in the mornin'
I'm already up and gone.
Lord I'm so tired
How long can this go on?

REPEAT CHORUS TWICE:

Course I make a little money,
Haulin' coal by the ton.
But when Saturday rolls around
I'm too tired to have any fun.

REPEAT CHORUS TWICE:

(Music plays and you say the next to lines.)

Lord, I'm so tired.

How long can this go on?

REPEAT SONG AGAIN:

C.E.D.A.R. Financial Accounting Sheet