



AMERICAN COAL FOUNDATION

Coal-Related Activities *for* Secondary Students



A M E R I C A N C O A L F O U N D A T I O N

1130 Seventeenth Street, NW, Suite 220

Washington, DC 20036

202/466-8630 • 202/466-8632 fax • www.acf-coal.org

Note to teachers:

We hope you and your class will enjoy these activities as you learn about coal and electricity. Please let us know how these activities work in your classrooms or if you have suggestions to improve them. We are always looking for new coal-related activities, so if you have one you would like to share, please contact us so it can be included in future editions of this publication.

The American Coal Foundation

Cookie Mining

OBJECTIVE:

Students will demonstrate economics skills in a simulated mining activity.

CONCEPT:

- Coal mining is a capital-intensive industry.

SKILL REINFORCEMENT:

Critical thinking
Math-number manipulation
Cooperative learning
Evaluation of multiple factors
Negotiation and compromise

GRADE LEVEL:

3–12

TIME NEEDED:

One or two class periods

MATERIALS:

- play money
- worksheet
- grid paper
- pencils
- three different types of chocolate chip cookies
- flat toothpicks
- round toothpicks
- paper clips

PROCEDURE:

1. Each student starts with \$19 of play money.
2. Each student receives a Cookie Mining worksheet and a sheet of grid paper.
3. Each student must buy their own “mining property,” which is a cookie. Only one “mining property” per player. Cookies are for sale:
Mother’s Chocolate Chip — \$3
Chips Ahoy — \$5
Chips Deluxe — \$7
4. After the cookie is purchased, the student places the cookie on the grid paper and, using a pencil, traces the outline of the cookie. The student must then count each square that falls inside the circle. Count partial squares as a full square.
5. Each student must buy their own “mining equipment.” More than one piece of equipment may be purchased. Equipment may not be shared between students. Mining equipment for sale is:
Flat toothpick — \$2
Round toothpick — \$4
Paper clips — \$6
6. Mining costs are \$1 per minute.
7. The sale of one chocolate chip mined from a cookie results in a \$2 profit. (Broken chocolate chips can be combined to make one whole chip).

Cookie Mining

8. After the cookie has been “mined,” the cookie should be placed back into the circled area on the grid paper (reclamation). This can only be accomplished using the mining tools — no fingers or hands allowed. Reclamation costs are \$1 for each square covered outside original outline.

RULES:

1. No student may use their fingers to hold the cookie. The only things that can touch the cookie are the mining tools and the paper on which the cookie is sitting.
2. Students should be allowed a maximum of five minutes to mine their cookie. Students who finish mining before the five minutes are used up should only credit the actual time spent mining.
3. A student can purchase as many mining tools as desired and the tools can be of different types.
4. If the mining tools break, they are no longer usable and a new tool must be purchased.
5. The students who make money by the end of the game win (because they realized a mining profit).
6. All students win at the end of the game because they get to eat the remains of their cookie!

REVIEW:

The game provided each student an opportunity to make the most profit that he/she could make with the resources provided. Students were forced to make decisions to determine which properties to buy and which piece or pieces of mining equipment should be purchased.

Each student should have learned a simplified flow of an operating mine. Also, each student should have learned something about the difficulty of reclamation, especially in returning the cookie back to the exact size that it was before “mining” began.

ACTIVITY DEVELOPED BY:

Women In Mining Education Foundation

Cookie Mining Worksheet

Name: _____ Date: _____

Mining start-up funds = \$19

- A. *Land acquisition costs = price of cookie*
 (Mother's - \$3; Chips Ahoy - \$5; Chips Deluxe - \$7)
 Name of cookie _____ \$ _____

Size of mine = size of cookie
 Squares covered pre-mining (used for reclamation) _____

- B. *Equipment costs*
 Flat toothpick _____ x \$2 = _____
 Round toothpick _____ x \$4 = _____
 Paper clip _____ x \$6 = _____
 Total equipment costs \$ _____

- C. *Mining/excavation costs = chip removal*
 Number of minutes _____ x \$1 _____
 Total excavation costs \$ _____

- D. *Mining valuation*
 Number of chips mined _____ x \$2
 Gross profit \$ _____

- E. *Reclamation*
 Squares covered outside original outline _____ x \$1
 Total reclamation costs \$ _____

- F. *Profit/loss*
 Start-up funds _____
 less total mining costs (A, B, & C) _____
 less total reclamation costs (E) _____
 plus gross profit (D) _____
 Total profit/loss _____

Coal Dough



