

Activity 4—Chocolate Chip Cookie Mining

Suggested Grade Level: 5 through 8



Objective: The purpose of this game is to give the students an introduction to the economics of mining. Each student buys “property,” purchases the “mining equipment,” pays for the “mining operation cost,” and completes “reclamation” of his or her property while receiving money for the “ore mined.”

Students must make decisions on which property to buy and which tools to use, some of the same decisions that must be made in the mining industry. The objective of the game is to learn how to run a profitable mining operation that is environmentally sound.

Materials:

- Play money
- Large square graph paper
- 3 different brands of chocolate chip cookies
- Flat toothpicks
- Round toothpicks
- Paper clips
- Pencils

Instructions:

- Each student starts with \$19 of cookie mining money.
- Each student receives a sheet of graph paper.
- Each student must buy his/her own “mining property” (cookie); only one property per student.

Cookies for sale are:

- Brand 1—\$3.00
- Brand 2—\$5.00
- Brand 3—\$7.00

STEP 1. Have the students purchase a “mining property” (cookie).

STEP 2. After the cookie is bought, the student places the cookie on the graph paper and using a pencil traces the outline of the cookie. The student must then count each square that falls inside the circle. (Note: Count squares that are one-half or more inside the circle as a full square. Do not count squares having less than one-half of their area inside the circle.)

STEP 3. Now each student must buy his/her own “mining equipment.” More than one piece of equipment may be purchased. (Note: Equipment may not be shared between players.)

- Mining equipment costs:
 - Flat toothpick—\$2.00
 - Round toothpick—\$4.00
 - Paper clip—\$6.00

STEP 4. Have the students mine their property, removing the chocolate chips, following the rules below.

Rules:

- (1) No student can use his or her fingers to hold the cookie. The only things that can touch the cookie are the mining tools and the paper the cookie is sitting on.
- (2) Students should be allowed a maximum of 5 minutes to “mine” their cookie. Players that finish before the 5 minutes are up should only use the actual time spent “mining” to calculate mining cost (\$1.00 per minute).
- (3) A student can purchase as many mining tools as he or she desires, and the tools can be of different types.
- (4) If the mining tools break, they are no longer useable, and a new tool must be purchased.
- (5) Sale of the chocolate chips brings \$2.00 per chip; broken chips can be combined to make 1 whole chip.
- (6) After the cookie has been “mined,” what is left of the cookie must be placed back into the circled area on the graph paper. This can only be accomplished using the mining tools—no fingers or hands allowed.
- (7) Reclamation cost is \$1.00 per graph-paper square.
- (8) Apply profit calculation: Revenue (chips mined at \$2.00 each) minus Costs (property, tools, mining, and reclamation costs) = Profit.
- (9) The player with the largest net profit at the end of the game wins.
- (10) All players WIN at the end, because they get to eat what’s left of their cookie!

Evaluation and Discussion:

Have the students discuss the following:

1. Which cookie gives you the best return (profit) for your mining efforts?
2. What is the best mining equipment?
3. What is the total cost of reclamation?
4. Would you use different mining equipment with different types of cookies?
5. Is the type of equipment you use related to your mining cost?
6. What would you do if you owned properties with different types of resources (cookies)? What decisions would you make?
7. What economic choices did you make as you mined your property?