INTRODUCTION:
The goal of this assignment activity is to give the students an introduction to the economic and physical challenges of mining. Students have the opportunity to “purchase” mining equipment, receive payments for effective mining time and also receive money as part of the mining reclamation process (the recovery of the unmined land for the property, or in this case the leftover cookie). Students will need learn how to run a profitable mining operation that is environmentally friendly as well.

In this activity, it is possible to work with a small group of three or four. However, each person needs to complete the assignment page.

MATERIALS:
- Mining Money
- Graph paper
- Three different brands of chocolate chip cookies
- Flat toothpicks, round toothpicks and paper clips (purchased from your teacher)

PROCEDURE:

STEP 1. Each person in the group will start with $19.00 in Mining Money (provided by your banker) along with a sheet of graph paper.

STEP 2. Each person will need to purchase a mining property (a.k.a. cookie). The costs for the property are as follows:

   Cookie Brand A – $3.00
   Cookie Brand B – $5.00
   Cookie Brand C – $7.00

STEP 3. Place your cookie on the graph paper and using a PENCIL, outline the shape of the cookie. You must then count the number of squares that are inside of the cookie outline. Only count squares that have more than half of the area inside of the outline. Anything smaller than half will not be counted.

STEP 4. Now it is time to purchase mining equipment. The costs for the equipment are as follows:

   Flat toothpick – $2.00
   Round toothpick – $4.00
   Paper clip – $7.00

STEP 5. Mine your property of the minerals. You must follow the rules to the mining. Cheating results in a foreclosure of the mine and a loss of all mining monies to the bank.
MINING RULES

1. **No one can use their fingers to hold the cookie.** The only thing to touch the cookie are the tools being used.

2. **You will be allowed to mine the cookie for a timed 5 minutes.** Anyone that finishes mining before the 5 minutes is up will only use the time spent mining to calculate the mining operations costs, which are $1.00 per minute of mining.

3. **You can purchase as many tools as you would like.**

4. **If a tool breaks, it can no longer be used in the mining process.** A new tool will have to be purchased.

5. **Sale of the chocolate chips brings in $2.00 per chip.** Any broken chips can be combined to make a whole chip for sale.

6. **After the cookie has been mined for chocolate, the remaining parts of the cookie must be placed back in the circled area on the graph paper.** You can only do this using the mining tools again – no fingers or fingernails or other body parts allowed.

7. **Reclamation is $1.00 per square on the graph paper.**

8. **Calculate your profit as follows:**

   \[
   \text{Total profit of running the mine} = \text{Revenue (chips mined @ $2.00 each)} - \text{Cost of mining (tools, property and reclamation costs)}
   \]
CHOCLATE CHIP COOKIE MINING ANALYSIS QUESTIONS

1. Calculate the cost of running your mine. Use the question in the rules and show all your work.

2. Which cookie brand gave the best return or profit?

3. Which do you think was the best mining tool? Why? Would you use different mining tools for different cookies?

4. What would you do if you actually owned your own land with different resources that could be mined? What sorts of decisions would you have to make?

5. How, if at all, were you able to make environmentally friendly mining choices? Briefly explain what these choices were and why they impacted your mining efforts.