

Mining for Chocolate Chips!

Name _____

Your objective:

Run your mine responsibly by extracting your mineral (chocolate chips) from the cookie and returning the land as close to its original condition as possible.

Directions:

- 1) Select and name your mining property above the mining grid. The price of your chocolate chip "mine" is \$3.00. Since this is your first expense, record this on the Profit Sheet.
- 2) Place your cookie on the grid paper and trace its outline with a pencil. This is your mine footprint, or the area of land that your mine will affect.
- 3) Purchase your mining equipment (what you will use to extract your chocolate chips). You may choose to purchase more than one tool. Record your costs on the Profit Sheet.

Tooth pick- \$2.00

Paper clip- \$4.00

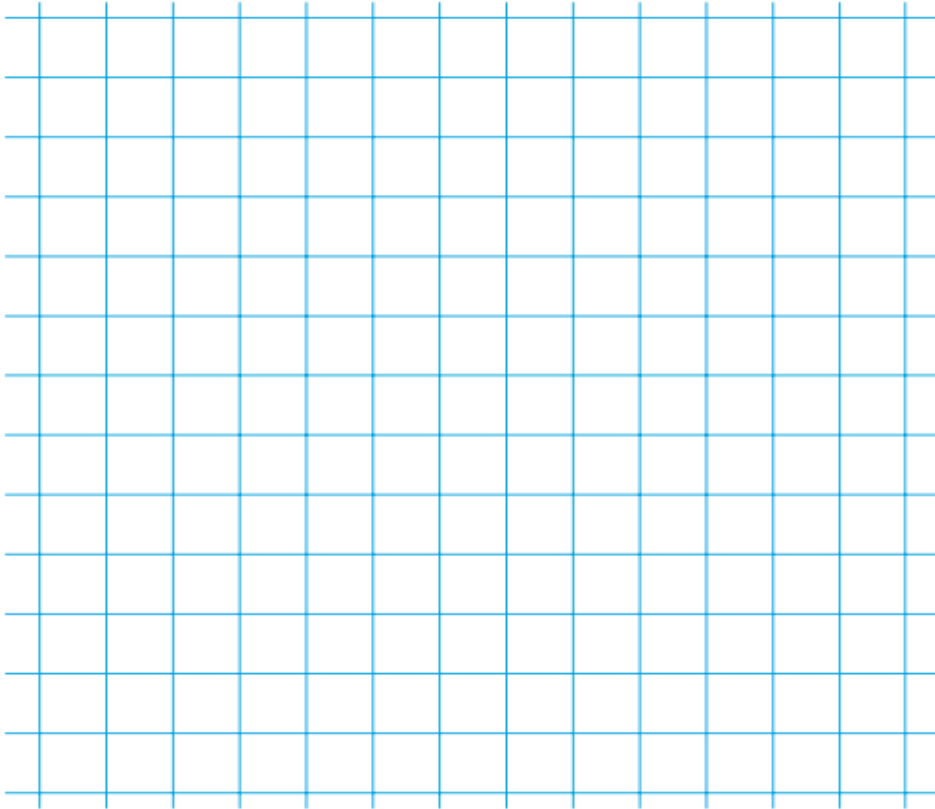
- 4) Mine your cookie for 3 minutes using ONLY your tools. You may not touch the cookie with your hands. Try to remove as much of the resource (chips) as you can.
- 5) The cost of mining is \$1 per minute. Record this cost on the Profit Sheet.
- 6) The mine earns \$2 for every chocolate chip that is mined. Broken chips can be combined to make a whole chip. Record this amount on the Profit Sheet.
- 7) When the mining process is complete, any remaining crumbs must be placed back into the footprint, the circled area, on the grid paper. You must use ONLY tools to complete this task. This is called reclamation of the land. You have one minute to complete this task.
- 8) Count the number of grid squares that have crumbs OUTSIDE of the original mining footprint, and the number of grid squares that are uncovered INSIDE of the original mining footprint. Deduct \$1 for each one. Record this on the Profit Sheet.
- 9) Finally, find the sum of the total cost of mining and the reclamation cost. Then subtract that sum from the total value of chips. This is your profit!

If the sum of the cost and reclamation is greater than the total value of chipped you mined, your mining operation has not been successful. What changes can you make to increase your profit?

Profit Sheet

NAME YOUR MINE: _____

TOTAL CHOCOLATE CHIPS MINED: _____



Mining Costs

Cost of mining property (cookie) \$ _____

Cost of mining equipment
toothpick/paper clip (Circle) \$ _____

Cost of mining (minutes x \$1) \$ _____

Total cost of mining (add all above) \$ _____

Total value of chips \$ _____
(number of chips removed x \$2)

Reclamation cost \$ _____
(number of altered squares x \$1)

Total value of chips - (Total cost of mining + Reclamation cost) = \$ _____ profit



Reflection:

1. Were the minerals (chips) distributed evenly throughout the Earth (cookie)?

2. Some smaller crumbs may have fallen on the table or the floor, or even blown away while you were mining. How do you think this affects the reclamation of the land in real life?

3. Were you able to completely restore the land (cookie)? Why or why not?

4. How did this activity help you understand the ways mining can affect an area both environmentally and economically?
