

Cookie Mining Activity

North Dakota Lignite Geology, Mining and Reclamation

Description

In this delicious hands-on activity, students will learn about mining, reclamation, and profitability while mining chocolate chips from a cookie. This is an online mini-course that students will be able to complete with minimal teacher assistance. Students may use individual devices to go through the course, or the course can be projected onto a screen and used as a whole-class activity. The course includes an introductory lesson about mining and reclamation, followed by a hands-on mining activity. It's recommended that you go through the online activity first to become familiar with the steps. [View the online activity here.](#)

After learning about mining and reclamation, students will choose how to spend the start-up funds for their cookie mine. Students will make decisions about the quality of their land and tools before beginning to mine chocolate chips. When the time is up, they'll compare income and expenses to see if their mine made a profit.

Grade Levels

3rd - 12th grade

Subjects

Science & Math

Supplies

The list below is for a class of 25 students.

Supplies	Quantity	Notes
Flat Toothpicks	1 box	
Round Toothpicks	1 box	
Large Paper Clips	1 box	
Grid Paper	25 pieces	
Store Brand Chocolate Chip Cookies	1 package	
Regular Chocolate Chip Cookies	1 package	Example: Chips Ahoy Original
Deluxe Chocolate Chip Cookies	1 package	Example: Chips Ahoy Chunky
Cookie Mining Student Handouts	1 copy per group	
Computer & Projector / Individual Student Devices	1 per class or group	
Writing Utensils	1 per group	
Paper Towels or Wipes	1-2 per group	Used for cleanup!

Activity Prep

- Make 1 copy of the student handout per group.
- Print and cut out the Fine slips found at the end of this document.
- Break students into groups. Two students per group is preferred if possible.
- Preview the activity at <https://learn.lignite.com/trainings/cookie-mining/>.
- If completing the activity as a class, set up a computer and projector.
- If students are completing the activity on individual devices, post the link to the activity for easy access (Google Classroom, class webpage, etc).
- Set out the supplies for the activity for students to purchase:
 - Flat toothpicks
 - Round toothpicks
 - Paper clips
 - Grid paper
 - Student handouts
 - 3 types of cookies

Cookie Mining Rules

1. Students can hold the cookie in place with a hand while mining.
2. Students can break the cookie up and move chocolate chips but ONLY with the mining equipment.
3. A group can only mine one cookie at a time.
4. Multiple group members can work on mining the same cookie.
5. Large chocolate chunks are worth \$2 each and small chocolate chips are worth \$1 each.
6. Broken chocolate chip pieces may be combined to make a whole chip.
7. Broken equipment MUST be replaced.
8. Students can be fined \$1 for cookie crumbs found outside the mining area.
9. Each minute of mining costs the company \$1 in employee salaries. If students mine for 10 minutes, the mine will pay salaries of \$10.
10. A group can spend up to 15 minutes mining.

Other Information

- Allergy Alert - this activity may not be suitable for students with food allergies.
- Students are limited to \$10 of equipment for this activity. Toothpicks may break but the broken halves can still be used for mining. If students didn't spend all of their money, they are able to purchase more equipment.
- During the activity, you can give a group multiple fines for cookie crumbs outside of their mining area.

Discussion Questions

1. Ask the students to share whether or not their mine made a profit. Is there a pattern for the type of mine and equipment in profitable mines?
2. Ask students what they would change if they did this activity again.



FINED!

The Mining Company must pay a \$1 fine for mining material located outside the designated mining area.



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