



Lesson 2: Local Resources & Industry

Time: minimum 45 minutes
Grades: adaptable to grades K-4

Objectives

Students will:

- understand the role of anthracite coal in the history of northeastern Pennsylvania
- learn about the mining process (and miners)
- gain awareness of the economics of mining
- learn what reclamation is

Materials

- wild birdseed (with sunflower seeds)
- plastic containers with lids (ours were approx. 10" x 10" x 2½")
- beads (see original lesson plan for color/number breakdown)
- penalty cards
- calculation worksheets
- cut-out arrows

Vocabulary

- resource/natural resource
- anthracite coal
- breaker
- breaker boys
- waste rock
- reclamation

Resources

- source lesson plan: Kentucky Foundation, <http://www.coaleducation.org/lessons/wim/1.htm>
- environmental penalty/fine cards: <http://www.earthconservancy.org/wp-content/uploads/2023/07/wereclaim-mining-violation-printable.pdf>
- mining calculation worksheet: <http://www.earthconservancy.org/wp-content/uploads/2023/07/wereclaim-birdseed-mining-worksheet.pdf>

Lesson Plan

1. Anticipatory Set

- Ask, "What is a **resource**?" (Something that can be used to fulfill a need.) Talk about resources people use every day (e.g., lamp, cell phone)
- Ask, "What is a **natural resource**?" (Something from nature that is used by humans to fulfill a need.) Brainstorm examples and discuss how they may be used (e.g., trees = construction materials, paper, heat, food).

2. Anthracite Coal in Northeastern Pennsylvania

- The way humans interact with the world can be very specific to a place. Where we live, one of the most important things that affected how this area developed was the discovery

of anthracite coal. Anthracite coal was a very important resource.

- This discussion will be specific to the industry that was important to your community. In our mini-lecture, we
 - Showed a map of Pennsylvania with the anthracite coalfields. Northeastern PA is home to the largest deposit of **anthracite coal** in the world.
 - Talked about the difference between anthracite and bituminous coal (we also passed around samples of anthracite coal).
 - Showed historical photographs of underground coal mining, strip mining, and how coal was processed at the **colliery**/in the **breaker**. This included a discussion of **breaker boys**, 8 to 12-year-olds who would sort fragments of **waste rock** from the coal.
- We then brainstormed the benefits of industry (e.g., jobs, availability of goods, higher standard of living, technological advancements).

3. Activity & Discussion

- Break students into small groups (no more than three per group works best). Each group receives container of birdseed with colored beads already buried. Instruct students to mine for beads PLUS sunflower seeds. Remind students to mine neatly. Any waste seeds on table, lid, etc. will result in an environmental fine (review “fine”, if needed) from the mining inspector.



Students neatly sort beads and sunflower seeds from “waste rock.” Items then will be counted and values calculated on worksheet in the foreground

- When the majority of groups have found their beads (or, based on a predetermined time limit), have students complete mining calculation sheet (assistance may be required depending on age/ability). Discuss the role of the white beads, i.e., **reclamation**: Mining companies are currently required to return mined land to a natural state/repair environmental damage.
- Draw chart on board and tally the totals for each group. Prizes may be awarded.
- Discuss students' experience with the activity, including
 - Was mining or hard? What made it so?
 - What did you notice about the value of certain items? How might this affect your mining approach?
 - Was it fair to get a penalty? Was it fair to have to complete reclamation? Why or why not?

4. Conclusion & Preview

- Review the importance of coal for the local area; integral to industry, transit, heating, etc., as well as the employment of hundreds of thousands of people.
- However, coal mining also had a cost. In the next lesson, we'll discuss what some of those costs were.