



PREVISIT STUDENT SURVEY GRADES 3-4

TEACHER INFO & ANSWERS

The student survey that appears on pages 3-4 of this document is based on the 2009 New Jersey Core Curriculum Content Standards and is intended for use *before* your students visit Sterling Hill. Directly linked to this document is a post-visit survey that will allow you to assess how much your students learned during their class trip. The surveys, the class trip to Sterling Hill, and the pre- and post-visit activities are cross-curricular by design and are meant to address various aspects of earth science, social studies, and technology.

Standards Addressed:

NJ Earth Systems Science Strand 5.4.G, Biogeochemical Cycles

CPI# 5.4.2.G.4: The origin of everyday manufactured products such as paper and cans can be traced back to natural resources.

- Your students will be visiting a mine where several natural resources – zinc, iron, and manganese – were extracted from the Earth’s crust and eventually made into products they use every day. The relation between raw materials and end-user products will be emphasized repeatedly during their tour.

NJ Social Studies Strand 6.1.B, Geography, People, and the Environment

CPI# 6.1.4.B.4: Describe how landforms, climate and weather, and availability of resources have impacted how and where people live in different regions of NJ and the US.

- The towns of Ogdensburg (home of the Sterling Hill Mining Museum) and nearby Franklin exist because of the ore deposits there. The same is true of dozens of other towns in New Jersey, which owe their existence to the mineral wealth in those places.

- During your trip to Sterling Hill, your students may notice that most of our towns are in valleys, where rivers provided both water and transportation routes for early settlers, and rich bottomland provided good soil for crops. As our road network developed for overland travel, most of the roads were built in valleys for ease of construction and to connect the settlements already there. It is only in recent decades that residential development has appreciably spread into the adjacent ridges.

NJ Technology Strand 8.2.A, Nature of Technology: Creativity and Innovation

CPI# 8.2.4.A.1: Investigate factors that influence the development and function of technology products and systems.

- The mining of irregular orebodies deep beneath the surface requires creative and innovative technologies to work successfully in a challenging environment. As your students are led through the Sterling Hill mine, they will learn about the technology behind the mining process, including mine lighting, safety systems, drilling and blasting, transportation systems for both miners and ore, and ore processing.

Time Required for Survey: 10-12 minutes

Materials Needed: One copy of the two-page survey sheet (p. 3-4) for each student

Answers:

A. Name some things you would expect to see in a mine. Include tools you think a miner might use during his or her work.

Tools: Shovels, picks, rock drills, hammers, dynamite, ore cars, etc.

Other: Mine shaft, tunnels, ladderways (parts of the mine itself)

B. Besides humans, what is the most common animal you would expect to see in an underground mine?

Bats. Others: cave crickets, rats. Visitors: snakes, toads, mice, raccoons, skunks, etc.

C. What kinds of things are taken out of mines? Circle at least three of them.

Coal, iron, copper, gold, diamonds

D. What kinds of things are needed by miners AND their families to live and thrive as a community? List as many things as you can.

Houses to live in, land to grow food, grocery stores, schools, hospital, doctors and health clinics, police force, firemen, paramedics (ambulance crew), clothing and shoe stores, hardware stores, recreation facilities (parks, library, swimming pool, movie theater), roads maintenance department, water and sewer service, banks.

E. What type of landform (shape of the land) might you find at a New Jersey mine? Draw a picture of what you might see on the back of this page.

Answers will vary, but much of New Jersey consists of elongate ridges separated by fairly flat-floored valleys. Students may draw a tunnel leading into a hillside, or a vertical shaft leading straight downward from a ridge crest or valley bottom, or an open pit or trench gouged out of rock at the surface. All were common mine types in New Jersey.

F. Is mining important to you? Let's find out. For each item listed below, circle Yes (Y) if you think mining was involved in making it, or No (N) if you think it was not.

The correct answer for all 10 items is Yes (Y). See the document *What's In It? How Is It Made?* for explanation.



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Name: _____ Grade: _____ Date: _____

The questions below will tell us how much you already know about mining and its value, if any, to your daily lives.

A. Name some things you would expect to see in a mine. Include tools you think a miner might use during his or her work.

B. Besides humans, what is the most common animal you would expect to see in an underground mine?

C. What kinds of things are taken out of mines? Circle at least three of them.

Coal

Hay

Gold

Iron

Rope

Diamonds

Potatoes

Copper

D. What kinds of things are needed by miners AND their families to live and thrive as a community? List as many things as you can.

E. What type of landform (shape of the land) might you find at a New Jersey mine? Draw a picture of what you might see on the back of this page.

F. Is mining important to you? Let's find out. For each item listed below, circle Yes (Y) if you think mining was involved in making it, or No (N) if you think it was not.



Batteries: Y N



Nail polish: Y N



Candy bar: Y N



Pencil: Y N



Cell phone: Y N



Pennies: Y N



DVD: Y N



Toothpaste: Y N



Light bulb: Y N



T-shirt: Y N