

**Grade:** 6-8

**How Do We Use Minerals?**

**Lesson #C3: Consumer Choice**

**Time:** 1 class period

**Overview:**

Students' role-play bicycle retailers and consumers to demonstrate how market and consumer choice, in addition to availability, drives mineral economics.

**Essential Questions:**

How are our product choices related to the mineral industry?

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**Source:** Adapted from previous AMEREF curriculum: Alaska Resources Kit: Minerals and Energy, Module D-Ecology/Economy Rev I 1/96

# Consumer Choice

Grades 6-8  
1 class period

## Overview:

Students' role-play bicycle retailers and consumers to demonstrate how market and consumer choice, in addition to availability, drives mineral economics.

## Essential Questions:

How are our product choices related to the mineral industry?

## Assessment

Can students:  
Demonstrate and describe how consumer choice drives part of mineral economics by writing about the affects of a personal choice?

## Alaska Standards

Addressed:

**Science GLEs**  
none

### Geography

E1) understand how resources have been developed and used;

### Government and Citizenship

F2) be aware that economic systems determine how resources are used to produce and distribute goods and services;  
4) understand the role of price in resource allocation;

## Vocabulary

Economics: Social science that deals with the production, distribution, and use of income, wealth, and goods.

Economy: The management of the resources and wealth of a community, state, country, etc.

Metal- An element that can conduct electricity and heat is malleable and has metallic luster.

Metallurgy: The science of separating metals from their ores.

Mineral: Naturally occurring, inorganic substances that have a defined chemical composition and crystalline structure.

Recycle: Return materials to be manufactured and used again.  
Reduce: To use less.

Retail. To sell manufactured products directly to the consumer.

Reuse: Use something more than one time or for more than one use.

Tradeoffs: Giving up something in order to gain something else.

Wholesale: To sell a manufactured products to a retail store

## Teacher information and Procedure

**Prior knowledge for students:** Some knowledge of minerals found in Alaska and their uses would be helpful.

**Materials needed:**

- Role play cards
- Fake money
- Product descriptions

**What to do in advance:**

Copy, cut out, and assemble materials.

**What to do during the lesson:**

- **Gear up:**

Show students pictures of two skiffs - one aluminum and one fiberglass. (substitute pictures of other items, or show actual items - depending on what you have available and your students' interests). Take a class vote on which one you would buy if you had money and needed a skiff. Ask students to share reasons for their choices.

- **Explore:**

In this activity, students will be critically analyzing their consumer choices and watching the repercussions of those choices.

Brainstorm and discuss how the choices students make at a store's cash register has repercussions from the retailer of a product all the way back to the mine. Discuss these economic repercussions briefly. Explain that the mining companies will be selling their minerals to the refineries. The refineries will be selling their materials to the manufacturers. The manufacturers will be selling the product to the wholesalers. The wholesalers will be selling it to the retailers. The retailers will be selling it to the consumers.

The students will be representing either consumers or retailers. All of the products, including their background information, are fictitious and designed to exaggerate the repercussions of consumer choice. Assign 6 students to represent retailers. The rest of the students will be consumers. Each retailer will represent an individual store selling bicycles made of metals. The consumer students will work in teams of 4,

representing similar purchase choices. Each consumer group will work from a criteria list which represents their Group's viewpoint and they will have a specific budget to which they must adhere.

During this activity the consumers will be shopping for a bicycle. Each retailer will sell several types of bicycles. They will try to get the consumer to buy their products. The prices have been set for each bike; however, the retailer may choose to put their bicycle on sale. If bike's does go on sale, point out at the end of the game that there may not be enough money to fully cover the retailer-to-mine economic chain. The minimum cost of a bicycle is determined by the amount the mine charged for the mineral, the amount the refiner charged for the metal, the amount the manufacturer charged to make it, and the amount the wholesaler charged the retailer.

Discuss differing viewpoints with students. Discuss those consumer choices are complicated. The way choices are made and viewed depends on individual perspectives. In this activity a student may or may not be representing their own viewpoint. Point out that this activity is a Role Play.

Give the retailers their bicycles. Each retailer should get at least 3 different bicycles. Several retailers may be selling the exact same bikes. Give consumers their money and their shopping criteria. Encourage consumers to ask questions.

- **Generalize:**

After all the consumers have purchased their bicycles, discuss the choices that were made. Discuss whether the activity felt real or not. Discuss why students made the choices they made.

On the board, draw the path of each bicycle from the retailer back to the manufacturer, refinery, and eventually to the mine. Trace the number of times money transactions occurred showing the division of the money from a single purchase. For the used bikes, the money has already changed hands so just draw the seller unless a used bike was bought from a retail store and not a garage sale.

Highlight the bikes, which were purchased in this activity.

Discuss the success of the purchase for all concerned. Next, highlight the bikes, which were not sold. Discuss the repercussions of the consumers' choices. Discuss how this may affect different economies: at the company level, community level, state level, and country level. Discuss why those bicycles were not chosen and what could be changed to make them more appealing.

Discuss how media, advertising and popularity, technology and convenience in addition to lifestyle choice determines what makes a product more appealing.

Review the challenges of consumer choice. Review that the choices you make can support your values. Review that choices are individual and that everyone has a right to choose.

- **Assess:**

Ask students to write about a recent purchase made by themselves or their families. It should be a purchase of something that contains mineral resources, preferably of a type found in Alaska. Students should describe the effects of their choice on retailers, manufacturers, and miners, and may also write about the effects on the environment.

**Related Resources in the AMEREF Kit**

- Overview of Mines in Alaska
- Minerals in Our Environment-USGS Poster
- Alaska's Oil/Gas & Minerals Industry: Alaska Geographic
- Rich Earth: Alaska's Mineral Industry: Alaska Geographic
- Hard Rock and Placer Mining in Alaska: The Searchers Video
- Alaska Coal: Pioneering in a New Environment Video
- The Mining Industry and Minerals Newspaper: National Energy Foundation
- Alaska's Place in the International Minerals Industry: Alaska Miners Association
- Alaska's Mineral Deposits Poster: AMEREF
- Coal Products Tree Poster: U.S. Bureau of Mines
- Petroleum Tree Poster: U.S. Bureau of Mines
- From the Mine to My Home Poster: National Energy Foundation
- From Mountains to Metals: The Story of Rocks, Minerals, and the Mining Industry Poster: National Energy Foundation

- Rocks and Minerals and How We Use Them Poster:  
National Energy Foundation

***Extensions, adaptations, and more resources:***

Make additional shopping cards with more advanced purchases such as large appliances, vehicles, or even homes.

Visit a store and list the number of things found in it, which have been mined.

Students look up sellers of the same product such as cars, snow machines, boats, or computers in The Consumer Guide to figure out the minerals used in making the product and compare the different products.

Students contact manufacturers, wholesalers, and retailers to see the percentage mark-up from the mine (the commodity price per pound or ounce) to the consumer.

Students choose a mineral commonly mined in Alaska. Students list possible buyers of the mineral within the state, U.S., or world.

Students analyze advertisements for products made from minerals.

## Background:

The resources we extract from the Earth include minerals, ore, oil, natural gas, and coal. A mineral reaches a person as a product after it has been mined, milled, refined, used in a manufactured product, and eventually sent to the market. Along the way, from mine to market, resources and money change hands. (See "Mineral Paths" for more information.)

The factors that drive the economics of mining include the cost to mine, the amount of minerals available to be mined, and the market demand.

Market demand, the focus of this lesson, is determined by consumer choice.

Consumers can make purchase choices based on their availability, cost, technology, product life, quality and warranty, safety, lifestyle, and environmental practices. Some people may prefer to buy used products; others may prefer new products.

Some people prefer to buy things made in the United States or in specific states. They may want to keep U.S. people employed, keep money within our country, or boost our nation or state's economy. They may also want products mined or made in the U.S. because of our country's strict environmental guidelines and job codes. They may want to buy in the U.S. because of our use of recycled materials. The United States recycles many of our metals. Some of them include 24% of copper, 60% of gold, 100% of iron and steel scrap, 65% of lead, 67% of platinum, 49% of silver, 35% of tin, and 29% of zinc. (Everything is Made of Something, A Study of the Earth, 1993, Pg. 30).

There are many firms in Alaska who recycle and resell their metal scrap.

While recycling in some communities may be expensive, reusing in Alaska's bush communities is certainly nothing new. For anyone who has lived in rural Alaska, you know that nothing is ever thrown away, and many things get used over and over again. Many choices are made every time you think about buying something.

## CONSUMER MONEY

Give 1 group \$300, another \$500, another \$1000, and another \$2000.

**10**

**10**

**25**

**25**

**100**

**100**

**100**

**100**

**100**

**100**

**CONSUMER MONEY**

<b>100</b>	<b>100</b>
<b>500</b>	<b>500</b>
<b>100</b>	<b>100</b>
<b>100</b>	<b>100</b>
<b>1000</b>	<b>1000</b>

## CONSUMER CRITERIA CARDS

### THE PRICE IS RIGHT

- You want it to be cheap.
- You want it to be safe.
- You want it to be in good condition.
- You want it to be strong.
- You want it to be able to go off road.
- You want it to have a warranty.

### KEEP IT IN THE U.S.

- You want it to be made in the U.S.
- You'd prefer that the metals used were mined and refined in the U.S.
- You want it to be safe.
- You want it to be in top condition.
- You want it to be for on road use.
- You want it to have a warranty.

### PROTECT THE ENVIRONMENT

- You want it to be used.
- You want it to be safe.
- You want it to be in good shape.
- You want it to be used for on or off road.
- You want it to have good tires.
- You want it to have been mined and manufactured in the U.S.
- You prefer it not to be more than 5 years old.
- You want it to last another 20 years.
- You want it to be made of something recycled.

### ONLY THE BEST

- You want it to be new.
- You want it to be safe.
- You want it to be a mountain bike.
- You want it to be top of the line.
- You want it to be popular.
- You want it to have 21 speeds.
- You want it to have the best brakes and best tires.
- You want it to have a good warranty.
- You want it to be tough.
- You want it to be light.
- You want it to be made for serious mountain biking.

## THE BICYCLES

Copy these two pages 3 times.

<p style="text-align: center;"><b>USED MOUNTAIN BIKE</b></p> <p><b>\$ 800.00</b></p> <ul style="list-style-type: none"> <li>• 3 years old, 15 speed</li> <li>• new, heavy, knobby tires</li> <li>• good for off road, hard to pedal</li> <li>• hand brakes front and back, good condition.</li> <li>• safe</li> <li>• body in rough shape</li> <li>• no warranty</li> <li>• weighs 40 lb.</li> <li>• fairly popular</li> <li>• needs new paint job</li> <li>• manufactured, refined, and mined in the U.S.</li> <li>• For environmental ranking it scores a superior in manufacturing, excellent in refining, and excellent in mining.</li> </ul>	<p style="text-align: center;"><b>NEW MOUNTAIN BIKE</b></p> <p><b>\$ 2,000.00</b></p> <ul style="list-style-type: none"> <li>• made this year, 21 speed</li> <li>• new, light, skinny tires</li> <li>• good for roads with hills, easy pedal</li> <li>• hand brakes front/back, excellent condition.</li> <li>• safe</li> <li>• body in excellent shape</li> <li>• 1 year warranty</li> <li>• weighs 30 lb.</li> <li>• super popular</li> <li>• painted neon and lots of colors</li> <li>• manufactured, refined, and mined overseas.</li> <li>• For environmental ranking it scores an excellent in manufacturing, superior in refining, and excellent in mining.</li> </ul>
<p style="text-align: center;"><b>NEW MOUNTAIN BIKE</b></p> <p><b>\$ 1,500.00</b></p> <ul style="list-style-type: none"> <li>• made last year, 21 speed</li> <li>• new, heavy tires</li> <li>• good for on or off road, OK to pedal</li> <li>• hand brakes front/back, excellent condition.</li> <li>• safe</li> <li>• body in excellent shape</li> <li>• 6 months warranty</li> <li>• weighs 35 lb.</li> <li>• pretty popular</li> <li>• painted neon and lots of colors</li> <li>• manufactured, refined, and mined overseas.</li> <li>• For environmental ranking it scores a good in manufacturing, superior in refining, and poor in mining.</li> </ul>	<p style="text-align: center;"><b>USED RACING BIKE</b></p> <p><b>\$ 150.00</b></p> <ul style="list-style-type: none"> <li>• 10 years old, 10 speed</li> <li>• old super skinny tires</li> <li>• great for long distance</li> <li>• hand brakes front/back, OK condition.</li> <li>• fairly safe</li> <li>• body in good shape</li> <li>• no warranty</li> <li>• weighs 30 lb.</li> <li>• not popular</li> <li>• painted dull orange with torn seat</li> <li>• manufactured and refined overseas, and mined in Alaska.</li> <li>• For environmental ranking it scores an OK in manufacturing, OK in refining, and excellent in mining.</li> </ul>

<p style="text-align: center;"><b>NEW STREET BIKE</b></p> <p><b>\$ 1,500.00</b></p> <ul style="list-style-type: none"> <li>• New, made 2 years ago, 15 speed</li> <li>• New, super skinny tires</li> <li>• great for long distance</li> <li>• hand brakes front/back, excellent condition.</li> <li>• safe</li> <li>• body in excellent shape</li> <li>• 2 year warranty</li> <li>• weighs 20 lb.</li> <li>• super popular</li> <li>• painted neon with racing handle bars and a racing seat.</li> <li>• manufactured, refined, and mined in the U.S.</li> <li>• For environmental ranking it scores superior in manufacturing, excellent in refining and mining.</li> </ul>	<p style="text-align: center;"><b>NEW DIRT BIKE</b></p> <p><b>\$ 800.00</b></p> <ul style="list-style-type: none"> <li>• New this year, 1 speed</li> <li>• little, knobby tires</li> <li>• great for dirt bike riding</li> <li>• hand brakes front/back, excellent condition.</li> <li>• safe</li> <li>• body in excellent shape</li> <li>• 3 month warranty</li> <li>• weighs 35 lb.</li> <li>• super popular</li> <li>• painted bright colors, fancy seat</li> <li>• manufactured and refined overseas, and mined in Alaska.</li> <li>• For environmental ranking it scores excellent in manufacturing, refining, and mining.</li> </ul>
<p style="text-align: center;"><b>USED DIRT BIKE</b></p> <p><b>\$ 150.00</b></p> <ul style="list-style-type: none"> <li>• 5 years old, 1 speed</li> <li>• little, knobby tires, bad shape</li> <li>• great for dirt bike riding</li> <li>• hand brakes front/back, poor condition, need to be replaced.</li> <li>• not safe</li> <li>• body in poor shape</li> <li>• no warranty</li> <li>• weighs 40 lb.</li> <li>• fairly popular</li> <li>• painted bright colors, fancy seat</li> <li>• manufactured, refined and mined overseas.</li> <li>• For environmental ranking it scores poor manufacturing, poor refining, and very poor mining.</li> </ul>	<p style="text-align: center;"><b>NEW ONE SPEED BIKE</b></p> <p><b>\$ 300.00</b></p> <ul style="list-style-type: none"> <li>• made this year, 1 speed</li> <li>• average, new tires</li> <li>• great for average riding</li> <li>• hand brakes front/back, OK condition and OK on pedaling.</li> <li>• very safe</li> <li>• body in excellent shape</li> <li>• 1 year warranty</li> <li>• weighs 40 lb.</li> <li>• pretty popular</li> <li>• painted black with fancy seat</li> <li>• manufactured, refined overseas, and mined in the U.S.</li> <li>• For environmental ranking it scores an excellent in manufacturing, refining, and mining.</li> </ul>

## GARAGE SALE BIKES

### Teacher Note:

Put these two cards on a separate desk with the "Garage Sale" sign.

# GARAGE SALE

<p><b>GARAGE SALE 3 SPEED BIKE</b> <b>\$ 30.00</b></p> <ul style="list-style-type: none"><li>• 15 years old, 3 speed</li><li>• average tires, excellent condition</li><li>• great for average riding</li><li>• hand brakes front/back, excellent condition.</li><li>• safe</li><li>• body in good shape</li><li>• no warranty</li><li>• weighs 45 lb.</li><li>• not very popular</li><li>• painted black</li><li>• manufactured, refined, and mined overseas.</li><li>• Environmental ranking unknown.</li></ul>	<p><b>GARAGE SALE BANANA BIKE</b> <b>\$ 10.00</b></p> <ul style="list-style-type: none"><li>• 20 years old, 1 speed</li><li>• little, knobby tires, bad shape</li><li>• can ride anywhere</li><li>• brakes on pedals, OK condition</li><li>• fairly safe</li><li>• body in terrible shape with a banana seat</li><li>• no warranty</li><li>• weighs 45 lb.</li><li>• not popular (could be cool with new paint and seat)</li><li>• once was baby blue, seat cracked, high handle bars</li><li>• manufactured in the U.S., refined and mined overseas.</li><li>• Environmental ranking unknown.</li></ul>
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