

Minerals of Central Asia- Middle School

Objectives: Students will be able to identify various minerals that are mined throughout Central Asia and analyze the impact that mineral mining has on economics

Standards:

7.ESS.1 Identify and investigate the properties of minerals. Identify and classify a variety of rocks based on physical characteristics from their origin, and explain how they are related using the rock cycle. (i.e. Sedimentary, igneous, and metamorphic rocks)

6-8.LH.7.1: Conduct short research assignments and tasks to answer a question (including a self-generated question), drawing on several sources and generating additional related, focused questions that allow for multiple avenues of exploration.

Domain – Economic Systems

Core Standard 2 Students critique various economic systems from around the world in order to identify strengths and weakness, and compare each.

Standards

GE-2.1 Describe the various economic systems

GE-2.2 Identify questions that must be answered by any economic system and how they are categorized by how they answer the basic economic questions

GE-2.3 Evaluate the strengths and weaknesses of various economic systems

GE-2.4 Explain the fundamental role of government in the various economic systems

GE-2.5 Investigate the effect of taxes on economic systems

GE-2.6 Describe fiscal policy and its relationship to various economic systems

GE-2.7 Explain and evaluate how and why governments control businesses and individuals through laws and taxes

Approximate Length: 2 class periods

Materials Needed:

World Map

Non-permanent dot stickers

Central Asia Mineral List

Research materials (internet and library)

About the Lesson:

Mineral mining plays an important role in global economics, especially in the countries of Central Asia. In this lesson, students incorporate geography, geology, and economics to explore how the Central Asian states utilize minerals to bolster their economies.

Procedures:

1. **Think-Pair-Share:** Ask students to discuss what they already know about the Central Asian region. Which modern nation-states compose Central Asia?
2. Show students a map of Central Asia with the region circled (Central Asia Map PDF). Point out the following countries: Azerbaijan, Iran, Kazakhstan, Kyrgyzstan, Mongolia, Tajikistan, Turkmenistan, Uzbekistan, Afghanistan, Turkey (for more advanced students, you may want to ask volunteers to come to the board and point out each country individually. It also may be helpful to show students a map of the world so that they can see where the Central Asia region is located in relation to nearby countries).
3. Explain to students that many countries in Central Asia are rich with minerals and that mineral resources make up a large percentage of the economies of these countries. Due to their location, these Central Asian states are close to many commodity markets in China and Europe.
4. Place students in pair or in groups. Assign them several minerals from the list below. Have them place the stickers on the Central Asian countries where each mineral is found. (extension: When students are finished with their individual maps, place one map in the front of the classroom and have one member from each group place stickers on the countries where their minerals are found. You will need different colored or shaped stickers for this).

Central Asia Mineral list:

Aluminum (Azerbaijan)
 Antimony (Tajikistan, Turkey)
 Bischofite (Turkmenistan)
 Bentonite (Uzbekistan, Turkmenistan)
 Chromite (Kazakhstan, Turkey)
 Coal (Uzbekistan, Mongolia)
 Epsomite (Turkmenistan)
 Fluorspar (Uzbekistan)
 Gypsum (Uzbekistan)
 Lead (Kazakhstan, Azerbaijan, Iran, Tajikistan, Turkey)
 Iodine (Uzbekistan)
 Mercury (Tajikistan, Turkey)
 Kaolin (Uzbekistan)
 Lithium (Uzbekistan,
 Zinc (Kazakhstan, Kyrgyzstan, Uzbekistan, Azerbaijan, Iran, Tajikistan, Turkey)
 Uranium (Kazakhstan)
 Copper (Kazakhstan, Kyrgyzstan, Iran, Mongolia, Turkey)
 Gold (Kazakhstan, Kyrgyzstan, Iran, Mongolia, Tajikistan)
 Iron (Kazakhstan, Azerbaijan, Iran, Tajikistan, Turkmenistan)
 Lapis Lazuli (Afghanistan)
 Bauxite (Kyrgyzstan, Turkey)
 Sulfur (Kyrgyzstan, Uzbekistan)
 Silver (Uzbekistan, Tajikistan)
 Tungsten (Kyrgyzstan, Uzbekistan, Tajikistan)
 Thenardite (Turkmenistan)
 Uranium (Uzbekistan, Iran, Mongolia)

Bismuth (Tajikistan)

Molybdenum (Tajikistan)

5. When students have finished placing the stickers, lead a brief class discussion. Which countries have the most minerals? What do you think this indicates how minerals contribute to those countries' economies? What do you notice about the geography of each country?

6. In their same groups or different groups, assign students one of the Central Asian countries. (Azerbaijan, Iran, Kazakhstan, Kyrgyzstan, Mongolia, Tajikistan, Turkmenistan, Uzbekistan, Afghanistan, Turkey). Tell students that they will be researching how minerals are mined in each country and how these minerals impact that country's economy. Give students the following questions to guide their research:

1. Which minerals are important to your country?
2. What percentage of your country's GDP (gross domestic product) is based on minerals? What other sectors are important to your country's economy?
3. How much (in weight) of different minerals does your country produce each year?
4. Where in your country are minerals mined?
5. What percentage of your country's population is employed in mineral mining?
6. How does mining minerals effect your country's environment? Have there been any environmental disasters (or issues) as a result of mineral mining?
7. What products does your country produce from minerals?
8. Who are your country's biggest trade partners?
9. Include 5 interesting facts about your country that **DO NOT** pertain to minerals.

6. In the next class, have students give an oral presentation about their research.

Resources:

<https://minerals.usgs.gov/> (official mineral website produced by the United States Geological Survey)

http://www.academia.edu/955437/Mining_and_minerals_trade_on_the_Silk_Road_to_the_ancient_literary_sources_2_BC_to_10_AD_Centuries

<https://www.reuters.com/article/us-china-silkroad-pakistan/pakistan-to-open-up-mineral-rich-baluchistan-to-china-silk-road-firms-idUSKBN18T1TE>

<https://www.centralasiametals.com/operations/>