MINERALS THROUGH GEOGRAPHY

INTRODUCTION

Minerals are related to rock type, not political definition of place. So, the minerals are to be found in a variety of locations that doesn't depend on population or other political geographical constraints. However, political boundaries determine many steps in the use of minerals.

OBJECTIVE:

Students will locate spots where specific minerals are found on a US map.

MATERIALS REQUIRED:

- Maps (laminated if possible). See the Women in Mining website, Games: http://www.womeninmining.org/pdfs/GeographyMap.pdf
- A pair of dice for each group
- Small game pieces or markers
- Worksheet for each student
- Trip cards for each trip, transferred from the list of minerals to collect at the end of this activity (card stock, business card size)

ACTIVITY:

PROCEDURE (Teacher instructions)

1) Set up
   a) Divide the students into groups of 6 or less. Each member will operate independently within the group, but the overall winner is by group.
   b) Have each student roll the dice twice to locate a home city from the Home City chart included at the end of this activity.
      i) Using the Home City chart, match the number from the first roll to the corresponding horizontal axis, and the second number with the vertical line. Where these numbers bisect will be that student's Home City. Students must remember to start and end the game at their Home City.
   c) After the students all have their Home City, they will draw a trip card. Give the students several minutes to determine the best route for their trip and enter their first and alternate routes on their worksheet.
2) Students will travel by dice movement, using their marker, across the United States to a state the produces a mineral on their trip card. They must reach the state capital in order to capture that state's mineral. Once a state has been taken, no one else can use it. Students need to plan their trips carefully, with back-up routes available. Minerals do not need to be retrieved in the same order as is shown on the trip card.

3) Roll the dice to determine starting student within a group. The students with the lowest numbers start first.
4) The winning student in each group is the first to retrieve the five state cards from his or her trip and return to his or her Home City. The game can continue until a group is the first to have all group members complete the journey.
5) A worksheet is provided to help students plan and keep track of their trips.

EVALUATION:

1) What conclusions can be drawn about the occurrence of minerals?
   a) Do the students understand that states may have mineral resources that differ from state to state?
2) Have the students research the states on their trip card and find out what other mineral resources are mined there.
3) Have the students research industries in the various states. Is there a relationship between a state's other industries and its mineral resources?
   a) Do mineral resources in surrounding states play a role in a particular industry in a particular state?
4) Have students pick various careers and determine which state would more likely have an industry that would use that particular career.
   a) Would the availability of specific career choices be determined by which state a student would like to live in to pursue that career?

HOME CITIES						
Roll of first die→	1	2	3	4	5	6
Roll of second die↓						
1	Casper, WY	Baltimore, MD	San Diego, CA	Wichita, KS	Jamestown, ND	Cedar Rapids, IA
2	Lubbock, TX	Socorro, NM	Macon, GA	Omaha, NE	Missoula, MT	Ft. Wayne, IN
3	Springfield MO	Tonopah, NV	Milwaukee, WI	Anchorage, AK	Ontario, OR	Pueblo, CO
4	Mobile AL	Portland, ME	Peoria, IL	Akron, OH	Hawi, HI	Jacksonville, FL
5	Pittsburgh, PA	Louisville, KY	Pocatello, ID	Tulsa, OK	Roanoke, VA	Bridgeport, CT
6	Rochester, NY	Knoxville, TN	Seattle, WA	New Orleans, LA	Greensboro, NC	Manchester, NH

MINERALS TO COLLECT ON TRIPS					
Trip 1	Barite	Copper	Lead	Petroleum	Soapstone
Trip 2	Beryl	Diamonds	Limestone	Phosphate	Sulfur
Trip 3	Beryllium	Fluorspar	Lithium	Platinum	Taconite
Trip 4	Boron	Gold	Magnesium	Potash	Talc
Trip 5	Clay	Granite	Marble	Pyrite	Trona
Trip 6	Clay	Graphite	Mica	Salt	Tungsten
Trip 7	Clay	Gypsum	Molybdenum	Sandstone	Uranium
Trip 8	Coal	Helium	Natural Gas	Sand/Gravel	Vanadium
Trip 9	Coal	Iron Ore	Nickel	Silver	Zinc

Trip 10	Coal	Lead	Olivine	Slate	Zinc

STATES AND MINERALS				
Alabama	Iron ore		Montana	Tungsten
Alaska	Zinc		Nebraska	Petroleum
Arizona	Copper		Nevada	Gold
Arkansas	Diamonds		New Hampshire	Beryl
California	Boron		New Jersey	Zinc
Colorado	Molybdenum		New Mexico	Potash
Connecticut	Mica		New York	Talc
Delaware	Magnesium		N. Carolina	Lithium
Florida	Phosphate		North Dakota	Uranium
Georgia	Barite		Ohio	Sandstone
Hawaii	Clay		Oklahoma	Helium
Idaho	Silver		Oregon	Nickel
Illinois	Fluorspar		Pennsylvania	Slate
Indiana	Limestone		Rhode Island	Sand/Gravel
Iowa	Gypsum		S. Carolina	Clay
Kansas	Salt		South Dakota	Vanadium
Kentucky	Coal		Tennessee	Pyrite
Louisiana	Sulfur		Texas	Graphite
Maine	Clay		Utah	Beryllium
Maryland	Coal		Vermont	Marble
Massachusetts	Granite		Michigan	Platinum
Virginia	Soapstone		Washington	Olivine
Minnesota	Taconite		West Virginia	Coal
Mississippi	Natural Gas		Wisconsin	Lead
Missouri	Lead		Wyoming	Trona

The map of the United States can be found at http://www.womeninmining.org/pdfs/GeographyMap.pdf . The map should be printed out in color on 11”X17” paper to use as the playing board.

Minerals through Geography Worksheet			
Trip No. _____			
Home City _____	**Marker Color _____**		
Route (POSSIBLE state to go to)	**# - or - order of states to go to**	**Mineral Mined in the State**	**State Captured (check mark)**
1)			
1)			
1)			
1)			
1)			
alternate:			
alternate:			

To Whom It May Concern:

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Arloa Woolford
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