



**Beyond the Sources • Iron Range**

Using the information you gather on the web site, answer the following questions about the unit.

1. According to the sources you have been looking at, many processes played a part in placing iron on the Mesabi Range. How did volcanoes contribute?

***It was volcanoes that placed iron in the area in the first place. Eruptions long ago in the area left iron throughout northern Minnesota.***

What role did water play in forming the Iron Range?

***Water played a large role. The iron was picked up and carried into the area by rivers and streams. These streams emptied into a large, low sea that covered the area.***

How did having a large sea in the area contribute?

***The sea was where the iron was allowed to collect in large amounts. It settled out of the water and fell to the floor of the sea, gradually building up on the floor of the sea.***

Through what processes did the iron get into the rocks?

***Some of the iron got into rocks by being absorbed or seeping into cracks. Iron also got into the rocks by being pressed together with sand to form sedimentary rocks with iron ore in them.***

Did the glaciers play a role in forming the Mesabi Range?

***Yes they did. The weight of the glaciers helped press the iron into rock. The melting water from the glaciers helped wear away the surrounding sand, leaving behind deposits of pure iron.***

2. Before people began using iron, the metals that civilizations used were mostly soft metals such as tin and copper. What can you do with soft metals that you could do just as well with iron?

***Like soft metals, iron can be melted and poured into molds to create things made of metal.***

In what ways is iron not as good as soft metals?

***Iron is more common and not as attractive as soft metals like gold and silver. It isn't as valuable for that reason, and isn't used very often in jewelry.***

In what ways does the hardness of iron make it more valuable?

***Because it is so strong, iron makes a good building material. Things built of iron will be more durable. People that learned how to make weapons out of iron had an advantage over those making weapons out of softer metals.***

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3. When the Mesabi Range was discovered, part of people's excitement was over finding so much ore in one place. They thought it would last indefinitely. What are some things that could affect how quickly the iron could be removed from the range?

***Technology like steam shovels and the railroad would make it possible to remove and transport more and more iron ore***

What kinds of things were being built and used in cities that might affect how quickly the ore was mined?

***As technology like cars became more popular, more iron would be needed to build them. Cities were also using more and more iron to construct buildings and bridges.***

What types of events throughout the world might cause a need for ore?

***When World War I began, a much larger demand for ore was placed on the Mesabi range.***

What might cause the world demand for ore to decrease?

***If larger, purer sources were found somewhere where it could be easily dug, then less ore might have been dug from the Mesabi. Also if the world discovered a stronger or better substance, ore might be left behind the same way that copper was less important when iron was first discovered.***

4. Oil, timber, and water are examples of other natural resources that we consume. For each of these, say whether you think it is mostly like or unlike iron as a natural resource, and explain why.

***Oil is like iron in that it takes a long time to form and comes from underground and has to be transported. It is different in that it is a liquid and is used for fuel where iron is solid and is used for making things. Timber is like iron in that it is used for building things and that it must be transported. Unlike iron, it takes less time to be created, and forests can be replanted whereas iron will eventually be used up. Water could be like iron in that we have both water and iron in our bodies. Otherwise they are rather different as water is a liquid, is reusable, and is abundant on the planet; none of this is true of iron.***