

# IRON



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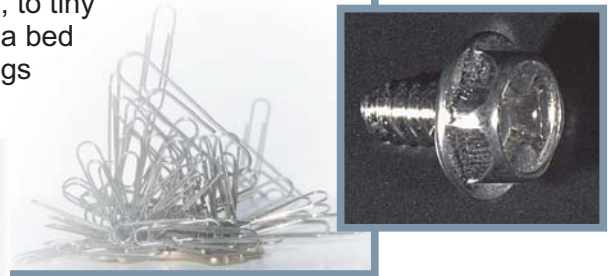
## King Iron

Iron is one of the most useful of all of the metals. People have been using iron for more than 5000 years. Smelted iron artifacts from Iraq and Egypt have been dated to around 3000 BC.

Today we use 20 times more iron, in the form of steel, than all of the other major metals put together. Almost all of the iron ore mined in the world is used to produce steel – for everything from huge bridges, trucks, trains, ships, engines, and machines of all kinds, to tiny pins, needles, and paperclips. You may be sleeping on a bed with a steel frame and a mattress containing steel springs made from iron ore.



E. Macey, NRCCan



S. McCracken, NRCCan

S. Leong, NRCCan

And iron is used for much more than steel-making: it's used as a pigment in makeup, paint and ink, in paper, plastics, and in baked enamel finishes for appliances. Iron is found in medicines, vitamin pills, cereals, fertilizers, magnets, fungicides, and fireworks.



S. McCracken, NRCCan

Blue Water Bridges, St. Clair River, connecting Ontario and Michigan

## Iron from Space

In 1818 the English explorer John Ross travelled to Greenland and found the Inuit using iron tools in a land where there didn't appear to be any iron ore. They told him that they had been taking this metal from a huge rock far north of the area where they lived.

It turned out to be a large, almost pure iron meteorite that slammed into the Earth near Cape York in northern Greenland, about 10,000 years ago. It broke apart as it descended through the atmosphere.

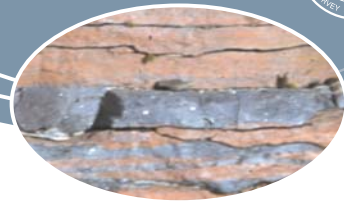


Manicouagan meteorite impact crater (centre), Quebec (ISS006E34153)

For more than 1000 years, Inuit traveled great distances to this site to take pieces of the meteorite using basalt hammer stones. The pieces were shaped into harpoons and other edged tools by hammering them. Tools made from the Cape York meteorite have been found in Dorset and Thule archaeological sites more than 2000 km away, indicating that there was a widespread trading network among these peoples. With the help of Inuit guides, the American explorer Robert Peary finally found three large pieces of this meteorite in 1894. They are now on display in the American Museum of Natural History in New York and are among the largest meteorite pieces ever found – the largest weighs 34 tonnes and is the size of a small car!

Courtesy of the Image Science and Analysis Laboratory, NASA Johnson Space Center

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## Canadian Iron

Ores are rocks and minerals from which we can get metals economically. Iron ore is one of Canada's most valuable mineral products; we are one of the world's largest producers and exporters of iron ore. There are many iron deposits in Canada, but because of their location or size, not all are economic. Most of Canada's iron ore production is from near Labrador City in the **Labrador Trough**, a geological belt extending through northern Quebec and Labrador. Canada's remaining iron production comes from the by-product recovery of magnetite from copper mine tailings near **Merritt**, British Columbia.



The major Canadian iron deposits are called banded iron formations. These distinctive rocks have layers of hematite or magnetite alternating with bands of red shale or chert. The deposits formed in the seabed along ancient continental margins between 1.8 and 3 billion years ago! The arc shape of the Labrador Trough outlines the edges of one of these ancient

continents. Geologists think that these bands show cyclic changes in the oxygen content of the early Earth's atmosphere and ocean.



EMR-4536

Iron ore pellets



EMR-0195

Loading iron ore pellets into hold of a Great Lakes ship



EMR-7499

Molten iron, SKW Canada Inc., Quebec

**Did you know?**

**In 14th century Britain, utensils and other household objects made of iron were considered precious**

**Pure iron is very reactive and rusts (combines with oxygen from the air) easily – the browns and reddish browns seen in soils and on rocks are usually iron oxides**

**Mars, the red planet, is red because of iron oxides present on its surface**

**Because iron is magnetic, steel for recycling is easily picked out of garbage by large magnets**

**Iron is an essential part of hemoglobin – the stuff that carries oxygen in our bloodstream**

**Iron is a common element in the Earth's crust and it combines with other elements to form more than 1000 minerals**

**Magnetite and hematite are more than 70% iron: the rest is the element oxygen**

Banded iron formation, Stakit Lake, Newfoundland and Labrador

KGS-441