

RAFT IDEAS

Topics: Matter, Elements,
Magnetism, Nutrition

Materials List

- ✓ ~ 25 grams (½ cup)
Total® cereal or
other high iron
cereal
- ✓ 5 cm (2”) Wooden
ball
- ✓ Cardstock
- ✓ Wand magnet
- ✓ Preform or plastic,
zipper-lock bag

This activity can be used
to teach:

- Elements, Properties
of Matter (metals)
(CA Science
Standards: Grade 5,
1.b, 1.c, 1.d, 1.f)
- Circulatory System
and Animal Transport
of Materials (CA
Science Standards:
Grade 5, 2.b)
- Moving Objects with
Magnets (CA
Science Standards:
Grade 2, 1.f)

Pumping Iron

Finding the Iron in Iron Fortified Breakfast Cereal



Sure, that fortified cereal sounds great! Our bodies need iron to grow, but no one would eat a bolt or other big chunk of iron to stay healthy... or would they? Iron is iron, and magnets attract iron. Finding iron in iron-rich food is easy (and amazing!)

To Do and Notice

1. Measure out about 25 grams (½ cup) of Total cereal.
2. Place the cereal onto cardstock. Crush the cereal to a fine powder by rolling the wooden ball on the cereal.
3. Place the cereal into a preform or zipper-lock bag.
4. Rub the **OUTSIDE** of the preform or bag with the wand magnet and notice the small clumps of cereal attracted to the magnet. There is the iron!

The Science Behind the Activity

Iron is an element: number 26 on the periodic table, the most stable element in the Universe. A highly reactive metal that corrodes rapidly, iron is not found free in nature, but rather exists in compounds. By weight, it is the 4th most abundant element of the Earth's crust, found in compounds such as hematite (Fe_2O_3) and magnetite (loadstone) (Fe_3O_4). Meteorites also usually contain high amounts of iron. Scientists believe the Earth's core is largely composed of iron, creating Earth's magnetic field.

As a metal used for tools and other man-made artifacts, iron is much more difficult to work with than other metals such as gold, silver, and copper. Humans began working with iron around 3,000 B.C. (the start of the “Iron Age”).

Iron is important to normal, animal (human) function. Iron is iron: the iron a body needs is the same iron from which nails and bolts are made. The body needs iron for 3 main purposes: transport of oxygen (by red blood cells); energy production and cell diffusion (iron is part of an enzyme needed for these functions); and iron supports the immune and central nervous systems. Foods rich in iron include red meat, fish, poultry, iron-fortified cereals, and beans. Insufficient iron intake can cause anemia.

Taking it Further

This activity could segue into a series of activities on magnetism (See RAFT Idea Sheets such as *Magnetic Explorer* and *Magnetic Mini-Wands*).

Web Resources:

Click here for a periodic table site with detailed information about iron:
<http://www.webelements.com/webelements/elements/text/Fe/key.html>

More information on anemia can be found at: <http://www.anemia.com/index.html>