

Getting the Iron Out of Cereal

Grade Level: K – 2

Introduction:

Look in your kitchen and find a box of cereal. Look closely at the nutrition label. Do you notice that it has a lot of minerals? Minerals, like Iron and Zinc, are important for the body to function properly. Cereals have minerals added to them to improve their nutritional value. For example, corn flakes are made from corn. On its own, corn has little nutritional value for humans. We often add vitamins and minerals to our foods to ensure that we get enough nutrients.

Real World Connection:

In some places in the world, children don't get enough nutrients in their food. This results in malnutrition - a condition in which the body doesn't have enough nutrients to work right. [Georgia Tech researchers have made a new way to test for malnutrition using small amounts of blood.](#) This test is very useful in poor and rural communities, where malnutrition is an important health issue.

In this activity, you will use a magnet to observe the Iron added to breakfast cereals in your household. Iron is one of the few elements that is magnetic, making it easy to separate from the rest of the cereal! Adding vitamins and minerals to food helps to prevent malnutrition.



Vocabulary to Know:

- ▶ **Malnutrition** – a condition caused by chronic lack of nutrients in an individual's diet
- ▶ **Nutrient** – found in food and are used by our body to carry out necessary functions
- ▶ **Mineral** – a nutrient that is made up of a metal, such as iron or zinc
- ▶ **Vitamin** – a nutrient that is made up of carbon, hydrogen, and other elements that aren't metal
- ▶ **Magnetic** – a unique arrangement of a metal ion surrounded by large molecules

Activity

Materials:

- Breakfast cereal (Any kind should work, Cheerios are often the best)
- Sandwich-sized plastic bags (like Ziploc or similar)
- Magnet (the strongest one you can find in your house)
- Flat surface, like a cutting board, counter, or plate



Continued.

Instructions:

1. Start by pouring some of the cereal into the plastic bag. After pouring, seal the bag tightly and crush the cereal into a fine powder.
2. Open the bag and pour the cereal onto the flat surface.
3. Carefully place the magnet just above the cereal. Be careful to not touch the cereal. Move the magnet back and forth over the cereal. You should see small black flecks jump out of the cereal powder and stick to the magnet - this is the iron! *(If you don't see anything, you may need a stronger magnet. Refrigerator magnets are hit-and-miss with this activity)*



Crushed cereal

Exploration Questions:

1. What other foods do you think you could test to see if there is enough iron to remove with the magnets? Hint: Look at the ingredients and nutrition labels!
2. Have more than one type of breakfast cereal? Try to determine which cereal has the most iron in it. Using measuring cups to get an exact serving according to the nutrition label and follow the directions above to investigate which cereal and serving size has the most iron in it.

Explanation:

The iron added to cereal is magnetic, meaning that it experiences attraction (and repulsion, the opposite of attraction) to other magnets. By crushing the cereal into a powder, you free the iron that was baked into the cereal pieces. Holding the magnet above the cereal makes the iron “jump” out of the cereal powder because of the attraction of the magnetic iron to the magnet.

Additional Resources:

- [Mag-nificent Breakfast Cereal](#)
- [Extracting iron from breakfast cereal](#)