



SCIENCE FESTIVAL FAMILY EXPERIMENT GUIDE: NAILS FOR BREAKFAST

You wouldn't eat nails or iron for breakfast, right? Do you think we will find any nails or iron in the cereal?

Instructions:

- **Adult:** Pour some of the cereal mix into your plastic cup.
- **Student:** While holding the magnet against the outside of the cup, stir the mix inside the cup gently with the plastic spoon. (Adults can help hold the magnet, if needed.)
- **Both:** Observe for a few minutes. What happens? How about when the magnet is taken away?

Questions for after:

K-2nd:

What did you notice when the magnet was in the cereal water?
Why do you think we needed a magnet to see the iron pieces?

3rd-5th Grade:

Why did we need a magnet to see iron pieces in the cereal?
Why did we need to turn to mix the cereal with water and mix it up to see the iron?

How It Works:

Some of the iron in our breakfast cereals is in the form of "raw" elemental iron. The small pieces of elemental iron are attracted to the magnet and gather to form the dark spot you can see on the side of your cup. The longer you stir, the darker the spot. When the magnet is removed, the iron will gradually disperse back into the cereal.

Vocabulary:

Hemoglobin: An iron compound that carries oxygen from the lungs to the rest of the body.

Element: a pure substance or material.

Real-World Application:

Oxygen is essential for life. The iron in our blood carries oxygen from the lungs to the rest of the body. That's why having too little iron (called anemia) can cause tiredness, make it easier to get sick, and cause our heart rate and breathing to speed up. Our bodies do not make iron; we must get it from our diet. We can get iron from lots of different sources: red meat, egg yolks, leafy green vegetables and shellfish (like crabs or shrimp). Iron is also added to certain foods. Cereal makers use elemental iron because it is shelf-stable and doesn't affect the food's flavor. In the stomach, this metallic iron is changed into iron compounds that our bodies can use.

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