

Extracting iron from cornflakes

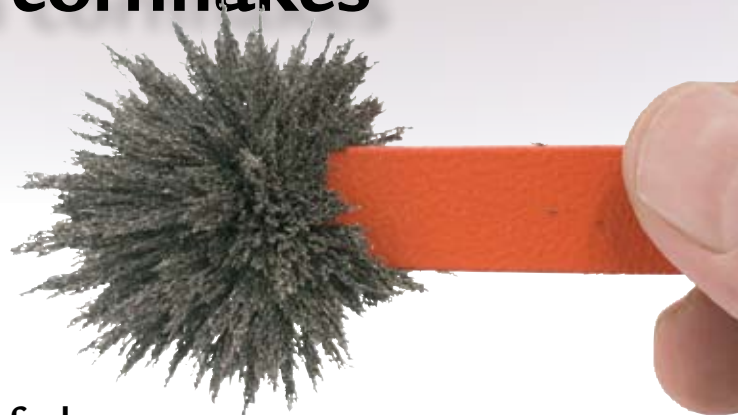
Many breakfast cereals claim to be fortified with iron. It is possible to extract this from the cereal and, perhaps surprisingly, it looks just like iron filings.

You will need

- Breakfast cereal fortified with iron, cornflakes work well
- Plastic cup
- Spoon
- Rolling pin or pestle and mortar or bowl and potato masher
- Hot (not boiling) water
- 2 clear, sealable sandwich bags – the zip-lock type is best
- Strong magnet – the stronger the better
- Piece of white paper

What you do

- Take about 2/3 of a cup of cornflakes and grind it to a fine powder. You can do this by bashing it with a spoon in the cup, by putting it in a sandwich bag and taking the rolling pin to it, crushing in a pestle and mortar, with a potato masher or zizzing in a blender. Whichever method you use, the finer the powder the better your results will be.
- Put the crushed flakes into the sandwich bag (use a new bag if you have been using one for crushing as it will probably have small holes in it). Carefully add about a cup of hot water to the powder, let out most of the air and seal the bag. Leave it for about 15-20 minutes so that the powder soaks up plenty of water. If all the water is soaked up, add a bit more.
- Lay the bag flat on the table and stroke it with a strong magnet, working all the time to one corner. Hold this against the white paper to make it easier to see the results.



What you find

You will see small black blobs coming out of the cereal as they are attracted to the magnet. These blobs are iron which has been added to the cereal. (You will not get large amounts of iron – certainly not as much as in the photo of the magnet.)

What happens when you eat it?

Your stomach juices contain hydrochloric acid which reacts with the iron to make iron (II) chloride. This contains Fe^{2+} ions which can be absorbed into the blood. Any unreacted iron passes through the digestive system and out the other end.

Further investigations

You could gather as much iron as you can from the cereal and weigh it (you will need to use an accurate balance – ask your teacher if you can use one in school). If you also weigh the breakfast cereal you could find out if it seems to contain the amount that is stated on the side of the packet. You could also try different types and brands of cereal.

Look here

Watch Ivan and Mick from New Scientist as they carry out the experiment: www.youtube.com/watch?v=ZlyKe9VE6o8.

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