Hunting for Metals

By Avrom Litin and David S. Heroux

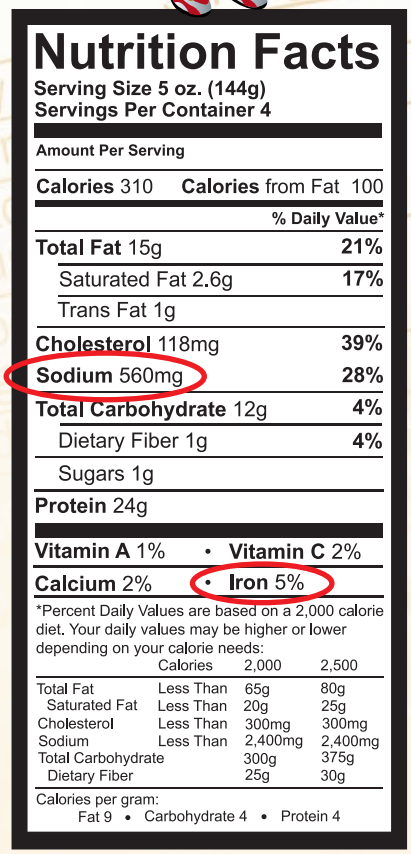
Introduction

Everyone loves to go on a scavenger hunt! Did you know you can hunt for metals in your kitchen? Every packaged food is required by law to include a food label, where nutritional and calorie information are listed. Food labels also list all ingredients in that food, and that is where we can find out if there are any metals in that food. Substances containing metals can contribute to a healthy diet. Even vitamin B12 contains the metal **cobalt** (Co).

Check the picture of a food label below to see where you can hunt for the metals listed on a food package. We have also included a table below listing some common ingredients that contain metals. Let's see how many metals you can find, and if you can match them to their symbol on the periodic table!

Common metal-containing ingredients in foods

Name of food	Name of ingredient	Metal	Element Symbol
Iodized salt, salty snacks	Sodium chloride	Sodium	Na
Snacks	Ferrous sulfate or reduced Iron	Iron	Fe
Many foods	Calcium chloride	Calcium	Ca
Potatoes	Potassium	Potassium	K
Baked goods	Sodium bicarbonate (baking soda)	Sodium	Na



Nutrition Facts
Serving Size 5 oz. (144g)
Servings Per Container 4

Amount Per Serving

Calories 310 **Calories** from Fat 100

	% Daily Value*
Total Fat 15g	**21%**
Saturated Fat 2.6g	**17%**
Trans Fat 1g	
Cholesterol 118mg	**39%**
Sodium 560mg	**28%**
Total Carbohydrate 12g	**4%**
Dietary Fiber 1g	**4%**
Sugars 1g	
Protein 24g	

Vitamin A 1% • **Vitamin C** 2%
Calcium 2% • **Iron** 5%

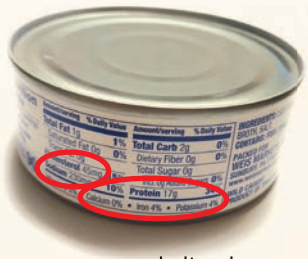
*Percent Daily Values are based on a 2,000 calorie diet. Your daily values may be higher or lower depending on your calorie needs:

	Calories	2,000	2,500
Total Fat	Less Than	65g	80g
Saturated Fat	Less Than	20g	25g
Cholesterol	Less Than	300mg	300mg
Sodium	Less Than	2,400mg	2,400mg
Total Carbohydrate		300g	375g
Dietary Fiber		25g	30g

Calories per gram:
Fat 9 • Carbohydrate 4 • Protein 4

Materials

- Periodic table of elements (see pages 2-3)
- Data table (see below)
- Packages of food from your kitchen



Procedures

Gather some packaged foods from your kitchen; we recommend vitamin supplements, cereals, packaged snacks, and canned foods. Find both the nutritional label and the ingredient list on the packaging. See if you can find any of the metals from the periodic table on the list. Sometimes the metal will be listed as a compound, which is a substance where the metal is bound to other elements. Sometimes the label will just say "minerals," which also contain metals. Fill out the data table below, including the symbols for each metal from the periodic table.

What metals did you find?

Food name	Name of the ingredient containing a metal	Element symbol of the metal (from the periodic table)

How does it work? / Where's the chemistry?

All matter is made up of elements on the periodic table, including foods. Many ingredients in foods contain common elements like carbon, oxygen, and hydrogen, but some ingredients contain metallic elements like iron, sodium, and zinc. These elements are found in smaller amounts in foods, but your body needs them just the same for good health. There is another story in this issue of *Celebrating Chemistry* that tells you about metals and health. Be sure to read it!

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