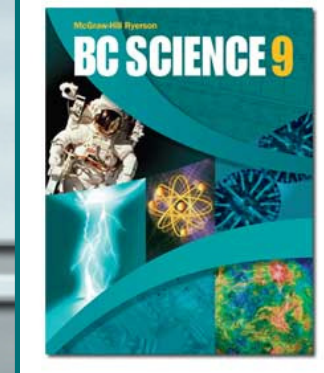


2.1 Elements



- Why are elements studied in chemistry?
 - Chemistry is the study of matter and its changes.
 - Elements make up an incredible variety of different substances.
 - An element is a pure substance that cannot be broken down or separated into simpler substances. Each element is one kind of atom.
 - By studying elements, we can learn more about the structure of matter.

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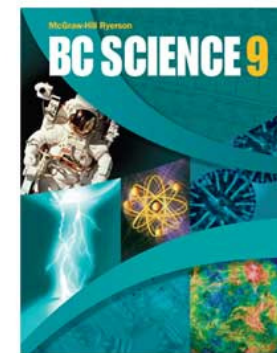
Chemical Symbols



- Element names and symbols
 - Because elements have different names in different languages, chemists use international symbols for them
 - Chemical symbols consist of one or two letters.
 - Ancient names are used as the source of many of the symbols. Example:
 - Mercury - **Hg** - **Hydragyrum** (*Latin for liquid silver*)

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Chemical Symbols



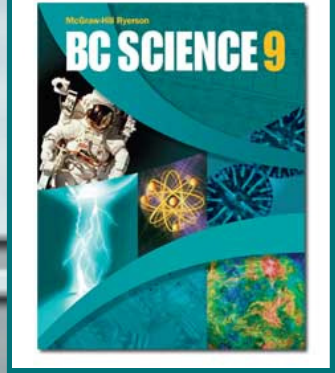
All elements are represented by symbols.

Here are just a few element symbol examples:

Gases at room temperature		
hydrogen	H	<i>Hydro genes</i> = water forming
helium	He	<i>Helios</i> = sun
Liquids at room temperature		
bromine	Br	<i>Bromos</i> = smelly
mercury	Hg	<i>Hydrargyrum</i> = Latin for liquid silver
Solids at room temperature		
lithium	Li	<i>Lithos</i> = stone
sodium	Na	<i>Natrium</i> = Latin for sodium

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Common Elements

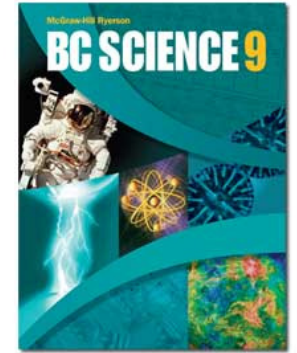


- Hydrogen
 - Colourless, odourless, tasteless, and highly flammable gas.
 - Makes up over 90 percent of the atoms in the universe
 - Used in producing fertilizers
 - Lighter than air
 - Can be separated from water or gasoline and be used as a source of fuel



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Common Elements



- Iron (**Fe**) - mixed with carbon to make steel
 - Good structural material, but can rust when mixed with water or oxygen
- Oxygen (**O**) - gaseous element we breathe
 - 21 % of the atmosphere
 - Reacts with most other elements

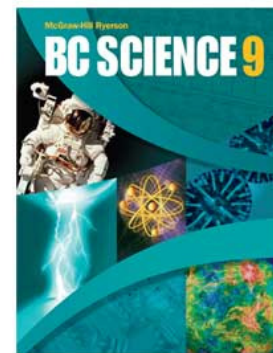


Iron in a river turns water and rocks red



Oxygen and iron react in burning thermite
[GNU license photo](#)

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Other Common Elements

- Sodium (**Na**) - soft metal that reacts with water
- Chlorine (**Cl**) - yellow-green gas that is highly toxic
- Mercury (**Hg**) - liquid at room temperature metal.
- Silver (**Ag**) - precious metal mined in British Columbia
- Silicon (**Si**) - brittle, grey, semiconductor that is second most common element in Earth's crust.



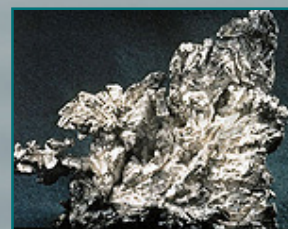
Na



Cl



Hg



Ag



Si

[Take the Section 2.1 Quiz](#)

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