These notes are posted on my site for the following reasons:

- **for students to copy in their own hand-writing**
  - **in order to complete their class notes**
  - **if student did not have enough time in class**
  - **if student was away and missed this section**
- **for assistants and tutors to follow progress of the concepts taught**

Photocopied/printed notes can not be used during the Unit Notebook Check in class.

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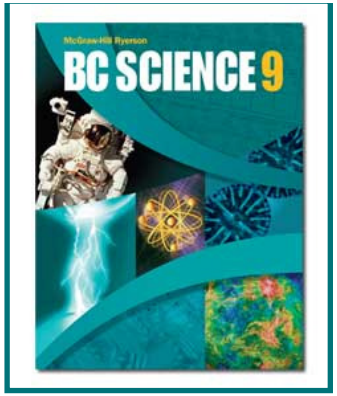
2.1 Elements



- 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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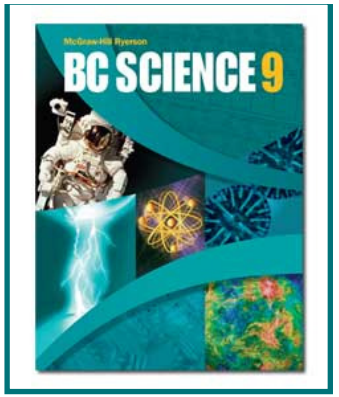
Chemical Symbols



- 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** - **H**ydra**g**yrum (*Latin for liquid silver*)

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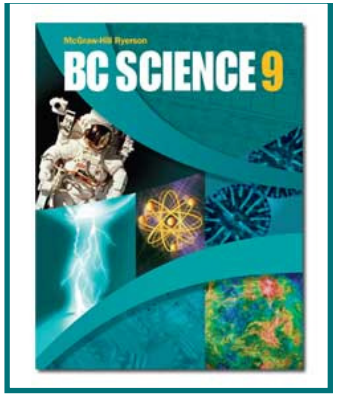

Chemical Symbols

All elements are represented by symbols.

Here are just a few element symbol examples:

Gases at room temperature		
hydrogen	H	***Hydro genes*** = water forming
helium	He	***He****lios* = sun
Liquids at room temperature		
bromine	Br	***Br****omos* = smelly
mercury	Hg	***Hydrargyrum*** = Latin for liquid silver
Solids at room temperature		
lithium	Li	***Li****thos* = stone
sodium	Na	***Na****trium* = Latin for sodium

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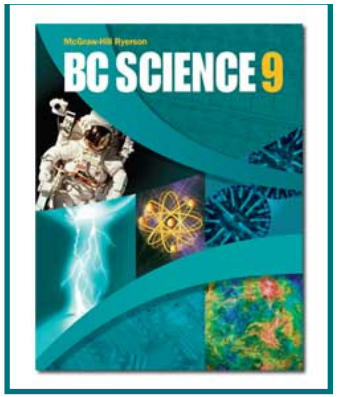

Common Elements

- 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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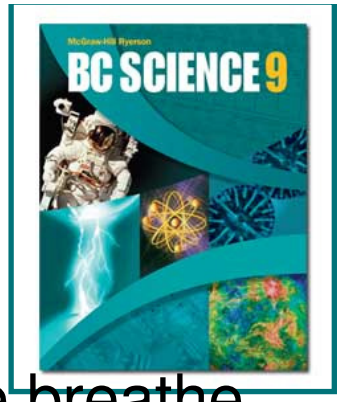
Common Elements



- Iron (**Fe**) - mixed with carbon to make steel
  - Good structural material, but can rust when mixed with water or oxygen

Iron in a river turns water and rocks red

- Oxygen (**O**) – gaseous element we breathe
  - 21 % of the atmosphere
  - Reacts with most other elements

Oxygen and iron react in burning thermite

GNU license photo

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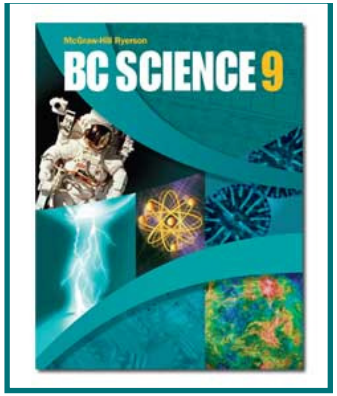


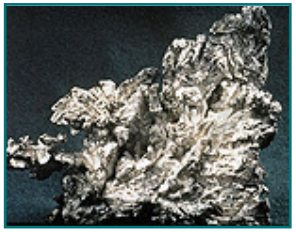
Other Common Elements

- 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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