

**Chapter 5 The Periodic Table**

**Section 5.2 The Modern Periodic Table**

(pages 130–138)

*This section explains the organization of the modern periodic table and discusses the general properties of metals, nonmetals, and metalloids.*

**Reading Strategy (page 130)**

**Previewing** Before you read, complete the table by writing two questions about the periodic table on pages 132–133. As you read, write answers to your questions. For more information on this reading strategy, see the **Reading and Study Skills** in the **Skills and Reference Handbook** at the end of your textbook.

Questions About the Periodic Table	
Question	Answer
Students might ask: What does atomic mass mean?	Atomic mass is a value that depends on the distribution of an element's isotopes in nature and the masses of those isotopes.
Why are two series of elements placed below the main body of the table?	Two series of elements are placed below the table to make the table more compact.

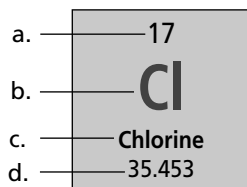
Other possible questions: Why are there two numbering systems for the columns? Why is Period 7 incomplete?

**The Periodic Law (pages 131–133)**

1. Is the following sentence true or false? In the modern periodic table, elements are arranged by increasing number of protons. true
2. Properties of elements repeat in a predictable way when atomic numbers are used to arrange elements into groups. This pattern of repeating properties is called the periodic law.

**Atomic Mass (page 134)**

3. Label the four types of information supplied for chlorine in the diagram.



- a. Atomic number
- b. Element symbol
- c. Element name
- d. Atomic mass

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4. Define atomic mass. Atomic mass is a value that depends on the distribution of an element's isotopes in nature and the masses of those isotopes.
5. Circle the letter of each sentence that is true about a carbon-12 atom.
- a. It has 6 protons and 6 neutrons.
  - b. Scientists assigned a mass of 6 atomic mass units to the carbon-12 atom.
  - c. It is used as a standard for comparing the masses of atoms.
6. Is the following sentence true or false? Most elements exist as a mixture of two or more isotopes. true

**Classes of Elements (pages 135–136)**

7. Name the three categories into which elements are classified based on their general properties.
- a. Metals
  - b. Metalloids
  - c. Nonmetals
8. Is the following sentence true or false? All metals react with oxygen in the same way. false
9. Circle the letter of each sentence that is true about nonmetals.
- a. Nonmetals are poor conductors of heat and electric current.
  - b. Many nonmetals are gases at room temperature.
  - c. Nonmetals that are solids tend to be malleable.

**Variation Across a Period (page 138)**

10. Across a period from left to right, the elements become \_\_\_\_\_. Circle the correct answer.
- less metallic      less nonmetallic      more metallic
11. Circle the letter of each Period 3 element that is highly reactive.
- a. sodium
  - b. silicon
  - c. chlorine