

# The Periodic Table (p. 516 - 524)

## I. Organizing The Elements

(1872)

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1. Who was the person that developed the first version of the periodic table? - late 1800's

Dmitri Mendeleev (Based on the card game solitaire.)

2. Define the term periodic table.

Periodic Table - arrangement of elements by increasing atomic number and by changes in physical + chemical properties

3. How is the periodic table of elements arranged?

↑ atomic number / Physical + Chemical Properties  
(periods) (groups)

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4. Mendeleev was able to predict unknown elements in his periodic table.

Circle One :

True

False

eka-silicon = Germanium  
eka-aluminum = Gallium

Initially only identified 63 elements. (Mainly metals)

5. Who developed the modern periodic table based on increasing atomic number (l → r).

Henry G.J. Moseley

(Not mass number)  
Ex. Nickel has a lower mass number than Cobalt

## II. The Atom & The Periodic Table

1. Define the term groups (columns).

Groups - vertical columns in the periodic table

2. Elements in each group have similar properties.

Circle One :

True

False

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3. Which of the following is false concerning electron energy levels?

- a. Energy levels closer to the nucleus have lower energy.
- b. Electron pairs (orbitals) fill energy levels from the outer levels to inner levels.
- c. Elements in the same group have the same number of electrons in the outer level.
- d. 8 electrons are capable of occupying the second energy level

4. Match the energy level with the correct number of electrons that occupy the level.

- |                               |       |
|-------------------------------|-------|
| 1. <u>A.</u> - Energy Level 1 | A. 2  |
| 2. <u>D.</u> - Energy Level 2 | B. 18 |
| 3. <u>B.</u> - Energy Level 3 | C. 32 |
| 4. <u>C.</u> - Energy Level 4 | D. 8  |



Bohr Model Practice

5. Elements in periods three and higher, extra electrons can be added to inner levels as long as the outer energy level only contains eight electrons.

Circle One : True False

6. Define the term electron dot diagram.

Electron Dot Diagram - symbol of the element + dots to represent the electrons in the outer energy level

7. Draw an electron dot diagram for the following elements.

Carbon

Helium

Neon



### III. Regions On The Periodic Table

1. Define the term periods (rows).

Periods - horizontal rows of elements on the periodic table

2. Elements increase one proton and one electron as you move left to right on a period.

Circle One : True False

3. In general, where are the following types of elements located on the periodic table?

Metals : Lower-left side

Non-Metals : Upper-right side

Metalloids : Between metals + non-metals (Diagonal)

4. Match the type of elements with the correct definitions.

Left = Most reactive metals  
Right = Most reactive non-metals

- |                          |  |
|--------------------------|--|
| 1. <u>A</u> - Metals     | A. Mainly solids, shiny, good conductor of heat & electricity  |
| 2. <u>C</u> - Non-Metals | B. Possess properties of both metals & non-metals              |
| 3. <u>B</u> - Metalloids | C. Mainly gases, brittle, poor conductor of heat & electricity |

5. Scientists have synthetically created elements in laboratories that are not found in nature.

Circle One : True False

Elements: 114, 116, 118

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Metals  
↓ group = more reactive  
Non-Metals  
↓ group =