Edgenuity

Warm-Up | Periodic Table

Lesson Question

Lesson Goals

Identify trends in the _____.

Examine the _____ of the periodic table.

Describe the _____ of the periodic table.

Determine the _____ of an element using the periodic table.

Words to Know

Fill in this table as you work through the lesson. You may also use the glossary to help you.

	a vertical column of elements in the periodic table
	a table that organizes the chemical elements in order of increasing atomic number and that groups elements based on similarities in chemical properties and electron configurations
	a horizontal row of elements in the periodic table
	the average mass of all isotopes of an element

Warm-Up | Periodic Table

Elements

- Made up of only one type of _____
- Combine to form _____
- Make up _____ matter in the universe
- Identified by:
  - Chemical _____
  - _____ number

Instruction | Periodic Table

Slide 2

The Periodic Table

The _____ is an organized display of the elements.

History of the Periodic Table

Several chemists made contributions to the way elements are organized. These arrangements eventually led to the modern periodic table.

Year: 1789	Year: 1829	Year: 1865
Antoine Lavoisier wrote *Elementary Treatise of Chemistry*, which _____ elements as acid-forming, gas-like, metallic, or earthy.	Johann Wolfgang Döbereiner _____ elements into _____ based on similar properties.	John Newlands _____ elements according to their _____.

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Slide 2

Dmitri Mendeleev (1843–1907)

PROFILE

Produced the first _____ arrangement of known elements

_____ existence of _____ elements based on his initial arrangement

The First Periodic Table

Dmitri Mendeleev

- Ordered elements by increasing atomic _____ .
- Observed repetition of _____ .
- Left blank spaces for _____ elements.
- Used _____ to predict undiscovered elements.

Slide 4

Henry Moseley (1887–1915)

PROFILE

- Arranged elements in order of increasing atomic _____
- Accounted for variations resulting from _____
- _____ the periodic table to the modern version

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Slide 7

Trends in the Periodic Table

- As you move from left to right, the atomic number of each element increases by [ ] .
- As atomic number increases, so does atomic mass

Classification of Elements on the Periodic Table

The [ ] of the periodic table fall into three general categories:

- [ ]
  - usually [ ]
  - can be bent into a variety of shapes
  - good [ ] of heat and electricity
  - most [ ]
  - examples: iron, tin, and gold
- [ ]
  - many are [ ]
  - often dull and break easily when bent
  - do [ ] conduct electricity or heat well
  - examples: carbon and sulfur

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Slide 7

- _____
  - look like a _____ on the periodic table
  - have characteristics of _____ metals and nonmetals
  - examples: boron and polonium

Slide 9

Organization of the Periodic Table: Periods

A horizontal row of elements in the periodic table is called a _____.

Periods follow particular _____.

- The atomic number _____ from left to right.
- The atomic _____ increases from left to right.

Organization of the Periodic Table: Groups

A vertical column of elements in the periodic table is called a _____.

- Group _____ (e.g., Group 1)
- Group _____ (e.g., Group 1A)

Elements within a group have similar _____ properties.

- Same number of _____ electrons

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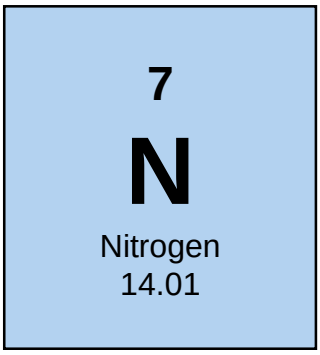
Slide 12

Elements of the Periodic Table: Information about Each Element

There is one square per element on the periodic table. Each square contains important information about the element.

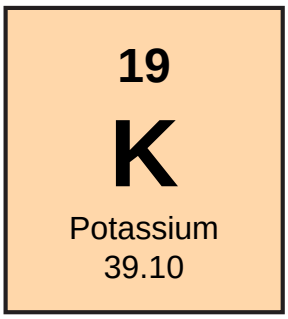
Example: Nitrogen

- Atomic number: ☐
- Chemical symbol: ☐
- Name of element: ☐
- Atomic mass: ☐



Elements of the Periodic Table: Example

You can use the information in an element's square to determine the number of protons, electrons, and neutrons in an atom.



Example: Potassium

- Number of protons (same as atomic number): ☐
- Number of electrons (equal to the number of protons): ☐
- Number of neutrons (subtract number of protons from atomic mass):

$39 - 19 =$ ☐

Summary | Periodic Table

Lesson Question

How is the periodic table arranged?

Answer

Summary | Periodic Table

Slide 2

Review: Key Concepts

SCIENTISTS WHO CREATED THE PERIODIC TABLE

Dmitri Mendeleev

- Created first _____ arrangement of known elements
- Ordered elements by atomic _____

Henry Moseley

- Arranged elements by atomic _____
- Revised the periodic table to the _____ version

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Slide 2

Review: Key Concepts

ARRANGEMENT OF THE PERIODIC TABLE

Periods – horizontal [ ] that follow particular patterns

- Atomic [ ] increases from left to right
- Atomic [ ] increases from left to right

Groups – vertical [ ] that have similar chemical properties

- [ ] number of valence electrons

Three categories of elements:

- Metals
- [ ]
- Metalloids

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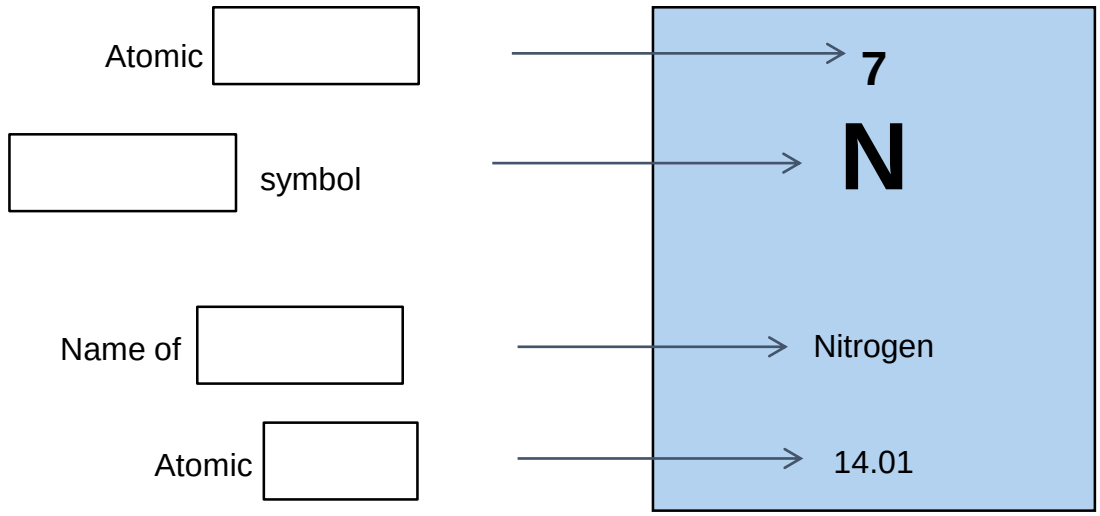
Slide 2

Review: Key Concepts

INFORMATION ABOUT EACH ELEMENT



Summary | Periodic Table

Use this space to write any questions or thoughts about this lesson.