

Topic 2.2 Test Outline (Science 9)

Summary:

Concept 1: Elements are the building blocks of matter.

- Know the info in the paragraph at the top of pg 103 but don't memorize details about specific elements.
- Given the element symbol, write the element name. Given the element name, write the element symbol (*with proper capitalization*). You will have access to a periodic table for this test.

Concept 2: Elements can be organized by their properties.

- Define atomic mass.
- Explain why the table of elements is called "periodic".
- Know that Mendeleev was the first creator of the periodic table of elements, and that he organized elements based on atomic mass and their chemical properties (density, melting point, boiling point, reactivity)

Concept 3: The modern periodic table organizes elements in groups and periods.

- Explain Henry Moseley's contribution to the modern periodic table.
- Define atomic number.
- Define group.
- Define period.
- Give the group and period of an element.

Concept 4: elements are classified as metals, non-metals, or semi-metals.

- Recognize where the non-metals, semi-metals, and metals are on the periodic table. (Do not have to memorize the semi-metals, but know their general location.)
- Identify and describe general properties of metals, semi-metals, and non-metals.
- Identify and describe properties of elements in Groups 1, 2, 17, and 18, plus hydrogen. (Note: hydrogen is **not** an alkali metal or a halogen.)
- Understand and define words associated with various chemical and physical properties:
 - o Electrical and Heat Conductivity
 - o State of Matter (solid, liquid, gas)
 - o Melting point
 - o Boiling point
 - o Malleability
 - o Ductility
 - o Luster (shiny, dull)
 - o Reactivity and Combustibility
 - o Hardness

Sample questions (to supplement workbook and textbook questions)

- 1) What is the atomic mass of iron (Fe)?
 - a. 26
 - b. 3+
 - c. 55.8
 - d. 30

- 2) How many protons does phosphorus have?
 - a. 15
 - b. -3
 - c. 12
 - d. 31.0

- 3) I have a metal element that is soft and highly reactive. What could this element be?
 - a. Sodium
 - b. Hydrogen
 - c. Bromine
 - d. Silicon

- 4) What property would I expect chlorine to have?
 - a. Solid at room temperature
 - b. Gas at room temperature
 - c. Good conductor of electricity
 - d. Shiny

- 5) Which of the following is **not** a metal?
 - a. Calcium
 - b. Neon
 - c. Aluminium
 - d. Indium

- 6) What do alkali metals and halogens have in common?
 - a. Metals
 - b. Solid at room temperature
 - c. Malleable
 - d. Highly reactive

- 7) What group is hydrogen a part of?
 - a. Alkali metal
 - b. Alkaline earth metal
 - c. Halogen
 - d. None of the above

- 8) Ms. Au is building a gaming computer. She needs an element that is a shiny solid and does not conduct electricity. What element could she use that meets these criteria?
 - a. Gold
 - b. Krypton
 - c. Silicon
 - d. Sulfur

- 9) What does hydrogen have in common with the halogens?
- Reactive/flammable
 - Brittle and non-ductile
 - Good conductor of heat and electricity
 - Liquid at room temperature
- 10) Alkali metals like lithium are often stored in oil. Why is this the case?
- They make delicious oils for human consumption.
 - They are highly reactive and must be kept away from oxygen and water.
 - The oil protects them if the container is dropped and breaks.
 - Storing them in oil is cheaper than storing them in water.
- 11) What element is in group 15, period 2?
- Hydrogen
 - Nitrogen
 - Phosphorus
 - None of the above
- 12) What element is in group 4, period 3?
- Scandium
 - Titanium
 - Silicon
 - None of the above

Key to practice questions:

- C
- A
- A
- B
- B
- D
- D
- C
- A
- B
- B
- D

VOCABULARY:

(Disclaimer: This is not meant to be an exhaustive list. Vocabulary words may appear on the test that are not in this list.)

- Element
- Atom
- Chemical name
- Chemical symbol
- Mendeleev
- Periodic Table
- Atomic number
- Atomic mass
- Group
- Family
- Period
- Metal
- Non-metal
- Semi-metal
- Properties:
 - o Malleability
 - o Ductility
 - o Conductor of electricity and heat
- o Gas, Liquid, Solid
- o Hardness
- o Reactivity
- o Shininess (luster)
- o Brittle
- Alkali metal
- Alkaline earth metal
- Halogen
- Noble gas

VOCABULARY NOT TESTABLE:

The following are words that appear in the textbook that will not appear on the test.

- Main-group elements
- Representative elements
- Transition elements
- Inner transition metals
- Metalloid

PRIMARY STUDY MATERIAL:

- Topic 2.2 Powerpoint
- Science Connections 9 Textbook (at end of powerpoint)
- Science Connections 9 Workbook questions for topic 2.2