

Table Of Elements Worksheet Answer Key PDF

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Part 1: Building a Foundation

What is the atomic number of Carbon?

undefined. **A) 6** ✓

undefined. B) 12

undefined. C) 8

undefined. D) 14

The atomic number of Carbon is 6.

Which of the following elements are considered noble gases? (Select all that apply)

undefined. **A) Helium** ✓

undefined. **B) Neon** ✓

undefined. **C) Argon** ✓

undefined. D) Oxygen

Noble gases include Helium, Neon, and Argon.

Define what a 'group' is in the context of the periodic table.

A group is a vertical column in the periodic table where elements share similar properties.

List two properties that are common to all metals.

1. Property 1

Conductivity

2. Property 2

Malleability

Common properties of metals include conductivity and malleability.

Which block of the periodic table contains the transition metals?

undefined. A) s-block

undefined. B) p-block

undefined. C) d-block ✓

undefined. D) f-block

The transition metals are found in the d-block of the periodic table.

Part 2: Understanding and Interpretation

Why do elements in the same group of the periodic table have similar chemical properties?

undefined. A) They have the same atomic number.

undefined. B) They have the same number of valence electrons. ✓

undefined. C) They have the same atomic mass.

undefined. D) They have the same number of protons.

Elements in the same group have the same number of valence electrons, leading to similar chemical properties.

Which of the following statements about the periodic table are true? (Select all that apply)

undefined. A) Elements are arranged by increasing atomic number. ✓

undefined. B) Elements in the same period have similar properties.

undefined. C) The atomic radius increases across a period.

undefined. D) Nonmetals are found on the right side of the periodic table. ✓

True statements include that elements are arranged by increasing atomic number and nonmetals are found on the right side.

Explain the trend of ionization energy across a period in the periodic table.

Ionization energy generally increases across a period due to increasing nuclear charge and decreasing atomic radius.

Part 3: Application

Which element would you expect to have a higher electronegativity, oxygen or sulfur, and why?

undefined. A) Oxygen, because it is higher up in the group. ✓

undefined. B) Sulfur, because it is lower in the group.

undefined. C) Oxygen, because it is to the right in the period.

undefined. D) Sulfur, because it is to the left in the period.

Oxygen is expected to have a higher electronegativity because it is higher up in the group.

If you were to design a lightweight, strong material for building aircraft, which elements might you consider using based on their properties? (Select all that apply)

undefined. A) Aluminum ✓

undefined. B) Iron

undefined. C) Titanium ✓

undefined. D) Lead

Consider using Aluminum, Titanium, and possibly others for their strength-to-weight ratio.

Describe how the periodic table can be used to predict the types of chemical bonds that an element might form.

The periodic table helps predict bonding types based on an element's position and its valence electron configuration.

Part 4: Analyzing Relationships

Which of the following elements is most likely to form a cation?

undefined. A) Chlorine

undefined. B) Sodium ✓

undefined. C) Neon

undefined. D) Phosphorus

Sodium is most likely to form a cation as it readily loses an electron.

Analyze the following pairs of elements and determine which pairs are likely to form ionic compounds. (Select all that apply)

undefined. A) Sodium and Chlorine ✓

undefined. B) Carbon and Oxygen

undefined. C) Magnesium and Oxygen ✓

undefined. D) Hydrogen and Nitrogen

Pairs likely to form ionic compounds include Sodium and Chlorine, and Magnesium and Oxygen.

Compare and contrast the properties of alkali metals and alkaline earth metals.

Alkali metals are more reactive than alkaline earth metals and have different physical properties.

Part 5: Evaluation and Creation

Which of the following elements would you recommend for use in electrical wiring, based on its properties?

undefined. A) Gold

undefined. B) Copper ✓

undefined. C) Aluminum

undefined. D) Iron

Copper is recommended for electrical wiring due to its excellent conductivity.

Evaluate the following statements and select those that correctly describe trends in the periodic table. (Select all that apply)

undefined. A) Electronegativity decreases down a group. ✓

undefined. B) Atomic radius decreases across a period. ✓

undefined. C) Ionization energy decreases across a period.

undefined. D) Reactivity of alkali metals increases down the group. ✓

Correct statements include that electronegativity decreases down a group and atomic radius decreases across a period.

Propose a new element based on current trends in the periodic table. Describe its likely properties and potential uses.

The proposed element could have properties similar to those of alkali metals, with potential uses in energy storage.