

Practice Electron Configuration Worksheet

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| Part 1: Building a Foundation |
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| Which principle states that electrons fill the lowest energy orbitals first? |
| Hint: Think about the order in which electrons occupy orbitals. |
| ○ A) Hund's Rule |
| ○ B) Pauli Exclusion Principle |
| ○ C) Aufbau Principle |
| O) Heisenberg Uncertainty Principle |
| Which of the following are types of atomic orbitals? (Select all that apply) |
| Hint: Consider the different shapes and types of orbitals. |
| □ A) s |
| □ B) p |
| □ C) d |
| D) g |
| Explain the significance of the Pauli Exclusion Principle in electron configuration. |
| Hint: Consider how this principle affects electron pairing in orbitals. |
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List the order of filling for the first four types of orbitals in an atom.



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| Hint: Think about the sequence in which orbitals are filled according to energy levels. |
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| 1. 1s |
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| 2. 2s |
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| 3. 2 p |
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| 4. 3s |
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| Which element has the electron configuration 1s ² 2s ² 2 p ⁶ 3s ² 3 p ⁶ 4s ¹ ? |
| Hint: Identify the element based on its electron configuration. |
| ○ A) Potassium |
| O B) Calcium |
| ○ C) Argon |
| O) Sodium |
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| Part 2: Comprehension and Application |
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| Which of the following statements about Hund's Rule are true? (Select all that apply) |
| Hint: Consider how electrons occupy orbitals of the same energy. |
| A) Electrons fill degenerate orbitals singly before pairing. |
| B) It applies only to s orbitals. |
| C) It minimizes electron repulsion.D) It is irrelevant for noble gases. |
| U) It is inelevant for hobie gases. |
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Describe how the periodic table is organized in terms of electron configurations and blocks.

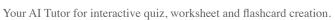
Hint: Think about the arrangement of elements and their electron configurations.



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| What is the electron configuration for an element in the d-block of the periodic table? |
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| Hint: Consider the ending of the electron configuration for d-block elements. |
| A) Ends in p |
| ○ B) Ends in d |
| C) Ends in s |
| O) Ends in f |
| Given the electron configuration [Ne] 3s² 3 p⁴, which element is this? |
| Hint: Identify the element based on its electron configuration. |
| A) Sulfur |
| B) Chlorine |
| C) Phosphorus |
| D) Argon |
| Predict the chemical properties of an element with the electron configuration [Ar] 4s ² 3 d ¹⁰ 4 p ⁵ . |
| Hint: Consider the position of the element in the periodic table and its valence electrons. |
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| Part 3: Analysis, Evaluation, and Creation |

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| order. (Select all that apply) |
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| Hint: Consider the typical order of filling and identify any deviations. |
| ☐ A) [Ar] 4s¹ 3 d⁵ |
| B) [Kr] 5s ² 4 d ¹⁰ 5 p ⁶ |
| C) [Ar] 4s ² 3 d ¹⁰ 4 p ⁶ |
| □ D) [Ar] 4s¹ 3 d¹⁰ |
| Explain why chromium and copper have electron configurations that are exceptions to the Aufbau |
| Principle. |
| Hint: Consider the stability of half-filled and fully filled subshells. |
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| Which principle can be used to explain the electron configuration of transition metals? |
| Hint: Consider the principles that govern electron arrangement. |
| ○ A) Hund's Rule |
| O B) Pauli Exclusion Principle |
| C) Aufbau Principle |
| O) All of the above |
| Evaluate the impact of electron configuration on the reactivity of alkali metals. |
| Hint: Consider how the electron configuration influences the behavior of alkali metals. |
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Propose an electron configuration for a hypothetical element with an atomic number of 120, and justify your reasoning.

| t: Consider the expected order of filling and the principles governing electron configurations. | |
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| Rn] 5f ¹⁴ 6s ² 6 p ⁶ | |
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| ich of the following elements would likely form a +2 ion based on its electron configuration? | |
| ich of the following elements would fixely form a +2 for based on its electron configuration: | |
| t: Consider the electron configurations of the elements listed. | |
| | |
| t: Consider the electron configurations of the elements listed. | |
| t: Consider the electron configurations of the elements listed. A) Magnesium | |