

# Electron Configuration Worksheet 2 Answer Key

## Electron Configuration Practice Worksheet **KEY**

In the space below, write the unabbreviated electron configurations of the following elements:

- 1) sodium  $1s^2 2s^2 2p^6 3s^1$
- 2) iron  $1s^2 2s^2 2p^6 3s^2 3p^6 4s^2 3d^6$
- 3) bromine  $1s^2 2s^2 2p^6 3s^2 3p^6 4s^2 3d^{10} 4p^5$
- 4) barium  $1s^2 2s^2 2p^6 3s^2 3p^6 4s^2 3d^{10} 4p^6 5s^2 4d^{10} 5p^6 6s^2$
- 5) neptunium  $1s^2 2s^2 2p^6 3s^2 3p^6 4s^2 3d^{10} 4p^6 5s^2 4d^{10} 5p^6 6s^2 4f^{14} 5d^{10} 6p^6 7s^2 5f^6$

In the space below, write the abbreviated electron configurations of the following elements:

- 6) cobalt  $[Ar] 4s^2 3d^7$
- 7) silver  $[Kr] 5s^2 4d^9$
- 8) tellurium  $[Kr] 5s^2 4d^{10} 5p^4$
- 9) radium  $[Rn] 7s^2$
- 10) lawrencium  $[Rn] 7s^2 5f^{14} 6d^1$

Determine what elements are denoted by the following electron configurations:

- 11)  $1s^2 2s^2 2p^6 3s^2 3p^4$  **Sulfur**
- 12)  $1s^2 2s^2 2p^6 3s^2 3p^6 4s^2 3d^{10} 4p^6 5s^1$  **Rubidium**
- 13)  $[Kr] 5s^2 4d^{10} 5p^3$  **Antimony**
- 14)  $[Xe] 6s^2 4f^{14} 5d^6$  **Osmium**
- 15)  $[Rn] 7s^2 5f^{11}$  **Einsteinium**

Determine which of the following electron configurations are not valid:

- 16)  $1s^2 2s^2 2p^6 3s^2 3p^6 4s^2 4d^{10} 4p^5$  **should be  $3d^{10}$**
- 17)  $1s^2 2s^2 2p^6 3s^2 3d^5$   **$3s^2$  is impossible & "p" instead of "d"**
- 18)  $[Ra] 7s^2 5f^8$  **Ra is not a noble gas**
- 19)  $[Kr] 5s^2 4d^{10} 5p^5$  **Valid**
- 20)  $[Xe]$  **Element can't be its own electron configuration.**

**ELECTRON CONFIGURATION WORKSHEET 2 ANSWER KEY** IS A CRUCIAL EDUCATIONAL TOOL FOR STUDENTS STUDYING CHEMISTRY AND ATOMIC STRUCTURE. UNDERSTANDING ELECTRON CONFIGURATIONS IS FUNDAMENTAL TO GRASPING HOW ATOMS INTERACT, BOND, AND FORM MOLECULES. THIS ARTICLE PROVIDES AN IN-DEPTH LOOK AT THE ELECTRON CONFIGURATION CONCEPTS, THE IMPORTANCE OF WORKSHEETS IN MASTERING THIS TOPIC, AND A DETAILED ANSWER KEY FOR A TYPICAL ELECTRON CONFIGURATION WORKSHEET 2.

## UNDERSTANDING ELECTRON CONFIGURATION

ELECTRON CONFIGURATION IS THE ARRANGEMENT OF ELECTRONS IN AN ATOM'S ORBITALS. IT IS ESSENTIAL FOR DETERMINING THE CHEMICAL PROPERTIES OF ELEMENTS AND UNDERSTANDING THE PERIODIC TABLE'S ORGANIZATION. THE KEY PRINCIPLES GOVERNING ELECTRON CONFIGURATIONS INCLUDE:

## 1. AUFBAU PRINCIPLE

- ELECTRONS OCCUPY THE LOWEST ENERGY ORBITALS FIRST BEFORE FILLING HIGHER-ENERGY ORBITALS.

## 2. PAULI EXCLUSION PRINCIPLE

- NO TWO ELECTRONS IN AN ATOM CAN HAVE THE SAME SET OF FOUR QUANTUM NUMBERS. THIS PRINCIPLE IMPLIES THAT AN ORBITAL CAN HOLD A MAXIMUM OF TWO ELECTRONS WITH OPPOSITE SPINS.

## 3. HUND'S RULE

- ELECTRONS WILL FILL DEGENERATE ORBITALS (ORBITALS WITH THE SAME ENERGY LEVEL) SINGLY BEFORE PAIRING UP. THIS MINIMIZES ELECTRON-ELECTRON REPULSION AND STABILIZES THE ATOM.

## THE IMPORTANCE OF WORKSHEETS IN LEARNING

WORKSHEETS PLAY A VITAL ROLE IN REINFORCING THEORETICAL KNOWLEDGE THROUGH PRACTICAL EXERCISES. THEY HELP STUDENTS:

- APPLY LEARNED CONCEPTS IN A STRUCTURED FORMAT.
- PRACTICE WRITING ELECTRON CONFIGURATIONS FOR VARIOUS ELEMENTS.
- DEVELOP A DEEPER UNDERSTANDING OF ATOMIC STRUCTURE AND PERIODIC TRENDS.
- GAIN CONFIDENCE IN THEIR ABILITY TO PREDICT CHEMICAL BEHAVIOR BASED ON ELECTRON CONFIGURATIONS.

## OVERVIEW OF ELECTRON CONFIGURATION WORKSHEET 2

AN ELECTRON CONFIGURATION WORKSHEET TYPICALLY INCLUDES A SERIES OF EXERCISES THAT REQUIRE STUDENTS TO DETERMINE THE ELECTRON CONFIGURATIONS FOR VARIOUS ELEMENTS. WORKSHEET 2 MAY FOCUS ON MORE COMPLEX ELEMENTS, SUCH AS TRANSITION METALS AND LANTHANIDES, WHICH CAN PRESENT ADDITIONAL CHALLENGES.

## COMMON TASKS IN WORKSHEET 2

1. WRITE THE ELECTRON CONFIGURATION FOR A GIVEN ELEMENT.
2. IDENTIFY THE NUMBER OF UNPAIRED ELECTRONS IN AN ELEMENT.
3. DETERMINE THE ELECTRON CONFIGURATION FOR IONS (BOTH CATIONS AND ANIONS).
4. MATCH ELEMENTS WITH THEIR CORRESPONDING CONFIGURATIONS.
5. ANSWER CONCEPTUAL QUESTIONS ABOUT ELECTRON CONFIGURATIONS AND THEIR IMPLICATIONS.

## ANSWER KEY FOR ELECTRON CONFIGURATION WORKSHEET 2

THE FOLLOWING IS A SAMPLE ANSWER KEY FOR A HYPOTHETICAL ELECTRON CONFIGURATION WORKSHEET 2, WHICH COMPRISES VARIOUS EXERCISES TYPICALLY INCLUDED IN SUCH WORKSHEETS.

## EXERCISE 1: WRITE THE ELECTRON CONFIGURATION

1. HYDROGEN (H)

ANSWER:  $1s^1$

2. CARBON (C)

ANSWER:  $1s^2 2s^2 2p^2$

3. OXYGEN (O)

ANSWER:  $1s^2 2s^2 2p^4$

4. IRON (Fe)

ANSWER:  $[Ar] 4s^2 3d^6$

5. COPPER (Cu)

ANSWER:  $[Ar] 4s^1 3d^{10}$

## EXERCISE 2: DETERMINE UNPAIRED ELECTRONS

1. NITROGEN (N)

ANSWER: 3 UNPAIRED ELECTRONS ( $1s^2 2s^2 2p^3$ )

2. BROMINE (Br)

ANSWER: 1 UNPAIRED ELECTRON ( $1s^2 2s^2 2p^6 3s^2 3p^5$ )

3. ALUMINUM (Al)

ANSWER: 1 UNPAIRED ELECTRON ( $1s^2 2s^2 2p^6 3s^2 3p^1$ )

4. MANGANESE (Mn)

ANSWER: 5 UNPAIRED ELECTRONS ( $1s^2 2s^2 2p^6 3s^2 3p^6 3d^5 4s^2$ )

## EXERCISE 3: ELECTRON CONFIGURATIONS FOR IONS

1. SODIUM ION ( $Na^+$ )

ANSWER:  $1s^2 2s^2 2p^6$  (LOSES 1 ELECTRON FROM 3s)

2. CHLORIDE ION ( $Cl^-$ )

ANSWER:  $1s^2 2s^2 2p^6 3s^2 3p^6$  (GAINS 1 ELECTRON IN 3p)

3. IRON (III) ION ( $Fe^{3+}$ )

ANSWER:  $[Ar] 4s^2 3d^5$  (LOSES 3 ELECTRONS: 2 FROM 4s AND 1 FROM 3d)

4. CALCIUM ION ( $Ca^{2+}$ )

ANSWER:  $1s^2 2s^2 2p^6 3s^2 3p^6$  (LOSES 2 ELECTRONS FROM 4s)

## EXERCISE 4: MATCH ELEMENTS WITH CONFIGURATIONS

MATCH THE FOLLOWING ELEMENTS WITH THEIR CORRECT ELECTRON CONFIGURATIONS:

1. ARSENIC (As)

ANSWER:  $[Ar] 4s^2 3d^{10} 4p^3$

2. SILVER (Ag)

ANSWER:  $[Kr] 5s^1 4d^{10}$

3. BARIUM (Ba)

ANSWER:  $[\text{Xe}] 6s^2$

4. ZINC (Zn)

ANSWER:  $[\text{Ar}] 4s^2 3d^{10}$

## EXERCISE 5: CONCEPTUAL QUESTIONS

1. WHY DO TRANSITION METALS OFTEN HAVE MULTIPLE OXIDATION STATES?

ANSWER: TRANSITION METALS CAN LOSE DIFFERENT NUMBERS OF ELECTRONS FROM THEIR S AND D ORBITALS, LEADING TO VARIOUS OXIDATION STATES.

2. HOW DOES ELECTRON CONFIGURATION RELATE TO AN ELEMENT'S POSITION IN THE PERIODIC TABLE?

ANSWER: THE ELECTRON CONFIGURATION REFLECTS THE FILLING OF ORBITALS, WHICH CORRESPONDS TO THE ARRANGEMENT OF ELEMENTS IN PERIODS AND GROUPS BASED ON THEIR VALENCE ELECTRONS.

## CONCLUSION

THE ELECTRON CONFIGURATION WORKSHEET 2 ANSWER KEY SERVES AS A VALUABLE RESOURCE FOR STUDENTS AIMING TO MASTER THE CONCEPT OF ELECTRON CONFIGURATIONS. BY PRACTICING WITH WORKSHEETS AND UTILIZING ANSWER KEYS, LEARNERS CAN SOLIDIFY THEIR UNDERSTANDING OF ATOMIC STRUCTURE AND PREPARE FOR MORE ADVANCED TOPICS IN CHEMISTRY. MASTERY OF ELECTRON CONFIGURATIONS NOT ONLY ENHANCES ACADEMIC PERFORMANCE BUT ALSO LAYS THE GROUNDWORK FOR EXPLORING THE VAST AND INTRICATE WORLD OF CHEMICAL INTERACTIONS AND BONDING. AS STUDENTS BECOME PROFICIENT IN WRITING AND INTERPRETING ELECTRON CONFIGURATIONS, THEY GAIN A DEEPER APPRECIATION FOR THE FUNDAMENTAL PRINCIPLES THAT GOVERN THE BEHAVIOR OF MATTER IN OUR UNIVERSE.

## FREQUENTLY ASKED QUESTIONS

### WHAT IS THE PURPOSE OF AN ELECTRON CONFIGURATION WORKSHEET?

AN ELECTRON CONFIGURATION WORKSHEET IS DESIGNED TO HELP STUDENTS PRACTICE WRITING THE ELECTRON CONFIGURATIONS FOR VARIOUS ELEMENTS, REINFORCING THEIR UNDERSTANDING OF ELECTRON ARRANGEMENT IN ATOMS.

### HOW CAN I ACCESS THE ANSWER KEY FOR ELECTRON CONFIGURATION WORKSHEET 2?

THE ANSWER KEY FOR ELECTRON CONFIGURATION WORKSHEET 2 CAN TYPICALLY BE FOUND THROUGH EDUCATIONAL RESOURCES PROVIDED BY YOUR TEACHER, ONLINE EDUCATIONAL PLATFORMS, OR SCIENCE RESOURCE WEBSITES.

### WHAT TOPICS ARE USUALLY COVERED IN AN ELECTRON CONFIGURATION WORKSHEET?

TOPICS TYPICALLY COVERED INCLUDE THE AUFBAU PRINCIPLE, PAULI EXCLUSION PRINCIPLE, HUND'S RULE, AND THE NOTATION FOR ELECTRON CONFIGURATIONS, AS WELL AS PRACTICE PROBLEMS FOR IDENTIFYING ELECTRON CONFIGURATIONS FOR DIFFERENT ELEMENTS.

### WHY IS UNDERSTANDING ELECTRON CONFIGURATION IMPORTANT IN CHEMISTRY?

UNDERSTANDING ELECTRON CONFIGURATION IS CRUCIAL BECAUSE IT HELPS EXPLAIN THE CHEMICAL PROPERTIES OF ELEMENTS, THEIR REACTIVITY, AND THEIR PLACEMENT IN THE PERIODIC TABLE, WHICH IS FUNDAMENTAL FOR PREDICTING BEHAVIOR IN CHEMICAL REACTIONS.

## WHAT FORMAT DO ELECTRON CONFIGURATIONS TYPICALLY FOLLOW?

ELECTRON CONFIGURATIONS ARE USUALLY WRITTEN IN THE FORMAT OF THE SUBSHELLS FILLED WITH ELECTRONS, SUCH AS  $1s^2 2s^2 2p^6$ , INDICATING THE ENERGY LEVEL AND TYPE OF ORBITAL FILLED WITH ELECTRONS.

## WHAT SHOULD I DO IF I FIND AN ERROR IN THE ANSWER KEY FOR THE WORKSHEET?

IF YOU FIND AN ERROR IN THE ANSWER KEY, IT'S BEST TO DISCUSS IT WITH YOUR TEACHER OR INSTRUCTOR, AS THEY CAN PROVIDE CLARIFICATION AND ENSURE THAT THE INFORMATION IS CORRECTED FOR FUTURE STUDENTS.

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## Electron Configuration Worksheet 2 Answer Key

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Jul 18, 2025 · Ground-up, steak, sirloin, brisket – discover tips, tricks and recipes for any imaginable variety of beef.

### *75 Ground Beef Recipes That Take the Guesswork Out of Dinner*

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### Classic Meatloaf Recipe | Food Network Kitchen | Food Network

Learn how to make meatloaf, how long to cook meatloaf and how to make an easy ketchup glaze for meatloaf with this classic meatloaf recipe from Food Network.

### Beef | Food Network

Find everything from beef stew and stroganoff to hearty roasts with Food Network's best beef recipes.

### **What Can I Make with Stew Meat Besides Stew? | Food Network**

Beef Chili Yep, beef chili can be made with ground meat. But when beef is the star ingredient, it makes sense to upgrade it to beef round (aka stew meat).

### *Beef 28 Ways: The Pioneer Woman's Meatiest Recipes*

The ultimate in versatility, beef gets a starring role in Ree Drummond's family-friendly picks like comforting stew and quick-fix tacos.

### **11 Easy Cube Steak Recipes That Are Deliciously Tender**

Jul 3, 2025 · Cuban Beef-and-Potato Sandwiches The tenderness of cube steak makes this protein an awesome choice for a hearty sandwich.

### **21 Best Flank Steak Recipes & Ideas - Food Network**

Mar 29, 2024 · Flank steak is affordable, leaner than other cuts of beef and packed full of meaty flavor. Plus, it's incredibly versatile. These flank steak recipes from Food Network make it easy ...

### *The Best Beef Stroganoff - Food Network Kitchen*

Learn to make a classic beef stroganoff with our pro tips and easy step-by-step recipe. Plus, exactly which cuts of meat are best for the dish, and expert serving recommendations.

### **Ultimate Beef Stew Recipe | Ina Garten | Food Network**

The beef short ribs are more flavorful and tender compared to chuck. Chuck isn't bad but, the short ribs elevate it to another level and make it better than the everyday beef stew recipes.

### **cpa review PCAOB Flashcards | Quizlet**

Mar 10, 2025 · **LIMITATION.**—Two members, and only 2 members, of the Board shall be or have been certified public accountants pursuant to the laws of 1 or more States, provided that, if 1 of those 2 members is the chairperson, he or she may not have been a practicing certified public accountant for at least 5 years prior to his or her appointment to the Board. **FULL-TIME ...**

### Public Company Accounting Oversight Board - Wikipedia

Two board members, and only two members, must be Certified Public Accountants. [8] If the PCAOB chairman is one of them, he or she may not have been a practicing CPA for at least five years prior to being appointed to the board. Each member ...

### **SUBCHAPTER I—PUBLIC COMPANY ACCOUNTING OVERSIGHT BOARD**

(2) Limitation Two members, and only 2 members, of the Board shall be or have been certified public accountants pursuant to the laws of 1 or more States, provided that, if 1 of those 2 members is the chairperson, he or she may not have been a practicing certified public accountant for at least 5 years prior to his or her appointment to the Board.

### *Statement on Commencement of Appointment Process for Five Public ...*

Jun 8, 2021 · The Public Company Accounting Oversight Board (PCAOB) is one of the centerpieces of the Sarbanes-Oxley Act of 2002. The PCAOB is governed by a Board of five members, two of whom must be certified public accountants (CPAs), and three of whom must not be.

### **Chapter 2 Flashcards | Quizlet**

Members of the Public Company Accounting Oversight Board are appointed and overseen by: A) the U.S. Congress. B) the American Institute of Certified Public Accountants. C) the Auditing Standards Board. D) the Securities and Exchange Commission. D) the Securities and Exchange Commission. We have an expert-written solution to this problem!

### *The PCAOB, Its Current Activities, and Impact on Preparers*

Sep 15, 2016 · The SEC appoints the Board's five full-time Board members, two of whom must be Certified Public Accountants. SEC oversight also includes approval of the Board's budget and any rules and standards issued by the Board.

### **Multiple Auditing Standards and Standard Setting: Implications for ...**

Oct 1, 2012 · The Public Company Accounting Oversight Board (PCAOB) was established by the Sarbanes-Oxley Act (SOX) of 2002 (U.S. House of Representatives 2002). The board is composed of five members, no more than two of whom may be CPAs.

### **Rules of the Board | PCAOB**

PCAOB Bylaws, Ethics Code and Rules Sections 1-7 (PDF) By Section Table of Contents (PDF)  
Bylaws Ethics Code Rules Section 1: General Provisions Section 2: Registration and Reporting  
Section 3: Auditing and Related Professional Practice Standards Section 4: Inspections Section 5: Investigations and Adjudications Section 6: International Section ...

## **Ethics & Independence Rules | PCAOB**

Ethics & Independence Registered public accounting firms and their associated persons are required to comply with PCAOB ethics and independence rules and standards. Rules These rules have been adopted by the PCAOB and approved by the Securities and Exchange Commission.

### *Section 4. Inspections | PCAOB*

Rule 4000. General (a) Every registered public accounting firm shall be subject to all such regular and special inspections as the Board may from time-to-time conduct in order to assess the degree of compliance of each registered public accounting firm and associated persons of that firm with the Act, the Board's rules, the rules of the Commission, and professional standards, in ...

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