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CHAPTER 6 STUDY GUIDE FOR CONTENT MASTERY

Section 6.2 Classification of the Elements

In your textbook, read about organizing the elements by electron configuration.

Use the periodic table on pages 156–157 in your textbook to match each element in Column A with the element in Column B that has the most similar chemical properties.

Column A	Column B
h 1. arsenic (As)	a. boron (B)
f 2. bromine (Br)	b. cesium (Cs)
n 3. cadmium (Cd)	c. chromium (Cr)
a 4. gallium (Ga)	d. cobalt (Co)
k 5. germanium (Ge)	e. hafnium (Hf)
d 6. iridium (Ir)	f. iodine (I)
l 7. magnesium (Mg)	g. iron (Fe)
o 8. neon (Ne)	h. nitrogen (N)
i 9. nickel (Ni)	i. platinum (Pt)
g 10. osmium (Os)	j. scandium (Sc)
b 11. sodium (Na)	k. silicon (Si)
m 12. tellurium (Te)	l. strontium (Sr)
c 13. tungsten (W)	m. sulfur (S)
j 14. yttrium (Y)	n. zinc (Z)
e 15. zirconium (Zr)	o. xenon (Xe)

Answer the following questions.

16. Why do sodium and potassium, which belong to the same group in the periodic table, have similar chemical properties?
Sodium and potassium have the same number of valence electrons.

17. How is the energy level of an element's valence electrons related to its period on the periodic table? Give an example.
The energy level indicates the period. For example, lithium's valence electron is in the second energy level and lithium is found in period 2.

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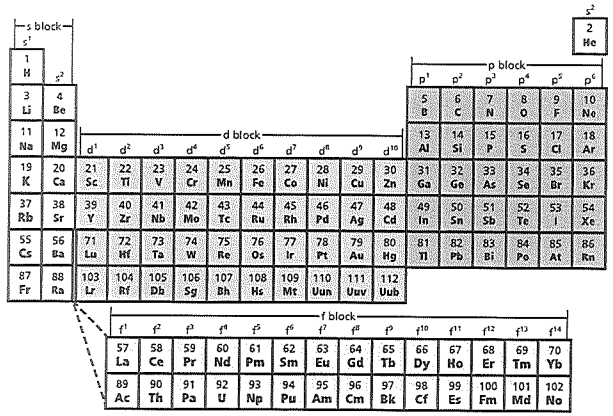
CHAPTER 6 STUDY GUIDE FOR CONTENT MASTERY

Section 6.2 *continued*

In your textbook, read about s-, p-, d-, and f-block elements.

Use the periodic table on pages 156–157 in your textbook and the periodic table below to answer the following questions.



18. Into how many blocks is the periodic table divided? four

19. What groups of elements does the s-block contain? groups 1A and 2A

20. Why does the s-block portion of the periodic table span two groups?
The s orbital holds a maximum of two electrons.

21. What groups of elements does the p-block contain? groups 3A through 8A

22. Why are members of group 8A virtually unreactive?
group 8A elements have both their s orbitals and p orbitals completely filled with electrons. This configuration is very stable, thus, the group 8A elements are very unreactive.

23. How many d-block elements are there? 40

24. What groups of elements does the d-block contain? group B elements

25. Why does the f-block portion of the periodic table span 14 groups?
The seven f orbitals hold a maximum of 14 electrons.

26. What is the electron configuration of the element in period 3, group 6A? $[Ne]3s^23p^4$

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