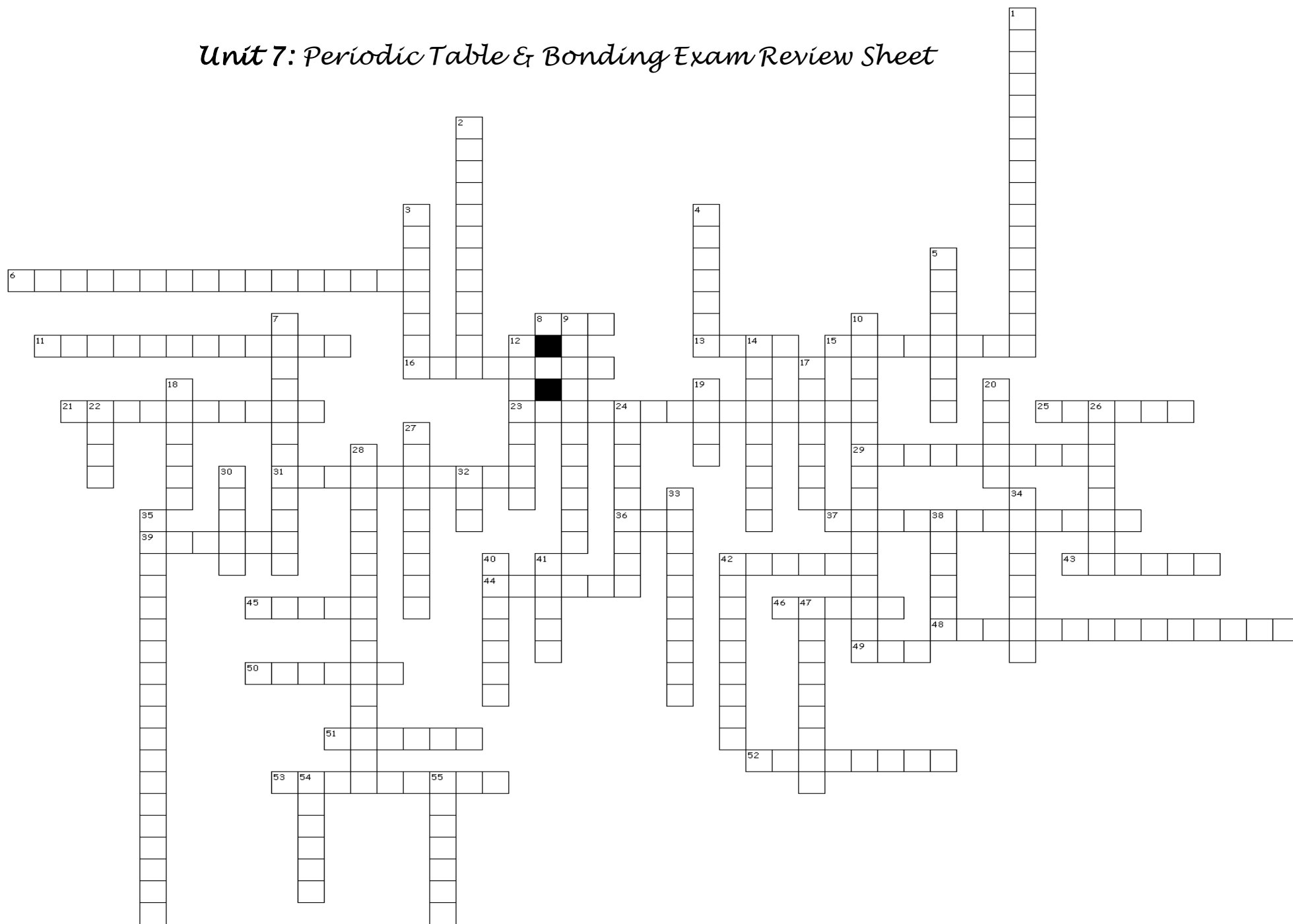


Unit 7: Periodic Table & Bonding Exam Review Sheet



Name _____ Date _____ Mod _____ Exam Date _____

ACROSS

6. elements 58 – 71
8. maximum number of electrons that can be held in the d sublevel
11. name of group 1
13. across a period, the number of energy levels remains the ____
15. electrons are found in ____ (3D regions above and around the nucleus); there are 4 types
16. this element is an exception to the octet rule since it only needs two valence electrons to be stable
21. molecules of the same element that have different structures (arrangements)
23. elements 90-103
25. type of bond where one pair of electrons is shared
29. the number of valence electrons of these metals can change
31. the process of creating an ion by adding or removing valence electrons from an atom
36. each orientation of an orbital can hold ____ electrons
37. the period number represents the number of ____ in an atom
39. an electron will inhabit the ____ energy orbital that can accept it
42. type of bond where two pairs of electrons are shared
43. type of bond where three pairs of electrons are shared
44. negative ions
45. bonds formed between oppositely charged ions
46. type of covalent bond where electrons are shared unequally
48. elements along the stair-step line, also called metalloids
49. maximum number of electrons that can be held in the p sublevel
50. cations are formed by ____ and are smaller than the neutral atom from which they came
51. name of the diagram used to fill orbitals according to energy
52. name of group 17
53. shape of the s orbital

DOWN

1. determine chemical properties and are used in bonding
2. the attractive force that holds atoms/ions together
3. shape of the d orbital (could also be double dumb-bell)

4. horizontal rows on the periodic table; numbered 1 - 7
5. maximum number of electrons that can be held in the f sublevel
7. property of metals that allows them to be hammered into thin sheets
9. these diagrams show the number of valence electrons an atom has
10. name of groups 3-12
12. the bond formed when atoms share one or more pairs of electrons
14. covalently bonded atoms are called ____
17. negative ions are formed by the ____ of valence electrons
18. atoms tend toward a state where they have full energy levels because they are more ____ that way
19. metals are on the ____ side of the stair-step line
20. these electron dot diagrams show chemical bonds between atoms using chemical symbols for the nucleus and inner electrons and dots for the valence electrons
22. positive ions are formed by the ____ of valence electrons
24. anions are formed by ____ and are larger than the neutral atom from which they came
26. type of covalent bond where electrons are shared equally
27. a full s and p sublevel results in ____ for an atom
28. two atoms of the same element with a nonpolar covalent bond
30. number of diatomic molecules
32. a charged particle
33. name of group 18
34. the bond formed by the attraction between positively charged metal ions and the electrons around them
35. name of group 2
38. vertical columns on the periodic table; also called families; numbered 1 - 18
40. positive ions
41. nonmetals are on the ____ side of the stair-step line, including hydrogen
42. property of metals that allows them to be drawn out into a wire
47. atoms must have eight electrons in its valence shell in order to be stable; results in lower energy
54. shape of the p orbital (could also be dumb-bell)
55. shape of the f orbital

B. Complete the following table about the three types of bonds that form chemical compounds:

Bond Type	Elements in the Bond	How do they form (what do they do with the e-)
Ionic		
Polar Covalent		
Nonpolar Covalent		

C. Answer the following:

1. Describe the trends as you go down a group and across a period on the periodic table.
2. How can you predict an element's group and period?
3. Why do atoms of Group 1 elements lose electrons to form cations, while atoms of Group 17 elements gain electrons to form anions?
4. What is a diatomic molecule? What are the seven diatomic molecules?

D. Draw the Energy Level Diagrams with Orbitals for the following:

- Mg, Ag, As, Rb, Bi, O, Fr

E. Draw the Lewis Electron Dot Diagrams for the following:

- Ba, Mg, C, Al, N, Se, I, Ne, LiF, Potassium & Bromine, Calcium & Phosphorus, BaS, HBr, CH₃Cl, H₂S, diatomic iodine

F. Predict and draw the ions that would form from the following atoms:

- Li, Ca, Ga, P, S, Cl

G. Also, make sure you know the locations of the groups by names on the periodic table ☺