

Name: KEY

Valence Electrons Practice

The **valence electrons** are the electrons in the outermost energy level. They are always the outermost electrons.

Atoms that LOSE electrons are called **cations** and have an overall **positive** charge.

Atoms that GAIN electrons are called **anions** and have an overall **negative** charge.



Determine the element's number of valence electrons (# of electrons in the "outermost" shell).

Example: Carbon has 4 valence electrons, carbon 4

1. fluorine 7

2. lithium 1

3. phosphorus 5

4. francium 1

5. calcium 2

6. carbon 4

↑ 2,4
↓ 7. nitrogen 5

8. iodine 7

9. silicon 4

10. oxygen 6

11. argon 8

12. barium 2

13. potassium 1

14. aluminum 3

15. helium 2

16. hydrogen 1

17. magnesium 2

18. xenon 8

19. sulfur 6

20. boron 3

21. bromine 7

*not part of Unit 2 exam

22. What are valence electrons of an atom used for?

Determining how elements bond together

23. Which groups on the periodic table want to lose electrons? What kind(s) of elements are these groups? Group 1, 2 elements, Alkali metals and Alkali earth metals

24. Which groups on the periodic table want to gain electrons? What kind(s) of elements are these groups? Groups 5, 6, 7, non-metals

25. Why do the elements from question 23 want to lose electrons? Why do the elements from question 24 want to gain electrons? (HINT: The answer is the same for both questions.)
By losing 1 or 2 electrons these groups form more stable ion having the electron configuration of noble gases

26. How many valence electrons do the Alkaline Earth metals have? Are these elements very reactive? Explain your answer. 2, yes

27. What is the name of the atoms that lose electrons? What is their overall charge?
Cation (+) charge

28. What is the name of the atoms that gain electrons? What is their overall charge?
Anions (-) charge