
Aim: How can I use Lewis Dot Structures to save time while drawing the valence electrons of an atom or an ion?

Mini Lesson: Reviewing why atoms form ions...

1. Find one element for each of the three columns below.
2. Identify the groups in which you found the elements for the above task.
3. Predict the charge that each atom will obtain.

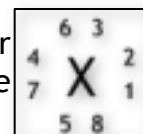
1 valence e-	2 valence e-	7 valence e-
<input type="text"/>	<input type="text"/>	<input type="text"/>
Group #	Group #	Group #
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Charge	Charge	Charge
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Drawing Lewis Dot Structures: It's easy on the brain...

Up until now, when I have asked you to draw a picture of your atom, you have had to draw Bohr models of the atom. These are really aggravating to draw, especially if your atom has a tremendous number of electrons. It might actually ruin your whole day to draw something like our friend uranium ($Z = 92$). SOOOooo, someone very smart/lazy came up with a way to make our lives easier when we draw diagrams of atoms. His name was Gilbert Newton LEWIS... perhaps you see why we only call him Lewis!!!! I like to think of him like Madonna or Cher. Anyway, he is awesome because he made it so that all we have to draw is DOTS - and never more than eight! **Thank you, Lewis!**

1. Drawing Lewis Dot Structures for SINGLE ATOMS.

1. Dots represent VALENCE electrons ONLY!!
2. A maximum of 8 dots may be placed around an element's chemical symbol.
3. There are 4 sides to a chemical symbol; only 2 dots may be drawn per side.
4. The first two dots you draw should go on the same side of the symbol. After that, draw one dot on each side until you have drawn all the valence electrons.



EXAMPLE 1: FLUORINE

EXAMPLE 2: LITHIUM

2. Drawing Lewis Dot Structures for IONS.

1. Use all the rules from above to represent the valence electrons of the ion.
2. Make sure you are taking into account that the ion has gained or lost electrons.
3. Place the ion's Lewis Dot Structure within brackets.
4. Outside the upper-right corner of the brackets, indicate the ion's charge.

EXAMPLE 1: FLUORINE ION

EXAMPLE 2: LITHIUM ION

Pair Up: Draw the Lewis Dot Structure for each of the following elements or ions!!!!

1. Hydrogen _____

17. Potassium Ion _____

2. Helium _____

18. Oxygen Ion _____

3. Beryllium _____

19. H⁻ _____

4. Calcium _____

20. Sulfur Ion _____

5. Oxygen _____

21. Magnesium Ion _____

6. Magnesium _____

22. Argon _____

7. Carbon _____

23. Iodine _____

Ms. Keefe

Name: _____

Chemistry

Ions and Lewis Dot Structures

Date: _____

8. Chlorine _____

24. Fr⁺ _____

9. Sulfur _____

25. Cs⁺ _____

10. Neon _____

26. Rb⁺ _____

11. Nitrogen _____

27. Barium _____

12. Na⁺ _____

28. Barium Ion _____

13. Ca⁺² _____

29. Chlorine Ion _____

14. N⁻³ _____

30. Sodium _____

15. H⁺ _____

31. Selenium Ion _____

16. I⁻ _____

32. Potassium _____

Summary:

1. What do you need to know in order to draw a Lewis Dot Structure for atoms and ions?
2. What is the purpose of drawing Lewis Dot Structures for atoms or ions?
3. Which groups from the activity above had full valence shells?