

Periodic Table of the Elements

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	
H	He																			
Li	Be	B	C	N	O	F	Ne													
Na	Mg	Al	Si	P	S	Cl	Ar													
K	Ca	Sc	Ti	V	Cr	Mn	Fe	Co	Ni	Cu	Zn	Ga	Ge	As	Se	Br	Kr			
Rb	Sr	Y	Zr	Nb	Mo	Tc	Ru	Rh	Pd	Ag	Cd	In	Sn	Sb	Te	I	Xe			
Cs	Ba	La	Hf	Ta	W	Re	Os	Ir	Pt	Au	Hg	Tl	Pb	Bi	Po	At	Rn			
Fr	Ra	Ac	Rf	Db	Sg	Bh	Hs	Mt	Ds	Rg	Cn	Uut	Uuq	Uup	Uuu	Uus	Uuo			
Lanthanide Series		La	Ce	Pr	Nd	Pm	Sm	Eu	Gd	Tb	Dy	Ho	Er	Tm	Yb	Lu				
Actinide Series		Ac	Th	Pa	U	Np	Pu	Am	Cm	Bk	Cf	Es	Fm	Md	No	Lr				
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	

# How to Draw Bohr Diagrams

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# How to Draw a Bohr Diagram

1. Determine the number of protons, electrons and neutrons for the atom.
2. Draw a nucleus and write the amount of protons (#P) and neutrons (#N) inside.
3. Draw the 1<sup>st</sup> energy level and add up to 2 electrons.
4. Draw the 2<sup>nd</sup> energy level and add up to 8 electrons.
5. Draw the 3<sup>rd</sup> energy level and add up to 18 electrons. (We will only ever add 8 electrons).
6. Check your total electrons.
7. Done!

# Step 1

- Use the periodic table to determine the number of protons, electrons and neutrons for your atom.



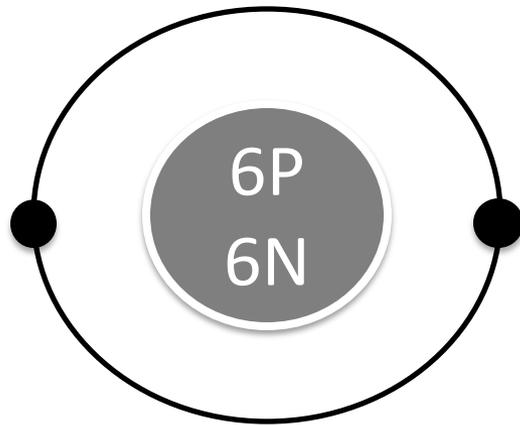
# Step 2

- Draw a very lightly shaded circle to represent the nucleus.
- Write the number of protons and neutrons inside of the circle.



**Carbon**

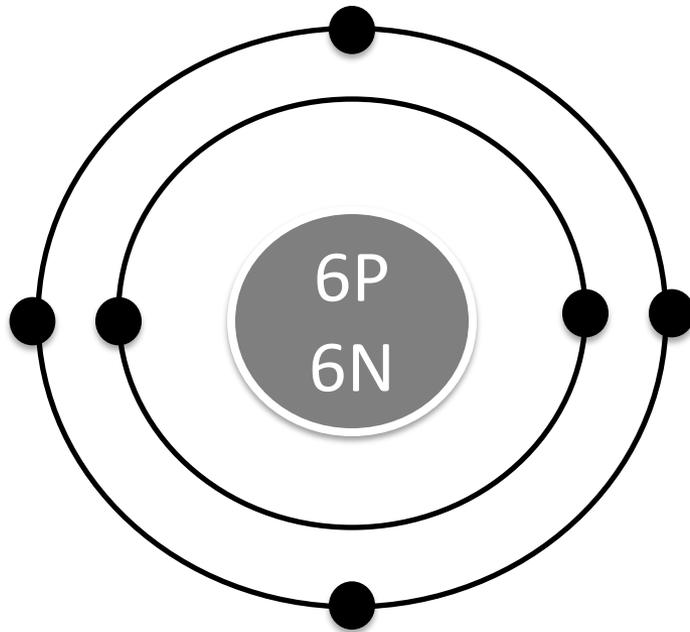
# Step 3



**Carbon**

- Draw the 1<sup>st</sup> energy level
- Add the appropriate amount of electrons to the 1<sup>st</sup> energy level.
- The first energy level can hold a maximum of 2 electrons.
- Carbon needs a total of 6 electrons, so we can place 2 in the 1<sup>st</sup> energy level.

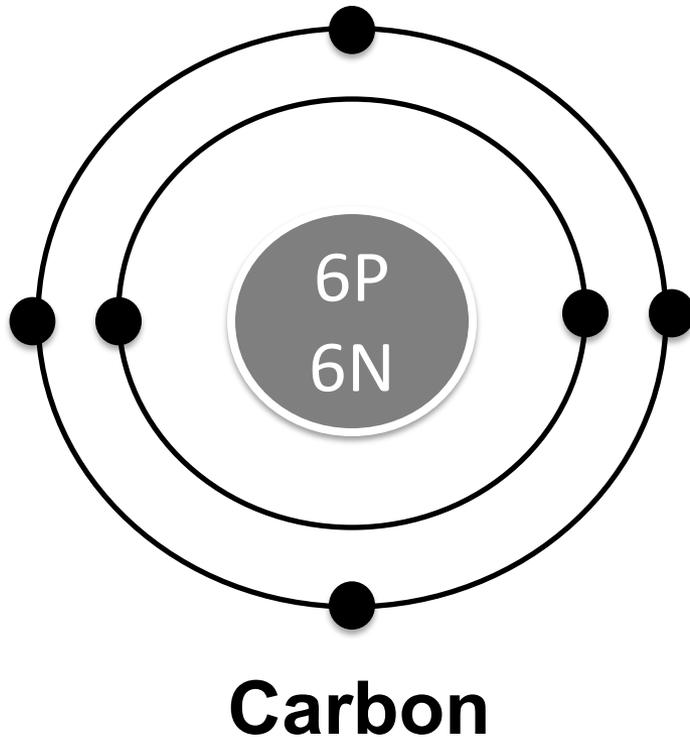
# Step 4



**Carbon**

- Draw the 2<sup>nd</sup> energy level.
- Since 2 electrons were placed in the first energy level, you still need to add 4 more.
- The 2<sup>nd</sup> energy level, holds a maximum of 8 electrons.
- All 4 remaining electrons can be placed in the 2<sup>nd</sup> energy level.
- Add one at a time starting on the right and adding adding electrons counter clock-wise.

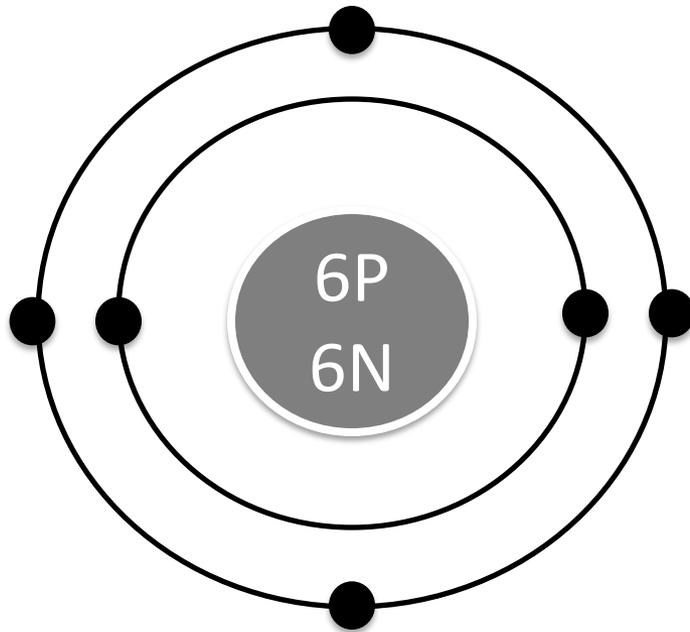
# Step 5



- For our example, no additional electrons need to be placed, therefore no additional energy levels are required.
- If a third energy level were needed, it could hold a maximum of 18 electrons.
- You only need to know how to make a Bohr Diagram for elements 1-18, therefore the maximum number of electrons in the 3<sup>rd</sup> energy level will only ever be 8 electrons.

# Step 6

## Count your electrons



**Carbon**

- ✓ You should have 6 total electrons for Carbon.
- ✓ Only a maximum of 2 electrons in the 1<sup>st</sup> energy level.
- ✓ Only a maximum of 8 electrons in the 2<sup>nd</sup> energy level.
- ✓ The 3<sup>rd</sup> energy level can hold up to 18 electrons, but you will only place 8 electrons maximum.