

Name: Key
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Using Bohr Models

1. What is represented in shells around the atom in Bohr models?

Energy levels

2. What are Bohr models used for?

- To show what energy level each e^- occupies
- to show e^- available for rxns \rightarrow valence e^-

3. How many electrons can fit in the first shell?

2

4. How many electrons can fit in the second shell?

8

5. How many electrons can fit in the third shell?

8

6. How many electrons can fit in the fourth shell?

18

7. How many electrons can fit in the fifth shell?

18

8. Consider an atom of Magnesium.

How many electrons are represented in the first shell?

2

How many electrons are represented in the second shell?

8

How many electrons are represented in the third shell?

2

9. When atoms form an ion, describe the outer shell of that ion.

The outer shell of the atom is FULL













10. Consider the periodic table. What group of elements has one valence electron?

Alkali Metals





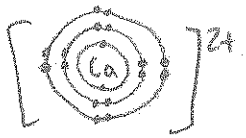
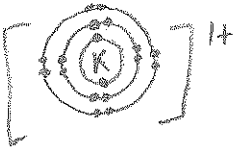
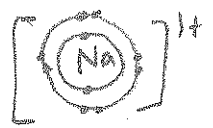


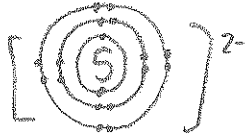

11. Consider the periodic table. What group of elements has 7 valence electrons?

Alkaline Earth Metals

12. Draw the following bohr models:

Chlorine $p=17$ $e=17$ 	Boron $p=5$ $e=5$ 	Flourine $p=9$ $e=9$ 	Nitrogen $p=7$ $e=7$ 
Oxygen $p=8$ $e=8$ 	Beryllium $p=4$ $e=4$ 	Magnesium $p=12$ $e=12$ 	Lithium $p=3$ $e=3$ 
Calcium $p=20$ $e=20$ 	Phosphorus $p=15$ $e=15$ 	Aluminium $p=13$ $e=13$ 	Neon $p=10$ $e=10$ 

13. Draw the following bohr diagrams (NOTE THEY ARE IONS)

Be^{2+} $p=4$ $e=2$ 	Cl^{-1} $p=17$ $e=18$ 	F^{-1} $p=9$ $e=10$ 	N^{3-} $p=7$ $e=10$ 
Ca^{2+} $p=20$ $e=18$ 	K^{+1} $p=19$ $e=18$ 	Na^{+1} $p=11$ $e=10$ 	O^{2-} $p=8$ $e=10$ 
Mg^{2+} $p=12$ $e=10$ 	Be^{2+} $p=4$ $e=2$ same	S^{2-} $p=16$ $e=18$ 	Li^{+1} $p=3$ $e=2$ 

14. Draw the following compounds (remember that these compounds must become ions before they are bonded to each other)

Compound	Bohr Model
NaCl	
KF	
BeO	
MgS	

15. If a new element has seven valence (Outer) electrons, which column of the periodic table should it be placed in?

7th column → transition metals

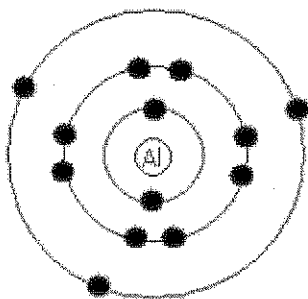
16. If a new element that has two outer electrons is discovered, in which column or group should it be placed in?

Alkaline earth metals

17. Do noble gases make ions? Why or why not?

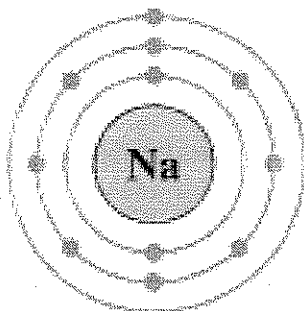
No! They already have a full outer shell

18. Consider the following diagram



- | | |
|--------------------------------|-------------|
| a. number of protons in Al | <u>13</u> |
| b. number of shells | <u>3</u> |
| c. number of electrons | <u>13</u> |
| d. Atom or Ion | <u>atom</u> |
| e. Number of valence electrons | <u>3</u> |

19. Consider the following diagram:



- | | |
|--------------------------------|-------------|
| a. number of protons in Al | <u>11</u> |
| b. number of shells | <u>3</u> |
| c. number of electrons | <u>11</u> |
| d. Atom or Ion | <u>atom</u> |
| e. Number of valence electrons | <u>1</u> |

20. Tell me a 50 word short story about atoms?