

Periodic Table Basics

Name _____

1. Which elements had complete outer shells? Give the name and symbol for each.

2. What do you notice about the location of the elements in #1?

3. Which elements had only one valence electron?

4. What do you notice about the location of the elements in #3?

5. What do you notice about the number of valence electrons as you move from left to right across a row or period in the periodic table? (Na → Mg → Al → Si → P → S → Cl → Ar)

6. What do you notice about the number of energy levels or shells as you move down a group or column in the periodic table? (H → Li → Na)

7. Elements are organized into families according to their physical and chemical properties. Identify the elements that you used in Step 5 that belong to each family based on the number of valence electrons. Give the name and symbol for each element.

Alkali Metals - 1 valence electron _____ & _____

Alkaline Earth Metals - 2 valence electrons _____ & _____

Boron Family - 3 valence electrons _____ & _____

Carbon Family - 4 valence electrons _____ & _____

Nitrogen Family - 5 valence electrons _____ & _____

Oxygen Family - 6 valence electrons _____ & _____

Halides - 7 valence electrons _____ & _____

Noble Gases - Complete outermost shell

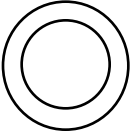
_____, _____, _____, & _____

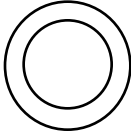
8. What do you notice about the location of the elements in each family?

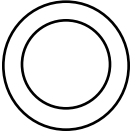
9. How would you classify hydrogen? Why?


10. Predict the number of valence electrons for each element based on its location in the Periodic Table of Elements. You will need to use the table in your textbook.

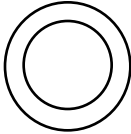
Barium = _____ Lead = _____ Xenon = _____ Potassium = _____

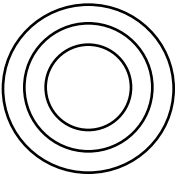
<div style="border: 1px solid black; padding: 5px; margin-bottom: 5px;"> <p style="text-align: center;"><u> </u> B <u> </u></p> <hr style="border: 0; border-top: 1px solid black; margin: 5px 0;"/> <p style="text-align: center;"><u> </u></p> </div>	<p>P = <u> </u></p> <p>N = <u> </u></p> <p>E = <u> </u></p>
Bohr Diagram	
	
Lewis Structure	B

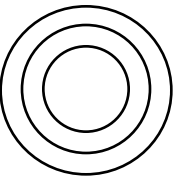
<div style="border: 1px solid black; padding: 5px; margin-bottom: 5px;"> <p style="text-align: center;"><u> </u> Li <u> </u></p> <hr style="border: 0; border-top: 1px solid black; margin: 5px 0;"/> <p style="text-align: center;"><u> </u></p> </div>	<p>P = <u> </u></p> <p>N = <u> </u></p> <p>E = <u> </u></p>
Bohr Diagram	
	
Lewis Structure	Li

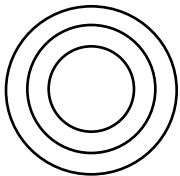
<div style="border: 1px solid black; padding: 5px; margin-bottom: 5px;"> <p style="text-align: center;"><u> </u> Ne <u> </u></p> <hr style="border: 0; border-top: 1px solid black; margin: 5px 0;"/> <p style="text-align: center;"><u> </u></p> </div>	<p>P = <u> </u></p> <p>N = <u> </u></p> <p>E = <u> </u></p>
Bohr Diagram	
	
Lewis Structure	Ne


<div style="border: 1px solid black; padding: 5px; margin-bottom: 5px;"> <p style="text-align: center;"><u> </u> He <u> </u></p> <hr style="border: 0; border-top: 1px solid black; margin: 5px 0;"/> <p style="text-align: center;"><u> </u></p> </div>	<p>P = <u> </u></p> <p>N = <u> </u></p> <p>E = <u> </u></p>
Bohr Diagram	
	
Lewis Structure	He

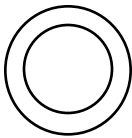
<div style="border: 1px solid black; padding: 5px; margin-bottom: 5px;"> <p style="text-align: center;"><u> </u> C <u> </u></p> <hr style="border: 0; border-top: 1px solid black; margin: 5px 0;"/> <p style="text-align: center;"><u> </u></p> </div>	<p>P = <u> </u></p> <p>N = <u> </u></p> <p>E = <u> </u></p>
Bohr Diagram	
	
Lewis Structure	C

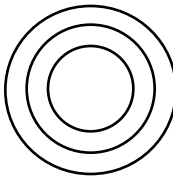
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Bohr Diagram	
	
Lewis Structure	P

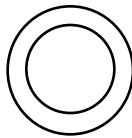
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Bohr Diagram	
	
Lewis Structure	S

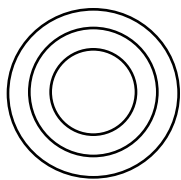
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Bohr Diagram	
	
Lewis Structure	Mg

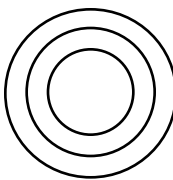
<div style="border: 1px solid black; padding: 5px; margin-bottom: 5px;"> <p style="text-align: center;"><u> </u> H <u> </u></p> <hr style="border: 0; border-top: 1px solid black; margin: 5px 0;"/> <p style="text-align: center;"><u> </u></p> </div>	<p>P = <u> </u></p> <p>N = <u> </u></p> <p>E = <u> </u></p>
Bohr Diagram	
	
Lewis Structure	H

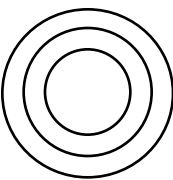
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Bohr Diagram	
	
Lewis Structure	N

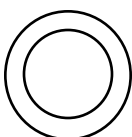
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Bohr Diagram	
	
Lewis Structure	Al

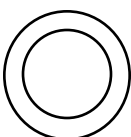
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Bohr Diagram	
	
Lewis Structure	F

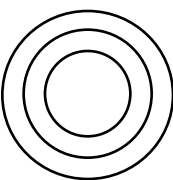
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Bohr Diagram	
	
Lewis Structure	Ar

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Bohr Diagram	
	
Lewis Structure	Si

<div style="border: 1px solid black; width: 60px; height: 60px; margin: 0 auto; display: flex; flex-direction: column; align-items: center; justify-content: center;"> <div style="border-bottom: 1px solid black; width: 80%; margin-bottom: 5px;">Na</div> <div style="border-bottom: 1px solid black; width: 80%; margin-bottom: 5px;"></div> <div style="border-bottom: 1px solid black; width: 80%;"></div> </div>	P = ____ N = ____ E = ____
Bohr Diagram	
	
Lewis Structure	Na

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Bohr Diagram	
	
Lewis Structure	Be

<div style="border: 1px solid black; width: 60px; height: 60px; margin: 0 auto; display: flex; flex-direction: column; align-items: center; justify-content: center;"> <div style="border-bottom: 1px solid black; width: 80%; margin-bottom: 5px;">O</div> <div style="border-bottom: 1px solid black; width: 80%; margin-bottom: 5px;"></div> <div style="border-bottom: 1px solid black; width: 80%;"></div> </div>	P = ____ N = ____ E = ____
Bohr Diagram	
	
Lewis Structure	O

<div style="border: 1px solid black; width: 60px; height: 60px; margin: 0 auto; display: flex; flex-direction: column; align-items: center; justify-content: center;"> <div style="border-bottom: 1px solid black; width: 80%; margin-bottom: 5px;">Cl</div> <div style="border-bottom: 1px solid black; width: 80%; margin-bottom: 5px;"></div> <div style="border-bottom: 1px solid black; width: 80%;"></div> </div>	P = ____ N = ____ E = ____
Bohr Diagram	
	
Lewis Structure	Cl