

## Team Pair Solo

Chemist:

Solo:

Answer:

1. Which has a larger atomic radius, Rb or Na?	Rb
2. Who is the Father of the Periodic Table?	Mendeleev
3. Who first organized the periodic table by atomic mass and chemical properties and left openings for elements not yet found or understood?	Mendeleev
4. Who reorganized the periodic table by atomic number?	Moseley
5. Which has a greater ionization energy, Li or He?	He
6. <b>Circle one:</b> Ionization energy <u>increases/decreases</u> left to right across a period.  <b>Circle one:</b> Ionization energy <u>increases/decreases</u> down a group.	increases  decreases
7. Which has a larger atomic radius: Iodine or Fluorine?	Iodine
8. What do we call the horizontal rows on the periodic table?	periods
9. What do we call the vertical columns on the periodic table?	groups / families
10. Elements in the same _____ share similar properties.	group

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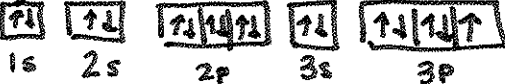

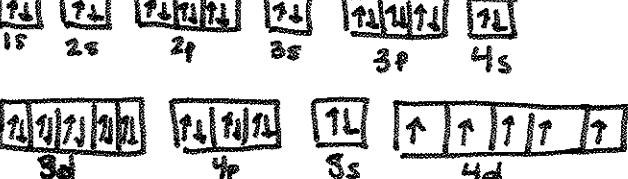
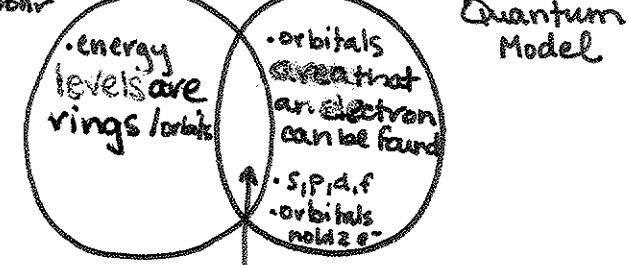
ANSWER:

1. Describe characteristics of the halogens.	<ul style="list-style-type: none"><li>• forms salts w/ alkali metals or alkaline earth metals</li><li>• very reactive</li></ul>
2. Describe characteristics of group 1A atoms and what are they called?	<ul style="list-style-type: none"><li>• very reactive</li><li>• soft/silvery metals</li><li>• explode with water</li></ul>
3. Describe characteristics the elements found between metals and nonmetals on the periodic table and what do we call them?	<ul style="list-style-type: none"><li>• contain properties of both</li><li>• less brittle</li><li>• semi conductors</li></ul>
4. What is the maximum number of electrons in n=2 level?	$2 \rightarrow s + p$ so 8 total electrons
5. What is the maximum amount of electrons in an orbital?	2 electrons in each orbital
6. How many sublevels are in the n=4 energy level?	$4 \rightarrow s, p, d, f$ 4 sublevels
7. List all of the sublevels possible in an atom.	s, p, d, f,
8. Arrange these atoms in order of increasing size (smallest to largest): Fr, Li, Be, K	$F < Be < Li < K$
9. What is the noble gas configuration for Se?	$[Ar] 4s^2 3d^{10} 4p^4$
10. Write the regular configuration for Pb.	$1s^2 2s^2 2p^6 3s^2 3p^6 4s^2 3d^{10} 4p^6 5s^2 4d^{10} 5p^6 6s^2 4f^{14} 5d^{10} 6p^2$
11. What is the orbital diagram for Se	<p>The orbital diagram for Se shows the following sublevels and their electron configurations: 1s (2 electrons), 2s (2 electrons), 2p (6 electrons), 3s (2 electrons), 3p (6 electrons), 4s (2 electrons), 3d (10 electrons), and 4p (4 electrons). Each sublevel is represented by a box containing the number of electrons and their spin directions.</p>

Chemists:

Team:

Answer:

1. List all elements that have 8 valence electrons.	Ne, Ar, Kr, Xe, Rn, Uuo
2. What are some characteristics of elements rows 3 – 12 on the periodic table, what do we call them?	Transition Metals • form multiple ions
3. Give the electron configuration for As	$1s^2 2s^2 2p^6 3s^2 3p^6 4s^2 3d^{10} 4p^3$
4. Give the noble gas configuration for Xe	$[Kr] 5s^2 4d^{10} 5p^6$
5. Draw the orbital diagram for Cl	
6. Draw the orbital diagram for O	
7. Draw the orbital diagram for Tc	
8. Create a venn diagram comparing and contrasting Bohr's model vs. the Quantum Mechanical Wave Model	

- different levels represent different energies
- electrons can be excited and jump to a higher level