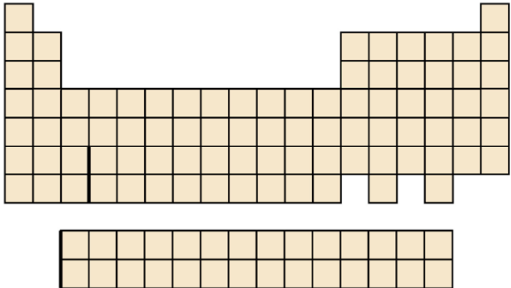
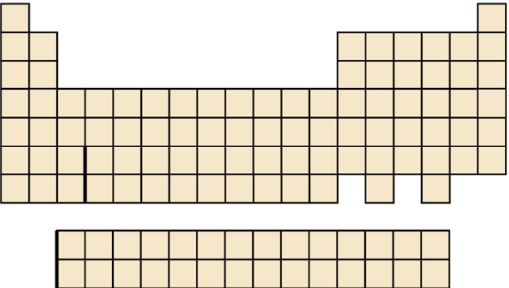


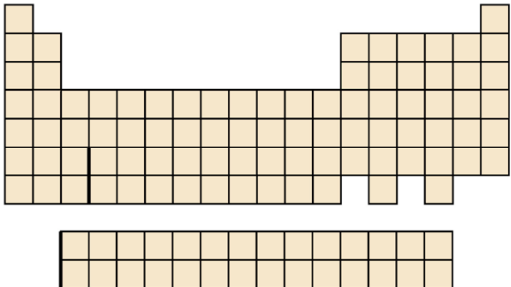
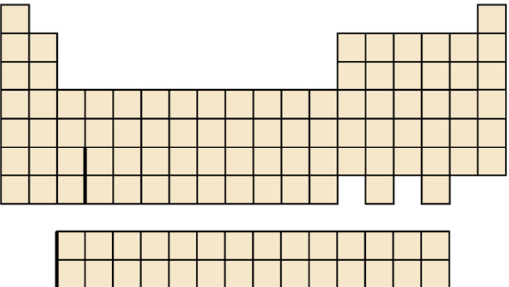
Inorganic Chemistry with Doc M. Inorganic Group: _____

Names: _____

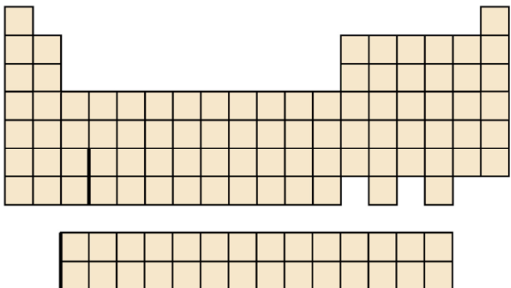
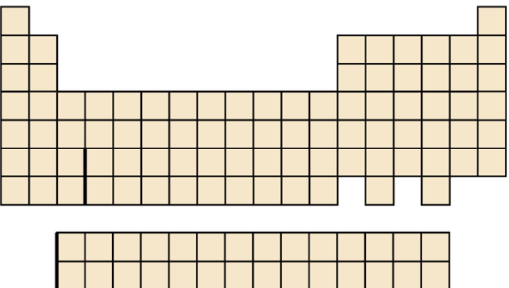
Day 1. Review of periodic trends, the periodic table and the d-orbitals

<p>1. Atomic radius (size): Our work:</p> 	<p>1. Atomic radius (size): after discussion</p> 
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Notes:

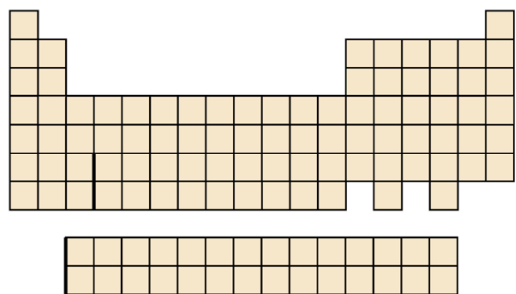
<p>2. First ionization energy: Our work:</p> 	<p>1. First ionization energy.: after discussion</p> 
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Notes:

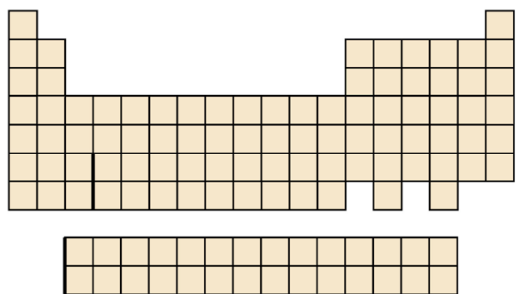
<p>3. Effective nuclear charge: Our work:</p> 	<p>3. Effective nuclear charge: after discussion</p> 
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Notes:

4. Electronegativity: Our work:

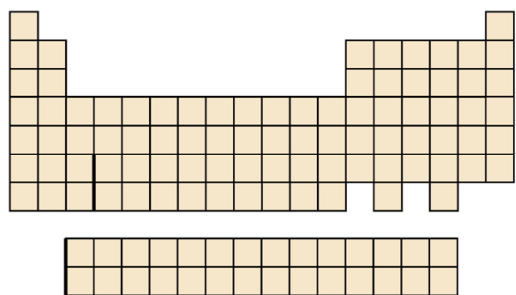


4. Electronegativity: : after discussion

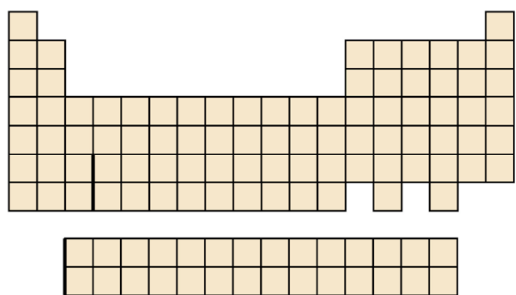


Notes:

5. Electron affinity: Our work:

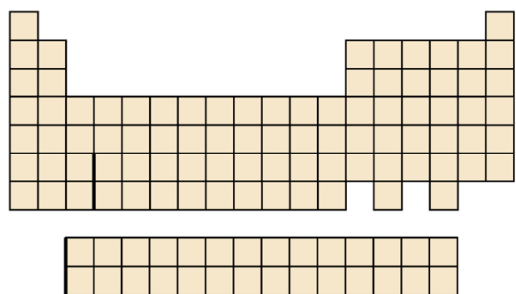


5. Electron affinity: after discussion

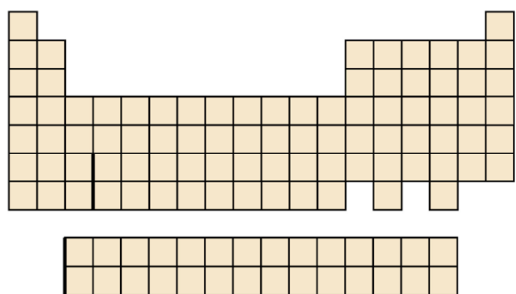


Notes:

6. Metallic character: Our work:

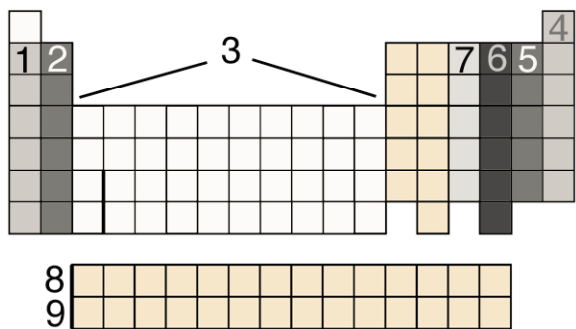


6. Metallic character: after discussion



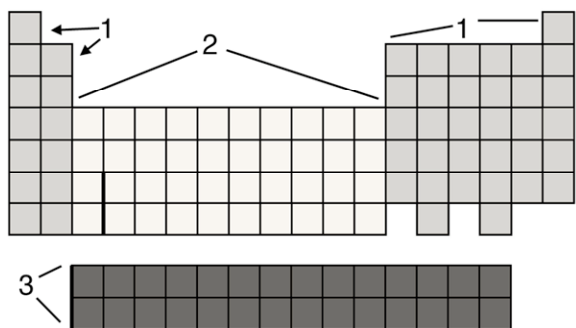
Notes:.

7. Group Names:



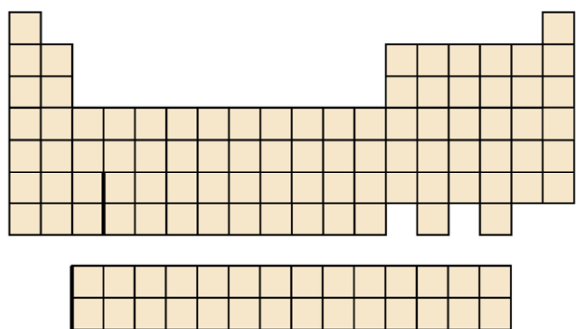
- 1.
- 2.
- 3.
- 4.
- 5.
- 6.
- 7.
- 8.
- 9.

8. Group Block Names:

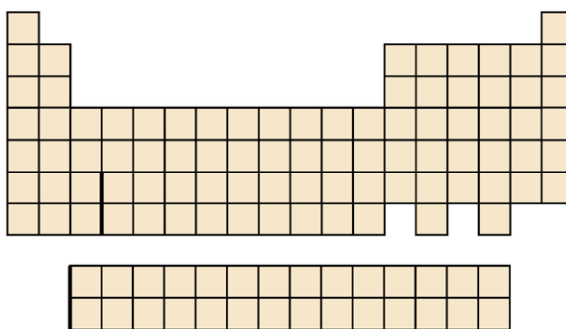


- 1.
- 2.
- 3.

9. Old Group Numerical System:

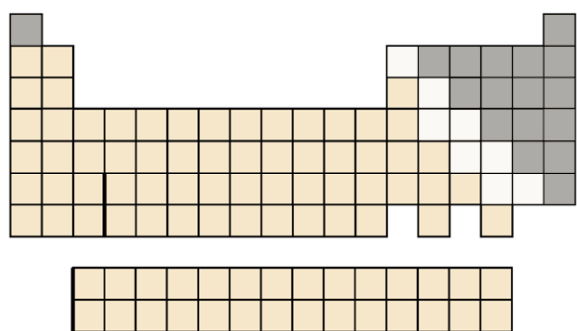


9. New Group Numerical System:



Note: Add the older group numbering system (1A – 8A and 1B – 10B) to the left periodic table (you can use Roman numerals instead if you prefer (IA – VIIIA, etc.)) Add the modern numbering system (1 – 18) to the periodic table on the right. Note the correlation.

10. Periodic table by physical properties



Part 2. The d-orbitals

Sketch the s-orbital, the three p-orbitals and the five d-orbitals on the Cartesian coordinates below. Label the orbits (e.g. p_x)

<p>Cartesian coords</p>	<p>s-orbital</p>	<p>p</p>	<p>p</p>	<p>p</p>
<p>d</p>	<p>d</p>	<p>d</p>	<p>d</p>	<p>d</p>

Review for ACS Final Exam in Inorganic Chemistry

Electron Configuration, Quantum Numbers and the Periodic Table

1. NaF_2 is not stable because:
 - (a) The lattice energy would be greater than zero.
 - (b) The electron affinity of fluorine is too small
 - (c) The ionization energy of sodium is too large.
 - (d) Na^{+2} is too small to form a stable ionic lattice.
 - (e) The electronegativity of fluorine is too large.
2. The maximum number of electrons with $n = 5$ on any given atom is:
 - (a) 16
 - (b) 18
 - (c) 25
 - (d) 32
 - (e) 50
3. How many spherical nodes are expected for the 5f orbitals?
 - (a) 0
 - (b) 1
 - (c) 2
 - (d) 3
 - (e) 5
4. Element 120 is expected to be
 - (a) an alkali metal
 - (b) an alkaline earth
 - (c) a transition metal
 - (d) a post-transition metal
 - (e) a non-metal
5. The element europium, Eu, is expected to have chemistry most similar to
 - (a) tungsten
 - (b) rhenium
 - (c) osmium
 - (d) iridium
 - (e) platinum
6. Which of these elements is most likely to exhibit a +7 oxidation state?
 - (a) tungsten
 - (b) zirconium
 - (c) sulfur
 - (d) technetium
 - (e) cadmium
7. The smallest value of n possible for a g-electron is
 - (a) 4
 - (b) 5
 - (c) 6
 - (d) 7
 - (e) 8

Answers: C, E, B, B, D, D, B