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| How to draw electron configurations (first two types…)  CλeMis+ry: http://genest.weebly.com  Stop in for help every day at lunch and Tues, Weds., &Thurs after school!  After-hours question? Email me at home: [eagenest@madison.k12.wi.us](mailto:eagenest@madison.k12.wi.us) |  | Name\_\_\_\_\_\_\_\_\_  Period\_\_\_\_\_\_\_\_ |

*Assume all atoms have neutral charge unless otherwise stated.*

1. Name two things you can do to an atom which will cause an electron to rise to a higher orbit:
   1. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
   2. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
2. What is the mass of each, (in a.m.u.s)? \_\_\_\_\_\_\_\_proton \_\_\_\_\_\_\_\_neutron \_\_\_\_\_\_\_\_ electron
3. Which has more energy,
   1. yellow light
   2. green light

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| 1. Draw the dot-dash and circles electron configurations for carbon | 1. Draw the dot-dash and circles electron configurations for the most common ion of oxygen |
| 1. Draw the dot-dash and circles electron configurations for oxygen | 1. Draw the dot-dash and circles electron configurations for the lowest mass element in Group 3 |

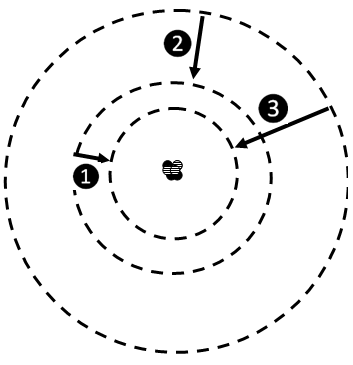
1. What is the charge of each, (choose 0, +1, or -1)? \_\_\_\_\_proton \_\_\_\_\_neutron \_\_\_\_\_ electron
2. When an orbiting electron loses energy the atom emits a
   1. photon
   2. neutron
   3. proton
   4. nucleon

Place the following events in chronological order (1 = first, 4 = last) to describe how an electron absorbs and emits energy:

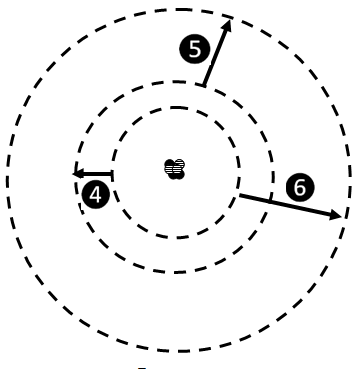
* electron absorbs energy at ground state. \_\_\_\_\_\_
* electron jumps to excited state. \_\_\_\_\_\_
* atom is energized with electricity. \_\_\_\_\_\_
* electron falls to ground state. \_\_\_\_\_\_

\*\* Put a star by the step where light is emitted.

**The next four questions all refer to the black arrows below which show three *possible* transitions for an electron orbiting around a nucleus**

1.  Lines 1, 2, and 3 all represent an electron dropping down. When this happens the atom will
   1. Emit a photon
   2. Absorb a photon
   3. Emit a proton
   4. Absorb a proton
2. Of these three electron movements, which is the highest energy?
   1. transition❶
   2. transition ❷
   3. transition ❸
3. If transition ❶ and transition❷ make an orange photon and a green photon, respectively, what color photon might transition ❸ make? \_\_\_\_\_\_\_\_\_\_\_\_ (I will accept any reasonable answer).
4. Draw one new line labeled (6) onto the bright line emission spectrum in the box to showthe position where the light caused by ❻ would appear

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|  | answer here by drawing one vertical line in the correct position |

1. Which of the following statements is most likely?
   1. transition ④ is from the *absorption* of a large amount of energy and transition ⑥ is from the absorption of a small amount of energy
   2. transition ④ is from the *absorption* of a small amount of energy and transition ⑥ is from the absorption of a large amount of energy
   3. transition ④ is from the *emission* of a Blue photon and transition ⑥ is from the absorption of a Blue photon
   4. transition ④ is from the *emission* of a Red photon and transition ⑥ is from the absorption of a red photon
2. Mark (E)xcited state or (G)round state for each of the following electron configurations of neutral atoms.
   1. \_\_\_\_\_\_\_ 0-1-0
   2. \_\_\_\_\_\_\_ 1-0-0
   3. \_\_\_\_\_\_\_ 2-0-0
   4. \_\_\_\_\_\_\_ 0-2-0
3. Which of these will absorb the most energy?
   1. electron transition ④
   2. electron transition ⑤
   3. electron transition ⑥
4. Mark (E)xcited state or (G)round state for each of the following electron configurations of neutral atoms. Then write the 0-0-0 style electron configuration. *(You may find it helpful to number the orbits, starting with 1 for the innermost orbit.)*

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1. Circle the drawing below that is usually called a “Bohr Atom” (because it was invented by Niels Bohr)

