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| CHEMISTRY | CODE: SCS21A |
| 2014-2015 SCHOOL YEAR | INSTRUCTOR: Ms. Bui |
| CLASSROOM: 510 | LAB ROOM: 506 |

**SUBATOMIC PARTICLES**

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| Name\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ | Period: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ |
| Date: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ | Subject: Chemistry |

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| **READ:**   1. Each atom has a nucleus, with an overall positive charge, surrounded by an electron cloud 2. Electron cloud includes negatively charged electrons. 3. Nucleus includes protons and neutrons 4. Subatomic Particles:    1. Neutrons – no charge and have the heaviest mass    2. Protons - positive charge and have the 2nd heaviest mass (almost as heavy as neutron)    3. Electrons – negative charge and have the least mass 5. Protons and electrons relationship    1. Equal but opposite charges.    2. The number of protons equals the number of electrons in an atom. 6. The mass of each proton and each neutron is approximately equal to one atomic mass unit (1 amu or 1 u). 7. An electron is much less massive than a proton or a neutron. The proton is about 2000 heavier than an electron. |

1. In an atom of argon-40, the number of protons
   1. Equals the number of electrons
   2. Equals the number of neutrons
   3. Is less than the number of electrons
   4. Is greater than the number of electrons
2. Which statement matches a subatomic particle with its charge?
   1. A neutron has a negative charge
   2. A proton has a negative charge
   3. A neutron has no charge
   4. A proton has no charge
3. Which statement compares the masses of two subatomic particles?
   1. The mass of an electron is greater than the mass of a proton
   2. The mass of an electron is greater than the mass of a neutron
   3. The mass of a proton is greater than the mass of an electron
   4. The mass of a proton is greater than the mass of a neutron
4. Which subatomic particles are located in the nucleus of an He-4 atom?
   1. Electrons and neutrons
   2. Electrons and protons
   3. Neutrons and protons
   4. Neutrons, protons, and electrons
5. Which particles have approximately the same mass?
   1. An electron and an alpha particle
   2. An electron and a proton
   3. A neutron and an alpha particle
   4. A neutron and a proton
6. The greatest composition by mass in an atom of O-17 (8) is due to the total mass of its
   1. Electrons
   2. Neutrons
   3. Positrons
   4. Protons
7. Which quantity can vary among atoms of the same element?
   1. Mass number
   2. Atomic number
   3. Number of protons
   4. Number of electrons
8. What is the approximate mass of a proton?
   1. 1 u
   2. 0.0005 u
   3. 1 g
   4. 0.0005 g
9. Which quantity represents the number of protons in an atom?
   1. Atomic number
   2. Oxidation number
   3. Number of neutrons
   4. Number of valence electrons
10. Compared to the charge of a proton, the charge of an electron has
    1. A greater magnitude and the same sign
    2. A greater magnitude and the opposite sign
    3. The same magnitude and the same sign
    4. The same magnitude and the opposite sign
11. Which phrase describes an atom?
    1. A negatively charged nucleus surrounded by positively charged protons
    2. A negatively charged nucleus surrounded by positively charged electrons
    3. A negatively charged nucleus surrounded by negatively charged protons
    4. A positively charged nucleus surrounded by negatively charged electrons
12. Which statement about one atom of an element identifies the element?
    1. The atom has 1 proton.
    2. The atom has 2 neutrons.
    3. The sum of the number of protons and neutrons in the atom is 3
    4. The difference between the number of neutrons and protons in the atom is 1
13. The mass of a proton is approximately equal to the mass of
    1. An alpha particle
    2. A beta particle
    3. A positron
    4. A neutron
14. Every chlorine atom has
    1. 7 electrons
    2. 17 neutrons
    3. A mass number of 35
    4. An atomic number of 17
15. An atom in the ground state has two electrons in its first shell and six electrons in its second shell. What is the total number of protons in the nucleus of this atoms?
    1. 5
    2. 2
    3. 7
    4. 8
16. What is the charge of the nucleus of an oxygen?
    1. 0
    2. -2
    3. +8
    4. +16