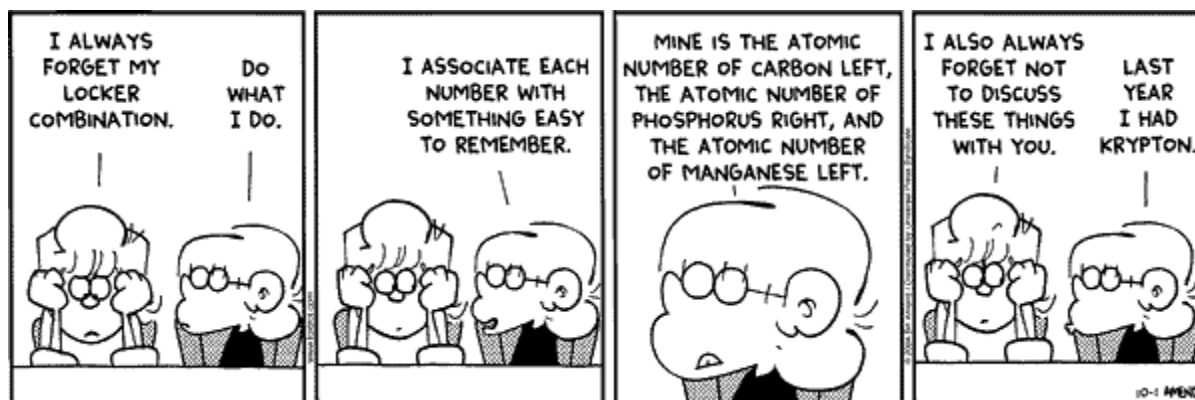
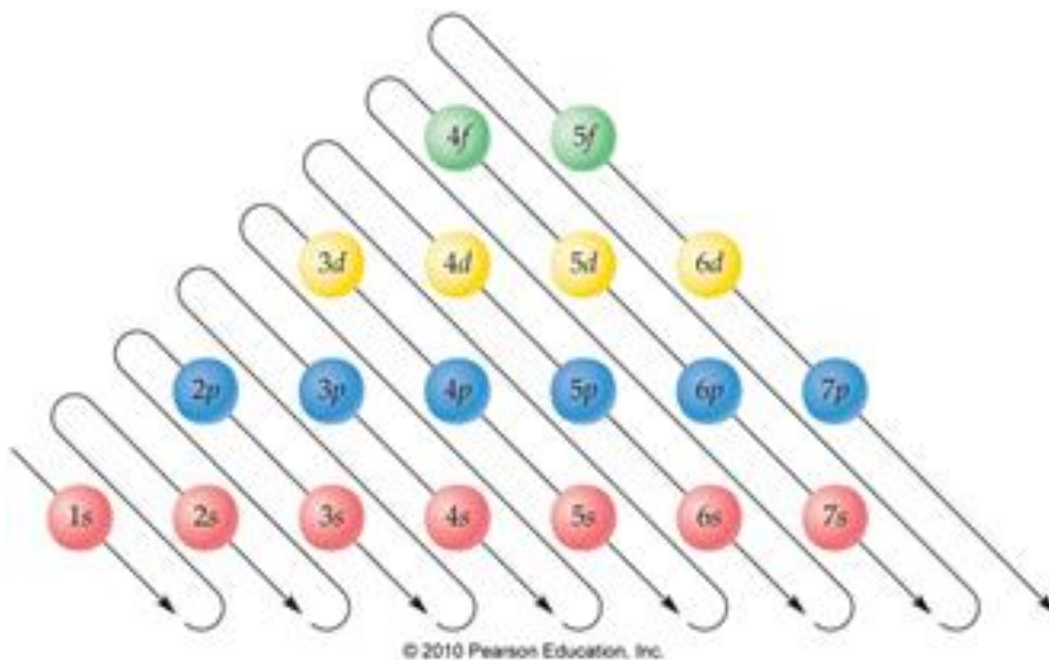


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JBA 2025 – Content Check #1

Name: _____ Score _____

1. The electron configuration for manganese is: (2 points)

- a. $1s^2 2s^2 2p^6 3s^2 3p^6 4s^2$
- b. $1s^2 2s^2 2p^6 3s^2 3p^6 4s^2 3d^5$
- c. $1s^2 2s^2 2p^6 3s^2 3p^6 3d^7$
- d. $1s^2 2s^2 2p^6 3s^2$

Answer b

2. Which item below IS NOT part of Dalton's atomic theory? (2 points)

- a. All atoms of a particular element are identical
- b. Atoms combine in whole number ratios to form compounds.
- c. Atoms can be split into protons, neutrons and electrons
- d. Reactions involve the rearrangement of atoms.

Answer c

3. Below are four statements about protons, only one of which is true. Identify the true statement. (2 points)

- a. Protons have about the same mass as electrons.
- b. Protons have about the same mass as neutrons.
- c. Some atoms don't have any protons.
- d. Protons have the same magnitude of charge as neutrons, but opposite sign

Answer b

4. Match the term with its definition. Write the correct letter next to each term. (4 points)

<u> B </u> electron	A. a "peanut" or dumb bell shape in space where an electron or a pair of electrons can be found
<u> E </u> mass number	B. a subatomic particle with a mass of 1/1824 u and a charge of -1
<u> C </u> anion	C. negatively charged species that forms when an atom gains one or more electrons
<u> D </u> isotopes	D. atoms of the same element, but with different number of neutrons
	E. the number of protons and neutrons that atom contains.
	F. positively charged species that forms when an atom loses one or more electrons

5. Complete the table for the elements below: (6 points)

Element	Electron Configuration	Number of Valence Electrons
silicon	$1s^2 2s^2 2p^6 3s^2 3p^2$	4
arsenic	$1s^2 2s^2 2p^6 3s^2 3p^6 4s^2 3d^{10} 4p^3$	5

Please write legibly! If I can't read it, I can't grade it!

6. Complete the following table. (6 points)

Symbol	$^{12}_6\text{C}$	$^{55}_{26}\text{Fe}$
# of protons	6	26
# of neutrons	6	29
# of electrons	6	26
Mass #	12	55
Atomic #	6	26

7. Fill in the proper term for each item indicated on the diagram below. The terms are group/family, electron configuration, atomic number, atomic mass, atomic symbol, atomic name. (6 points)

_____ group/family

_____ atomic number

_____ atomic mass

→ 2A

$^{12}_{24.312}\text{Mg}$
 Magnesium

[Ne]3s¹

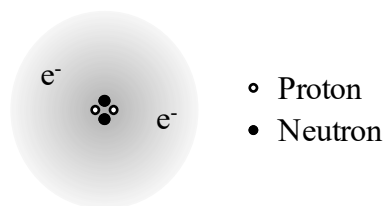
_____ electron configuration

_____ atomic symbol

_____ atomic name

8. Describe what an individual helium atom (^4_2He) looks like. Be as detailed as you can. You may wish to include a sketch. (6 points)

Helium atoms are comprised of a nucleus that contains two protons and two neutrons and comprises most of the mass of the atom. The remainder of the atom consists of electrons in orbitals around the nucleus. The orbitals contain electrons and mostly empty space. A sketch might look something like this:



How is JBA going for you so far?