

Quiz 1

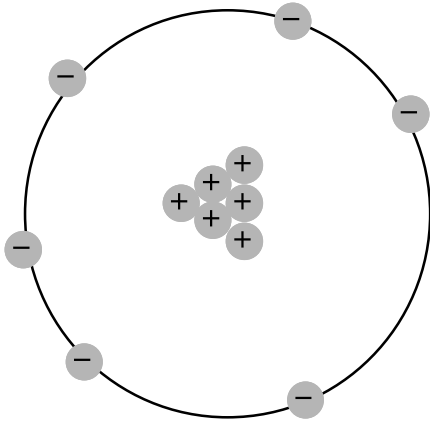
1. Which of the following subatomic particles is(are) found in the nucleus of an atom?

neutron

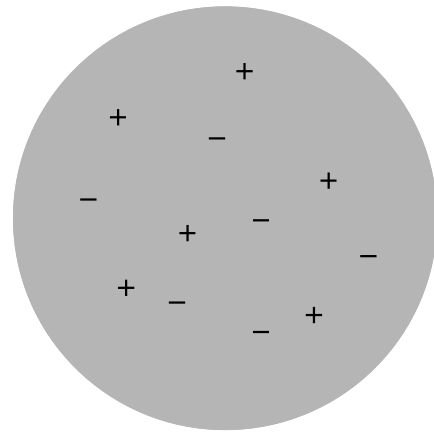
proton

electron

2. Rutherford's experiment* supported which model of atomic structure, the nuclear model or the chocolate chip cookie model (in class, the plum pudding model was called the chocolate chip cookie model)?



The "nuclear" model: Atoms are mostly empty space with small, very dense, positively charged nuclei.



The chocolate chip cookie model: the mass of the atom and the charges are evenly distributed throughout the atom.

*Rutherford shot very high energy α -particles at an extremely thin, gold foil. He expected the particles to pass through the foil virtually unmolested, yet he observed that some of the α -particles bounced back toward the source of the α -particles.

3. What makes an atom of carbon carbon, the number of neutrons it possesses or the number of protons it has?

4. Of the three subatomic particles that we discussed in class (the electron, the proton, and the neutron), which two subatomic particles are similar in mass, and which one has a mass that is drastically lower than the other two?

5. What are the charges of an electron, a neutron, and a proton?

6. When iron (atomic symbol Fe) rusts, it turns into iron cations that have a charge of positive three (Fe^{3+}). Iron contains 26 protons.

a. How many electrons does the neutral iron atom contain?

b. How many electrons does the +3 iron ion contain?

7. Complete the table for the following elements

	${}^7_3\text{Li}$	${}^6_3\text{Li}$	${}^9_4\text{Be}$
number of protons			
number of neutrons			
number of electrons			