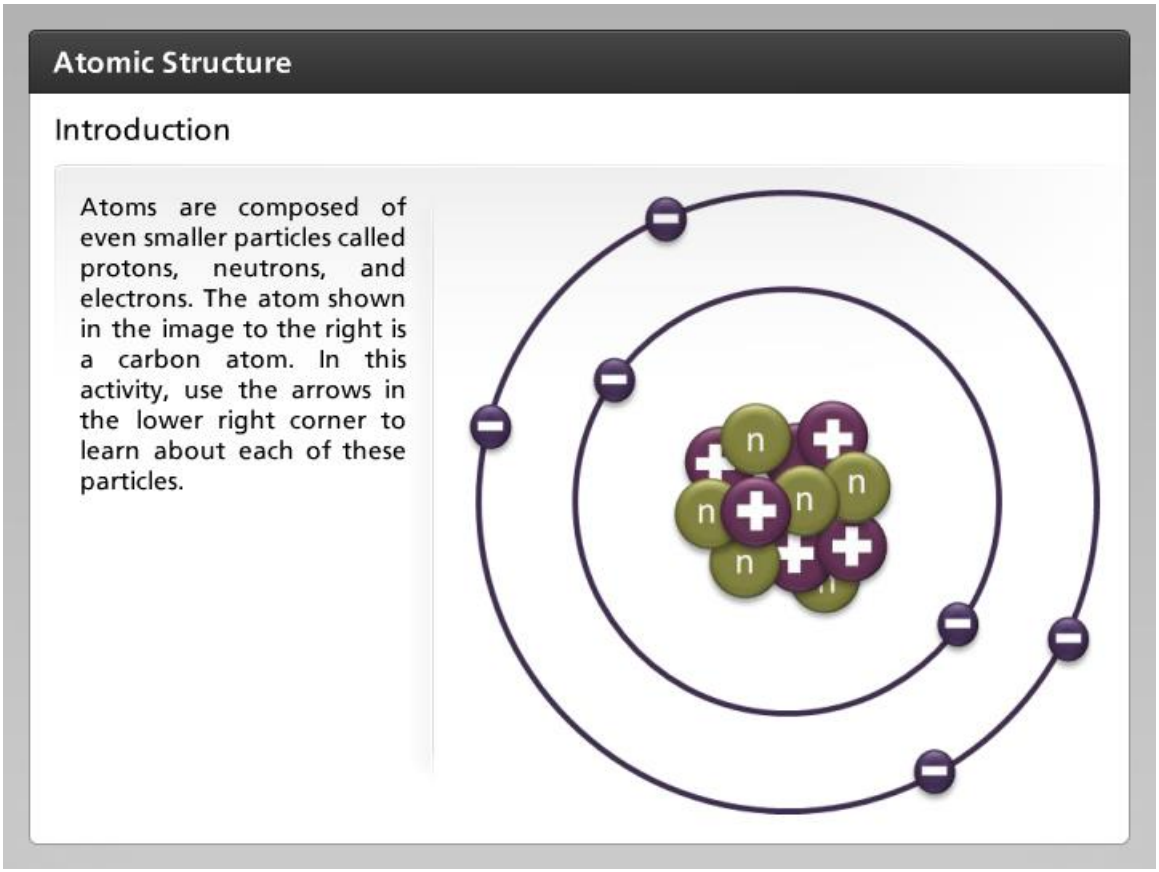
Module 5: Minerals
Topic 1 Content: Atomic Structure Notes

Introduction



Atoms are composed of even smaller particles called protons, neutrons, and electrons. The atom shown in the image to the right is a carbon atom. In this activity, use the arrows in the lower right corner to learn about each of these particles.

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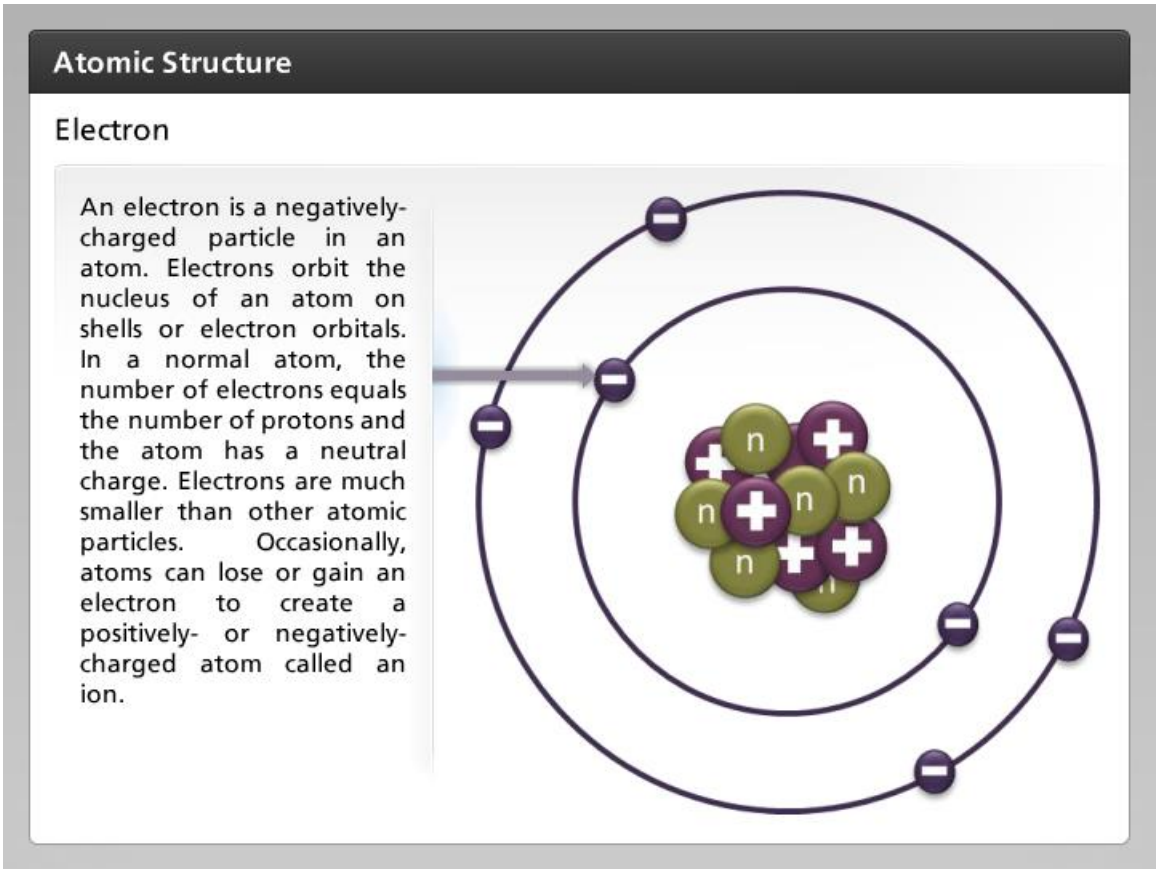
Electron



An electron is a negatively-charged particle in an atom. Electrons orbit the nucleus of an atom on shells or electron orbitals. In a normal atom, the number of electrons equals the number of protons and the atom has a neutral charge. Electrons are much smaller than other atomic particles. Occasionally, atoms can lose or gain an electron to create a positively- or negatively-charged atom called an ion.

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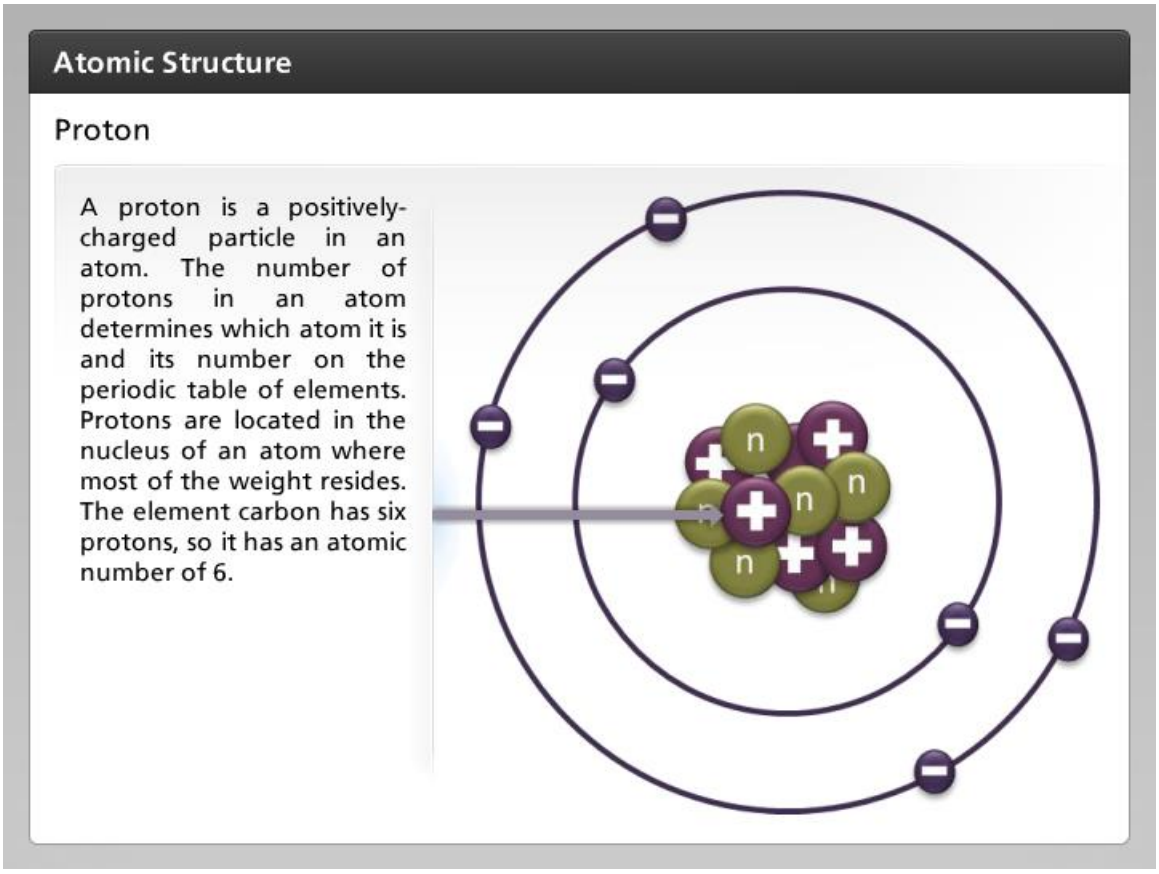
Proton



A proton is a positively-charged particle in an atom. The number of protons in an atom determines which atom it is and its number on the periodic table of elements. Protons are located in the nucleus of an atom where most of the weight resides. The element carbon has six protons, so it has an atomic number of 6.

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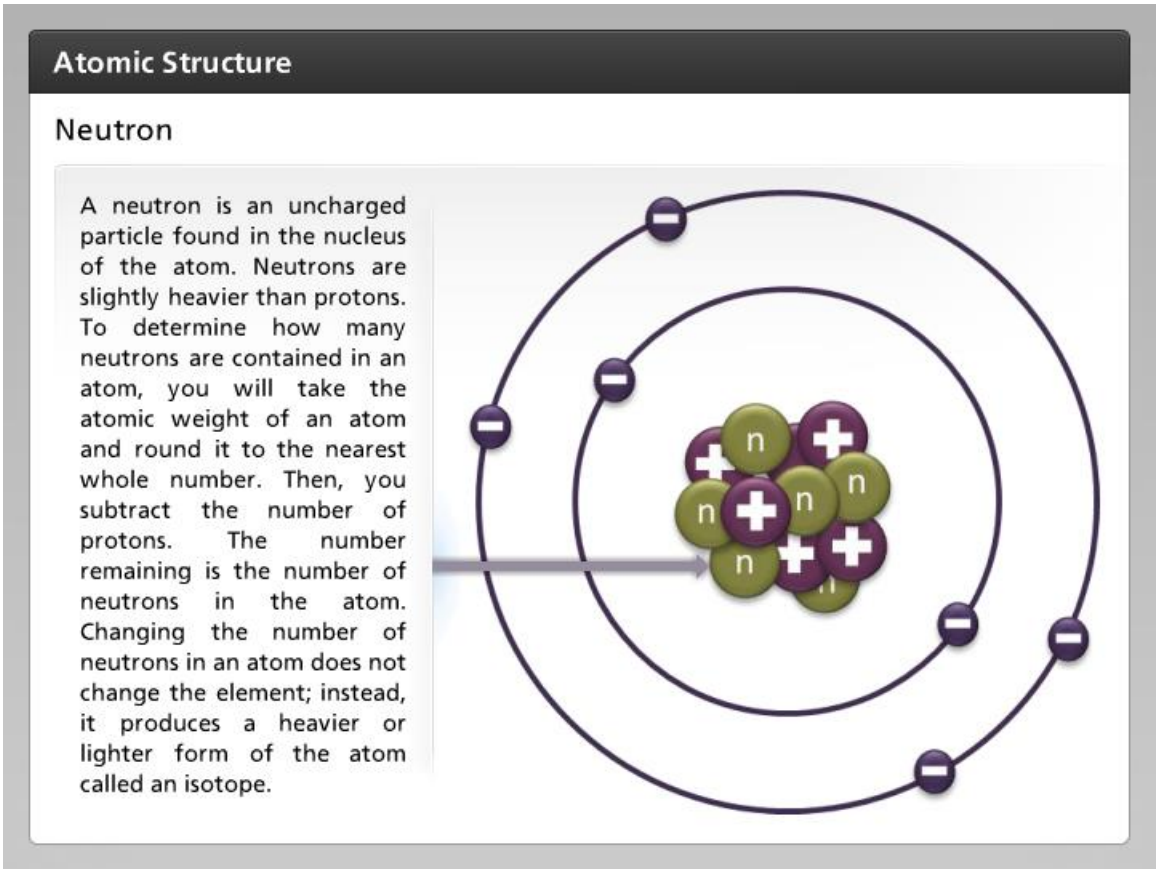
Neutron



A neutron is an uncharged particle found in the nucleus of the atom. Neutrons are slightly heavier than protons. To determine how many neutrons are contained in an atom, you will take the atomic weight of an atom and round it to the nearest whole number. Then, you subtract the number of protons. The number remaining is the number of neutrons in the atom. Changing the number of neutrons in an atom does not change the element; instead, it produces a heavier or lighter form of the atom called an isotope.