

## Reading: Sub-atomic particles

Elements are made up of atoms. Atoms have four main parts: a nucleus, electrons, protons and neutrons. This is true for all elements except hydrogen, which has no neutrons.

### ***The Nucleus***

One part of an atom is its central core. This core is called a nucleus. A cell has a nucleus, too. However, this nucleus is different from the nucleus of an atom.

### ***Electrons***

An atom has one or more electrons. An electron is a part of an atom that has a negative electrical charge. Electrons are found outside the atom's nucleus. Clouds of electrons actually circle around the nucleus in an area called the energy shells. Different elements have different numbers of electrons. A hydrogen atom has only one electron. An oxygen atom has 8 electrons. Electrons travel at very high speeds.

### ***Neutrons and Protons***

An atom has neutrons and protons. A neutron is a part of an atom that has no electrical charge. Neutrons are found inside the atom's nucleus. A proton is also found inside the nucleus. However, protons have a positive electrical charge. Every atom has the same number of protons as it has electrons. The number of neutrons varies. Electrons and protons have opposite electrical charges. They attract each other. This attraction is what holds electrons close to the nucleus of the atom.

### ***Reading Check***

1. *What are the 4 main parts of an atom?*

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2. *Describe the nucleus of an atom.*

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3. *What is the electrical charge of an electron?*

*Where are the electrons located?* \_\_\_\_\_

4. *Where are the protons and neutrons found in an atom?*

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5. *What is the electrical charge of a proton?*

*How about a neutron?*

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