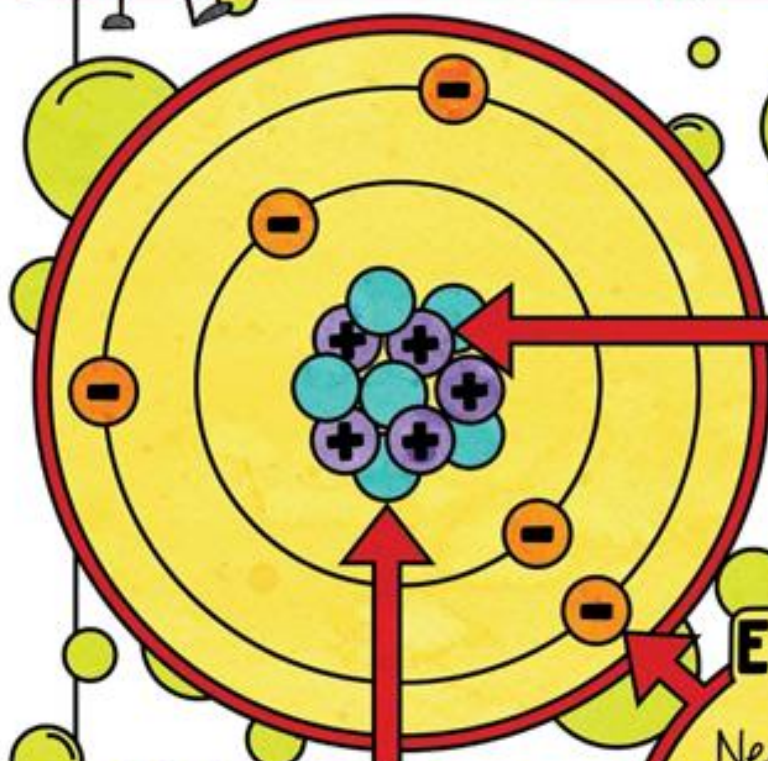




PARTS OF AN ATOM

All matter is made of tiny particles called atoms.

Atoms are made of even smaller subatomic particles called protons, electrons and neutrons.



PROTON

Positively charged particles in the nucleus that have a mass of one AMU. The number of protons determines the element of an atom. For example hydrogen has one, helium has two.

ELECTRON

Negatively charged particles in the electron shells or levels. The mass of an electron is 1/1850 than that of a proton, so it does not add significant mass to the atom.

NEUTRON

Neutral particles in the nucleus of the atom. They have no charge and have a mass of one AMU. Hydrogen is the only element that does NOT have at least one neutron in its nucleus.

AMU = ATOMIC MASS UNIT

WOW!

Atoms are so small!
The dot on this i contains about 1 trillion atoms!



Atoms are mostly empty space. The mass comes from the protons and neutrons in the nucleus!

A substance that cannot be broken down into simpler substances by chemical means. An element is composed of atoms that have the same number of protons in their nucleus.



ELEMENTS

Every element has a unique Atomic Number. It indicates the total number of protons in the nucleus of the atom. Normal atoms are electrically neutral, same number of protons as electrons. So it is also the number of electrons.

ATOMIC NUMBER

ELEMENT NAME

Every element has a unique name. Many element names are very old and are based on other languages. Chlorine is named after "khloros," the Greek word for yellowish green. Newly discovered elements are named by the discoverer, but must be approved by an international committee.

Every element is abbreviated using a unique symbol of one or two letters. The first letter is always capitalized and if there is a second letter, it is lower case.

Some are based on other languages, for example the symbol Fe is iron from the Latin "ferrium."

SYMBOL

ATOMIC MASS

Atomic mass is the mass of the protons and the neutrons in an atom. Every proton and neutron has a mass of one AMU. Electrons do NOT count towards the mass because they are tiny. The mass can be shown with a decimal because it is an average mass of the isotopes of that element.



You try:



What element's neutral atom has 17 electrons?

Chlorine

How many neutrons are in a lithium atom?

4 Neutrons

What do you think the cube symbol in the upper right means?

that the element is naturally a solid.