Name

Molecules

Any time two atoms join together, they make a molecule.

All the stuff around you is made up of molecules.

This includes you! You are actually made up of trillions and trillions of different types of molecules.

Compounds

When atoms of different types of elements join together, they make molecules called compounds.

Water consists of compound molecules made up of 2 hydrogen atoms and 1 oxygen atom. This is why it's called H2O.

Water will always have 2 times the number of hydrogen atoms as oxygen atoms.

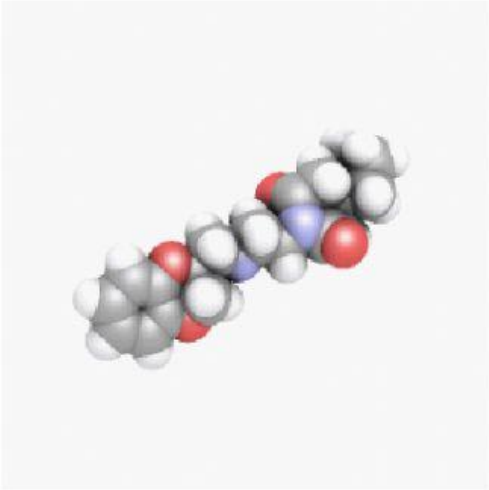
Water Molecule showing 1 Oxygen atom and 2 hydrogen atoms Molecular Formula There are only just over 100 types of atoms, but there are millions and millions of different types of substances out there.

This is because they are all made up of different types of molecules. Molecules are not only made up of different types of atoms but also different ratios. Like in the water example above, a water molecule has 2 hydrogen atoms and 1 oxygen atom.

This is written as H2O. Other examples are carbon dioxide (C02), ammonia (NH3), and sugar or glucose (C6H12O6). Some formulas can get quite long and complex.

Let's look at the molecule for sugar: C6 - 6 carbon atoms H12 - 12 hydrogen atoms O6 - 6 oxygen atom

It takes these specific atoms in these specific numbers to make up a sugar molecule.



Bonds Molecules and compounds are held together by forces called chemical bonds.

There are two main types of bonds that hold most compounds together: covalent bonds and ionic bonds.

Some compounds can have both types of bonds. Both main types of bonds involve electrons.

Electrons orbit atoms in shells.

These shells want to be "full" of electrons.

When they aren't full, they will try to bond with other atoms to get the right amount of electrons to fill their shells.

Covalent Bonds - Covalent bonds share electrons between atoms.

This happens when it works out for atoms to share their electrons in order to fill their outer shells.

Ionic Bonds - Ionic bonds form when one electron is donated to another.

This happens when one atom gives up an electron to another in order to form a balance and, therefore, a molecule or compound.

Fun Facts about Molecules Oxygen gas normally is the molecule O2, but it can also be O3 which we call ozone. 66% of the mass of the human body is made up of oxygen atoms.

Molecules can have different shapes.

Some are long spirals while others may be pyramid shaped.

Organic compounds are compounds that contain carbon.

A perfect diamond is a single molecule made of carbon atoms.

DNA is a super long molecule that has information uniquely describing every human being.

1) Molecules are made up of more than one _____.

- [ ] Electron
- [ ] Neutron
- [ ] Proton
- [ ] Atom
- [ ] Element

2) Compounds are molecules that are made up of more than one _____.

- [ ] Electron
- [ ] Neutron
- [ ] Proton
- [ ] Atom
- [ ] Element

3) What is the common name for the compound H2O?

- [ ] Water
- [ ] Carbon dioxide
- [ ] Sugar
- [ ] Ammonia
- [ ] Glucose

4) How are molecules held together?

- [ ] Elements
- [ ] Bonds
- [ ] Protons
- [ ] Elemental tape
- [ ] Molecular glue

5) How many carbon atoms are in the molecule CO2?

- [ ] 1
- [ ] 2
- [ ] 3
- [ ] 4
- [ ] 5

6) Bonds between atoms are generally formed by what particles?

- [ ] Neutrons
- [ ] Protons
- [ ] Quarks
- [ ] Electrons
- [ ] Neutrinos

7) What is the most common element in the human body?

- [ ] Hydrogen
- [ ] Carbon
- [ ] Oxygen
- [ ] Iron
- [ ] Magnesium

8) What type of chemical bonds share electrons between atoms?

- [ ] Ionic
- [ ] Elemental
- [ ] Iconic
- [ ] Electronic
- [ ] Covalent

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9) What type of chemical bond is formed when one atom donates an electron to another atom?

- [ ] Ionic
- [ ] Elemental
- [ ] Iconic
- [ ] Electronic
- [ ] Covalent

10) What element is needed to form an organic compound?

- [ ] Hydrogen
- [ ] Oxygen
- [ ] Iron
- [ ] Carbon
- [ ] Helium