

Chemistry in Minecraft #1

Atoms make up everything around us! Even the blocks in Minecraft are made of atoms!

Use the **Material Reducer** to break down Minecraft blocks into the atoms that are present in it. You can search for it in your Inventory (in Creative Mode).



1. Grass Block:

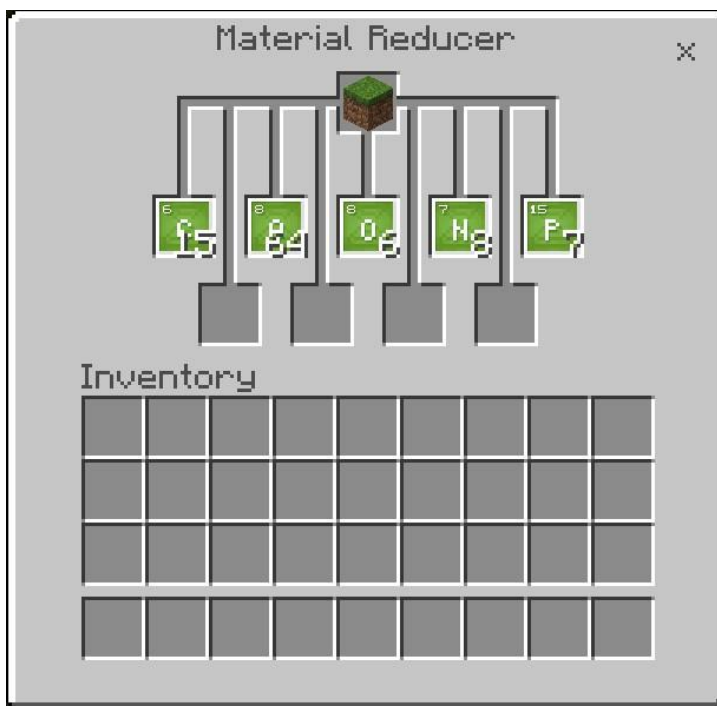
To use the Material Reducer, pick a block you want to inspect from your inventory.

We can start with the Grass Block.

When you place the Grass Block in the top square of the Material Reducer, the atoms present will show up in the squares below. The Grass Block is made of:

- 15 Carbon atoms
- 70 (64 + 6) Oxygen atoms
- 8 Nitrogen atoms
- 7 Phosphorus atoms

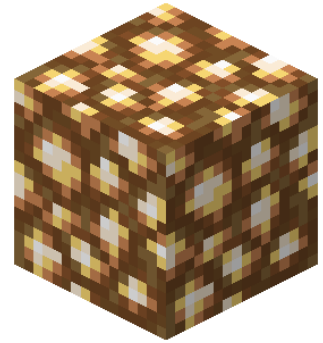
Carbon, Oxygen, Nitrogen and Phosphorus are atoms found in ALL living things. Even our own bodies have atoms of Carbon, Oxygen, Nitrogen and Phosphorus forming our cells, DNA and proteins.



4. Glowstone

Glowstone is a Minecraft specific block and doesn't exist in real life. According to the Material Reducer, Glowstone is made of:

___ Neon ___ Boron
___ Argon ___ Boron
___ Krypton



Neon, Argon and Krypton are **Noble Gases**. Noble Gases don't react with other atoms and form molecules. We use them in neon lights - different Noble Gases radiate different colors of light when electricity is passed through them.

Element Constructor

Element Constructor block allows us to make atoms, or look at the structure of atoms we get from the Material Reducer.

When you place an atom in the Element Constructor, it shows us its composition.

In the Element Constructor:

p stands for **Protons**

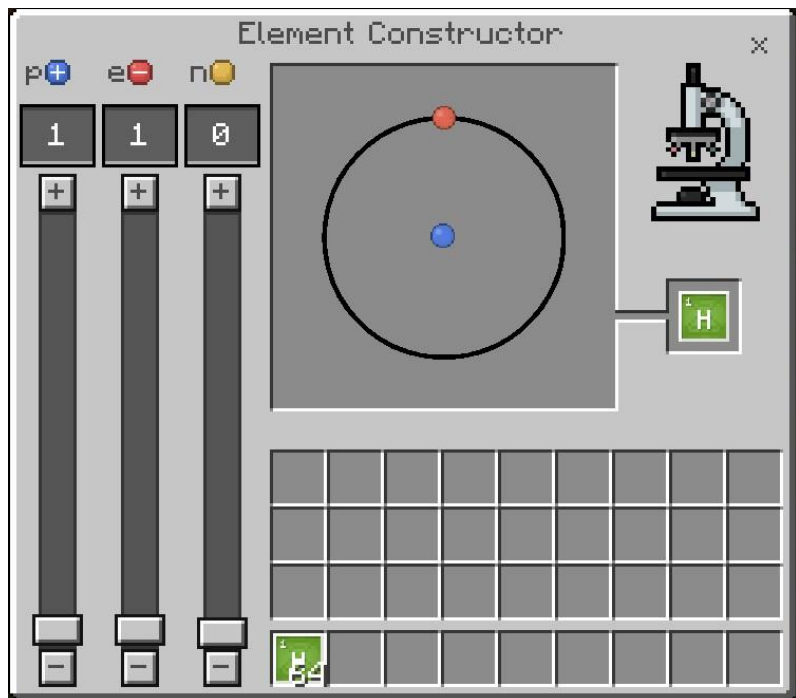
e stands for **Electrons**

n stands for **Neutron**

The protons and neutrons form the nucleus, and the electrons circle around the nucleus.

When you compare the structure of Hydrogen with the Hydrogen atom card, the number of rings around the nucleus match the Level number on the atom card.

Hydrogen is a Level 1 atom, and we see one ring around the nucleus.



To make an atom using the Element Constructor we need information from the atom cards.

The 11 on the atom card is the Atomic Number.

This tells us that an atom of Sodium has:

11 Protons

11 Electrons

To make Sodium in the Element Constructor we need to add 11 protons and 11 electrons.

In the nucleus of an atom, the protons are held together by the neutrons. In an atom of Sodium there are 11 neutrons in the nucleus holding the nucleus together. When we add the 11 neutrons in the Element Constructor, the atom of Sodium pops up!



You will notice that some of the atoms in Minecraft have the same color. The Periodic Table is arranged in groups of atoms that behave similarly to each other. Atoms that have the same color behave similarly to each and belong to the same group.

You can keep breaking down blocks using the Material Reducer and make more atoms using the Element Constructor. You can also arrange the atoms into a Periodic Table in Minecraft!

You can look here for more information on which blocks can be broken down with the Material Reducer: https://minecraft.fandom.com/wiki/Material_Reducer

For help with making atoms in the Element Constructor: <https://aka.ms/elementconstructor>

Answer Key for fill-in-the-blank:

When we place sugar in the Material Reducer what do we get?

6 atoms of Carbon

12 atoms of Hydrogen

6 atoms of Oxygen

According to the Material Reducer, Glowstone is made of:

20 Neon 20 Boron 20 Argon 20 Krypton 20 Unknown