

ATOMS

□□□ BUILDING BLOCKS OF MATTER □□□

Atoms are constantly in motion moving around at speeds that are...

THOUSANDS

OF MILES PER HOUR
AT ROOM TEMPERATURES

—&—

MILLIONS

OF MILES PER HOUR
BEHIND A SUPERNOVA SHOCKWAVE

In a **COLLISION** of an atom with another atom energy can be transferred.

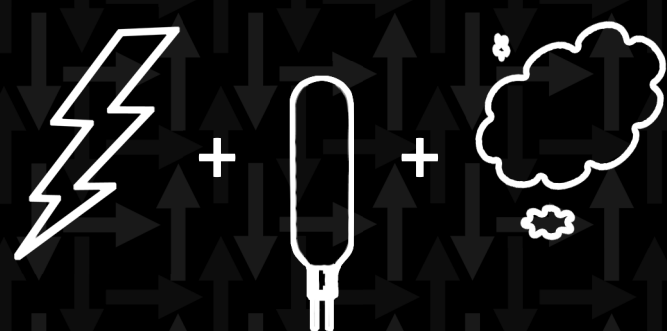
This extra energy can then be released in the form of **LIGHT**.

Most **LIGHT IS PRODUCED** by collisions of atoms with each other or with electrons.

WHERE CAN WE SEE THE EFFECTS OF ATOMS COLLIDING?

HERE.

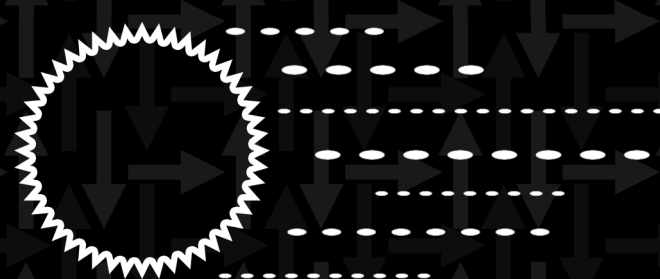
In a neon sign, an electric current runs through a tubular glass fixture that is filled with gas.



This electric current causes **COLLISIONS** between the electrons and atoms in the neon gas.

THERE.

Streams of particles with electric charge are continually leaving the Sun and traveling through the Solar System.



As these particles approach the Earth, some of them are channeled by the planet's magnetic field toward the North and South poles where they **COLLIDE** with atoms in the Earth's atmosphere.

EVERYWHERE.

When a massive star explodes, it generates a blast wave that travels through space around the now-dead star.



This wave heats the gas in this region to a temperature of several million degrees, making the molecules and atoms in the gas vibrate and **COLLIDE**.

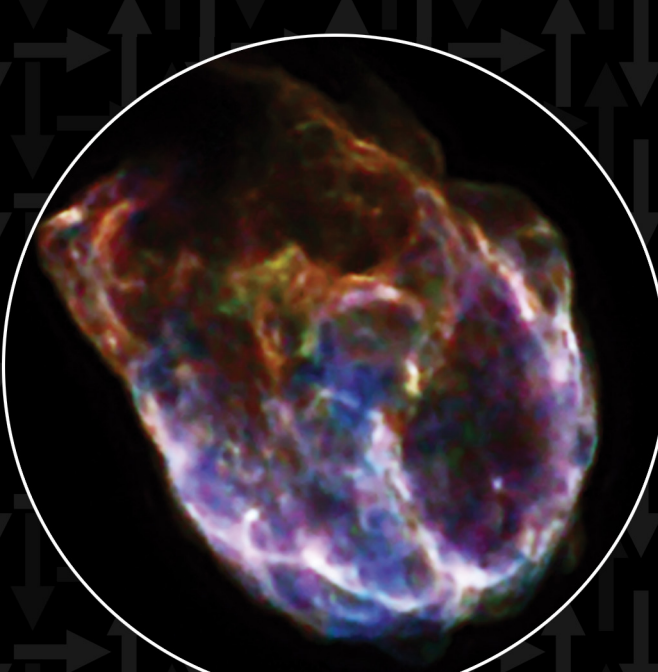
When various electrons **RELAX**, the energy released produces light that has a very specific color that invite us through the diner door.



This produces the famous light shows we call **AURORAS**, or, more commonly in the Northern Hemisphere, the "Northern Lights."



When the electrons in this superheated gas relax, they release their excess energy mostly in the form of **X-RAY LIGHT**.



HTE.SI.EDU/ATOMS