

### Composition of the Sun

spectrograph device used to break sun's light into spectrum

dark lines gases in outer layers absorb wavelengths of light

temperature = which gases produce visible lines

temperature, density, pressure

the sun 75% hydrogen

### Nuclear Fusion

### Magnetism

The sun is gas, so magnetic field becomes twisted like rubber bands

If it is wound too fast, they burst

2 sun spots (N&S pole of magnet)

When 2 spots merge into 1, solar flare sends charged particles toward Earth

Solar wind arrives in 20 hours disrupting satellites and creating auroras

sunspots have an 11 year cycle

### Sun's Energy

Nuclear Fusion the proton cycle

2 groups of 3 protons

collisions result in 2 molecules of He<sup>3</sup>

He<sup>4</sup> is less dense than the 4 protons

$E=MC^2$

400 million tons per second \* 90,000,000,000

sun burns all energy ever used on Earth every second

### Sun Facts

the sun is the size of an average star

the sun is 332,000 times larger than the sun

74% hydrogen 25% helium

core temperature: 15,000,000K surface temp: 5,800K

Burns hydrogen at 400 million tons/second

At 5 billion years, the sun is at half-life

### The Layers of the Sun

inner core Hydrogen and Helium (no electrons) nuclear fusion`  
15,000,000 C

radioative H & He (no electrons)  
2,000,000 - energy disperse  
7,000,000C

convective H & He (stable w/ electron)  
2,000,000C energy absorbed

Photosphere less dense, energy shoots out as photons of light when electrons go in an energy level  
6,000C

Chromosphere Atmosphere of the sun (6,000 C - 20,000 C)  
4,000 -  
50,000C

Corona The outer most layer, heats up to 1,000,000 C  
>1,000,000 C

Sunspots 3,800C

C

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