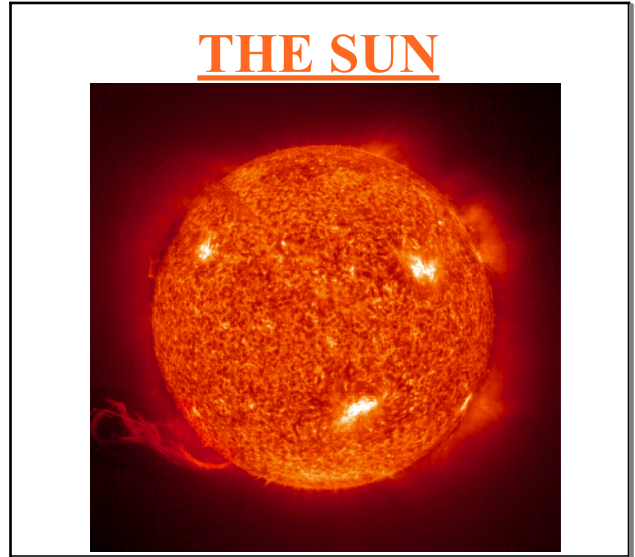
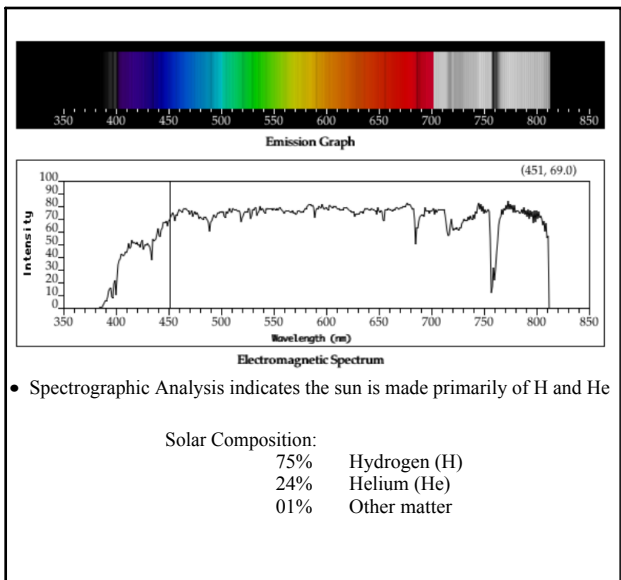


Sun 1 TODAY  
 Sun 2 Friday  
 Stars 1 Monday  
 Stars 2 Tuesday  
 Stars 3  
 Exam → Friday 11/13/09 PH26,27 28,29 30

Nov 4-8:20 AM



Nov 4-7:01 AM



Nov 4-7:03 AM

### Nuclear Fusion

The Sun produces energy by nuclear fusion a process that combines small atoms to make larger heavier atoms.

Hydrogen atoms are the primary fuel for the Sun's fusion reactions

Hydrogen atoms are the most basic in the universe.

- One electron
- One proton
- Zero neutrons

Step 1: Two protons collide and fuse to form a deuterium nucleus (one proton, one neutron) and a positron.

Step 2: A second proton combines with the deuterium nucleus to form a helium-3 nucleus (two protons, one neutron).

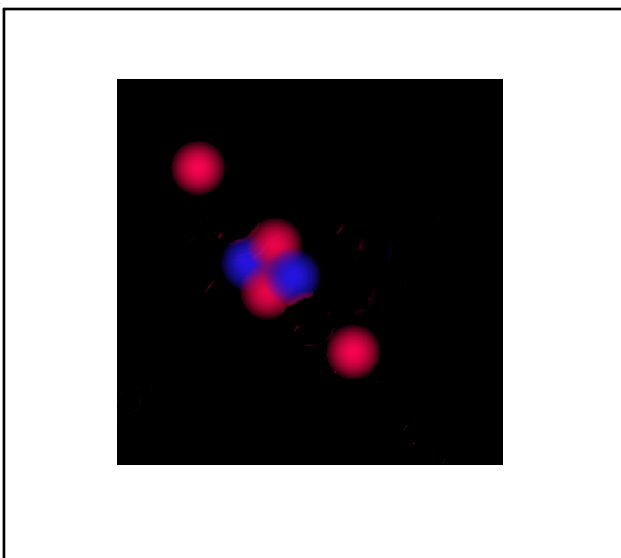
Step 3: Two helium-3 nuclei collide and fuse to form a helium-4 nucleus (two protons, two neutrons) and two protons are released.

Each step of the process gives off a tremendous amount of energy as was predicted by Albert Einstein's special theory of relativity which gave us the famous E=mc<sup>2</sup> equation.

**2He Is Formed**

- Neutron
- Proton

Nov 4-7:19 AM



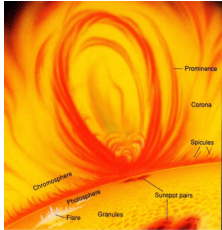
Nov 4-7:35 AM

### Structure of the Sun

- Core-
  - 25% of Sun's diameter
  - 15,000,000 degrees Celcius
  - Consists of ionized gas
  - Intense pressure from the Sun's huge mass
- Radiative Zone-
  - 2,000,000-7,000,000 degrees Celcius
  - Energy moves by radiation as waves
- Convective Zone-
  - 2,000,000 degrees celcius
  - Energy moves by convection

Nov 4-7:40 AM

### Sun's Atmosphere



Photosphere

- "Sphere of Light"
- Visible light energy is given off
- 6000 degrees celcius

Chromosphere

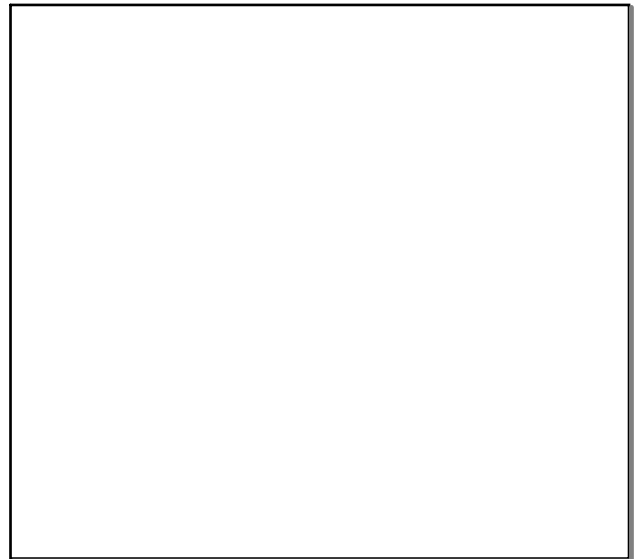
- "Color Sphere"
- Thin layer glows red typical of hydrogen
- 4000-50,000 degrees celcius
- forms jets of hot gas that shoot out
- Not visible normally

Corona

- "Crown"
- 1,000,000 degrees celcius
- Not very dense
- Very strong magnetic fields
- Not visible normally

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NOV 4-7:48 AM



Nov 4-1:19 PM