Making Oxygen From Water

Most people can survive only a couple of minutes without oxygen, and low concentrations of oxygen can cause fatigue and blackouts.

To ensure the safety of the crew, the ISS will have ***redundant*** supplies of that ***essential*** gas.

"The primary source of oxygen will be water ***electrolysis***, followed by O2 in a pressurized storage tank," said Jay Perry. *(Jay Perry is an aerospace engineer at NASA's Marshall Space Flight Center working on the **E**nvironmental **C**ontrol and **L**ife **S**upport **S**ystems (ECLSS) project.)*

ECLSS engineers at Marshall, at the Johnson Space Center and elsewhere are developing, improving and testing primary life support systems for the ISS.

Most of the station's oxygen will come from a process called "***electrolysis***," which uses electricity from the ISS solar panels to split water into hydrogen gas and oxygen gas.

Left: The ISS's first crew -- Bill Shepherd, Sergei Krikalev and Yuri Gidzenko -- aboard the Space Station.
During their four-month stay, the crew will rely on the Station's hardware to provide breathable air.

Each molecule of water contains two hydrogen atoms and one oxygen atom.

Running a current through water causes these atoms to separate and recombine as gaseous hydrogen (H2) and oxygen (O2).

redundant: *exceeding what is necessary*

essential: *absolutely necessary*

electrolysis: *breaking apart a molecule by passing an electric current through a salt solution*