

WONDERFUL WORLD OF TOMORROW

Getting Air From Water To Breathe In Space

(NAPSA)—Many people may soon be able to breathe a little easier, now that scientists are tackling the problem of creating air where there isn't any.

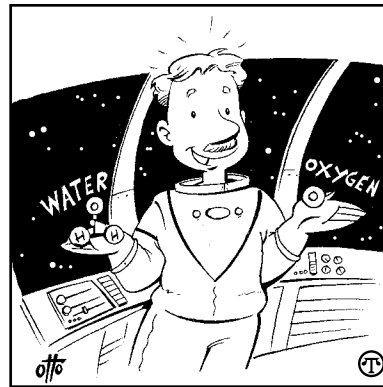
They're doing this to ensure the safety of the crew aboard the International Space Station (ISS), but their methods could some day save lives and improve the economy here on Earth.

"The primary source of oxygen will be water electrolysis, followed by O₂ in a pressurized storage tank," explained Jay Perry, an aerospace engineer at NASA's Marshall Space Flight Center working on the Environmental Control and Life Support Systems (ECLSS) project.

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

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).

The oxygen that people breathe on Earth also comes from the splitting of water, but it's not a mechanical process. Plants split water molecules as part of photosynthesis—the process that converts sunlight, carbon dioxide and water into sugars for food. The hydrogen is used for making sugars, and the oxygen is released into the atmosphere.



The crew of the International Space Station gets breathable air from machines that take oxygen out of water.

"Eventually, it would be great if we could use plants to [produce oxygen] for us," said Monsi Roman, chief microbiologist for the ECLSS project at MSFC. "The byproduct of plants doing this for us is food."

However, "the chemical-mechanical systems are much more compact, less labor intensive, and more reliable than a plant-based system," Perry noted. "A plant-based life support system design is presently at the basic research and demonstration stage of maturity and there are a myriad of challenges that must be overcome to make it viable."

What scientists learn about making air in space may someday help people on Earth. You can learn more about the space station and what it may mean to you online at <http://spaceflight.nasa.gov>.