

# Breathing water? Conejo students hear from engineer who says it can be done



Credit: Joe Lumaya

JOE LUMAYA/SPECIAL TO THE STAR Alan Bodner (standing, center), an engineer from Israel who is the CEO and founder of Like-A-Fish Technologies, watches as Steve Rodgers, from Agilent Technologies, shows students David Katz (from left), Troy Sweeney, Noam Michael and Malcolm Forde how an experiment called Deep Sea Divers works. Bodner talked to home-schooled students from One Spark Academy about how his company is working on a way to extract oxygen from water.

**By Robyn Flans**, November 18, 2015



Credit: Joe Lumaya

JOE LUMAYA/SPECIAL TO THE STAR Alan Bodner, an engineer from Israel who is the CEO and founder of Like-A-Fish Technologies, shows students from the One Spark Academy in Thousand Oaks how his prototype submarine will work.

Alan Bodner, a mechanical engineer from Israel, ignited the imaginations of eight home-schooled students at One Spark Academy as he shared his invention for extracting oxygen from water — a technique that lets humans stay underwater longer without compressed-air tanks.

He explained in a presentation Tuesday at the Thousand Oaks Teen Center that his quest began several years ago when his then-7-year-old son asked him if it was possible for people to breathe underwater like fish.

So began his company, Like-A-Fish Technologies.

Bodner's invention, which is not yet on the market due to



JOE LUMAYA/SPECIAL TO THE STAR  
Alan Bodner, an engineer from Israel who is the CEO and founder of Like-A-Fish Technologies, watches as Noam Michael, from the One Spark Academy in Thousand Oaks, works on an experiment brought in by Steve Rodgers from Agilent Technologies.



JOE LUMAYA/SPECIAL TO THE STAR  
Steve Rodgers, from Agilent Technologies, shows One Spark Academy student Troy Sweeney how the Deep Sea Divers experiment works. It showed students the principles of flotation, density and air pressure.

funding issues, uses the air that's dissolved in the water after fish use it.

"There is a huge amount of air that is dissolved in the water," Bodner said. "There are literally trillions of fish in the sea, and they all need oxygen. I found a simple way to extract the dissolved oxygen from the water, transfer it to a container, and it can be used for humans to breathe either by the people in submarines, in underwater habitats or by individual divers."

Bodner said his invention lets people stay underwater for an unlimited time, unlike compressed-air tanks.

The engineer said he is working with the Human Underwater Society to create an underwater habitat research station off Tahiti.

Bodner also showed the students his electric hydrofoil boat, a sort of miniature submarine that he estimates has a four-hour underwater capability. He described the invention as a research tool or a "rich people's toy," with a \$1 million price tag.

After Bodner's presentation, Steve Rodgers, an engineer from Agilent Technologies, supervised a hands-on project that demonstrated principles of flotation, density and air pressure.

"This is to help the kids understand the concepts of air pressure, relating it to volume and back to what Alan was doing with the submarines," said One Spark Academy teacher Laura Erlig.

Erlig, teaching the "All Dried Up" class, said all the lessons were designed to tie into the students' science projects.

"One of their ideas is to take the pollutants from smokestacks," she said. "There's a company called Calera in California that takes out the CO<sub>2</sub> and uses its byproduct to make cement. This kind of tied in to Alan with taking oxygen out of water. We're taking CO<sub>2</sub> out of pollutants to reduce the greenhouse effect."

Student Noam Michael, 12, of Oak Park, got the connection.

"Our project is about separating something else," Noam said, "so even though we're working with a different apparatus, it goes around the same idea."