

What's Making NEWS In SCIENCE?

REMOTELY OPERATED VEHICLES

Humans have long felt the need to explore the underwater world but visiting and staying in this environment has obstacles that needed to be addressed. First, a method to breathe is needed and has been addressed in a number of ways: supplying air through hoses connected to divers and using air tanks with a limited supply of air. These methods of course restricted the length of time a diver could stay under water. And, as pressure limits the depth to which divers can go, more time is needed to return to the surface so divers will not face serious injury.

The creation of Remotely Operated Vehicles (ROVs) provided a solution to that desire to go to greater depths for longer periods of time. Connected by cable to their ships, these robot machines can safely navigate greater depths than humans, they can remain in the deep-water environment for unlimited periods of time and can perform a range of tasks for scientists and engineers and others. An ROV will have one or more cameras that act as the eyes for the vehicle. It will have three or more motors for maneuvering under water, exploring, and performing specific tasks. One of the most famous ROVs is Jason Jr., which has been used to explore the wreckage of the Titanic.

Uses for ROVs include:

- Placing communication cables under water and inspecting underwater equipment and, in some cases, repairing damaged equipment at underwater oil rigs.
- Facilitating scientific research.

An ROV can stay under water for long periods of time and take water samples.

- Locating shipwrecks. Visiting the site of the Titanic is the most famous, but ROVs have been used to find other shipwrecks and look for debris from the wrecks.

There are also competitions in which students build ROVs and use them to perform tasks in pools. Student groups build ROVs using materials such as plastic pipe, motors, and a TV camera (the eyes of the ROV), to accomplish missions such as picking up items at the bottom of a pool and bringing the items to the surface. The ROV is designed by the students and also controlled by the student team. Building a ROV involves problem solving, mathematics and science as well as the application of technology. To begin, students must be sure their ROV must not sink, but must reach the bottom using the controls and their ROV must not float, but must be able to stay on the surface of the water.

The National Undersea Research Center for the North Atlantic and Great Lakes (NURC-NA&GL), located at UConn's Avery Point campus in Groton has several ROVs that support underwater research.

For additional information visit www.marinetech.org
www.mbari.org
www.nurc.uconn.edu/

Contributed by Craig Clark, DTE, Weaver High School, Hartford, and a JPL Solar System Educator.

Some of Mr. Clark's students will participate in a regional ROV competition in April!

The Hartford Courant.

- ✓ NEWS FROM THE OCEAN FLOOR: Wreckage Provides Long-Buried Details... (10/12/2006)
- ✓ DIVING TO DEPTHS OF THE SEA WITH EYE TOWARD PRESERVATION, MARITIME ARCHAEOLOGISTS SURVEY SHIPWRECKS IN MARINE SANCTUARY OFF MASSACHUSETTS (9/29/2003)
- ✓ THE QUEST TO CLONE (2/18-25/2007)



DIG INTO THE NEWSPAPER & SCIENCE

1. Examine today's newspaper for science-related articles and photos. What kinds of technology are mentioned?
2. The use of remotely operated vehicles has opened new worlds to marine scientists and other explorers. What are they exploring now that was unthinkable 50 years ago?
3. Research the history of ROVs. Are all ROVs used underwater? If not, in what other environments are they used?

DO YOU KNOW?

that Carbon Dioxide is one of the main gases in the atmosphere that contributes to global warming?

The amount of carbon dioxide in the atmosphere continues to increase. Since the 1990s, the amount of carbon dioxide found in the atmosphere has nearly doubled! Carbon dioxide causes global warming by trapping heat in the atmosphere. What can you do to limit the amount of carbon dioxide you produce?

This information brought to you by the



**"What's Making News in Science?"
will appear again on March 15.**

For additional activities,
visit www.courantnie.com.

This is the eleventh in a series of 17 Newspaper in Education pieces designed to increase science literacy and stimulate interest in science. For more information, contact NIE at (860) 241-3847 or nie@courant.com. "What's Making News in Science" received the 2006 first-place award for literacy programs from the Newspaper Association of America Foundation.

QUOTE OF THE DAY

"The progress of Science consists in observing interconnections and in showing with a patient ingenuity that the events of this ever-shifting world are but examples of a few general relations, called laws. To see what is general in what is particular, and what is permanent in what is transitory, is the aim of scientific thought.

—Alfred North Whitehead
(An Introduction to Mathematics, 1911)

- Think about it. What is "general in what is particular?" What is "permanent in what is transitory?"



SCIENCE WORKPLACE

Some science-related jobs listed on the Courant's website this week include:

- Nuclear Engineer
- Chemical Process Engineer
- Medical Lab Technologist
- Geologist or Hydrogeologist
- Medical Writer
- Pharmacy Technician

1. What other science related jobs are listed in today's classified ads? List the headings under which you find the jobs.
2. Which jobs require a bachelor's degree? An advanced degree?
3. Which do not require a college degree?

Not To Be Missed!

Find out what tending pigs has to do with advanced stem cell research. Don't miss the Hartford Courant's eight-part series (Feb. 18-25, 2007) about Dr. Xiangzhong (Jerry) Yang's 30-year journey from a rural Chinese village to Cornell University to UConn. Dr. Yang produced the first clone of an adult farm animal (Amy, the calf) in the United States—at UConn! www.courant.com/yang

Dr. Yang is the founding Director of the Connecticut Center for Regenerative Biology, an interdepartmental research center at the University of Connecticut in Storrs.

The Hartford Courant.



NEWSPAPER IN EDUCATION