**Under Pressure: How Deep Can They Dive?**

**Student Worksheet**

**Name\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

Background:

By now, you have learned a little about the different ocean zones, and how changes in physical conditions and animal life correspond to depth. In part 1 of this activity, you will research various deep divers and learn their limitations. In part 2, you will also prove that pressure increases with depth.

**Procedure Part 1 (In class)**

Materials: 2L plastic bottles; nail or tack; electrical tape

* Poke 2 tiny holes in the top portion of the bottle and the lower portion of the bottle with the tack. Space them about 3 inches apart. Holes should align vertically on the bottle.
* Put electrical tape over the holes and fill the bottles to the top with water.
* Put the cap on and check for leaks.

Wait for the instruction from your teacher to remove the tape.

Write your observations.

* Is the result what you expected?

Experiment with your bottle to find out why the results were not what you expected.

* Where was water pressure be greatest and why?
* How do you know?
* What does this experiment teach us about water pressure at different depths?

**Procedure Part 2 (Homework)**

* Go to the website <http://seawifs.gsfc.nasa.gov/OCEAN_PLANET/HTML/oceanography_how_deep.html>
* Record the different vessels found in each zone in the blank chart on the next page. Use appropriate vocabulary. Save room for notes about the vessels
* Go to <http://oceanexplorer.noaa.gov/technology/technology.html> to research the limitations of submersibles and diving technology. Record this information in the chart next to the respective zones. If you need more space, use your notebook.

Vocabulary

**Abyssal** is the deepest zone with no light penetration, animals at this depth are very unique (1500 meters to ocean floor)

**Bathyal** is the zone (aka midnight) in the middle that has no light. Many zooplankton and smaller fish live here (200-1500 meters)

**Euphothic** is the zone that exposed to sunlight, therefore photosynthesis can occur (0- 200 meters)

**Light penetration** is the amount of sunlight that penetrates into the water column

**Pressure** is the force per unit area applied to an object

**ROV** Remote Operated Vehicle, they are underwater robots that are operated by people on a boat

**SCUBA** Self Contained Underwater Breathing Apparatus is a method of swimming underwater with an air tank allowing humans to breath underwater and stay down longer than free diving

**Submarine** is a type of watercraft that can stay underwater for long periods of time (6 months) with people inside

**Temperature** a physical property that indicates how hot or cold something is.

**Ocean Zones Fill In: Submersibles**

