



History

INTRODUCTION

The History lesson will provide the student with an understanding of the development of the USS *Alligator*, the United States' first submarine, in technology, practical applications, and history.

OBJECTIVES

By the end of this lesson, the student will be able to do the following:

1. Describe the United States' first submarine and tell why it was developed.
2. Summarize the relationship between the submarine's developer and author Jules Verne.
3. Describe the USS *Alligator's* technology in 1862.
4. Describe the voyages of the USS *Alligator* and summarize the obstructions it faced.
5. Describe the circumstances of the USS *Alligator's* last voyage and why it was lost.
6. Compare and contrast the differences between the USS *Alligator* and modern submarines.

History of the USS *Alligator*

Present the history outline. In the lesson where it says "Read quote" "Blueprints" "Orders" "Maps", refer to this website <http://www.sanctuaries.nos.noaa.gov/alligator/history.html>

1. The United States' first submarine, developed by Brutus de Villeroi and constructed in 1861-62 for the purpose of warfare during the Civil War.
 - a. Read quote.
 - b. "I propose to you a new arm of war, as formidable as it is economical. Submarine navigation which has been sometimes attempted, but as all know without results, owing to want of suitable opportunities, is now a problematical thing no more." Brutus de Villeroi in a letter to President Lincoln.
2. Jules Verne possibly came up with the Nautilus for "20,000 Leagues Under the Sea" after seeing the *Alligator*.
 - a. Show *Alligator* blueprints.

3. Construction was started in 1861, launched May 1, 1862, and was named *Alligator* based on its appearance.
4. It was 47' long, its beam was 4'6" wide, its height was 6'tall , and its displacement/weight was 350 tons submerged. It was constructed of rolled iron and painted green. It could hold a crew of between 17 and 22 men. Its first propulsion system was 18 oars, nine on each side. The oars were later replaced by a propeller (screw), that the crew cranked to propel the submarine. It could dive to 50 feet.
 - a. Show the length of the *Alligator* with a 47' length of rope.
 - b. Show the width and height of the *Alligator* with two 6' lengths of rope.
 - c. Place 20 students in the confines of the rope to explain how tight the *Alligator* would be.
 - d. Bring an oar or a hand crank to explain the propulsion methods of the *Alligator*. The *Alligator* was designed to take a swimmer to an underwater target and place limpet mines that could be detonated remotely.
5. The *Alligator* was the first submarine to:
 - a. Be ordered by built for the US Navy.
 - b. Have a diver's lockout chamber.
 - c. Be sent to a combat zone.
 - d. Have air compressors onboard for air renewal and diver support.
 - e. Be commanded by a US Naval Officer. (Show picture of Eakins).
 - f. Have an air purifying system.
 - g. Have an underwater test witnessed by a US President (Lincoln).
 - h. Have electronically detonated limpet mines.
 - i. Undergo an overhaul in a US naval shipyard.
 - j. Utilize oars as a propulsion system.
6. In 1862, the *Alligator* was tasked with clearing enemy river obstructions and blowing up an important railroad bridge. But the rivers were too shallow and the Navy thought the sub might be captured.
 - a. Read orders.
 - b. Show 1st Map.
7. In the spring of 1863, the *Alligator* was ordered to South Carolina for operations against Charleston.
 - a. Read orders.
 - b. Show 2nd map.
8. The USS *Sumpter* was tasked with towing the *Alligator* south. When they rounded Cape Hatteras, North Carolina they encountered a storm.
 - a. Read report.
9. On the evening of April 2, 1863, fearing for the safety of the *Sumpter*, they decided to cut the towing lines to the *Alligator* (no one was onboard the *Alligator*). This set the *Alligator* adrift.
 - a. The *Sumpter*'s crew intended to go back and retrieve her but was unable to because of damage it sustained.
 - b. We do not know if the *Alligator* was taking on water when the towline was cut or if she drifted for a while before going under. Or if she went under, but she was never seen again.
10. In June of 2003, faculty members from the U.S. Naval Academy conducted a 50-hour research cruise of the N.C. Coast and did not find anything.
 - a. Show Map.
11. Now the Navy, NOAA and the Explorers Club are going on a mission to find the USS *Alligator*!
 - a. Encourage students to find out more of the history of the *Alligator*.
 - b. Give out the *Alligator* posters.
12. Needle in the haystack demonstration.
 - a. Go outside and set up a basic search grid system using stakes and rope.
 - b. Place an 1863 coin on the outskirts of the search grid.
 - c. Explain and show to the students how big of a task this will be to find the *Alligator*. Equate

- this to finding a small coin in the search grid.
- d. Have the students search inside the search grid.
 - e. After a certain amount of time, explain to the students that maybe we will have to expand our search and go outside the lines. Equate that to the search for the *Alligator*. (i.e. wind effects, it might have floated, buried in the sedimentation etc.)
 - f. Have the students search outside the search grid and give hints until coin is found.
13. Bring club back in to discuss the demonstration and to give an overview of the weeks to come.

Nautical Terms

Adrift - A ship whose engines/sails are not working or has broken free from her moorings and is drifting with no means of control

Aft - Behind or near the stern of a ship

Ahead - Any distance in front of a ship

Amidships - The middle of a ship

Astern - Any distance behind a ship

Bearing - The situation of one place from another, with regards to the points of a compass

Bow - The front of the ship

Buoy - A floating object in the water that marks a particular point

Drift - The angle of a ship when pushed by wind and waves in regards to the intended course

Fathom - A measure of 6 vertical feet in water

Knot - A means to measure a ship's speed; one nautical mile per hour

Latitude - a measurement in degrees north or south from the earth's equator

Longitude - a measurement in degrees east or west of the prime meridian

Nautical Mile - A unit of measurement used to measure distance over water; equal to one minute of an arc of the circumference of the earth

Port - the left side of the ship

Squall - a sudden violent blast of wind

Starboard - the right side of the ship

Stern - the back of the ship

Swell - the motion of the sea either during or after a storm

Water-Tight - the condition of a ship when not leaking

Tow - to move a ship in the water by a rope fixed to a boat or other ship that is moving

RESOURCES

<http://www.sanctuaries.nos.noaa.gov/alligator/history.html>

© 2006 Nauticus | One Waterside Drive | Norfolk, VA 23510 | (757) 664-1000
www.nauticus.org