

## Outline of Some Educational Programming Potential 2014-2015

### HMCS OJIBWA IS NOT JUST A BOAT OR AN ARTIFACT IN A MUSEUM:

A small sample of the potential to provoke discussion and critical thinking. Students can take: (A) basic tour, (B) a basic tour with one/more specialty component(s) (1for whole boat or components differ by compartment- teacher's choice) or (C) Specialty Tours (Land Sea & Air, Valves & Values, Battle of the Atlantic, the Cold War, D-Day and others under development)

Science / Physics	Math	Social Studies	Canada in the World	Geography	Communications	Chemistry	Mechanics
<ul style="list-style-type: none"> <li>Waves and Sound</li> <li>Electricity &amp; Magnetism</li> <li>Matter</li> <li>Energy</li> <li>Systems &amp; Interactions</li> <li>Structure &amp; Function</li> <li>Sustainability</li> <li>Stewardship</li> <li>How to trim a boat</li> <li>Does a sub get lighter or heavier as it uses up fuel?</li> </ul>	<ul style="list-style-type: none"> <li>Calculations and reckoning</li> <li>Sextant vs. GPS</li> <li>Perisher games (calculations relating to time, speed and distance required to dive a sub faced with oncoming ships)</li> </ul>	<ul style="list-style-type: none"> <li>Alliances</li> <li>How Canada's relationship with Britain influence navy</li> <li>Role of women in the navy</li> <li>Role of women in Armed Forces during wartime</li> <li>How do you win support for what you do when what you do is secret?</li> <li>Canada has one of the longest coastlines in the world. Why do most Canadians not know anything about the Navy?</li> <li>Rise of emergency measures organizations during Cold War</li> </ul>	<ul style="list-style-type: none"> <li>World wars</li> <li>NATO</li> <li>UN</li> <li>COLD WAR</li> <li>International trade</li> <li>Treaties</li> <li>Fisheries and 200 mile limit</li> </ul>	<ul style="list-style-type: none"> <li>Influence of water bodies</li> <li>How geography influences activities/industry location / crops</li> <li>Ojibwa is five storeys high and 90 metres long; does she tower over the village?</li> <li>Geography &amp; tourism</li> <li>Why Port Burwell ideal site for Ojibwa (former rail yard, coal storage compacted the soil so could bear the weight)</li> <li>Why is Ojibwa on land and why this particular piece of land?</li> </ul>	<ul style="list-style-type: none"> <li>Sonar</li> <li>Radar</li> <li>Radio – internal</li> <li>Radio – external</li> <li>What works on surface vs what works under sea</li> <li>Visual – light</li> <li>Visual – flags</li> <li>Visual – semaphore</li> <li>Morse code</li> <li>GPS vs George</li> <li>Active radio room on board Ojibwa</li> <li>How does Ojibwa's location affect her ability to receive radio transmissions</li> </ul>	<ul style="list-style-type: none"> <li>Salt &amp; fresh water</li> <li>Hydrogen &amp; chlorine</li> <li>Batteries &amp; salt water</li> <li>Gases and blood chemistry (bends)</li> <li>Oil &amp; water (how fuel is stored &amp; utilized)</li> <li>Air scrubbers</li> <li>CO2 units (how work)</li> <li>Oxygen candles (how work)</li> <li>Reverse Osmosis</li> <li>Draeger tubes</li> </ul>	<ul style="list-style-type: none"> <li>Influence of pressure on mechanical design</li> <li>Use of compressed air</li> <li>Use of an anchor on a submarine</li> <li>What does the fin do?</li> <li>Principles of towing</li> <li>How do you get large torpedoes inside a submarine</li> <li>Safety mechanisms in high pressure environment (China Dautre blown into Jr. Accommodations)</li> <li>Ojibwa is a diesel electric boat – how does she work?</li> </ul>
<b>Featured Element(s)</b>		<b>Featured Elements</b>		<b>Featured Element(s)</b>			
<ul style="list-style-type: none"> <li>Sonar</li> <li>Canadian input</li> <li>What forces affect the need to mount Ojibwa on land vs keeping her in the water?</li> <li>Ojibwa is a diesel electric boat</li> </ul>		<ul style="list-style-type: none"> <li>What happens when you confine 70 men to a steel tube for weeks on end</li> </ul>		<ul style="list-style-type: none"> <li>What geographical / geological factors brought Ojibwa to Port Burwell</li> <li>Trace her journey from Halifax (mapping, google earth,</li> <li>Identify impediments</li> </ul>			



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• New Frontier Under Sea	• First Nations	• Continuity & Change	Communities	Environment	Compare & Contrast	Cause & Consequence	Function & Design
<ul style="list-style-type: none"> <li>• Submariners pioneers in living under the sea</li> <li>• Comparisons with space exploration</li> <li>• What are the major challenges of working under the sea?</li> </ul>	<ul style="list-style-type: none"> <li>• Commemoration of the relationship with First Nations peoples over our history</li> <li>• Respect for traditions</li> <li>• Attributes</li> <li>• Silent motion</li> <li>• Leave environs as found them</li> <li>• Circle equal input – submariners do all tasks</li> <li>• Outlook</li> <li>• Contribution - service to Canada in wartime</li> </ul>	<ul style="list-style-type: none"> <li>• Using Port Burwell as example:</li> <li>• Identify changing focus on use of Lake Erie</li> <li>• International component trade vs tourism</li> <li>• Commercial vs sport fishery</li> <li>• Land compacted by coal piles now provides suitably compacted surface to support Ojibwa</li> <li>• Sandy soils once supported tobacco now lavender, ginseng, peanuts and wind farms.</li> </ul>	<ul style="list-style-type: none"> <li>• Settlement patterns</li> <li>• Great Lake</li> <li>• Farm vs fishery</li> <li>• What happens when a large element is added to a small community</li> <li>• Ojibwa is five storeys high and 90 metres long, does she tower over the village?</li> <li>• Living in extremely close quarters</li> <li>• Doing without</li> </ul>	<ul style="list-style-type: none"> <li>• Silting of harbour</li> <li>• Chemical run off from farms</li> <li>• Hurricane Sandy</li> <li>• Prevailing winds</li> <li>• Wind farms</li> <li>• Dredged materials directed to Long Point wetland development</li> <li>• Lighting system</li> <li>• Green building</li> <li>• Stories about Ollie &amp; Olivia Otter and their friends illustrate the sometimes competing sometimes complementary uses of Big Otter Creek and Lake Erie between man and the creatures of the natural world</li> <li>• What sorts of pollutants is a submariner exposed to when on the boat?</li> </ul>	<ul style="list-style-type: none"> <li>• Sonar vs. radar</li> <li>• Shoals in St. Lawrence vs. towing through Thousand Islands vs. traffic on Welland Canal</li> <li>• Community spirit of wartime vs community spirit in Port Burwell to save their community</li> <li>• Homefront vs economic depression</li> <li>• Compare and contrast the radio room and how submariners communicated throughout the boat with how communications are handled at your school</li> <li>• Submarine vs the international space station or a space ship</li> </ul>	<ul style="list-style-type: none"> <li>• Investigate the difficulties McKeil tugs had towing large object (long rope or short)</li> <li>• Why were there two tugs</li> <li>• Is it warm on the boat all the time? If not, when is it warm and when is it cold? Why?</li> <li>• Why did submariners on Ojibwa smell/stink/reek!!!</li> </ul>	<ul style="list-style-type: none"> <li>• Choice of shape for a submarine – determining factors</li> <li>• Segregation of water tight compartments</li> <li>• What does fin do?</li> <li>• Escape mechanisms</li> <li>• Apparel</li> <li>• Design problems relating to heating/cooling systems when you have a black metal tube 90 meters long sitting in the sun</li> <li>• Design challenges created by a steel cylindrical structure</li> <li>• What are the main advantages of a submarine over a surface ship? (unseen, smaller, fewer crew to pay/less fuel to purchase)</li> <li>• Why is the fin not metal?</li> <li>• There is a limit to how many supplies can be carried so things such as oil had to be filtered and reused.</li> </ul>
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Mental Health	Homefront	Biology/Zoology	Training	Living Conditions on Sub	Strategy & Tactics	Medicine	History
<ul style="list-style-type: none"> <li>• stress of knowing each dive could be your last</li> <li>• dealing with fire and floods below sea</li> <li>• living in very close quarters</li> <li>• need to have absolute trust in your colleagues abilities</li> <li>• not knowing where you are/where you are going/ or when you will return</li> <li>• stress on family life and coping mechanisms</li> <li>• fear whenever another boat passes over head – will it cut through your fin?</li> <li>• Post-Traumatic Stress Disorder</li> <li>• Why was the Submarine Service a voluntary choice rather than an assignment until the 1990s?</li> </ul>	<ul style="list-style-type: none"> <li>• How does being away affect family life</li> <li>• What can be done to keep the submariner up to speed about what is going on at home</li> <li>• What could you do to help a classmate who has a parent in the armed forces or Reserve serving outside Canada?</li> </ul>	<ul style="list-style-type: none"> <li>• Effect of pressure on the body in a sub</li> <li>• Hearing in a noisy environment</li> <li>• Sounds of the undersea world and how they affect the job of a sonarman</li> <li>• What does a whale fart sound like or a school of shrimp</li> <li>• Why there are no rats on a submarine but often are on ships?</li> </ul>	<ul style="list-style-type: none"> <li>• Sea Daddy system</li> <li>• Demand for excellence at all times</li> <li>• Must know how to do every job</li> <li>• Must be able to work in the complete darkness</li> </ul>	<ul style="list-style-type: none"> <li>• Where does a submariner eat/sleep/relax?</li> <li>• What does a submariner do in his spare time?</li> <li>• How do you do dishes on a submarine?</li> <li>• Where do you wash your clothes</li> <li>• How many showers per voyage?</li> <li>• Who gets to shower every day? Why?</li> <li>• Red light conditions</li> <li>• Ultra Quiet State</li> <li>• Cooks served approx. 210 meals a day from a tiny galley</li> <li>• There is only 46 cm between you and the bunk above.</li> <li>• Water is rationed</li> <li>• Only uniform and one change of clothes</li> <li>• Dept. of Agriculture says the Jr. Accommodation space would accommodate only 3 pigs.</li> </ul>	<ul style="list-style-type: none"> <li>• Cold war diplomacy</li> <li>• Convoy system</li> <li>• Peacekeeping</li> <li>• Dealing with Pirate ships in the Red Sea and coast of Africa</li> <li>• The ‘Perisher’ training course techniques</li> <li>• Dealing with eating, working, relaxing and sleeping with the same twenty men 24/7 in the Jr. Accommodation space.</li> </ul>	<ul style="list-style-type: none"> <li>• Why do submariners have difficulty being in the sun?</li> <li>• Why are many retired submariners deaf in their right ear?</li> <li>• Does working in a submarine affect your eyesight?</li> <li>• Did you know that smoking was common on submarines?</li> </ul>	<ul style="list-style-type: none"> <li>• Canadian Submarine Service is 100 years old</li> <li>• Naming Canadian ships and boats</li> <li>• When and why is it ok for a submarine to fly the Jolly Roger pirate flag?</li> <li>• Why do submariners sometimes wear ‘pirate rig’?</li> <li>• Has Canada ever had any new submarines?</li> <li>• Were submarines ever built in Canada</li> <li>• The Great Lakes are an inland fresh water waterway, ships for the Royal Canadian Navy were built in ports on the Great Lakes</li> <li>• What was a WREN?</li> <li>• What does Chile have to do with Canadian submarines?</li> <li>• How a personal friendship with Sir Winston Churchill started the Canadian Submarine Service.</li> </ul>

