

Lesson 5 –Submarines

Lesson Objectives: understand the heritage of the submarine; raise awareness of the design challenges; construct a model submarine exploring how and why these vessels work ; assess the developments in submarine design and construction.

Time	Activity	Learning objective	Resources
Starter			
5 min	<ul style="list-style-type: none"> Teacher raises awareness of submarines their purpose and history, including 'The Turtle'. 	<ul style="list-style-type: none"> The role of a submerged vessel and the design challenges. 	<ul style="list-style-type: none"> Submarines worksheet p1.
10 min	<ul style="list-style-type: none"> In pairs, students consider the design challenges of a submarine. 		
Main			
5 min	<ul style="list-style-type: none"> Students discuss the reasons why the submarine was so unpopular. 	<ul style="list-style-type: none"> Awareness of the unpopular heritage. Practically model a submarine to examine how submarines and submersibles work . 	<ul style="list-style-type: none"> Worksheet p2 Worksheet p3 and list of resources listed there Worksheet p4
20 min	<ul style="list-style-type: none"> In small groups, students make a model 'submarine' as described. 		
10 min	<ul style="list-style-type: none"> Students discuss what makes the submarine sink; what makes the submarine surface; what the submarine would need to navigate under water 		
10 min	<ul style="list-style-type: none"> Students complete blank fill using drawings to assist their understanding. 		
Plenary			
5 min	<ul style="list-style-type: none"> What have you learned today question and answer. 	<ul style="list-style-type: none"> Clarify learning points. 	

Extension			
Time	Activity	Learning objective	Resources
15 min	<ul style="list-style-type: none"> Students compare the capabilities of the Holland 1, with a contemporary attack submarine prioritising the developments from 1(most important) through to 8. 	<ul style="list-style-type: none"> Students priorities and assess developments. 	<ul style="list-style-type: none"> Worksheet p5