Date	Class level Fifth Class	Subject Mathematics
Strand Algebra	**Strand Unit** Directed Numbers.	

Title
Learning about Ocean Zones and Recording Ocean Temperatures.

Objective(s)
The aim of the lesson plan is for the children to be enabled to identify and record positive and negative numbers on the number line. Depths of the Ocean and Ocean temperatures are used as an example.

Skills Required
Conceptual understanding and the ability to contextualize directed numbers in real life situations.

Learning objectives	Learning activities
The child should be enabled to: Identify positive and negative numbers in the context of the number line and sea levels. The students will also examine the reduction of water temperatures in the different ocean zones. Complete worksheet to consolidate learning.	**Guided Discussion:** Recall previous learning about the number line. Examine and discuss the position of positive and negative numbers on the number line. Discuss with the students about the different depths of the ocean and chart the temperatures. Discuss how the ocean has layers and each layer ranges in temperature. The sunlight warms the top / surface of the ocean. However, the deeper into the ocean where it is darker (no sunlight) it gets colder and colder. The **sunlight zone** is bathed in sunlight during the daytime. Its layer from the surface is about -200 meters deep. The temperature in the sunlight zone ranges (e.g. weather, surface currents etc) but on average are about 13-20°C. The next level of the ocean is the **twilight zone**. It gets low levels of light during the day and is virtually dark. This layer of ocean ranges from -200 to about -1000 meters. Its temperatures range from 4-20 °C.

	The **midnight zone** is in utter blackness. It depths range from -1000 to -4000 metres. There is no "daytime" here at all. Midnight zone temperatures are about 4 °C. The **abyssal zone** is at the bottom of the ocean at depths of -4,000 to -6,000 meters. The abyssal zone has temperatures around 2 °C to 3 °C. The **trench zone** is at the deepest part of the ocean and is a narrow, elongate, v-shaped cavity in the ocean floor. It is below -6000 to -11,000 metres. It can reach freezing temperatures of below 1 °C. **Active Learning:** Children draw a horizontal number line from +10 to -10. Include 0. **Pair Work:** Move from positive to negative on the number line as requested by a partner. **Worksheet:** Complete Worksheets.
	Resources Number line (Vertical and horizontal) Worksheets (attached)
Differentiation Differentiate group activities and roles to take account of individual needs.	
Assessment Question and answer, Oral feedback from children, teacher observation, teacher check, pupil work samples, End of unit test (Worksheet).	
Linkage and Integration Science: Ask students research creatures that live at different levels in the ocean.	

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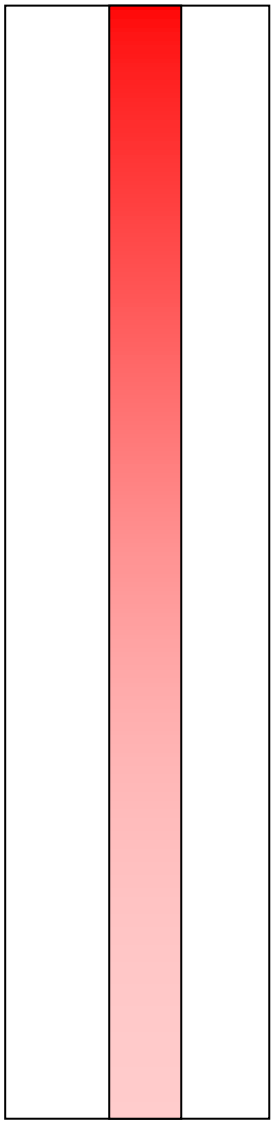
Order these temperatures on the thermometer:

16°C 37°C -33°C
-6°C -25°C 2°C
25°C 11°C -14°C



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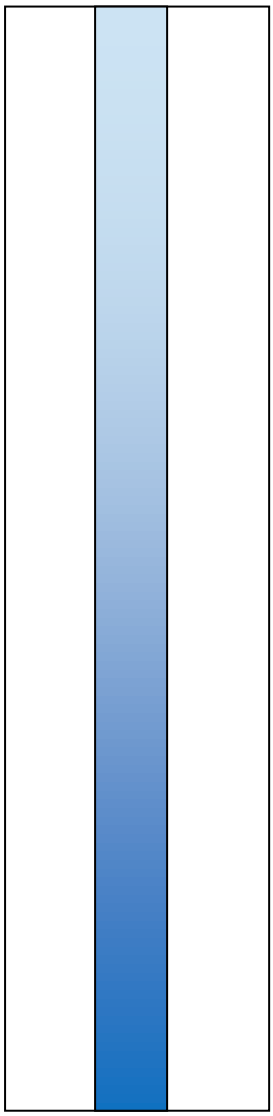
Complete the water depth of the zones of the ocean and place in the correct order:
-4,000 to -6,000m -200 to -1000m -6000 to -11,000m
0 to -200m -1000 to -4000m

Also complete the temperature of the depth of ocean zones using the temperatures listed below:

4°C 13-20°C 2-3° C 4- 20 °C 1 °C

Note that the temperature decreases with the depth of the ocean.



Zone Name	Water depth	Water temperature
Sunlight Zone: is heated by the sun.		
Twilight Zone: receives only a faint amount of light from the sun.		
Midnight zone: the sunlight does not reach this zone		
Abyssal zone: the water is in absolute darkness		
The Trenches: the bottom of the deepest parts of the ocean. These areas are mostly found in deep water trenches and canyons.		

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