

Explorer Education Programme



Lesson Plan: Measurements and the Sea
Class: Junior Infants / Senior Infants
Strand: Measures
Strand Units: Length, Weight, Capacity

TITLE: MEASUREMENTS AND THE SEA

Aim / Description:

The aim of this lesson plan is to develop the students' understanding of concepts of measurements such as length, weight and capacity. This is done through exploration, discussion and use of appropriate vocabulary using pictures of sea animals and items collected from the seashore. Students should be able to compare and order items according to length, weight or capacity during the different activities.

For more information on sea animals and the seashore see teaching materials found at www.explorers.ie

Materials:

- Worksheet (following lesson plan)
- Scissors
- A collection of empty shells, dried seaweed and some stones from the seashore
- A collection of different plastic cups and jugs

Activity:

LENGTH

- Step 1. Provide the Worksheet to each student. Assist the students in cutting the animal set. Discuss the length of the animals e.g. which animals are long/short, wide/narrow, longer, shorter, wider, taller, and narrower.
- Step 2. Compare and order the animals in relation to length.

Extension for Senior Infants

- Step 3. Using the pictures of the different sea animals discuss with students which one they think is longest when it is alive in the sea. Ask students what they think would be the best item for measuring them, i.e. pencils, meter sticks, themselves lying on the floor?
- Step 4. Using a tape measure, mark out on the floor the animal's average length (information provided on the worksheet). Discuss with the students which one is the longest.

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WEIGHT

- Step 5. Provide the students with a selection of items from the seashore which are noticeably bigger/smaller than each other and have a significant difference in weight (e.g. a small shell and a large stone from the beach). Allow the students to handle each item. Discuss which is light/ which is heavy, e.g. the stone is heavy, the shell is light.
- Step 6. Allow students to sort the objects into sets of heavy/light. Allow them to determine what constitutes “heavy” and “light”, and discuss.
- Step 7. Now use objects of similar size but different weight. (e.g. a stone and some seaweed) Ask the students if the second object was heavier/lighter than the first, continuing on with a few examples.
- Step 8. Next allow students to handle objects which are small and heavy/ large and light e.g. a large shell vs. a small stone.

Extension for Senior Infants

- Step 9. Allow students to compare and order objects from the seashore according to weight. Compare objects that differ in size, shape and weight by handling. Check the weight using a balance and discuss e.g. the biggest object the heaviest?
- Step 10. Compare one shell with a collection of shells. Compare a collection of shells with a collection of stones. Order a shell, a piece of seaweed and a stone according to weight by handling. Check the weight with a balance and discuss.
- Step 11. Allow students to estimate and weigh in non-standard units, such as copybooks or pencils. Check with a balance and discuss. Present simple problems such as: How many shells do you think will balance with the weight of your lunchbox?
- Step 12. Select and use appropriate non-standard units to weigh objects. How can students find the weight of a book? Would they use stones or shells? Discuss the reasons for their choice.
- Step 13. Now allow students to discuss abstract ideas of weight. E.g. show them a picture of a whale and a fish and ask them which would weigh more. Discuss with them how they came to this conclusion with relation to the work they have just done.

CAPACITY

- Step 14. Allow the students to examine a number of different sized plastic cups and jugs. Ask the students to fill a cup with water and discuss the concept of full/nearly full and empty. Ask them which they think holds more / holds less, the plastic cup or jug?
- Step 15. Ask the students to fill the plastic jug using the plastic cups. Emphasise that full means full to the top.

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- Step 16. Present the students with a range of simple problems such as which cup/jug has the capacity to hold the most water? Will all the water from one cup fit in another cup?

Extension for Senior Infants

- Step 17. Compare and order containers according to capacity. Allow students to fill one container and then pour the contents into another. Compare two very different containers that are the same capacity, such as a large cup and a small jug. Explain that while they are different types of containers, they both hold the same amount of liquid. Therefore they have the same capacity.
- Step 18. Compare three different types of container. Arrange them in order of capacity and label, i.e. holds more/ holds most/holds less.
- Step 19. Estimate and measure capacity in non-standard unit's e.g. how many spoons of water it takes to fill the cup. Using the same unit (the cup) get the children working in pairs to fill two different containers with water, i.e. the jug and the bucket. Measure and record the results for the capacity of each container.
- Step 20. Select and use appropriate non-standard units to measure capacity for some simple problems such as, how would we measure the capacity of the fish tank or the sink? Which unit would we use, the cup or the jug or the bucket? Discuss reasons for your choice.

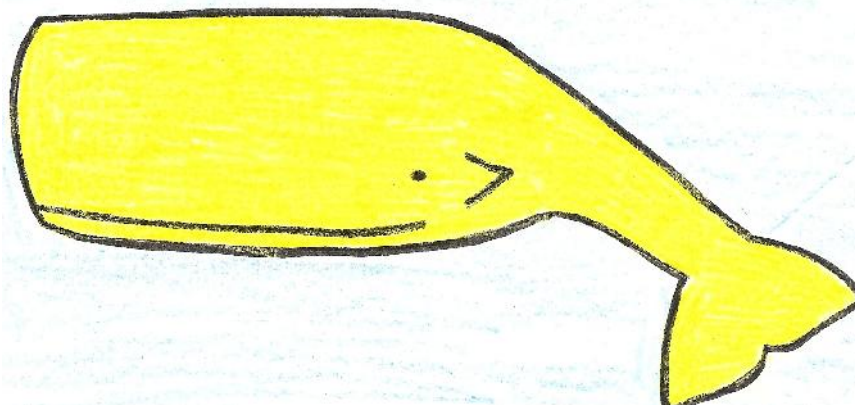
Outcome / Objective:

The children in the class should have developed an understanding for concepts of measurement such as length, weight and capacity using:

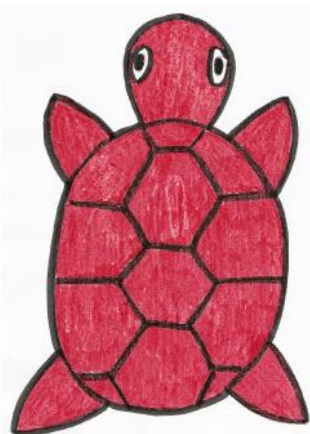
- **Use of appropriate vocabulary**
- **Comparing and ordering**
- **Exploration**
- **Estimating**
- **Measuring and recording**

Students will have developed skills in the following:

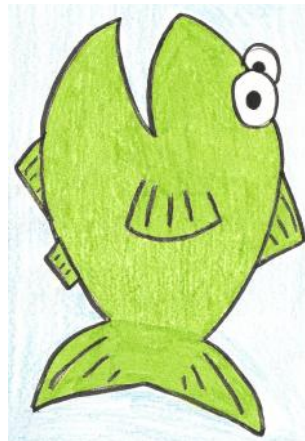
- **Communication and expression**
- **Understanding and recalling**
- **Reasoning and implementing**
- **Applying and problem solving (Senior Infants)**



Whale
Average
Length:
13 m



Turtle
Average
Length:
92 cm



Fish
Average
Length:
2 m



Seahorse
Average
Length:
20 cm



Starfish
Average
Length:
20 cm



Limpet Average Length: 6 cm