

Long and Short

CBSE, Maths, Class - IV, Chapter 1

We measure inch by inch

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Lesson Objectives:

Learners will be able to:

- Understand the relation between centimeter and meter.
- Convert meter into kilometer
- Estimate the length of objects and the distance between two given locations

Pre-required Knowledge:

- Non-standard and standard modes of measurement.

Process

Build on prior Knowledge

Activity 1 :

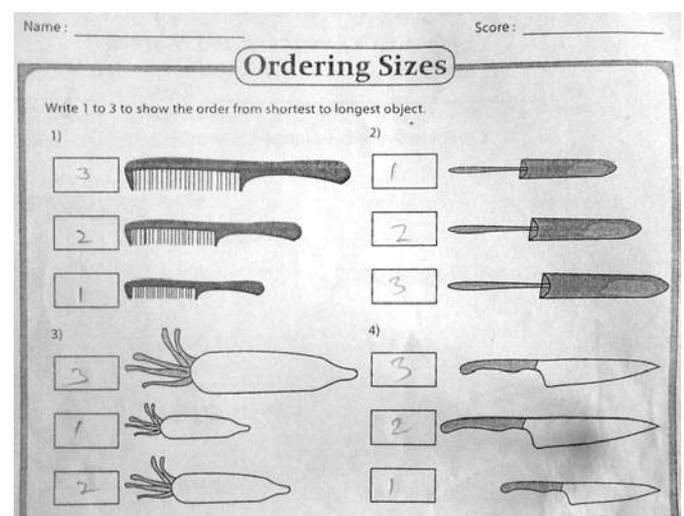
Student were asked to measure things that are available around the classroom using their arms and feet.

Reflection: This activity was given to students to get an idea about their understanding of non-standard and standard methods of measurement. After they completed the activity, they were asked to share about the objects they measured and the length of the measurement. Children had measured blackboard, pillar, floor, chair, table, door, bag, and book. The length of the blackboard according to them were 12 arms, 13 arms, 11 arms etc. Likewise they gave answers for all the other objects they had measured. Then we had discussion on why there was a difference in the measurement. Children

responded that some had big hands and some had small hands. And also, some had used the distance between their thumb and the pointer finger as a scale and some had used the distance using their thumb and the middle finger as the scale and this brought about all the difference. This was what we had expected and the activity was all about. Since each student measured different objects, it was difficult to validate their answers. Instead it would be good to give them a common list of objects to measure which will help in arriving at a common understanding.

Activity 1 :

Students were given a worksheet and asked to order the objects based on its length.



Student artefact 1: Students arranged objects based on its size

Reflection: It was seen that most of the students gave the right answer from which it was concluded that they do have a basic sense about what is long and what is short.

Explore it on their own

Activity 1 :

Measurement: Worksheets were given which had objects of different sizes. Students had to measure and write the length.

Reflection: While children measured the length using a scale, they used the tip of the scale as the starting point instead of zero. I then asked them how they measured the length, where they started from etc. and told them that zero should be the starting point. After this, they measured the objects once again and found a difference in the lengths ranging from 5 mm – 1 cm.

Another common mistake that occurred was that they rounded up their measurement. If an object was more than 16 cms long and less than 17 cm, they wrote it as 16 cm. Here it was explained that they have to count the points in millimeter and write the accurate measurement. After this when they re-examined their work, they wrote the exact measurement and noted mm as well.

Activity 2 :

Estimating and measuring: In this worksheet, students had to first estimate the length before actually measuring and writing it. They could then draw a comparison and find the difference between their estimation and the actual measurement.

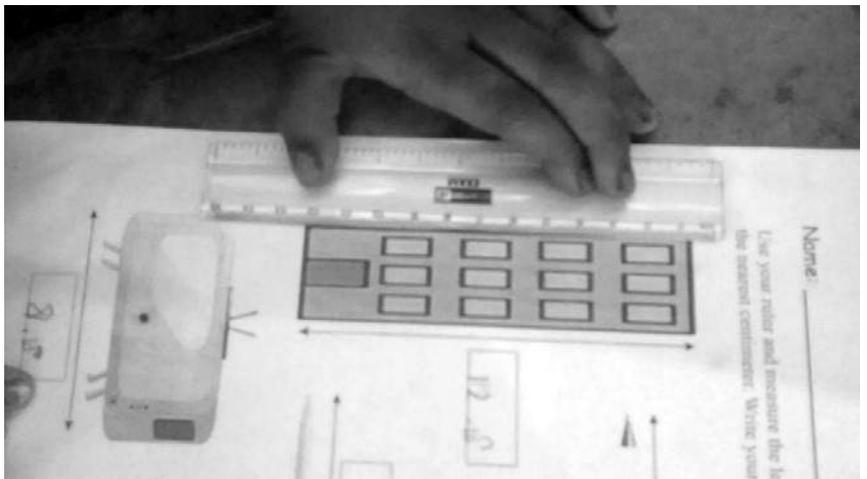


Photo 1 & 2 : student engaged doing activity to measure

Measuring Length 

Estimate the length of each item before you measure. Then measure the items which can be found in your home.

| Objects Name | Estimate | Actual length |
|--------------|----------|---------------|
| பென்சில் | 1.05.20 | 15.05.20 |
| இரப்பர் | 2.05.20 | 2.05.20 |

Student artefact 2: Student estimation and measurement of the objects

Reflection: After this activity, I analyzed the worksheet and found wide variations between their estimated measured values. To address this, I asked them to guess the estimate for more objects. To come to a common understanding, it is good to give students a common list of objects rather than letting them chose the objects.

Activity 3 :

Understanding Meter:

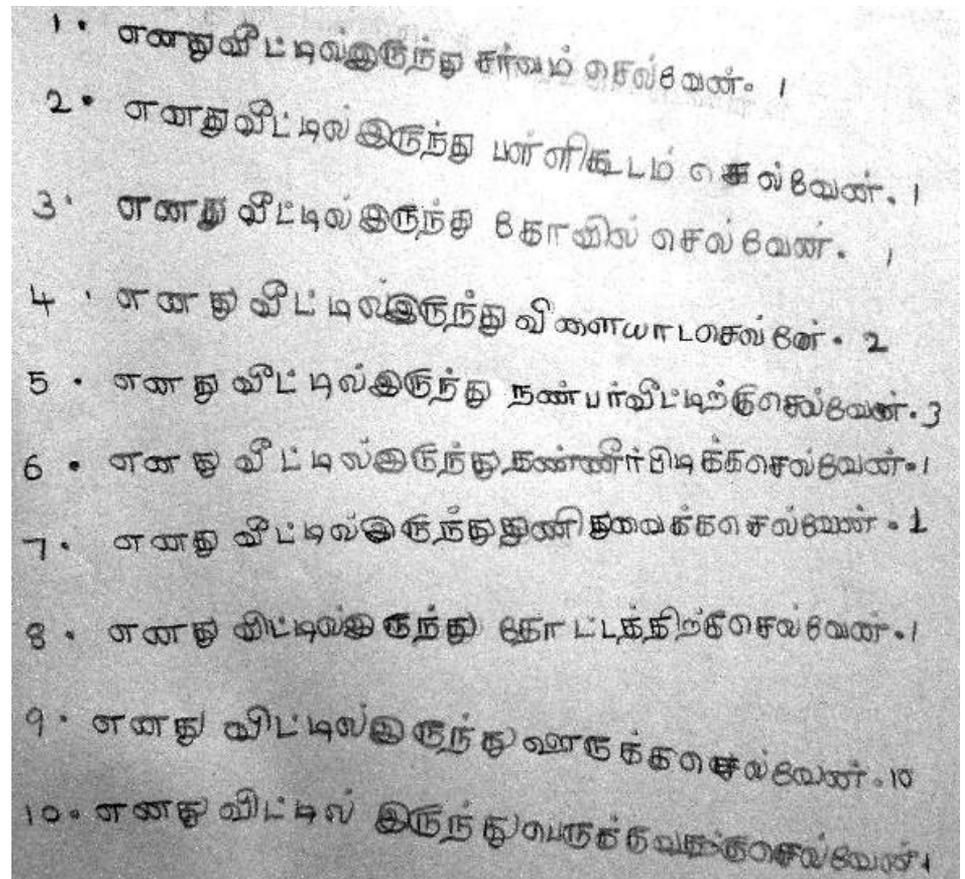
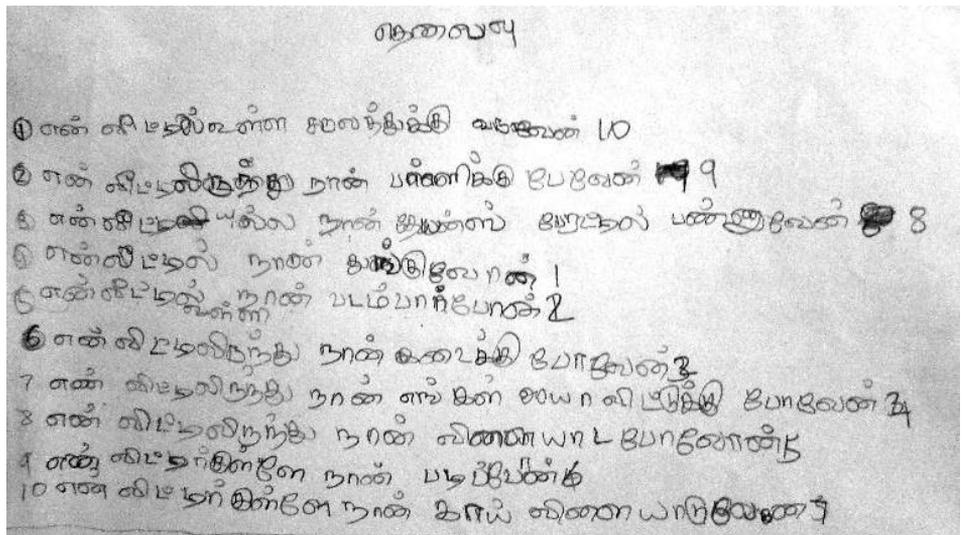
Students were asked to measure the length of the floor in the classroom and a long piece of cloth. They were asked to measure up to 100 cm or 1 meter using a scale.

Reflection: Students came up with various responses during this activity. Children went around the room looking for objects that were longer than a meter. Some of them measured the floor and once they found 1M length, they continued to measure the floor and marked 2M, 3M etc. Some children found that the board was a 23cm longer than a meter. So they said that it was 123cm long.

Had we used a tape instead of the scale, it would have saved a lot of time and effort and would have been easier for children to measure.

Activity 4 :

Racing Track: Students were taken outdoors and asked to measure a 100m distance. Once they did, they were told that 10 times 100m



Student artefact 3 : Student ordering distance from their home to various locations

would be 1km. They were asked to imagine how long would 1km be and guess places that were at a distance of 1km.

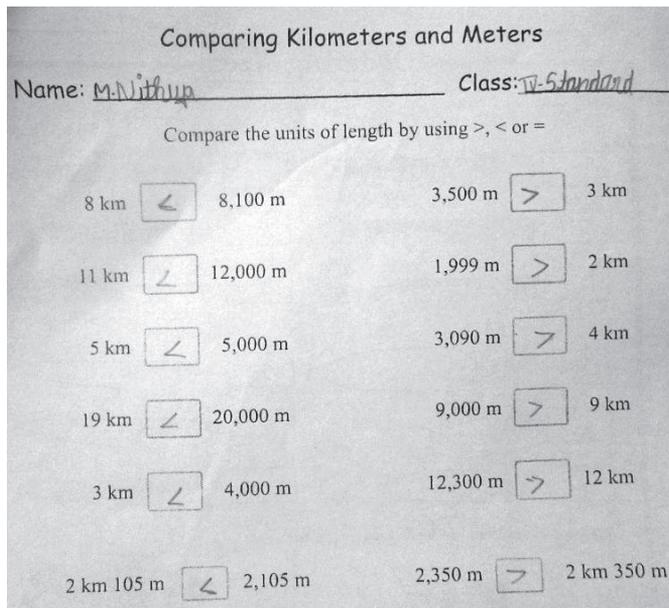
Another related activity was one where students had to write to 10 different places from their homes and number them 1 to 10 based on the increasing order of the estimated distances from their homes.

Reflection: I could see that students had understood the concept of long and short distance by checking a few worksheets. But I could not do it in depth with every individual child to get a perfect assessment. Also, since all the locations were different for different children, it could not be compared and concluded. If we use a map with ten different points in it and ask children to order the distances, the class could arrive at one common understanding and consensus of long and short distances.

Assessment

Reflection: On analyzing the worksheets, I could see that many student were not able to answer the question which involved conversion of units. For example, students were not able to understand that 3090 m is less than 4 km as they were comparing the number alone without considering the units. So the focus must also be on teaching children units and stress on the need to convert both sides to the same unit before doing the comparison.

Worksheets used to evaluate student understanding,



Student artefact 4 : student assessment on units



Student artefact 5: student assessment on units



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