Vision Empower & XRCVC

Teacher Instruction KIT

Length

Syllabus: Karnataka State Board Subject: Math Grade: 5 Textbook Name: Karnataka State Board Chapter Number & Name: 8. Length

1. OVERVIEW

1.1 OBJECTIVE & PREREQUISITES

Objective

- Standard unit to measure the length
- Conversion of length from one unit to the other

Prerequisite Concept

• Length *TIK_MATH_G4_CH11_Length*

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Kindly Note: Activities marked with * are mandatory

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2. LEARN

1.1 KEY POINTS

Length: Length is a measure of how long an object is or the distance between two points. The units to measure length or distance are millimeter, centimeter, meter, kilometer.

1.2 LEARN MORE

3. ENGAGE

3.1 INTEREST GENERATION ACTIVITY

Activity 1: Measurement using string

Materials required: Threads/Woolen/String, scissor, broom sticks/coconut sticks Prerequisites: Measure length

Activity Flow

- Ask all the children to take threads of length 8 cm.
- Then ask them to tie 3 threads then measure the length. Likewise tie any number of threads and ask them to measure.
- Add one end of two threads and tell them to compare which is the longest. Repeat the long short words repeatedly.
- The same activity can be done using the coconut sticks of the same length and making shapes like triangle, square and rectangle, then ask the children to tell the total length of the shape.

Activity 2: Measurement using play dough

Materials required: 2-3 tennis ball size lump of play dough or refined flour (atta/maida) dough of same size, tactile ruler Prerequisites: Measure length

Activity Flow

- Let the children roll the dough on the flat surface and then tear the dough into 2 pieces, ask each child which one from the two is longer?
- Now ask the children to use the tactile ruler and measure one by one, the length of both the pieces of dough. Was their answer correct before (when they told without measuring)?
- Ask the children to roll the dough and make two strands, one 10 cm long and one 15 cm (let them do by their own).
- Now give a different number (length) to each child, and ask them to make 3 strands of the same length. For example: One child will make 3 similar strands of dough of length 3cm each, other children can make 3 similar strands of dough of length 4 cm each.
- Then ask the children to join all three strands from one corner to the other (one edge to the other edge) and make it one long strand, trying not to reduce the length of the strand.
- First let them guess how long their strand would be? And then ask them to measure the length of the final one long strand with the help of a tactile ruler. And then tell the children that the final length is the addition of each strand which you joined.
- As per the child's familiarity with shapes, in the next round children can be asked to make a shape using the dough (four sided figure, triangle) and then measure the length of all sides using a tactile ruler.

3.2 CONCEPT INTRODUCTION ACTIVITIES Activity 3: Standard unit of measuring the length

Materials required: Tactile ruler Prerequisites: Measure length

Activity Flow

- 1. Ask the students to measure the length of the Taylor frame using their hand without using a tactile ruler.
- 2. Ask each of them to find the perimeter of a class room with a foot span.
- 3. Ask the students to give a few more examples for non-standard measurements in their life.

Example:

- 1. Flower seller measuring a string of flowers
- 2. Milkman measuring milk in villages.

Then build a discussion that whether everyone got the same measurement for the respective objects or not. Why?

Answer: Since the measures vary from person to person. Hence to know the exact length of objects we need a standard unit. We standardize the measuring unit of objects as metre, denoted by m.

- To measure long distances the standard units used are decametre, hectometre and kilometre.
- To measure short lengths, the standard units used are decimetre, centimetres and millimetres.
- 1. Ask them to measure the length of the book, table and geometry box. And ask them which is longer and shorter.
- 2. Ask the students to collect the different sizes of leaves or sticks in their surroundings.
- 3. Also ask them, who is taller in the class and how are they going to measure it?

Activity 4: Conversion of length from one unit to the other

Materials required: Tactile ruler, braille measuring tape, thread Prerequisites: Conversion of length

Activity Flow

The common standard units of length used in daily life are,

• 10 mm = 1 cm.

Example:

- Show them the tactile diagram of the ruler and explain to them that after every 10 small markings 1 big line which is centimetre will be there. But in Braille ruler, we only see the mark of centimetre equidistant from one another.
- 2. Height of a person with the help of thread then measures the length of the thread using tactile ruler.
- 100 cm = 1 m.

Example:

1. Ask the students, what could be the unit to measure cloth. Answer: metre.

- 2. Ask them if they have heard of 100 and 400 metre running races, and build the discussion with a few more examples. Ask why can't we measure in centimeters?
- 3. Height of building, person and tree.
- 1000 m = 1 km

Example:

- 1. Distance between cities will be in kilometres.
- 2. Running race.

Ask them for more examples, for all the above and discuss why would there be different units of measurement.

To convert greater units of length into smaller units:

• To convert kilometre into metre, multiply by 1,000. Example:

How many metres make 3 km?
Answer: We know that, 1000 m = 1 km
Therefore by multiplying 3 on both sides in the above equation, we get
1 km times 3 = 1000 times 3 m
3000 m = 3 km.

- 2. A person walks for 4 km daily; ask the students, how many metres does that person walk daily? Answer: 4000 m.
- Answer. 4000 m.
- To convert meters into centimeters, multiply by 100. Example:

 How many centimetres make 5 m?
Answer: we know that, 1m = 100 cm Therefore by multiplying 5 on both sides in the above equation, we get 1 m times 5 = 100 times 5 cm
m = 500 cm

2. Ask the students to measure the length of the desk with the help of a tactile ruler. Once they have the length in metres, ask them to give the measurements in centimetres.

For example: If the length of the room is 100 metres, then to write this in terms of centimetres would be 100 times 100 cm = 10000 cm.

- *3. Similarly, ask the students to measure their height in metres then convert it into centimetres.*
- To convert centimetre into millimetre, multiply by 10. Example:
- 1. How many millimetres make 17 m?

Answer: we know that, 1 cm = 10 mmTherefore by multiplying 17 on both sides in the above equation, we get 1 m times 17 = 10 times 17 mm17 m = 170 mm.

- 2. Ask the students to measure the length of the different books, Taylor frame, slate and one arm distance in centimetres and then ask for all the lengths in millimetres.
- 3. For example: Suresh measures the length of his arm and it was 40 cm, but he was supposed to say in millimetres. What will he do? Answer: Either he measures directly in millimetres or since he knows the conversion from centimetre to millimetre, so 40 cm = 40 times 10 mm = 400 mm.

To convert smaller units of length into greater units:

- To convert metres to kilometre divide the given number by 1,000. Example:
- 4. Convert 7,500 m to kilometre.

Answer: we know that, 1000 m = 1 km Therefore dividing 1000 from 7,500

$$We get$$
 7000 m $=\frac{7500}{1000}=7.5$ km.

• To convert centimetre to metre divide by 100. Example:

1. Convert 870 centimetres to metres. Answer: we know that, 100 cm = 1 mTherefore dividing 100 from 870

We get 870 cm
$$=\frac{870}{100}=8.7$$
 m.

• To convert millimetre to centimetre divide by 10. Example:

1. Convert 1210 millimetre to metre. Answer: we know that, ¹⁰ mm = 1 cm Therefore dividing 10 from 1210

We get,
$$1210 \text{ mm} = \frac{1210}{10} = 121 \text{ cm}$$
.

Also, ask the students to measure things around them and ask for the conversion from one unit to another.

Activity 5: Measuring real objects

Materials required: Tactile ruler, braille measuring tape Prerequisites: Measure length

Activity Flow

- *Give them the thread and ask them to measure the Taylor frame using the thread.*
- Then measure the marked thread using a tactile ruler.
- Also, ask if they find any other objects having the same length of the Taylor frame and ask them to list those objects after they measure and confirm.

Similarly, ask them to do the same for books and slate.

3.3 LET'S DISCUSS: RELATE TO DAILY LIFE*

- Measuring distance from one place to another.
- Measuring length of objects to make something
- In Crafts and Arts
- Tying rope from one end to another to hang clothes for drying
- Estimate the distance, so that we can plan to have a required amount of petrol when travelling.
- To buy home decor items, for which will measure the height/length of doors and windows to have a screen.

4. EXERCISES & REINFORCEMENT

4.1 PRACTICE EXERCISES

Activity 6: Homework problems

Materials required: Tactile ruler

Prerequisites: Measure length , conversion of units

Activity Flow

- 1. The length of a wire is 3 m. What is the total length of 5 such wires?
- 2. Out of a roll of cloth measuring 50 m, 17 m of cloth is sold. Find the length of the remaining cloth.
- *3.* 24 m of coloured ribbon is distributed among 8 students equally. What is the length of ribbon that each gets?
- 4. How many centimetres are there in 9 metres?
- 5. The length of a wooden plank is 19 m. Out of this 5 pieces of 3 m each is cut off. Find the length of the remaining piece.
- 6. Add 22 m 71 cm and 14 m 30 cm
- 7. Subtract 12 km 425 m from 17 km 650 m
- 8. The height of a table is 1 m 25 cm and the height of a stool is 50 cm less than the height of the table. Find the height of the stool.
- 9. The total length of 8 bundles of wire is 204 m. Find the length of each bundle of wire.
- 10. The length of a line segment is 12 cm. Into how many line segments of 3 cm each, can it be divided?

4.2 IMPORTANT GUIDELINES*

Exercise Reading

It is very important that the children practice their learnings as well as their reading. Hence have the children read out the newly learned concepts from their textbooks or other available resources.

Perform Textbook Activity

It is good practice to have the children perform the textbook activities. Your textbook activities might not be accessible hence go through this resource to learn how to make textbook content accessible

Provide Homework

To evaluate their understanding and to help the student revise and implement the new learnt concept ensure to provide them with homework. Students should perform one or two of the questions mentioned above or from the textbook exercises with the teacher in Class and the remaining may be given for homework. Also, ensure that the student knows their special skills linked to independently using their accessible books as it will be critical to doing homework independently

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