Vision Empower & XRCVC

Teacher Instruction KIT

Length

Syllabus: Karnataka State Board
Subject: Mathematics
Grade: Second
Textbook Name: Mathematics-Text cum Workbook(Revised)-Second Standard
Chapter Number & Name: 9. Length

1. OVERVIEW

1.1 OBJECTIVE & PREREQUISITES

Objective

- To distinguish between near-far, thin-thick, tall-short, high-low.
- To compare objects according to their lengths and arrange them in order.
- To measure short length by using non-formal units.
- To estimate length and verify by using (irregular) non-formal units.

Prerequisite Concept

Numbers, counting, basic operations-addition, subtraction.

Refer to VE_TIK_Math_G1-05-:Addition(sum not more than 9)

VE_TIK_Math_G1-06-Subtraction

VE_TIK_Math_G1-12-Numbers 21-99

Content Index

*Kindly Note: Activities marked with * are mandatory*

2. LEARN

2.1 KEY POINTS

It is important for children to have opportunities to learn more about measurement. Measurement is important in providing links between strands of mathematics. For example, it provides a rich and meaningful context for the use of number skills and of spatial concepts.

2.2 LEARN MORE

Before kids are introduced to standard measurements using rulers and measuring tapes they need to understand what measuring is all about. To build a deep understanding of the measurement process and the skills needed to measure accurately kids need to practice measuring using informal non standard units.

Non-standard measurement helps kids learn to:

- select the right tool to measure the object being measured
- select the same unit and not different units when measuring an object
- measure without gaps or overlaps
- start and end the measuring in the right spots
- measure it straight
- be precise

3. ENGAGE

3.1 INTEREST GENERATION ACTIVITY

INTRODUCTION TO THE TOPIC

Activity 1: Sing along rhyme to introduce the concept-Rolly polly, rolly polly*

Materials Required: None

Prerequisites: None

Activity Flow
Rolly polly, rolly polly
Near, near, near (palms get closer).
Rolly polly, rolly polly
Far, far, far(palm move far apart)

Rolly polly, rolly polly
Short, short, short.
Rolly polly, rolly polly
Tall, tall, tall.

Rolly polly, rolly polly
Thin, thin, thin.
Rolly polly, rolly polly
Thick, thick, thick.

Rolly polly, rolly polly
High, high, high.(reach up high)
Rolly polly, rolly polly
Low, low, low.(touch your toe)

The teacher can encourage students to sing along with appropriate actions.

3.2 CONCEPT INTRODUCTION ACTIVITIES

NEAR-FAR, THIN-THICK

Activity 2: Concept of near-far, thin & thick. *

Materials Required: blocks of two different shapes, woolen sweater, t-shirt, thin & thick brushes, crayon & pencils, books of different thickness, socks of different sizes,
Prerequisites: Number sense

Activity Flow
Seat students with a place mat or tray in front of them. Tell them that they can explore what is handed over to them and they can place it back in the tray when they wish to keep it down, so that they do not lose it.

Concept of near & far.

Introduce the topic to the student – Tell students that all objects in our surroundings have different sizes and lengths. What is near and far? Objects that are close to us are near and objects that are away from us are far. For instance, hand over two different shape blocks to

the students and show them when placed closer they are near and placed away from each other they are far.

Concept of thin & thick.

Here we have a woolen sweater and a summer T-shirt. Let's make a comparison between them. Woollen sweater is thick and the T-shirt is thin. Encourage children to touch and feel the thickness of the objects.

Give more objects like thin & thick brushes, crayon & pencils, books so that students can make a comparison and tell which is thick and which is thin. Students can also make a comparison between their index finger and their hand.

NEAR-FAR, THIN-THICK

Activity 3: Concept of tall-short & high-low. *

Materials Required: socks of different sizes

Prerequisites: Number sense

Activity Flow:

Concept of tall & short.

Hand over to the student pair of socks – one longer and the other shorter. Ask them if they can tell the difference between the two. Tell them that they need to compare the length of these socks in order to identify that the longer pair belongs to them and the smaller one belongs to their younger sibling.

Concept of high & low.

Let's play a game.

Let the children know that when the teacher shouts out high all of them need to reach out to the sky by stretching both their hands and when the teacher shouts out low, the students need to bend down and touch their toes. Teachers can then call out high, low in a sequence and encourage children to demonstrate the actions as per the word called out. The concept of high and low can also be taught using the body. Tell the students that our head is higher than our foot and our foot is lower than our neck.

NON STANDARD UNIT OF MEASUREMENT

Activity 4: Non-standards of measuring lengths*

Materials Required: Eraser, 5cm long cardboard strip, book, desk, window, door, black board, skipping rope, ball of wool.

Prerequisites: Number sense

Activity Flow:

Measuring Length using body parts – digit, hand span, cubit, foot, pace

Digits:

Tell the student that we can measure length using our body parts like digit(fingers), hand span, cubit, foot and pace. By touching the student's index finger, tell them that the width on the top most portion of his finger is called a digit.

Hand over an eraser to the student and tell that we are now going to measure the length of this eraser using digits. Ask the student to place the eraser on the desk in front of him. Guide the index finger of his left hand to the left end of the eraser and ask them to keep it there. Next ask them to place his digit on his right hand just after the index finger on his left. And move forward while counting till he reaches the end of the eraser. Thus we will be able to find out whether the eraser is 2 or 3 fingers width long. Tell the student that since one digit is so small it makes more sense measuring smaller objects using your digits like – pencil, slate, spoon, etc.

Take back the eraser and hand over to the student a (approximately 5 cm long) strip of cardboard and ask him to measure its length in digits.

Similarly give the student hands on experience of measuring various objects using his hand span, cubit, foot and pace; while explaining to him that–

Handspan:

A hand span is the distance from the tip of the thumb to the tip of the little finger of a stretched hand. Have them find the length of the book, window, black board, desk using their hand span.

Cubit:

A cubit is the distance from the tip of the middle finger to the elbow. It is among the first recorded units of length used by ancient people. Have the student measure the length of the window, width of the door, teacher's desk etc.

Foot:

A foot is the distance from the toe to the heel of a foot. Have the student measure the length of the room in feet. Direct them to check this from one end of the room to the other, preferable alongside a wall.

Pace:

A pace is the measure of the distance covered in one step by a person. Once again ask the student to measure the length of the room in pace. Ask them to note the difference when measuring the same room on foot or in pace.

Fathom:

A fathom is the measure of the distance between the stretched hands. Ask the students to stand up and stretch their hands wide and the distance between the tip of their right hand to the tip of the left hand is a fathom. Have the students measure the length of a skipping rope or a woolen ball.

Activity 5: Story -How big is the foot?-written and illustrated by Rolf Myller

Materials Required: None
Prerequisites: None

Activity Flow
Do all of you want to listen to a story of a king and queen who lived a long long time ago.

Once upon a time, there lived a king and queen. They were a happy couple. They had everything in the world. However the king wanted to present something unique to the queen for her birthday. He thought, thought and thought. Suddenly he had an idea. He would give her a bed. This was the time when the bed was not invented. He called for the short footed carpenter and asked him to make a bed for the queen. The carpenter asked, “Mighty king, how big a bed do you require for the queen.” The king thought, thought and thought and then an idea struck to him. He asks the queen to lie down and measures around her with his bigfoot and tells the short footed carpenter to make a bed that is 6 foot long and 3 foot wide. The short footed carpenter with all his will measures with his smallfoot and makes a beautiful bed for the queen and takes it to the palace. The king asks the queen to wear her new pajamas and crown and lie down on the newly made bed. For her surprise the bed was way too small. The king was very angry and ordered his ministers to jail the short footed carpenter. The carpenter kept explaining that he had doubly checked and made the bed for the queen. How could it go wrong? In the jail the carpenter thought, thought and thought and told the ministers that I can make the bed if you'll get me the measurement of the king’s foot as the bed needs to be 6 king's foot long and 3 kings foot wide cried the short footed carpenter. The King called for a famous sculptor and got an exact copy of his foot carved in marble and sent it to the carpenter in jail. The short foot carpenter measured out 6 feet long and 3 feet wide with the carved leg and made a bed which was just ready before the queen's birthday. The king asked the queen to wear her new pajamas and crown and lie down on the newly made bed. The bed fit the queen perfectly including her crown which she sometimes liked to wear when she went to sleep. This was the nicest gift the queen thought. The king was very happy. He immediately ordered the carpenter out of jail and

made him the royal prince. He ordered a royal parade and all came out to cheer the short footed carpenter and ever after anyone wanted to measure anything they took a copy of the king's foot.

After listening to the story, let the students compare the lengths of their feet with each other and then compare who has the biggest and the smallest foot in the class.

ESTIMATION OF LENGTH

Activity 6: Estimation of length*

Materials Required: box,desk
Prerequisites: None

Activity Flow
The skill of estimation is very essential in our life. First let the students touch the box and the desk and encourage them to guess the length of the box and desk in handspan.
The length of the box is, how many hand spans and the length of the desk is how many hand spans.
Now let the students measure the length of the box and desk using a handspan and allow them to make a comparison between their guess and the actual length measurement.

3.3 LET'S DISCUSS: RELATE TO DAILY LIFE

We often need to check the length of things to choose our clothes, build bridges, roads, houses and many other things! Today we are going to learn how length can be measured.

4. EXERCISES & REINFORCEMENT

4.1 REINFORCEMENT ACTIVITY

Activity 7: Let us measure*

Materials Required: thick , thin and different sized-pencils, bead strings of different lengths, crayons, sticks, clay
Prerequisites: Numbers, counting

Activity Flow
Have the student stand with another partner in the class and ask children to tell out who is taller and shorter. Ask all the children in the class to form a line from the shortest to the tallest.
Tell them to stand closer to each other and get far away from each other.
Ask the student to compare the height of all members in his family.

Handover objects like pencils of two different sizes, a long ruler, short ruler, Bead string of different sizes. Encourage students to compare the sizes and tell out which is tall and short. Hand over clay to students and ask them to roll out a snake. Next, ask them to check and see who has made the longer snake by keeping them together and comparing them.

Activity 8: Using non-standard measurement to measure objects*

Materials Required: Mat, desk, chair, book, braille slate, water bottle.

Prerequisites: Number sense

Activity Flow

Ask a child to lie down on a mat laid down on the floor and the teacher can guide the students to measure the height of the child lying using handspan, foot, cubit.

Children can be encouraged to measure their desk, chair, book, braille slate, water bottle using fingers, handspan, foot, cubit.

Children can be asked to measure the wall or the size of the room using pace or fathom.

Teaching Tips:

None

References:

Games around non-standard measurements

4.2 IMPORTANT GUIDELINES

Exercise Reading

It is very important that the children practice their learning 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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