

Vision Empower & XRCVC
Teacher Instruction KIT
Spatial Understanding

Syllabus: Karnataka State Board

Subject: Mathematics

Grade: 1

Textbook Name: Government of Karnataka Mathematics Text cum Workbook(Revised)

Chapter Number & Name: 1. Spatial Understanding

1. OVERVIEW

1.1 OBJECTIVE & PREREQUISITES

Objective

- To use the vocabulary of spatial relationships such as, top-bottom, on-under, inside-outside, above-below, near-far, before-after.

Prerequisite Concept

- Counting
- Numbers

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*Kindly Note: Activities marked with * are mandatory*

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2. LEARN

2.1 KEY POINTS

Spatial awareness refers to being aware of your surroundings and your position relative to them. Spatial relationships refer to children’s understanding of how objects and people move in relation to each other. They attempt to fit objects in space.

2.2 LEARN MORE

NONE

3. ENGAGE

3.1 INTEREST GENERATION ACTIVITY

Activity 1: Move your Body*

Materials Required: None

Prerequisites: Awareness of different body parts like hands, fingers, head, shoulders, knees, toes, legs, etc.

Activity Flow

Have the children stand so that each child has enough room to move freely.

Ask children to show you different ways they can move their body parts.

Describe the movements as the children perform them. For example, say: “Rahul, show me one way that you can move your leg.” After the child makes the movement, describe it. (“You kicked your leg forward, then backward.”)

Then, ask the other children to make the same movement and describe it again.

Let children take turns showing ways to move a body part. After most of the children know the movements they can make with different body parts, give directions to the whole group, and use the words that the children will be learning in this chapter, such as top-bottom, on-under, inside-outside, above-below, near-far, before-after.

3.2 CONCEPT INTRODUCTION ACTIVITIES

Part:1 Activities to Understand Spatial Spaces

Activity 2: Top and Bottom*

Materials Required: Real life objects like Doll, flower pots, Jar, pot ,glass Block tower plastic tree, animal toys

Prerequisites: None

Activity Flow

Begin the activity with the following rhyme:

Head and shoulders knees and toes

Knees and toes!

Head and shoulders knees and toes

Knees and toes!

And eyes and ears,

And mouth and nose.

Head and shoulders knees and toes

Knees and toes!

Now, let the children know that they are going to understand the concepts of top and bottom during the lesson.

First, as soon as the rhyme is done, ask the children to point to their own top (head) and bottom (feet).

Give them real life objects like a doll, building blocks, and ask them to point at the top and bottom of the object.

Activity 3: On and Under – Simon Says*

Materials Required: Some objects to manipulate, which could include paper, slate, stylus, types, etc.

Prerequisites: None

Activity Flow

Have all of your students stand, and choose one object that everyone has and can use while playing. You might choose a braille slate, a book or their desk chair.

Play the game as you normally would, but with each instruction use a preposition to describe where the player is in relation to the object you are using.

For example, you might give instructions like the following:

Simon says stand on your chair.

Simon says put your hand under your chair.

Part:2 Activities to Understand Spatial Spaces

Activity 4: Inside and Outside*

Materials Required: a large appliance box such as a refrigerator box, large enough for a child to crawl into on hands and knees.

Prerequisites: None

Activity Flow

If you are using a large appliance box, open the ends of the box so the children can easily climb in and out. Cut a child-size opening or door in the center of the box. Refer to the box as "the playhouse."

Place the crawling tunnel or playhouse in the center of the open area.

Tell the children that they are going to play a game and you will be using the words in and out.

Have children form a line.

Ask the first child to crawl into the playhouse and then to crawl out of it.

Tell children they can decide how they will crawl out of the playhouse. For example, a child might crawl straight through to the opposite end, or come back out the way she went in.

Give each child a chance to crawl into and out of the structure.

As each child crawls in and out of the playhouse, give the others an opportunity to touch the box and see that they cannot touch her unless they put their hands into the box.

Describe the location of the child as she crawls. For example, say, "We can't touch Rama now. He is in the playhouse." Or "We touch Rama now. She is backing out of the playhouse."

Activity 5: Near and Far*

Materials Required: Toy cars and toy planes.

Prerequisites: None

Activity Flow

Ask children where they have seen a taxi. (neighborhood, airport, railway station, bus stand, in a book)

Ask children whether they have been in a taxi. Where would they like to go in a taxi?

Tell children that they are going to play "Where is the Taxi? Near or Far?" Invite 4 children to be taxis and give them toy cars to hold. Tell children, "Far away is across the room and near is close to me." Have the taxis go far away. Then have them come near to you. The children then give their toy cars to 4 others. Tell the new group to go far away and then tell them to come near and give their signs to 4 other children.

Tell the next group of children that you are going to change the directions. Tell children to go near the block area, go near the windows, go near to you, then far away.

Continue the activity until all children have experienced coming near to and going far away from several objects.

At the desk, provide children with small toy cars.

Put a toy plane in a rectangle on the far side of the table to represent an airport.

Then provide "Show Me" requests such as, "Show me a taxi near you (near your neighbor, near another taxi, near your hand, etc.)."

Activity 6: Before and After*

Materials Required: Braille cards with children's daily activities written on them (such as, brushing teeth, having a bath, breakfast, lunch teatime, dinner, class time, play time).

Prerequisites: None

Activity Flow

Divide the children into groups. Provide each group a set of cards with daily activities on them.

Explain to the children that they are going to order their daily activities. Ask them to place the cards from left to right on the desk in a sequential manner such that they begin with the first activity they do during the day and end with the last. Now, encourage each group to talk about their day to the class. Then, introduce the words before and after into the conversation. Encourage the children to use these words and explain their day using them. Eg; “After brushing our teeth, we had a bath.”, “Before coming for classes, we had our breakfast.” Ask questions such as “what did you do after brushing your teeth?” “Did you have your breakfast before or after class time?”

3.3 LET’S DISCUSS: RELATE TO DAILY LIFE

Real life is full of opportunities for children to use their spatial understanding. Now, using your own knowledge of the children’s daily routines, discuss with them how they use these concepts they have learnt in their daily life. Some examples you could discuss are as follows:

“While finding landmarks to move around in O&M classes or in school. Eg; after the front door, turn right.”

“While asking for directions to go to a specific place.”

“While asking or providing instructions to find objects. Eg; You can take my book. It is on the table.”

“While talking about when certain things will happen. Eg; We can go and play after eating our lunch.” Ask children to provide their own examples.

4. EXERCISES & REINFORCEMENT

4.1 Reinforcement activities for students

Activity 7: Treasure Hunt*

Materials Required: An object to hide (as the gift to the winning team). Eg; a chocolate bar, a small toy, etc.

Prerequisites: A basic understanding of spatial concepts.

Activity Flow

Explain to the children what a treasure hunt is. Tell them that an object is going to be hidden, and they are going to search for it, using the clues they find along the way.

While making the clues for the treasure hunt, use the words the children have learnt in this chapter. Eg; “For the next clue, search at the bottom of the cupboard,” “Search near the table,” “find the next clue under the table,” etc.

Divide the children into groups of not more than 3 in each.

Ask the children to search for the treasure, and observe how the children are figuring out the spatial clues.

Teaching Tips:

If there are any additional teaching tips then utilize this section to mention them.

References:

NONE

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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