Fun with Numbers

CBSE, Mathematics, Class 3, Unit 2

Making numbers concrete...

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Objectives

❖ To recollect the understanding of the concepts of addition, subtraction and visual estimation of 2-digit numbers.

❖ To introduce the concept of 3-digit numbers and place value.

❖ To enhance Mathematisation of the child's thinking.

ENGAGE

I) Work with pebbles/beads (Addition & Subtraction)

a. Group children into groups of 4-5. (The teacher could form the groups in a manner that there is at least one student who can provide peer support to the others while the teacher is going around supervising the activity)

b. Place a bunch of pebbles (or beads, seeds) in front of different groups. Also give them a box of spare pebbles (or beads, seeds) that will be used later in the activity.

c. Children could be given a few tasks

step by step:

I. Count the number of objects.

ii. Remove 7 objects from the group and find the no. of remaining objects

iii. Add 12 objects and find the revised number of objects ...and so on

iv. Teacher's role - The teacher needs to go around in the groups and ask students how they arrived at the answer. If they are counting the remaining objects, the teacher can help them do it by the process of addition / subtraction using a paper and pencil

v. At the end, a bunch of pebbles/beads could be kept and one volunteer student in every group could be asked to guess the total quantity without counting. Other students in the group could verify.

[Since the students have learnt the numbers 1-99 in their previous standard, this will help the students to test their prior knowledge and participate in the classroom activities]

II) Stick game (or) Beads in a string:

Ensure that students are familiar with stick (beads) and rubber band (string) to represent 2-digit numbers.

Eg.

❖ 43 is made with 4 bundles of tens and 3 singles (refer image below)

❖ Similarly 74 is made with 7 bundles of tens
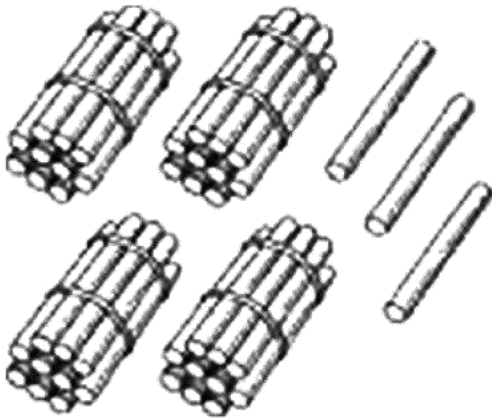
and 4 singles.

❖ 51 is made with 5 bundles of tens and 1 single.

❖ 99 is made with 9 bundles of

ens and 9 singles.

❖ Give them practice with some more 2 digit numbers.

EXPLORE

I) Stick game (or) Beads in a string:

As an extension of the previous activity, to represent 3-digit numbers.

Eg.

a) 43 is made with 4 bundles of tens and 3 singles.

a) 243 is made with 2 groups of 10 bundles of 10 (i.e. a hundred group), 4 bundles of tens and 3 singles.

b) 243 is made with 2 groups of 10 bundles of 10 (i.e. a hundred group), 4 bundles of tens and 3 singles.

c) Then ask the students to make 243 using only bundles of tens and singles (i.e. 24 bundles of tens and 3 singles)

d) Give them practice with other 3-digit numbers.

As an extension of the previous activity, now students will be asked to make 3 digit numbers and their expanded form.
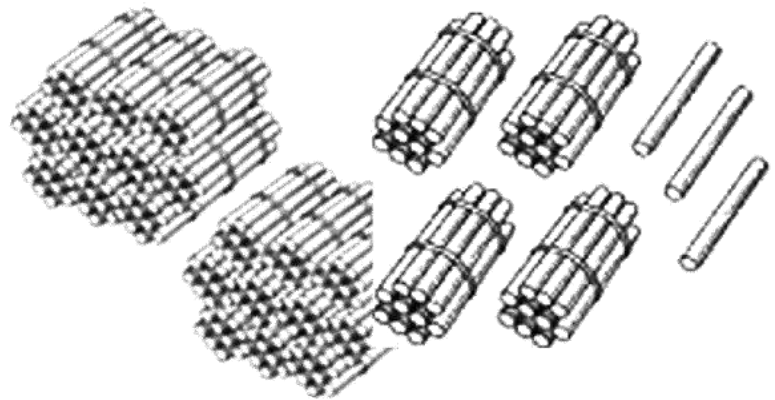
II) Units Tens Hundreds (UTH) Activity:

Ensure that students are familiar with UTH to represent numbers.

For Example:

❖ 74 is made with 7 Tens and 4 Units.

❖ 74 can also be made with 74 Units.

❖ 174 is made with 1 Hundreds 7 Tens and 4 Units.

Note to Teachers: *Emphasize that making 74 with 74 Single Units is difficult and compare this with the convenience of using 7 Tens and 4 Units. Highlight that there are still the same number of blocks.*

Then ask the students to make 174 using only Tens and Units. (17 Tens 4 Units)

[Note: These are the following ways in

which students could make 174]

Hundreds	Tens	Ones
1	7	4
0	17	4
0	0	174

Let us make it a little more interesting with greater numbers. Let the students explore other numbers. Teacher has to guide students appropriately.

EXPLAIN

Start with debriefing of the activity carried out using stick bundles / beads. Students could share their experiences and difficulties faced.

Number expander activity:

By now, students are probably in   position to explain a 3-digit number. They also need to read and write.   For this, the number expander activity will be useful.

Since number expander activity gives hands-on experience for students, it will be useful for them to relate the 3-digit concepts with their prior knowledge and improve their thinking capacity.

Note to Teacher

How to make number expander:

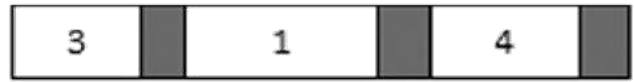*a) Take a long strip of chart, divide it into 6 parts and mark as (Hundreds /Tens/Ones) in the piece of*

chart as shown below.

	Hundreds		Tens		Ones

b) Write a 3-digit number as shown below

3	Hundreds	1	Tens	4	Ones

c) Fold the chart so that Hundreds, Tens and Ones are hidden as shown below

3		1		4	

d) Now, students will unfold the chart to see the number with Hundreds, Tens and Ones. It could be unfolded in the following ways.

3	Hundreds	1	Tens	4	Ones

3		1	Tens	4	Ones

3		1		4	Ones

They can be made with any number of place value columns and so can represent very large or small numbers at more advanced levels.

Now the students can explain that 314 as ,

❖   314 = 3 hundreds + 1 ten + 4 ones

❖   314 = 31 tens + 4 ones

❖   314 = 314 ones

Give different numbers and ask the students to read (314 as Three Hundred and Fourteen)

Eg., 405 could be read as 4 Hundreds, 0 Tens and 5 Ones (or) 40 Tens and 5 Ones (or) 405 Ones

    Teacher could use the following videos to explain the concept of a 3-digit number and place value.

Place value song (3 minutes video)

https://www.youtube.com/watch?v=5W47G-h7myY

Place value explanation (5 minutes video)

https://www.youtube.com/watch?v=omkDLm

ELABORATE

Arrow Cards Activity:

Questions to be asked before the activity:

❖ Can you show me how to make 194, 104, 278?

❖ What does the hidden zero represent in 104?
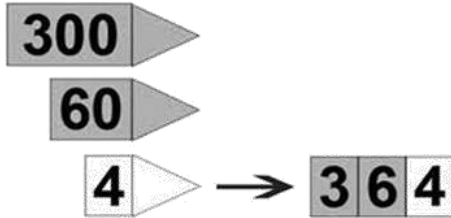
❖ Can you explain why zero is important?

After giving Arrow Cards:

❖ How will you make 104 using arrow cards? Etc.,

Note to Teacher

How to make Arrow cards:

a) Cut the arrow cards as 100,200,300,etc.. 10,20,30,etc. and 1,2,3, etc.

b) See the attached model to use the arrow cards.

c) Place the tens (10,20,etc..)or ones arrow cards (1,2,3,etc..) on top of the hundreds (100,200,etc). To frame the 3-digit numbers.

Here we can tell the importance of zero and avoid misconception of writing the numbers.

Possible misconception of numbers:

Eg.

❖ For 105, students might write as 1005

❖ For 185, students might write as 10085

Teacher has to explain the place value concept in a deeper way here to avoid the misconception of 3-digit numbers among the students.

The teacher could also use real life examples to emphasize the importance of place value and value of zero at different digits.

Eg.

1. You go to a shop to buy a shirt or a skirt. The cost of the shirt / skirt is Rs 209 (Teacher could tell this verbally without writing the number)

2. How will the shopkeeper write the amount in the bill? (Students could be asked to write the amount in number and words like how they usually do in bills)

3. Now, you pay for the item (Demonstration / role play could also be done using currencies – hundred rupee notes, ten rupee notes and one rupee coins)

EVALUATE

Teacher can use oral and written tests to evaluate students understanding of the concept.

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