

3

NUMBER PLAY



0674CH03

Numbers are used in different contexts and in many different ways to organise our lives. We have used numbers to count, and have applied the basic operations of addition, subtraction, multiplication and division on them, to solve problems related to our daily lives.

In this chapter, we will continue this journey, by playing with numbers, seeing numbers around us, noticing patterns, and learning to use numbers and operations in new ways.

❖ Think about various situations where we use numbers. List five different situations in which numbers are used. See what your classmates have listed, share, and discuss.

Math
Talk

3.1 Numbers can Tell us Things

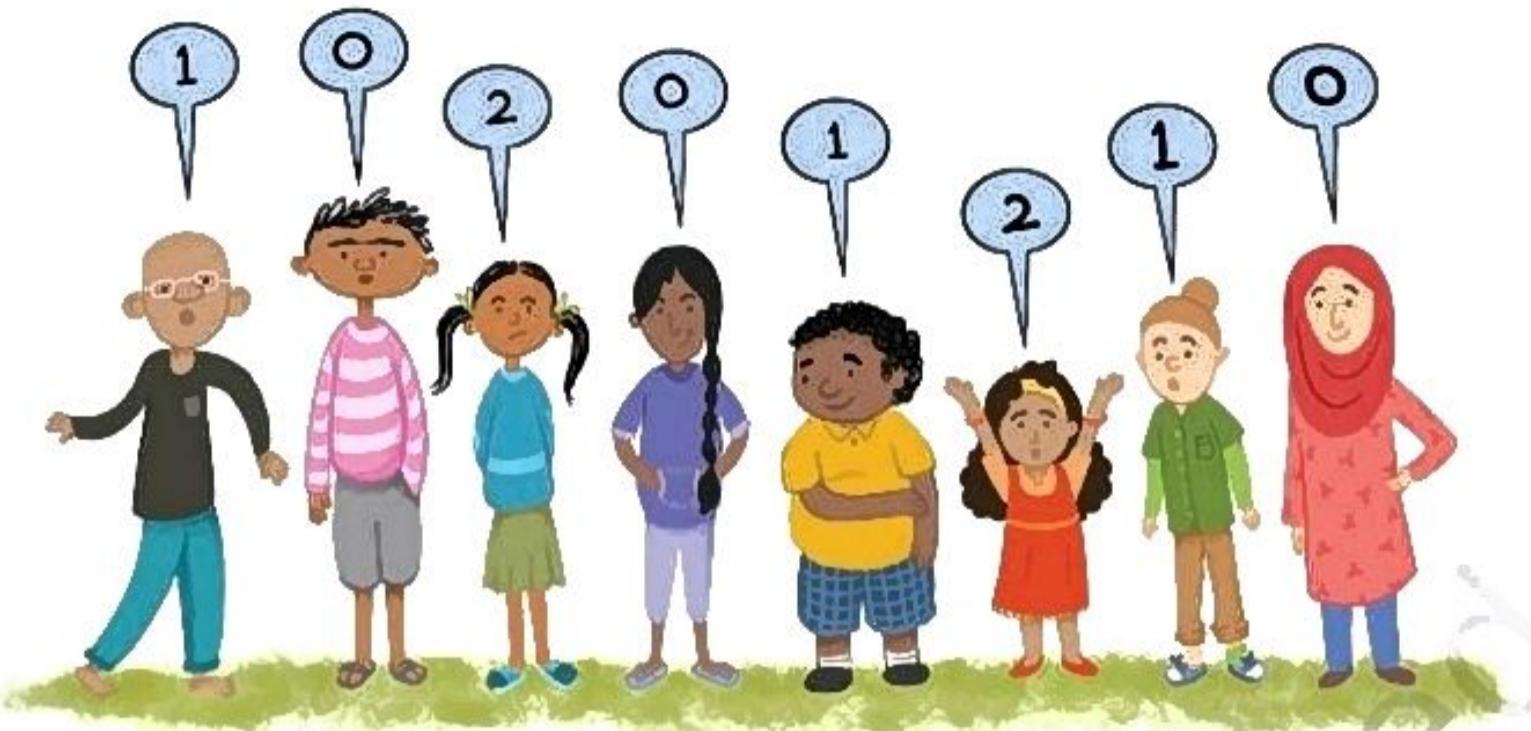
What are these numbers telling us?

Some children in a park are standing in a line. Each one says a number.



❖ What do you think these numbers mean?

The children now rearrange themselves, and again each one says a number based on the arrangement.



Did you figure out what these numbers represent?

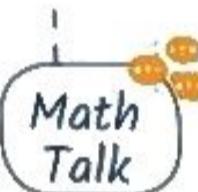
Hint: Could their heights be playing a role?

A child says '1' if there is only one taller child standing next to them.
A child says '2' if both the children standing next to them are taller.
A child says '0', if neither of the children standing next to them are taller.
That is each person says the number of taller neighbours they have.



Try answering the questions below and share your reasoning.

1. Can the children rearrange themselves so that the children standing at the ends say '2'?
2. Can we arrange the children in a line so that all would say only 0s?
3. Can two children standing next to each other say the same number?
4. There are 5 children in a group, all of different heights. Can they stand such that four of them say '1' and the last one says '0'? Why or why not?
5. For this group of 5 children, is the sequence 1, 1, 1, 1, 1 possible?
6. Is the sequence 0, 1, 2, 1, 0 possible? Why or why not?
7. How would you rearrange the five children so that the maximum number of children say '2'?



3.2 Supercells

Observe the numbers written in the table below. Why are some numbers coloured? Discuss.

43	79	75	63	10	29	28	34
200	577	626	345	790	694	109	198

A cell is coloured if the number in it is larger than its adjacent cells. The number 626 is coloured as it is larger than 577 and 345, whereas 200 is not coloured as it is smaller than 577. The number 198 is coloured as it has only one adjacent cell with 109 in it, and 198 is larger than 109.

Figure it Out

- Colour or mark the supercells in the table below.

6828	670	9435	3780	3708	7308	8000	5583	52
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- Fill the table below with only 4-digit numbers such that the supercells are exactly the coloured cells.

5346			1258				9635	
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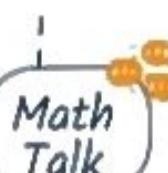
- Fill the table below such that we get as many supercells as possible. Use numbers between 100 and 1000 without repetitions.

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- Out of the 9 numbers, how many supercells are there in the table above? _____

- Find out how many supercells are possible for different numbers of cells.

Do you notice any pattern? What is the method to fill a given table to get the maximum number of supercells? Explore and share your strategy.



3.4 Playing with Digits

We start writing numbers from 1, 2, 3 ... and so on. There are nine 1-digit numbers.

Find out how many numbers have two digits, three digits, four digits, and five digits.

1-digit numbers From 1–9 -----	2-digit numbers -----	3-digit numbers -----	4-digit numbers -----	5-digit numbers -----
9				

Digit sums of numbers

Komal observes that when she adds up digits of certain numbers the sum is the same.

For example, adding the digits of the number 68 will be same as adding the digits of 176 or 545.

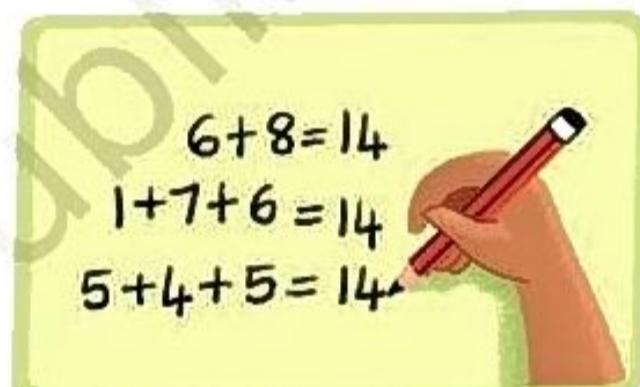


Figure it Out

1. Digit sum 14
 - a. Write other numbers whose digits add up to 14.
 - b. What is the smallest number whose digit sum is 14?
 - c. What is the largest 5-digit whose digit sum is 14?
 - d. How big a number can you form having the digit sum of 14? Can you make an even bigger number?
2. Find out the digit sums of all the numbers from 40 to 70. Share your observations with the class.
3. Calculate the digit sums of 3-digit numbers whose digits are consecutive (for example, 345). Do you see a pattern? Will this pattern continue?

