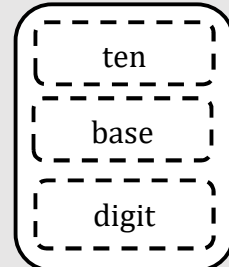


Unit 1: Numbers and Numerals

Lesson 1: Representing number

Concept Corner

The number system we use most is _____ ten. This means each column has value _____ time greater than the column to its right. The position of each _____ in a number tells you about its value.



Thousands	Hundreds	Tens	Ones
4	7	3	2

The number above in words is

Write the number two thousand and ninety-six in the empty row.

1. Copy and complete the sentences filling the spaces below by looking at the number in the grey box:

2708

- a) The digitis in the **thousands** place.
- b) The digit 7 is in the place.
- c) The digit 0 is in the place.

2. Write the numbers shown in the place value table in words:

	Ten thousands	Thousands	Hundreds	Tens	Ones
a)		3	0	9	6
b)		9	9	0	7
c)	1	2	3	0	4
d)	8	5	0	3	0

3. Using all four number cards below:

7

4

3

6

- What is the **largest** number you can make?
- What is the largest **even** number you can make?
- What is the **smallest** number you can make?
- What is the smallest **even** number you can make?
- What is the **closest** number to **4500** you can make?
- What is the **closest** number to **4000** you can make?
- Is it possible to make a number closer to 6000 or closer to 7000 with the four cards? Explain your answer.

4. Insert either $<$, $>$ or $=$ symbols in the boxes to make these statements correct:

- 40 tens 4 hundreds
- 23 hundreds 2 thousand
- 2570 tens 260 hundreds
- 400 tens 4 thousands
- 26 hundreds 26 tens
- 134 thousands 1300 hundreds

5. Write the following numbers in figures:

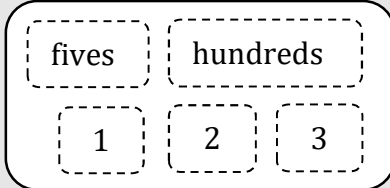
- 3 thousands and 50 tens
- 36 hundreds
- 380 tens
- 6 thousands and 300 tens
- 30 tens **less** than 40 hundreds

Questions for depth:

- How many tens less than 4000 is 1390?
 - How many tens more than 50 170 is 53 290?
 - How many hundreds less than 234 000 is 22 000?
- Three cards each have a single digit written on them. The digits are in sequential order. The three cards are used in different ways to form three-digit numbers.
 - What can you say about the greatest and smallest numbers it is possible to form?
 - What if the cards were sequential even digits? Or odd digits?

Lesson 2: Base 10 and base 5

Concept Corner



We can group numbers in different ways.

The base 10 number system organises numbers by grouping in tens, _____, thousands, etc.

The base 5 number system organises numbers by grouping in fives, twenty-fives, hundred and twenty-fives, etc.

The dots below show the same number grouped in base 10 and base 5.

Tens	Ones
—	6



Written in base 10 this number is:

$$36_{10}$$

Twenty-fives	—	Ones
—	—	1



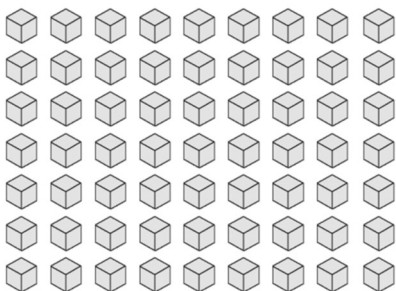
Written in base 5 this number is:

$$121_5$$

1. There are 63 cubes in the array shown below.

The table shows different ways of grouping these cubes.

Copy and complete the table. The first row has been completed for you.



	Cubes per group	Number of groups	Cubes left over
a)	10	6	3
b)	6		
c)	7		
d)	8		
e)	9		
f)		12	

2. Copy can complete the sentences below:

- a) I can organise 36 cubes into ___ groups of 8 with ___ cubes left over
- b) I can organise ___ cubes into 7 groups of 8 with 1 cube left over
- c) I can organise 101 cubes into ___ groups of 13 with ___ cubes left over.

3. Look at the sentence below. How many different ways can you complete it by filling in the blank spaces?

“I can organise 49 into 4 groups of ___ with ___ cubes left over”

4. Zaki is organising a pile of 113 nails into boxes.



First I fill the 25-nail boxes. When I can't fill any more of them I fill the 5-nail boxes.



113 nails



25-nail box



5-nail box

- a) How many of each type of box will he fill?
- b) How many nails will be left over?

5. The table below shows numbers written in base 10 and base 5 place value systems. The first row has been completed for you.

Copy and complete the table.

	Tens	Ones	Twenty-fives	Fives	Ones
	2	8	1	0	3
a)	3	7			
b)			2	2	4
c)	6	9			
d)			3	4	4

6. The numbers below are written in base 10 and base 5. Put the numbers in ascending order.

26₁₀
120₅
31₁₀
104₅
28₁₀
102₅

Questions for depth:

1. Using only the number cards given, how many ways can you complete the inequality frame.

0
1
2
3
4

>

₁₀
₅

2. How would this task change if the cards were numbered 3-7? Explain your answer.

Lesson 3: Indian number system

Concept Corner

hundred

fifty-six

thousand

Copy and complete:

We usually write large numbers clustering digits into groups of three starting from the ones:

Four hundred and five million...

... six hundred and seven _____...

... eight _____ and nine

405 607 809

In the Indian number system digits are clustered differently, with different place value names for digits greater than ten thousand:

Forty crore...

... _____ lakh...

... seven thousand...

... eight hundred and nine

40 56 07 809

1. Write the following numbers in words using the **number system we use**:

a) 25 600

d) 404 505

b) 256 002

e) 40 450 560

c) 2 560 020

f) 404 505 606

2. The table shows the number system we use and the Indian number system.

Standard short scale		Indian number system	
1	ones	1	ones
10	tens	10	tens
100	hundreds	100	hundreds
1000	thousands	1000	thousands
10 000	ten thousands	10 000	ten thousands
100 000	hundred thousands	1 00 000	lakhs
1 000 000	millions	10 00 000	ten lakhs
10 000 000	ten millions	1 00 00 000	crores
100 000 000	hundred millions	10 00 00 000	ten crores

Copy and complete the table below.

Standard short scale		Indian number system	
4500			
	nine hundred thousand		
			twelve lakh
		8 05 00 000	
30 600 000			three crore six lakh

3. The numbers in the statements below are written in the *standard short scale*. Copy and complete each statement using the $<$, $>$ or $=$ symbols in the boxes.

- | | | | |
|----|----------------------|----------------------|--------------|
| a) | 30 tens | <input type="text"/> | 3 hundred |
| b) | 19 hundreds | <input type="text"/> | 2 thousand |
| c) | 2570 | <input type="text"/> | 26 hundreds |
| d) | 400 tens | <input type="text"/> | 4 hundred |
| e) | 30 ten thousands | <input type="text"/> | 300 thousand |
| f) | 89 hundred thousands | <input type="text"/> | 9 million |

4. Write the numbers below in words and digits using the *Indian number system*. The first question has been done for you.

- a) Four hundred and fifty thousand six hundred and ten.

Answer: 4 50 610 Four lakh fifty thousand six hundred and ten

- b) Six hundred thousand three hundred and twenty-one.
 c) Eighteen million four hundred and one thousand and seventy-two.
 d) Six hundred and twenty million three hundred thousand and seventeen.

5. The numbers in the statements below are written in standard short scale *and* in the Indian number system.

Copy and complete each statement using the $<$, $>$ or $=$ symbols in the boxes.

- | | | | |
|----|------------|----------------------|--------------|
| a) | 25 lakh | <input type="text"/> | 250 thousand |
| b) | 6 000 000 | <input type="text"/> | 6 crore |
| c) | 50 lakh | <input type="text"/> | 5 million |
| d) | 10 million | <input type="text"/> | 99 crore |
| e) | 49.9 lakh | <input type="text"/> | 500 thousand |

Questions for depth:

1. Write these numbers in ascending order:

- | | | | |
|----------------|---------------------|-------------|----------------|
| 4.5 lakh crore | 45 thousand million | 450 billion | 4 50 00 00 000 |
|----------------|---------------------|-------------|----------------|

2. Round these numbers as described:

- a) 3 483 920 to the nearest lakh
 b) 65 21 97 089 to the nearest hundred thousand

Lesson 4: Mayan number system

Concept Corner

row

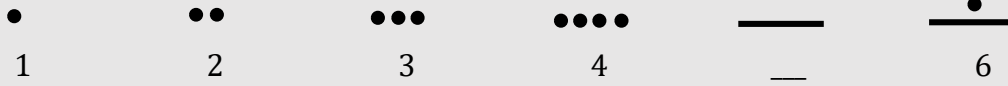
5

digits

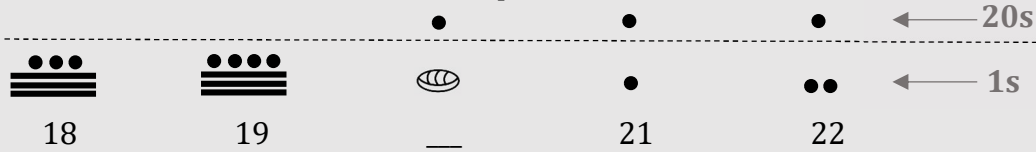
20

Copy and complete:

The Mayan number system uses dots and lines instead of _____.

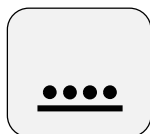
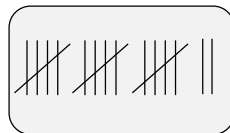
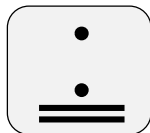
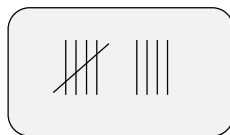
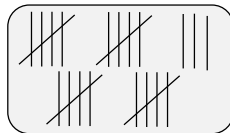
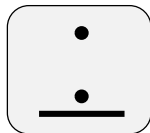
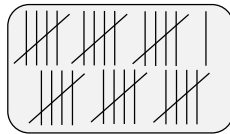


Once the dots and lines reach 20, a new 'place value ___' is started.



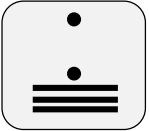





- Copy the cards matching the Mayan, tally and base 10 numerals.




Complete the blank cards to form a set of Mayan, tally and base 10 numerals for each number.



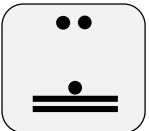


2. Copy and complete the calculations below.
Convert the answers into base 10 numerals.

a)  +  = 

b)  +  = 

c)  -  = 

d)  -  = 

3. Convert these numbers into the Mayan number system.

a) 82

c) 205

b) 134

d) 294

4. Continue the number pattern below for 4 more terms.



Questions for depth:

1. What is the greatest number that can be represented using only **the first two 'place value rows'** in the Mayan number system?
2. What is the value of each 'dot' in the **third 'place value row'**?
3. Convert these numbers into the Mayan number system:

401

842

4019

8000