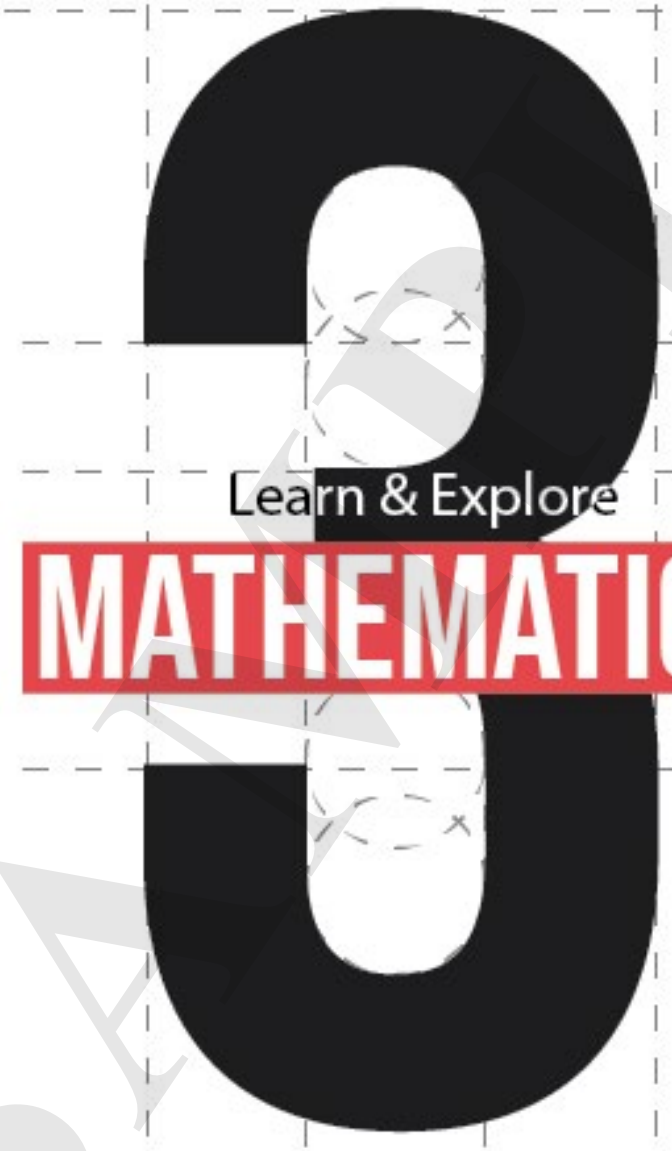


Learn & Explore

MATHEMATICS

ELEMENTS
LEARNING SYSTEM

Benchmarks

Grade 1-2-3

Numbers, Data & Measurements

[Number] Students will be able to demonstrate knowledge of place value (up to 4 digit numbers); represent whole numbers with words, diagrams, number lines, or symbols; order and compare numbers.

They will add and subtract numbers up to 4-digit numbers; multiply (up to 3-digit numbers with 1-digit) and divide (3-digit by 1-digit number). Solve problems involving odd and even numbers, addition, subtraction, multiplication and division of numbers (involving missing numbers, money, quantities and measures), round numbers to nearest tens, hundreds and thousands and make estimates.

[Measurements] Students will be able to measure, compare and order mass (kilograms/grams/milligrams),

They would also solve problems involving weight/mass, and time (including addition and subtraction).

Read, write and compare time (hours and minutes);

[Data & Stat] Read and interpret data from pictographs, bar graphs, tally charts, block graphs and Carroll diagrams.

Organize and represent data using pictographs, bar graphs, tally charts, block graphs and Carroll diagrams to answer questions.
Describe the probability of an event.

Fractions

Recognize fractions as parts of wholes or collections; represent fractions using words, numbers, equivalent fractions in simplest form; compare and order simple fractions; add and subtract simple like and unlike fractions, including those set in problem situations.
Demonstrate knowledge of decimal place value to the tenth.

Geometry

[Geometry] Students will be able to use properties to describe and compare three dimensional shapes (cube, cuboid, cone, cylinder, sphere, prism and pyramids) and relate those with two dimensional shapes; differentiate and classify polygons.

Identify parallel and perpendicular lines; reflective symmetry, right angles and angles smaller and larger than a right angle; positions, directions and movements, centre, radius, and diameter of a circle.

[Measurements] Students will be able to measure, compare and order lengths (Kilometers/meters/ centimeters),
capacity (liters/ milliliters);
They would also solve problems involving length and capacity (including addition and subtraction). Measure area and perimeter using square grids.

Algebra

Students will be able to analyze and complete geometrical and number patterns; find the missing number or operation in a number sentence.

Unit: 1

Roman Numerals and Place Value

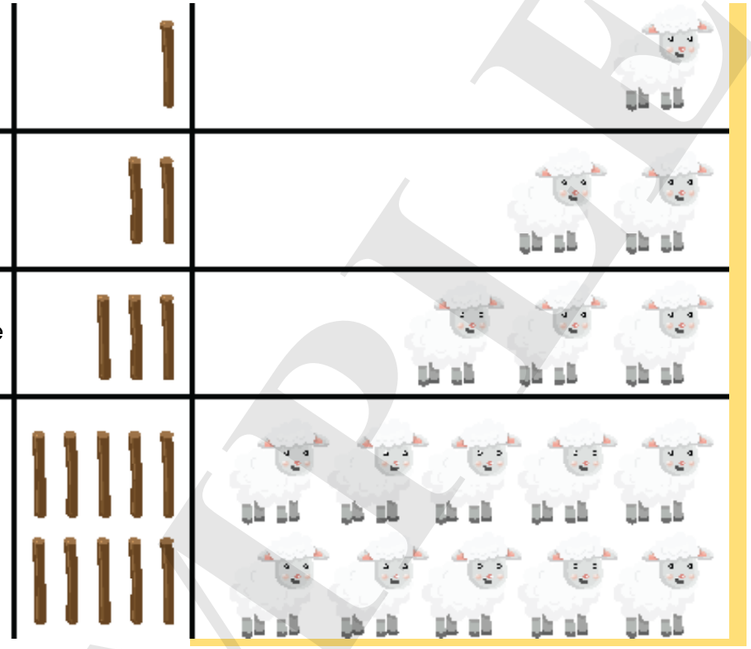
Learning Objectives:

- Read and write Roman numbers up to 20
- Recognise even and odd numbers up to 99
- Differentiate between even and odd numbers
- Identify the place values of numbers up to 3 - digit

Vocabulary:

Pair | Even | Odd | Sum | Alternate

How Cave People Counted Their Sheep



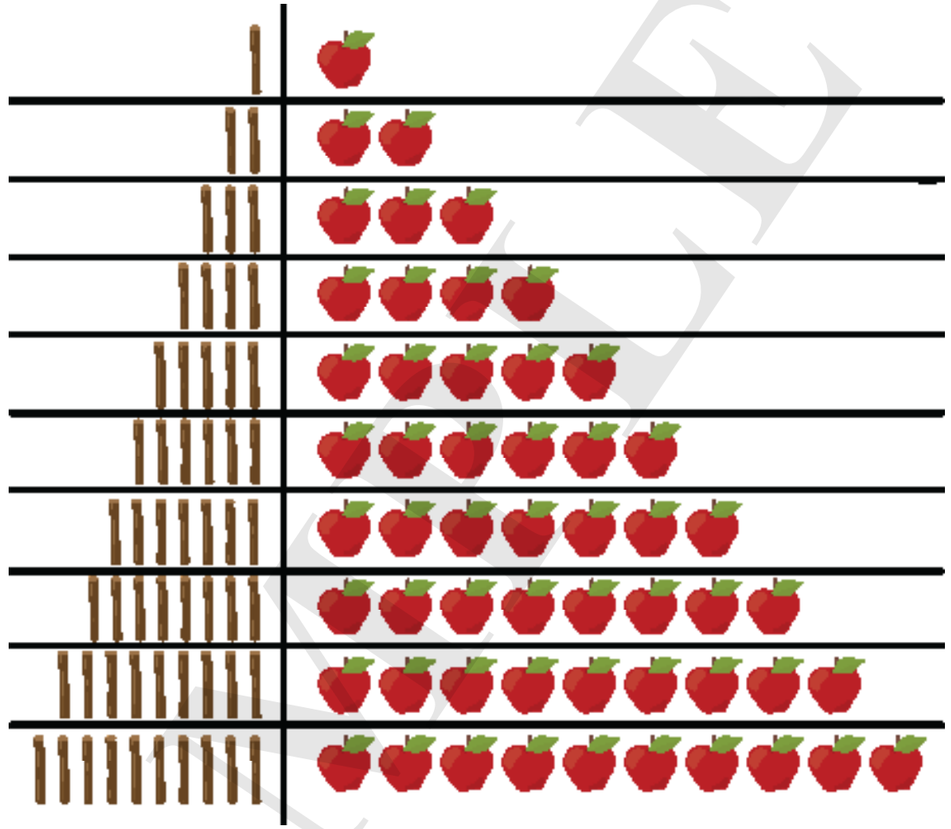
Counting children activity

Children enter in an area, one by one. The child takes out one stick (from a sack of sticks) as a child enters. So, for each child that enters, one more stick is taken. At the end, when all children entered, the sticks are as many as children.

One stick for one child

Solve **Question 1, 2, 3 & 4** from **Exercise 1**

Writing Numbers in Stick Form



Next part of the story.

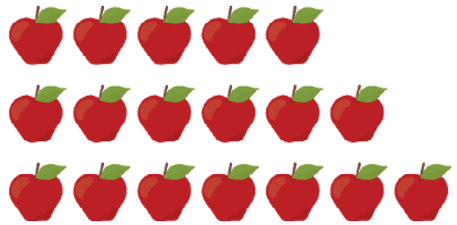
The cave man learned to make bundles of five.

And they wrote it like the alphabet **V.**

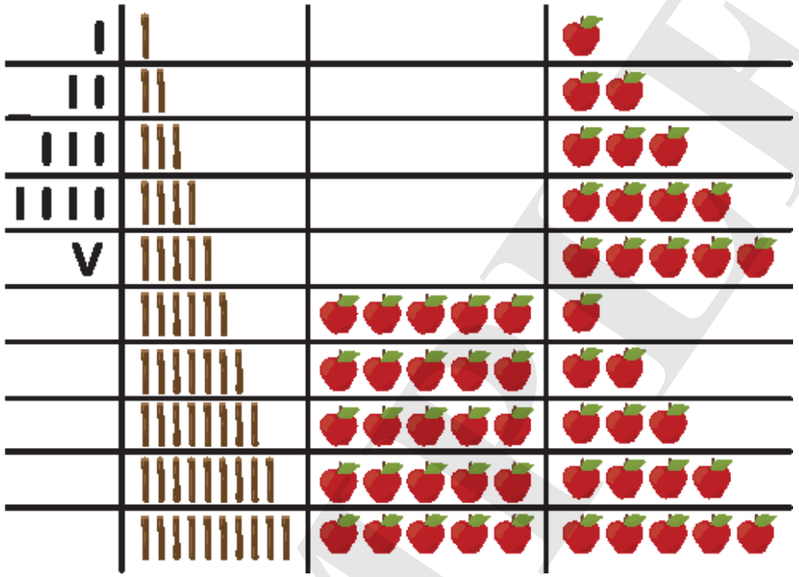
V ———

VI ———

VII ———



Re-writing Line in Numbers



Ten looked like V V (five five).

They made another bundle of ten.

V V → X

X one bundle up
one bundle down

Making Roman numbers

One	I	Seven	
Two		Eight	
Three		Nine	
Four		Ten	X
Five	V	Eleven	
Six		Twelve	

Go up to 20. Tell the students symbols of 50, 100, 1000 as well.

Odd and Even Numbers

Number that make pairs

Two things make a pair.

Pair of shoes

Pair of glasses

What else is in pair?

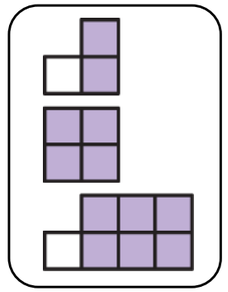
Numbers are also in pairs.

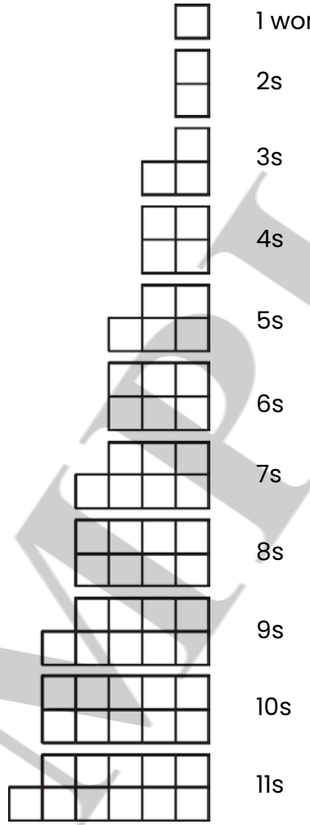
One	Pair?	✗
Two	Pair?	✓
Three	Pair?	✗
Four	Pair?	✓
Five	Pair?	
Six	Pair?	
Seven	Pair?	
Eight	Pair?	
Nine	Pair?	
Ten	Pair?	

Solve **Question 5** from **Exercise 1**

Numbers that pair are even, others are odd

Colour or shade in pairs





Mark even numbers with (E) below the line.

Mark odd numbers with (O) above number line.

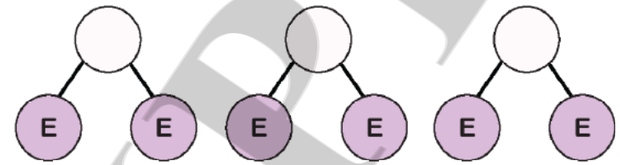
What pattern do you see?

Discovering Patterns in Even and Odd Numbers

When two even numbers marry

Pick any two even numbers and add them.

Do three experiments with different numbers.

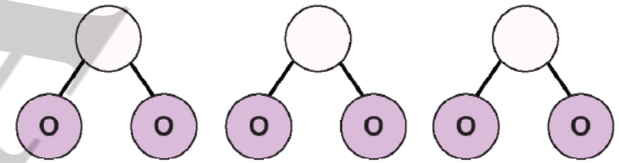


What did you discover?

- ☐ Sum is always even
- ☐ Sum is always odd
- ☐ Sum is sometimes even and sometimes odd

When two odd numbers marry

Pick any two odd numbers and add them.

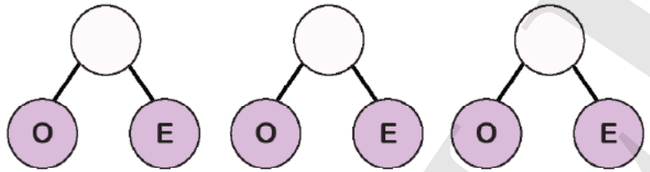


What did you discover?

- ☐ Sum is always even
- ☐ Sum is always odd
- ☐ Sum is sometimes even and sometimes odd

When an even and an odd marries

Pick any even number and any odd number and add them.

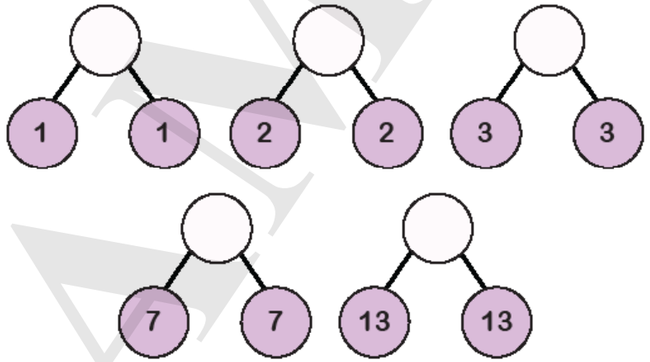


What did you discover?

- ☐ Sum is always even
- ☐ Sum is always odd
- ☐ Sum is sometimes even and sometimes odd

Double a number

Pick any even number and any odd number and add them.

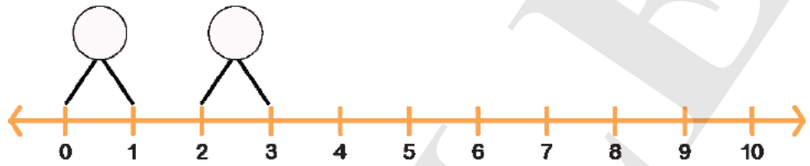


What did you discover?

- ☐ Sum is always even
- ☐ Sum is always odd
- ☐ Sum is sometimes even and sometimes odd

Adding neighboring numbers

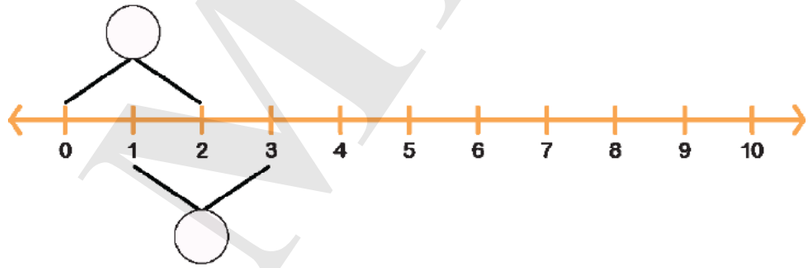
Pick any even number and any odd number and add them.



What did you discover?

- ☐ Sum is always even
- ☐ Sum is always odd
- ☐ Sum is sometimes even and sometimes odd

Adding alternate numbers on number line



What did you discover?

- ☐ Sum is always even
- ☐ Sum is always odd
- ☐ Sum is sometimes even and sometimes odd

Exercise 1

Question 1: Match the given numbers:

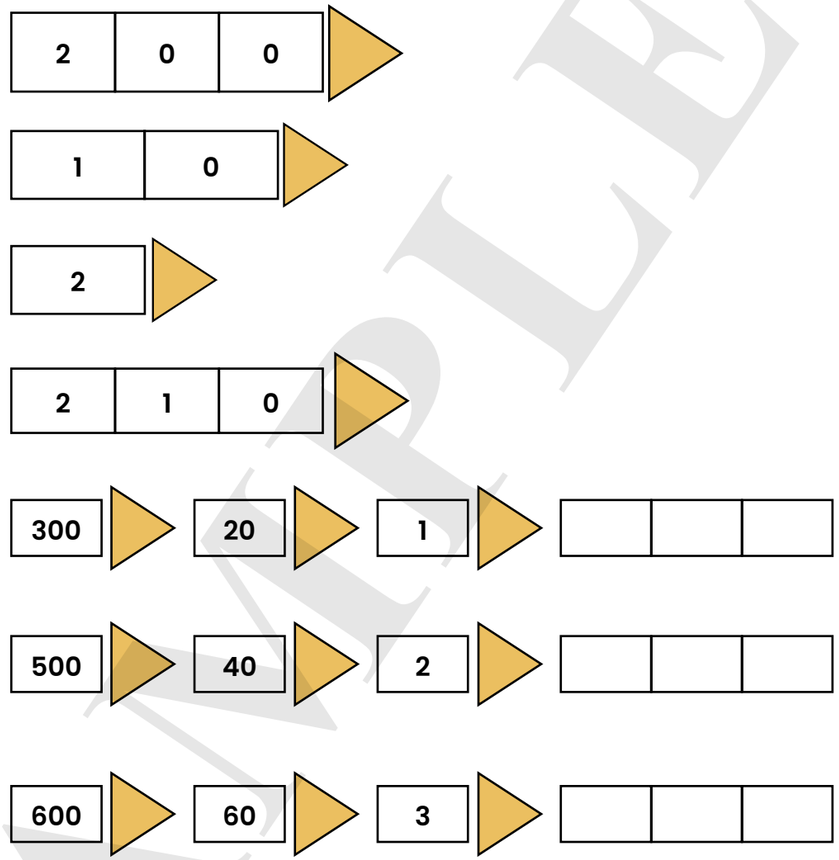
X	3
VI	15
III	10
XV	6
IX	20
XIII	4
XX	9
XVII	19
IV	13
XIX	14
VII	17
XIV	7

Question 2: Make your own symbols and write the numbers 1 till 30 in your own number system. (Use up to 7 symbols only)

Exercise 1

Back to our system: Number-arrows

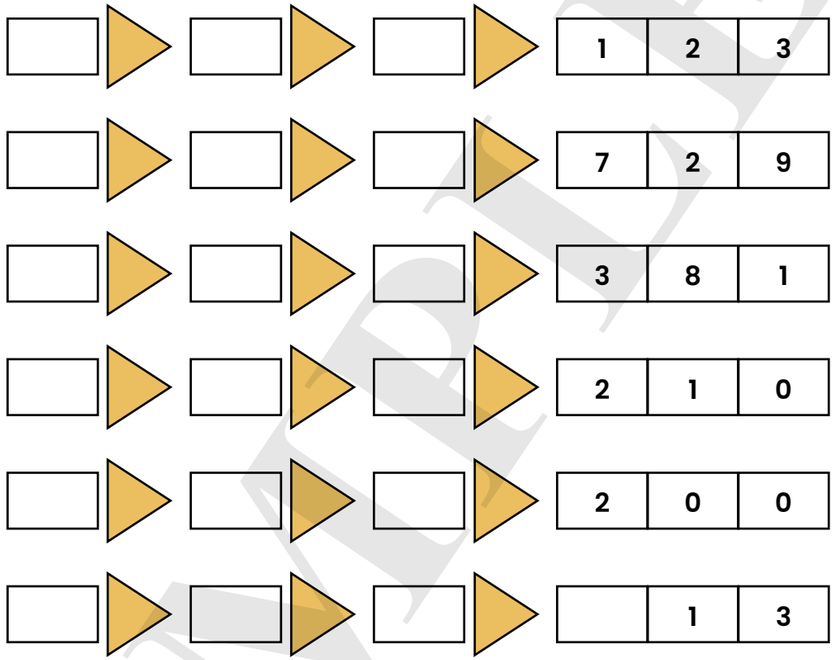
Question 3: Write following arrows into numbers.



Exercise 1

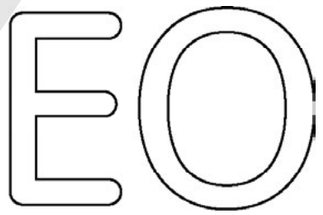
Number - arrows

Question 4: Write the following numbers into arrows.



Question 5: Classify the following numbers as even or odd. Write the even numbers inside **E** and odd numbers inside **O.**

22, 23, 75, 80, 37, 48, 59, 31, 9, 13, 19, 50



References:

https://youtu.be/Mb9Bbd1cigE

https://youtu.be/ZhrUgd2VDL0

Unit: 2

Number Line and Comparison

Learning Objectives:

- Represent and identify numbers on a number line up to 2 - digit numbers
- Compare numbers up to 3 - digits using "<", ">", or "="
- Write numbers in ascending and descending order (numbers up to 3 - digit)
- Compare and arrange numbers up to 999 using appropriate language

Vocabulary:

Number line | Increasing | Decreasing | Greater than | Consecutive | Natural Numbers | Less than