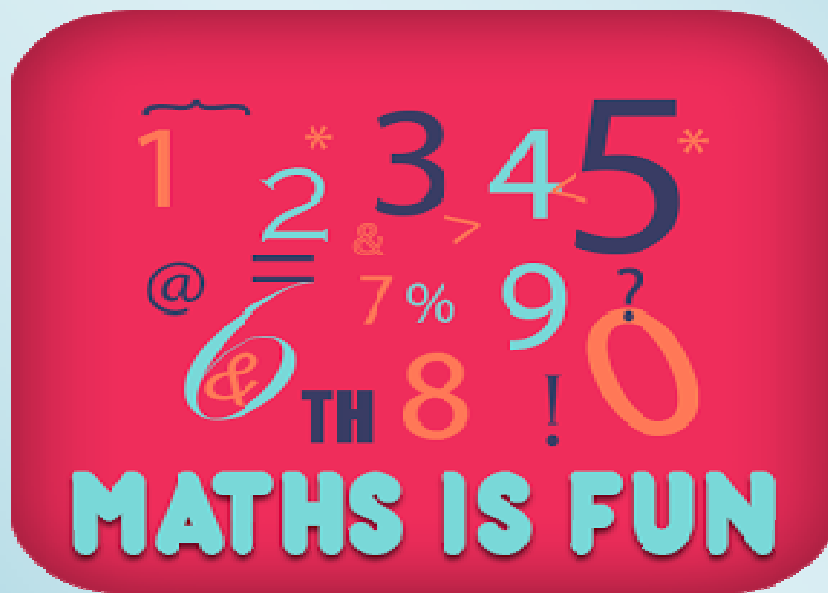




Basic Maths Summer Camp

(*Teach and learn Maths with smiling face* 😊😊)

Collaboration program of Vidyachetana and volunteers



“What I hear I forget

What I hear and see I remember a little

What I hear, see and discuss I begin to understand

What I hear, see, discuss and do, I acquire knowledge and skill

What I teach to another, I master.

(Active Learning Credo statement by Silberman, 1996)

Mathematics is omnipresent, powerful and beautiful. It is useful in all spheres of life and can also be used to provide stimulating leisure time activity. The nature of mathematical ideas has three aspects namely, (a) that they progress from concrete to abstract, (b) from particular to general, and (c) they form hierarchical structures.

As per our experience and study many children don't know the concepts such as odd and even, ascending and descending, Greater than and lesser than, multiplication etc. That is why we have planned to do the foundational course through hands on activities, workbooks and different activities. Our main objective is that the children should learn with fun and develop skills that help the children for their daily life essentials.

Objective of the summer camp:

- To develop basic Mathematical concepts among children.
- To develop Mathematical skills through experiential learning/hands on activities.

Duration of the summer camp: 20 days starts from 17th April 2017.

Target group: 4th to 7th standard children (some of 8th who does not know the basic concepts)

INDEX

1. Volunteer can teach minimum 3 days in a week.
2. No of Hours needed – 40 hours

Days	Concepts
Day 1	Introduction on Numbers with some activity, Place Value, Representing, reading and writing 4 and 5 digit numbers
Day 2	Odd and Even Numbers, Greater(>), less(<) and Equal(=) signs
Day 3	Addition without carry over
Day 4	Addition with carry over
Day 5	Subtraction without borrowing
Day 6	Subtraction with borrowing
Day 7	Multiplication
Day 8	Multiplication Table and Multiplication of signs
Day 9	Division
Day 10	Concept of Divisibility
Day 11	Finding Factors and multiplies of given number
Day 12	Fractions Equivalent fractions, Comparison of Fraction
Day 13	Fractions Addition, Subtraction, Multiplication and Division
Day 14	Measurement of Length ,Weight and Volume
Day 15	Measurement of Length ,Weight and Volume
Day 16	Understanding Angles and its Types
Day 17	Center, Radius and Diameter of Circle
Day 18	Basic Shapes and understanding and Tangrams
Day 19	To Calculate Perimeter and Area of the shapes
Day 20	3D shape and properties

Day 1

Concept: Place Value, Representing, reading and writing 4 and 5 digit numbers (Volunteer Reference)

At the end of this course student should be able

- Students will be able to count tens and ones
- Students will be able to Identify Value of number blocks
- Students will be able to identify and write place value through digits

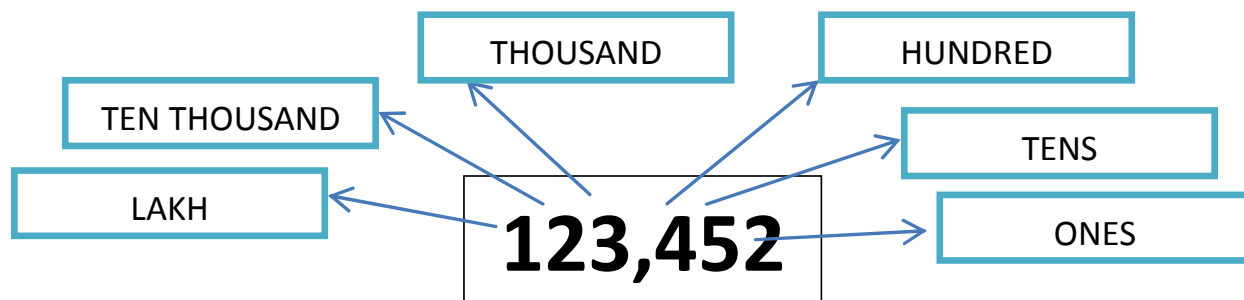
Materials needed: Duplicate Money cards and Place value strips.

Class room flow:

- Introduction of Children.
- Ask the children what is place value.
- Explain about place value.

What is Place Value?

In our decimal number system, the value of a digit depends on its place, or position, in the number. Each place has a value of **10 times** the place to its right. A number in standard form is separated into groups of three digits using commas. Each of these groups is called a period.



Place value chart

Place Value Chart			
Thousands	Hundreds	tens	Ones
1000,2000,3000,4000,5000,6000,7000,8000,9000	100,200,300,400,500,600,700,800,900	10,20,30,40,50,60,70,80,90	0,1,2,3,4,5,6,7,8,9

Day 2 - Concept - Odd and Even Numbers and Greater(>), less(<) and Equal(=) signs

At the end of this course student should be able

- Children will be able to distinguish the numbers as Even and Odd numbers.

Materials needed

- Using the children
- Flashcards

Class room flow

- Introduction of Children.
- Ask the children what is Odd and even numbers.
- Revision of previous session.
- Explain about odd and even numbers.

Definition of Odd and Even Number

An **odd number** is an integer which is not a multiple of two. An **even number** is **defined** as a whole **number** that is a multiple of two.

Activity: Make the children in two groups. Name them as odd and even numbers.

Give even number of straws (10, 20, 24....) to even group students, ask them to make the pairs in the given materials. And give odd number of straws (15, 27, 33.....) to odd group of students, ask them to make the pairs in the given materials.

After making the pairs even number group students able to make equal number of pairs and odd number group is not able to make the pairs.

Or

Odd and even numbers: Prepare a set of 5 small flash cards of numbers between 200 to 300. (Facilitator can choose any numbers according to the learning level of children). Make a group of 4 to 5, distribute the set of flash cards and make them to divide as odd and even numbers.

Number chart of even and odd numbers

1	2	3	4	5	6	7	8	9	10
11	12	13	14	15	16	17	18	19	20
21	22	23	24	25	26	27	28	29	30
31	32	33	34	35	36	37	38	39	40
41	42	43	44	45	46	47	48	49	50
51	52	53	54	55	56	57	58	59	60
61	62	63	64	65	66	67	68	69	70
71	72	73	74	75	76	77	78	79	80
81	82	83	84	85	86	87	88	89	90
91	92	93	94	95	96	97	98	99	100

The number ends with 0, 2, 4, 6, 8 are **even** numbers and the number ends with 3, 5, 7, 9 are **Odd** numbers

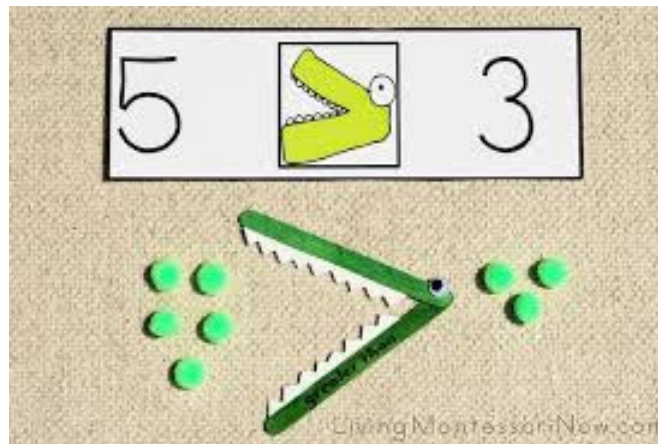
Activity to teach Greater (>), less (<) and Equal (=) signs

At the end of this course student should be able

- Children will be able to use the Greater (>), less (<) and Equal (=) signs.
- Children will be able to write the numbers in Ascending and Descending order.

Materials needed

- Flash cards of Numbers
- Make symbols of Greater (>), less (<) and Equal(=) signs(Using K G board sheets)
- Paper balls to represent the numbers.

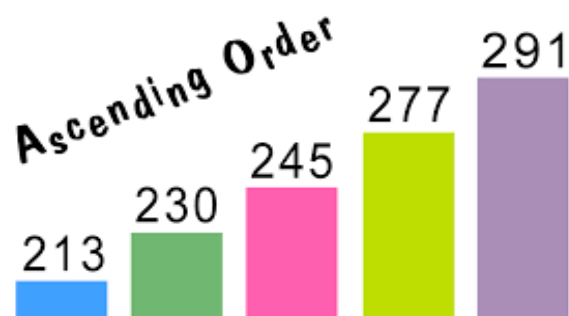
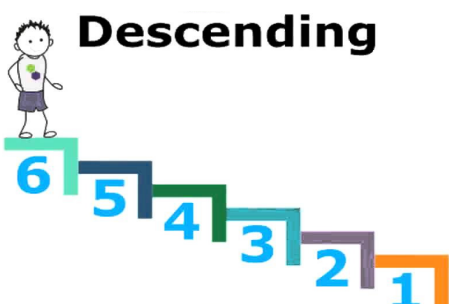


Activity 1: Facilitator will explain that, When left value is smaller than another we use a "less than" sign ($3 < 5$) and When left value is bigger than another we use a "greater than" sign ($5 > 3$).

Make the children into groups of two and they will give Number flash cards and Symbols to the groups. Ask the children to represent the 2 numbers using symbols as shown in the above figure.

Activity 2: Ascending and Descending order

- Form a line of students according to their height to make understand of ascending and descending order. After that facilitator will select 5 to 6 students, each student will be given different numbers flash cards, ask those students to stand in ascending and descending order depending on the numbers what they have.



Day 3

Concepts of Addition without carry over

At the end of this course student should be able

- Students will be able to do the addition without carry over
- Students will be able to do the simple mental addition

Materials needed

- Artificial Money

Class room flow

- Introduction of Children.
- Revision of previous session.

Activity: Make the children into equal number of groups and each group will be given set of Rs 1000, 100, 10 and 1 artificial money and each group will be given simple problems of without carry over

Facilitator will explain one example sum using artificial money.

For Example:

$$\begin{array}{r} 355 \\ + 232 \\ \hline \\ \hline \end{array}$$

Represent 355 in their respective place value positions

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Represent 232 in their respective place value positions

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	200	30	2							

Addition process and result, ask the children to count and write the result.

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The answer is 587(Five Hundred Eighty Seven)

Day 4
Concepts of Addition with carry over

At the end of this course student should be able

- Students will be able to do the addition with carry over
- Students will be able to do the mental addition

Materials needed

- Artificial money

Class room flow

- Introduction of Children.
- Ask some simple without carry over addition problems to the groups.
- Revision of previous session.

Activity: Make the children into equal number of groups and each group will be given set of Rs 1000, 100, 10 and 1 artificial money and each group will be given simple problems of with carry over

Facilitator will explain one example sum using artificial money.

For Example:

$$\begin{array}{r} 4678 \\ + 2721 \\ \hline \\ \hline \end{array}$$

Represent 4678 in their respective place value positions

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Represent 2721 in their respective place value positions.

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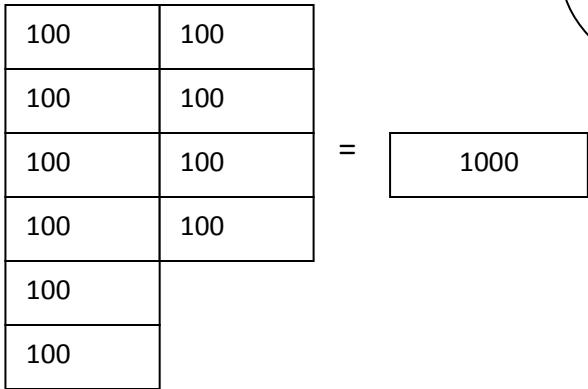
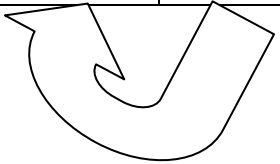
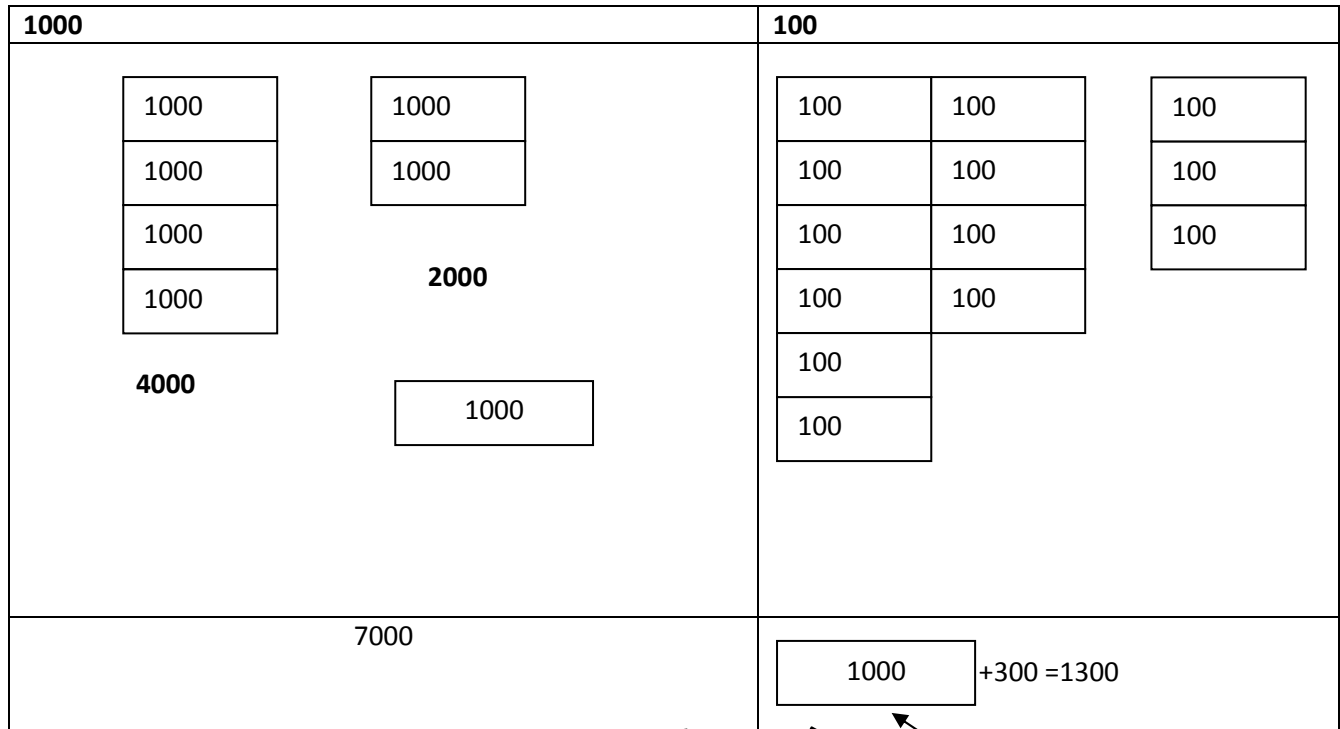
Addition process and result, brief the children about carry over concept.

10 Ones = 1 tens

10 Tens = 1 hundred

10 Hundred = 1 Thousand

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<p>90</p>	<p>9</p>



10 Hundreds = 1 Thousand, so one Thousand will carry over to the Thousand place

The answer will be = **7399**

Day 5

Concept of Subtraction without borrowing

At the end of this course student should be able

- Students will be able to do the subtraction without borrowing
- Students will be able to do the simple mental Subtraction

Materials needed

- Artificial Money

Class room flow

- Introduction of Children.
- Revision of previous session
- Ask some simple subtraction problems to the class and make them to understand the concept of subtraction.

Activity: Make the children into equal number of groups and each group will be given set of Rs 1000, 100, 10 and 1 artificial money and each group will be given simple problems of without borrowing

For Example


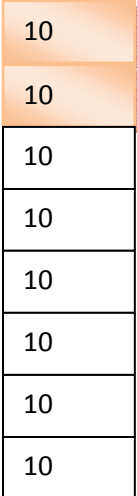

$$\begin{array}{r} 787 \\ -525 \\ \hline \end{array}$$

Represent 787 in their respective place value positions.

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	700	80	7																									

Subtraction process and result

$$\begin{array}{r} 787 \\ -525 \\ \hline 262 \end{array}$$

1000	100	10	1
	 <p>$700 - 500 = 200$</p>	 <p>$80 - 20 = 60$</p>	 <p>$7 - 5 = 2$</p>
	200	60	2

Day 7
Concept of Multiplication

At the end of this course student should be able

- Students will be able to do the multiplication
- Students will learn the multiplication tables

Materials needed

- Coconut shell
- Tamarind Seeds

Class room flow

- Introduction of Children.
- Revision of previous session
- Ask some simple tables to the class.

Activity: Make the children to understand basic concept of multiplication. Tell the children that, multiplication is repeated addition of numbers.

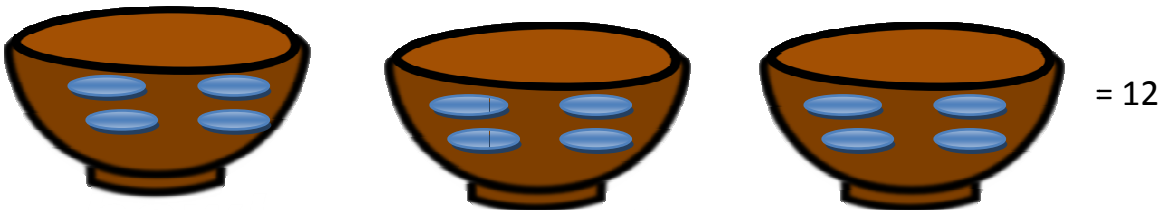
For example: $2*3 = 6$ (Here you are adding $2 + 2 + 2 = 6$)

2 is no of groups (Use coconut shell to represent the group)

3 is no of items in each group (Use Tamarind seeds to represent the items in each group)

Give few examples to children

$$3*4=12$$



3 groups and each group contains 4 Tamarind seeds, ask the children to count all the seeds in 3 coconut shells then the answer is 12

Multiplication Table and Multiplication of signs, finding square of the numbers

- We can give multiplication Table chart and multiplication of signs chart to children.

Day 8
Concept of Division

At the end of this course student should be able

- Students will learn about basic division concept.

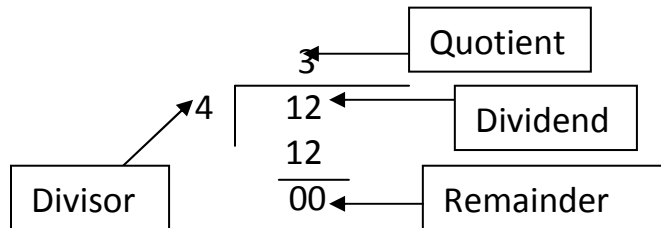
Materials needed

- Coconut shells
- Tamarind seeds

Class room flow

- Introduction of Children.
- Revision of previous session
- Ask some simple tables to the class.

Activity: Explain the children about what is Division. Division is a n operation is opposite of multiplication, where you divide the things into equal parts or Groups. Tell the children, what division includes



Make the children into equal no of groups, and give them coconut shells and Tamarind seeds. Give examples to children so that they will learn division through equal distribution method.

For Example:

$$4 \overline{) 13} \begin{array}{r} 3 \\ \underline{12} \\ 01 \end{array}$$

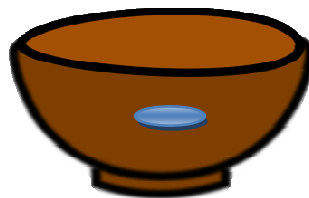
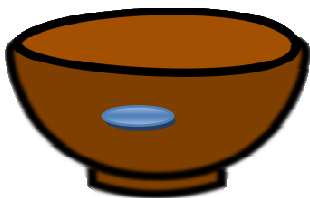
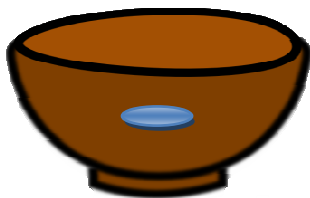
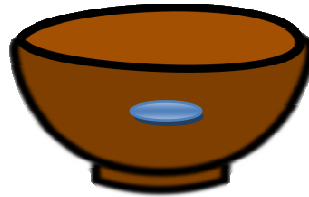
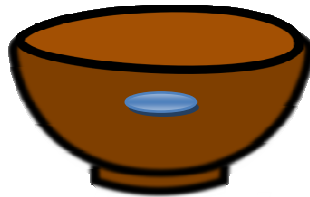
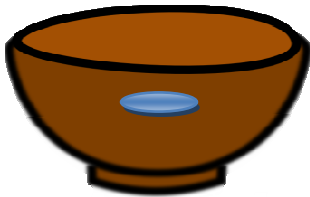
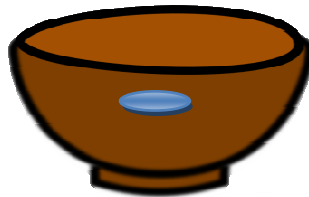
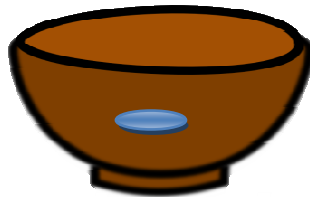
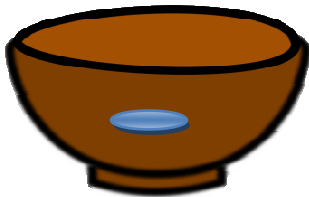
Ask the children to evenly distribute 13 Tamarind seeds into 4 coconut shells, after distribution they have 1 Tamarind seeds remaining with them, and then explain the process of division.

Activity

$$\begin{array}{r} 3 \\ 4 \overline{) 13} \\ \underline{12} \\ 01 \end{array}$$

Facilitator will demonstrate the activity for children, how to divide 13 tamarind seeds in to 4 coconuts shells as shown in the images below. Children will start distributing the tamarind seeds. First they will put one into each coconuts shell.

Here we distributed twelve tamarind seeds equally in three coconut shells. So the remainder is 1 (we left with one tamarind seed)



Day 9
Concept of Divisibility

At the end of this course student should be able

- Students will learn to find the numbers by which a given number is divisible.

Class room flow

- Introduction of Children.
- Revision of previous session.

Activity: Explain the children about simple divisibility rules, so it will be useful for children to find out Divisor of the given number (Dividend)

Rule for Divisibility by 2

If the numbers are even, then they are divisible by 2. For example 0, 2, 4, 6, 8, 10.....

Rule for Divisibility by 3

If the sum of the digits of a number is a multiple of three, then the number is completely divisible by three.

For example:

$27 = 2 + 7 = 9$ 9 is multiple of 3
--

$144 = 1 + 4 + 4 = 9$ 9 is multiple of 3

$96 = 9 + 6 = 15$ 15 is multiple of 3
--

Rule for Divisibility by 4

In case of the numbers having more than two digits, if the number formed by digits from Ten's and Units places is divisible by 4, then the given number is divisible by 4

100,200,300.....900, 1000, 1100,.....2000, 2100,.....3800..... These are the numbers are divisible by 4

For example:

1. 5734
5700 is divisible by 4
34 is not divided by 4, then 5734 is not divisible by 4.
2. 1356
1300 is divisible by 4
56 is also divisible by 4, then 1356 is divisible by 4.

Rule for Divisibility by 5

If the number has 0 or 5 in its units place then the number is divisible by 5

For example: 10, 15, 20, 25.....

Rule for Divisibility by 6

All the numbers divisible both by 2 and 3 are divisible by 6

For example: 58 is divisible by 2 and not by 3, then 58 is not divisible by 6

27 is divisible by 3 and not by 2, then 27 is not divisible by 6

Rule for Divisibility by 8

A number having 4 digits and more than 4 digits is divisible by 8, if the number formed from the digits in hundred's, ten's and unit's places is divisible by 8. All the multiples of 1000 is divisible by 8

For example: 2520

2000 is divisible by 8

520 is also divisible by 8, then 2520 is divisible by 8

Rule for Divisibility by 9

If the sum of all the digits of a given number is divisible by 9, then the given number is divisible by 9

For example:

$5+6+7=18$ 18 is divisible by 9

$5+8+9+5=27$ 27 is divisible by 9

Rule for Divisibility by 10

The numbers having '0' in their unit's place are divisible by 10.

For example: 10, 20, 30.....

Day 10

Finding Factors and multiplies of given number

At the end of this course student should be able

- Students will learn to find the factors and multiplies of the given number

Class room flow

- Introduction of Children.
- Revision of previous session of multiplication.

Activity

Ask the children what is the difference between Factors and Multiplies, give more examples to understand the concepts.

Factors mean the numbers which divides the given number.

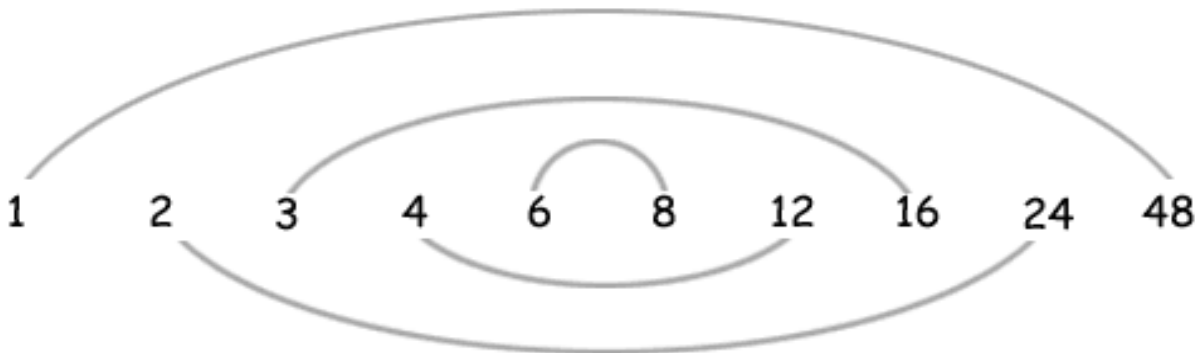
For example: Factors of 12 =1, 2, 3, 4, 6, 12

16 = 1, 2, 4, 8, 16

48= 1, 2,3,4,6,8,12,16,24,48

Pictorial representation of factors of 48

48 = 1×48, 2×24, 3×16, 4×12, 6×8,

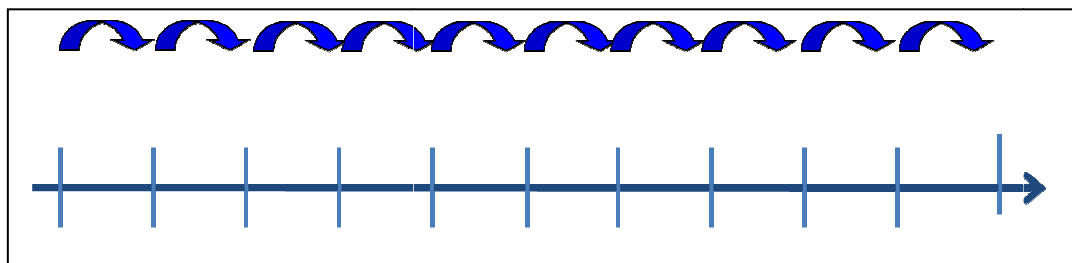


Multiplies means the result of a multiply a number by an integer.

For example: Multiple of 2 = 2, 4, 6, 8, 10.....

Multiple of 5 = 5, 10, 15, 20.....

5 10 15 20 25 30 35 40 45 50



Day 11 and Day 12

Fraction

At the end of this course student should be able

- Students will be able to identify Numerator and Denominator
- Students will be able to do Proper fraction, Improper Fraction and Mixed fraction
- Students will be able to do convert Improper fraction as mixed fraction
- Students will be able to do Equivalent Fraction
- Students will be able to do Addition, subtraction, multiplication and division in fraction

Material required

Fraction kit –Circle and square shapes and Strips

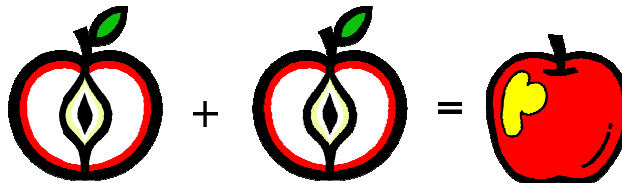
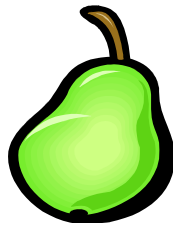
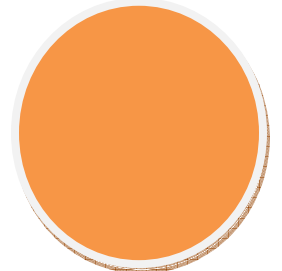
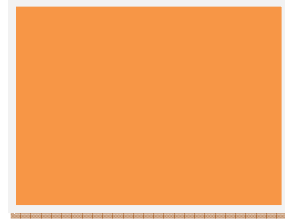
Class room flow

Activity: 1

Initially teachers should help the children to understand key concepts such as whole, equal part and how to project them in mathematical terminology. Teacher can show the different kind of fraction strips.

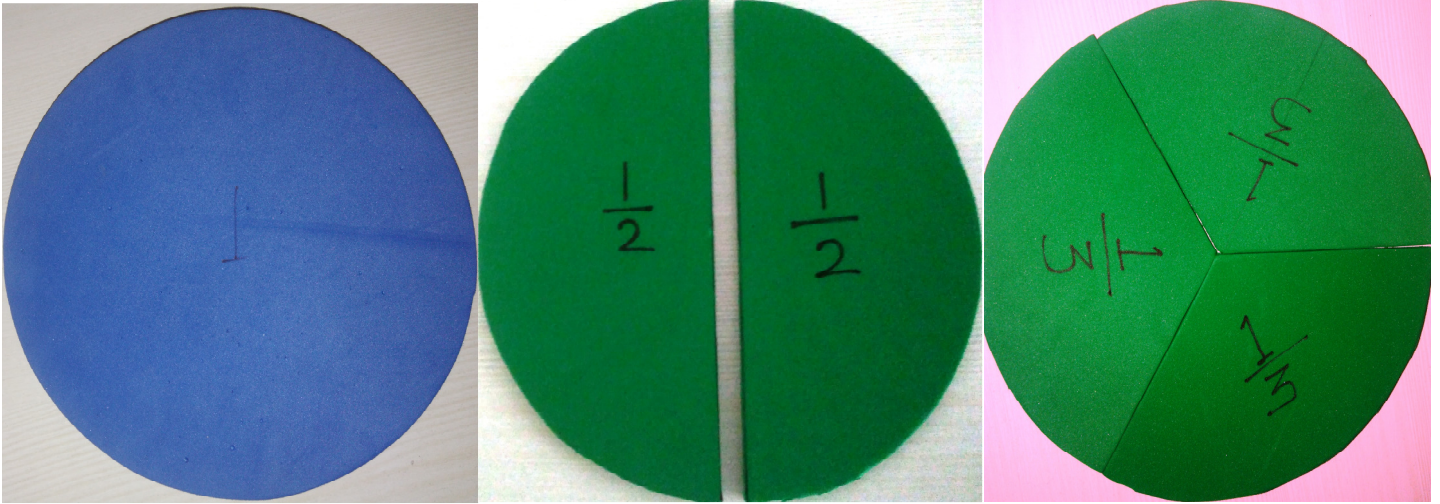
Example:

- Here is a whole square
- There are everyday objects which are whole. For example, we can have a whole bar of chocolate
- A fraction is an EQUAL part of a whole object
- Whole can be in any shape



- When an object is evenly divided into two – each part is called a half
- 2 parts make the whole object
- $\frac{1}{2} + \frac{1}{2} = 1$

By using Circle and Strips Fraction kit, explain the concept of Fraction(how to represent fractions) and how to divide the given object into equal parts



Activity :2

Understanding of Numerator and Denominator by using fraction strips.

1 Numerator - The top number is the numerator.

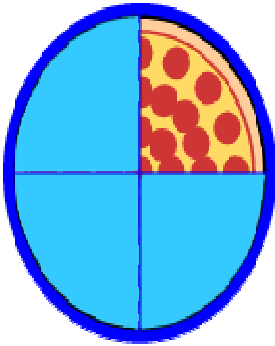
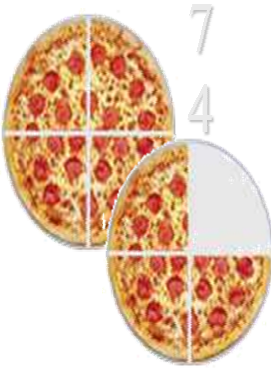
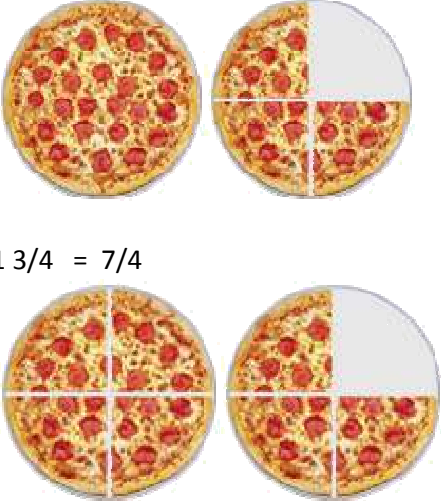
4 Denominator - The bottom number is the denominator.

After this make them understand quarter, half, Three fourth.

Work sheet : After these two activities give worksheet for practice

Activity :3

Understanding of Proper, Improper and Mixed Fraction.

Proper Fractions	Improper Fraction	Mixed Fraction
The numerator is less than the denominator. E.g.. – $1/2$, $3/4$, $2/7$ etc	The numerator is greater than (or equal to) the denominator. E.g. – $4/2$, $9/5$, $6/6$ etc. Every whole no is Improper Fraction	<ul style="list-style-type: none">➤ a whole number and a proper fraction are together. E.g.. –$2 \frac{1}{4}$, $16 \frac{2}{5}$ etc.➤ Mixed Fractions and Improper Fractions are same.➤ We can use any to show the same amount.
 <p data-bbox="488 1402 532 1436">$1/4$</p>	 <p data-bbox="764 1121 792 1171">7 4</p>	 <p data-bbox="938 1335 1089 1369">$1 \frac{3}{4} = \frac{7}{4}$</p>

Activity : 4 –

Understanding conversion the fraction

Improper Fraction to Mixed Fraction

divide the numerator by the denominator the quotient is the leading number, the remainder as the new numerator.

Exp: Write 14/3 as Mixed fraction

Type -1	Type-2
$14/3 = 3/3 + 3/3 + 3/3 + 3/3 + 2/3$ = 4 wholes and 2/3 = 4 2/3	$\begin{array}{r} 4 \text{ -----Whole number} \\ 3 \overline{)14} \\ \underline{12} \\ 02 \text{ -----Numerator} \\ \downarrow \\ \text{Denominator} \end{array}$

Conversion of Mixed fraction into Improper fraction

Multiply the whole number with the denominator and add the numerator to it. The answer is the numerator and the denominator is same

Exp:

$$2\frac{3}{7} = \frac{2 \times 7 + 3}{7} = \frac{17}{7}$$

Formula =
$$\frac{(\text{Whole number} \times \text{Denominator}) + \text{Numerator}}{\text{Denominator}}$$


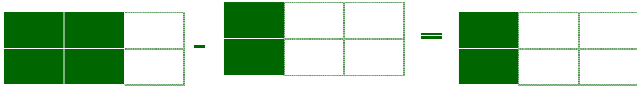
Equivalent Fraction:

- To know that two or more Fractions are Equivalent we must simplify (change to its lowest term) them.
- Simplify: A fraction is in its lowest terms (or is reduced) if we cannot find a whole number (other than 1) that can divide into both its numerator and denominator.
- E.g $\frac{5}{10} : 5$ & 10 can be divided by 5. $\frac{\cancel{5}}{10} = \frac{1}{2}$
- To make Equivalent Fractions we multiply the Fraction with a special form of 1 (same numerator & denominator- 4/4, 10/10 etc.)

E.g. : $4 = \frac{4}{5} * \frac{5}{5} = \frac{20}{25}$

Day 13

Addition, Subtraction, Multiplication and division of Fraction numbers

Addition	Subtraction
<p>Things To Know !!!!</p> <ul style="list-style-type: none"> ➤ Simplifying ➤ Like and Unlike Fractions ➤ Like fractions are Compulsory to add. ➤ If there are Unlike Fractions then convert them to like fractions. ➤ The Denominator should not be added. ➤ Always change Improper fraction to a mixed fraction. ➤ Addition means combining objects in two or more sets ➤ The objects must be of the same type, i.e. we combine bundles with bundles and sticks with sticks. ➤ In fractions, we can only combine pieces of the same size. In other words, the denominators must be the same. <div style="text-align: center; margin: 10px 0;">  </div> $\frac{3}{6} + \frac{2}{6} = \frac{5}{6}$ <p>Add the numerator and leave the denominator as it is</p> <p>If there are different denominators in the fractions, then we change them to like fractions.</p> <p>Exp: $\frac{1}{3} + \frac{2}{5}$</p> $\frac{1 \times 5}{3 \times 5} + \frac{2 \times 3}{5 \times 3} = \frac{5}{15} + \frac{6}{15} = \frac{11}{15}$	<p>Things To Know !!!!</p> <ul style="list-style-type: none"> ➤ Simplifying ➤ Like and Unlike Fractions ➤ Like fractions are Compulsory to subtract. ➤ If there are Unlike Fractions then convert them to like fractions. ➤ The Denominator should not be subtracted. ➤ Always change Improper fraction to a mixed fraction. ➤ The numerator can be negative. ➤ Subtraction means taking objects away. ➤ The objects must be of the same type, i.e. we can only take away apples from a group of apples. ➤ In fractions, we can only take away pieces of the same size. ➤ In other words, the denominators must be the same. <div style="text-align: center; margin: 10px 0;">  </div> $\frac{4}{6} - \frac{2}{6} = \frac{2}{6} = \frac{1}{3}$ <p>If there are different denominators in the fractions, then we change them to like fractions.</p> $\frac{2 \times 5}{3 \times 5} - \frac{2 \times 3}{5 \times 3} = \frac{10}{15} - \frac{6}{15} = \frac{4}{15}$

Activity : 6

Multiplication	Division
<p>Things To Know !!!!</p> <ul style="list-style-type: none"> ➤ Simplifying ➤ The Denominator are always multiplied. ➤ “ Of ” : Of means multiply. E.g. : $\frac{1}{2}$ of 2 = $\frac{1}{2} \times 2 = 1$ ➤ Product of two Proper Fractions is always less than both of them. ➤ Product of two Improper Fractions is always greater than both of them. ➤ Product of one Improper Fraction and one Proper Fraction is always less than the Improper Fraction and greater than the Proper Fraction. ➤ To Multiply Fractions we Multiply both - The numerators and the Denominators separately. $\frac{2}{4} \times \frac{3}{2} = \frac{2 \times 3}{4 \times 2} = \frac{6}{8} = \frac{3}{4}$	<p>Things To Know !!!!</p> <ul style="list-style-type: none"> ➤ Simplifying ➤ Multiplication ➤ Always change Improper fraction to a mixed fraction. ➤ Reciprocal: The inverse of fraction ➤ E.g. - $\frac{2}{3} = \frac{3}{2} = 1 \frac{1}{2}$, $2 \frac{1}{2} = \frac{5}{2} = \frac{2}{5}$ ➤ To Divide Fractions we change the Second Fraction with its Reciprocal. ➤ Then Multiply the Reciprocal with the First Fraction. $\frac{2}{4} \div \frac{4}{5} = \frac{2 \times 5}{4 \times 4} = \frac{10}{16} = \frac{5}{8}$

Activity: 7

Comparison of Fraction

Greater than and Smaller than

- Change the Fractions to Like Fractions.
- The fraction with greater numerator is bigger than the other one.
- If the Numerators are same, then the Fraction with smallest Denominator is the Biggest.

$$\frac{2}{3} \& \frac{10}{5} = \frac{3}{15} > \frac{9}{15}$$

How the Numerator does controls the Fraction

- Numerator represents the number of pieces.
- If we share a Pizza with 16 people, we get $1/16$ of pizza.
- If we share a Pizza with 13 people, we get $3/16$ of pizza.

If we share a Pizza with 5 people, we get $5/16$ of pizza

Conclusion:

When the numerator gets larger we have more pieces.

And if the denominator is kept fixed, the larger numerator makes a bigger fraction

Day 14 and Day 15

Measurement of Length, Weight and Volume

Measurement concepts and skills are directly applicable to the world in which students live. Many of these concepts are also developed in other subject areas, such as science, social studies, and physical education.

(Ontario Ministry of Education, 2005, p. 8)

At the end of this course student should be able

Length

- Define units of length and convert from one to another.
- Perform arithmetic calculations on units of length.
- Solve application problems involving units of length.

Weight

- Define units of weight and convert from one to another.
- Perform arithmetic calculations on units of weight.
- Solve application problems involving units of weight

Volume

- Children will be able to measure the liquid Milliliters and liters

Material required

1. Ruler
2. Tape measure
3. Yardstick
4. Scale, such as a bathroom scale
5. Large, alcohol-based thermometer
6. Classroom objects to be measured and weighed (pencil, box, book, desk, etc.). Be sure the objects can be easily measured with the tools you are using.
7. Weighing machine, Measurement tape and Volume container

Class room flow

Activity: 1

- In this activity teacher will give context first
- From a young age, children develop concepts about measurement as they explore the length, mass, temperature, capacity, and so on, of objects in their daily lives. Everyday experiences, such as the following, help students think about ideas related to measurement:
- comparing two towers of blocks by height or their houses
 - finding whether a collection of blocks will fit inside a box or bag
 - choosing a large enough glass to hold a small carton of milk
 - deciding how many sheets of paper are needed to cover a table

Can show the pictures



Activity :2

Display a ruler, yardstick, tape measure, and scale. Explain to students that these tools are used to measure. The ruler, tape measure, and yardstick are tools for measuring the length, width, and height of an object. Model how to use these tools by lining up the end of an object with the end of the tool and identifying the nearest inch as the length, width, or height.

Set up two stations for students to practice measuring length, width, height, and weight.

- Station 1 - Place several classroom objects and the ruler, tape measure, and yardstick at the station. Have students take turns using the measuring tools to find the length, width, and height of each object. They should record their measurements in Chart 1 Measuring the Length, Width, and Height of Objects. Then they can compare and discuss measurements using terms like greater than, less than, longer, and shorter.
- Station 2 - Place several classroom objects and the scale at the station. Have students take turns weighing each object. They should record their measurements in Chart 2 Measuring the Weight of Objects. Then they can compare and discuss measurements using terms like greater than, less than, heavier, and lighter.

Activity : 3

Guess the Weight! How much do 25 weigh? Play a guessing game with your child: collect 100 small objects and guess how much they weigh. He might be surprised by the answer! What You Need: 25 small objects such as paper clips, glue sticks, writing implements, and erasers Scale (use a scale that measures ounces if you are using lightweight objects) Plastic bags What You Do: 1. Have your child count the small objects by tens and place them into plastic bags as he goes so that they don't roll away or make a mess when you place them on the scale.

2. Ask your child to guess how much he thinks the items weigh in grams

3. Once he has his guess, it's time to weigh! Place the bags on the scale one by one in order from lightest to heaviest. Have your child read the scale out loud. How much do the objects weigh?

4. Discuss the results with your child. How close was his guess? Are smaller objects necessarily lighter?

Activity : 4**What You Need:**

Tree
Measuring tape
Marker
Pen
Paper
Helper

How old is That Tree? Every year on our birthday we have a reminder of how old we are. And if we ever forget, we can always ask our parents! How do you think you find out how old a tree is? When a tree has been cut down, you can count its "rings" in order to tell how old it is, but what about when it is alive? We can't ask a tree how old it is. But there is a way! This activity will teach you and your child a way to estimate the age of a tree without cutting it down. It doesn't work with every tree but it will with a lot of them. What You Need: Tree Measuring tape Marker Pen Paper Helper What You Do: 1. Help your child find a tree that is at least as tall as a grown up and have your child wrap the measuring tape around the widest part of the trunk. (A grown up might need to help with this part!) The distance around the trunk of a tree is called the circumference. Write this measurement down on a piece of paper. 2. The measurement of the circumference in inches is also the approximate age of the tree in years.

Activity: 5

Volume: Through Volume container children will learn Milliliter, (5, 250, 500, 750 ml) liter. We can use

- Test tube
- Syrup bottle
- Big syringe
- Oil pour container
- Water bottles

Day 16
Understanding Angles and its Types

At the end of this course student should be able

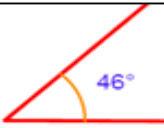
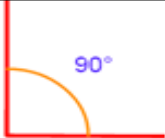
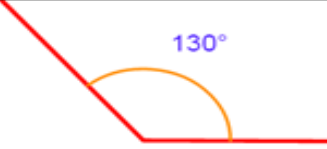


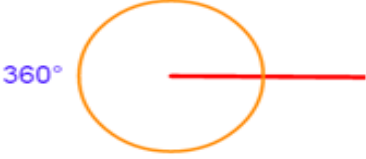
1. Identify different types of angles
2. Measuring angle
3. Drawing angles for any given degree

Material required

Scale and protractor

Class room flow

Different types of angles. Explain to the students below types of angles.

Type of Angle	Description	Example
Acute Angle	An angle that is less than 90°	 A diagram showing an acute angle of 46° formed by two rays meeting at a vertex. The angle is marked with a blue arc and the value 46° .
Right Angle	An angle that is exactly 90°	 A diagram showing a right angle of 90° formed by two perpendicular rays meeting at a vertex. The angle is marked with a blue arc and the value 90° .
Obtuse Angle	An angle that is greater than 90° and less than 180°	 A diagram showing an obtuse angle of 130° formed by two rays meeting at a vertex. The angle is marked with a blue arc and the value 130° .
Straight Angle	An angle that is exactly 180°	 A diagram showing a straight angle of 180° formed by two rays meeting at a vertex and extending in opposite directions. The angle is marked with a blue arc and the value 180° .
Reflex Angle	An angle that is greater than 180° and less than 360°	 A diagram showing a reflex angle of 308° formed by two rays meeting at a vertex. The angle is marked with a blue arc and the value 308° .
Full Angle	An angle that is exactly 360°	 A diagram showing a full angle of 360° formed by two rays meeting at a vertex and extending in opposite directions, forming a complete circle. The angle is marked with a blue arc and the value 360° .

Activity -1

- Ask each group to name few examples of these angles

Activity-2

- Draw different angles and ask children to find out bigger angle and smaller angle.

Teach children how to measure the angle using protractor.

Teach children to how to draw different angles using protractor and scale

Class room work sheet (We will provide you the print out below is the soft copy for your reference)

Day 17
Center, Radius and Diameter of Circle

At the end of this course student should be able

- Understand the concept of what is radius, diameter, center and circumference of a circle.
- For a given circle find out radius, diameter and circumference
- Drawing a circle for a given diameter and radius

Material required

Scale, Compass and Geo board

Class room flow

Introduce children to circle.

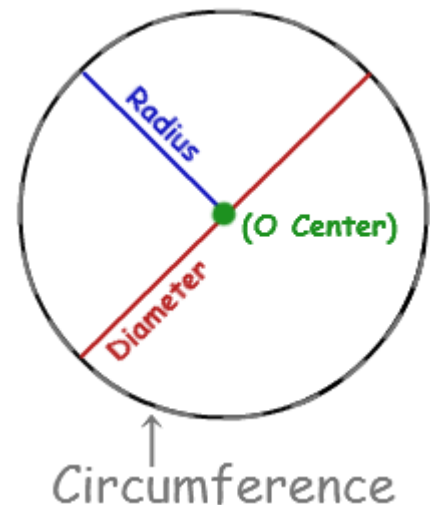
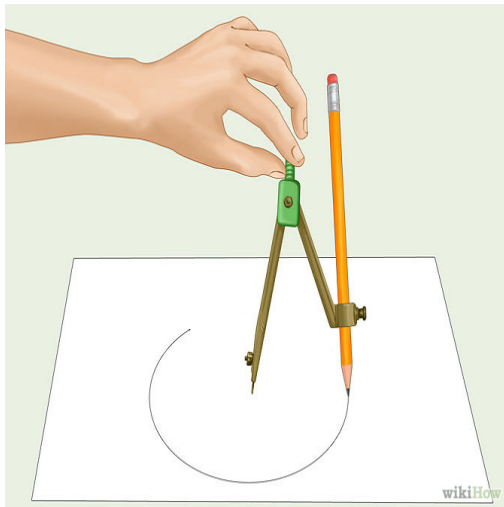
Activity -1

- Ask each group to name few examples of circles.

Activity-2

- Ask each group of children to draw a circle. Collect all the circles and ask children which one is bigger and which one is smaller.

Introduce children to radius, diameter and circumference. Please mention that circumference is nothing but the length of the wire when circle is cut. We can use Geo Board to explain the radius, diameter and circumference



Teach children to draw the circle of a given radius or diameter

Class room work sheet (We will provide you the print out below is the soft copy for your reference)

Day 18

Basic Shapes understanding and Tangrams

At the end of this course student should be able

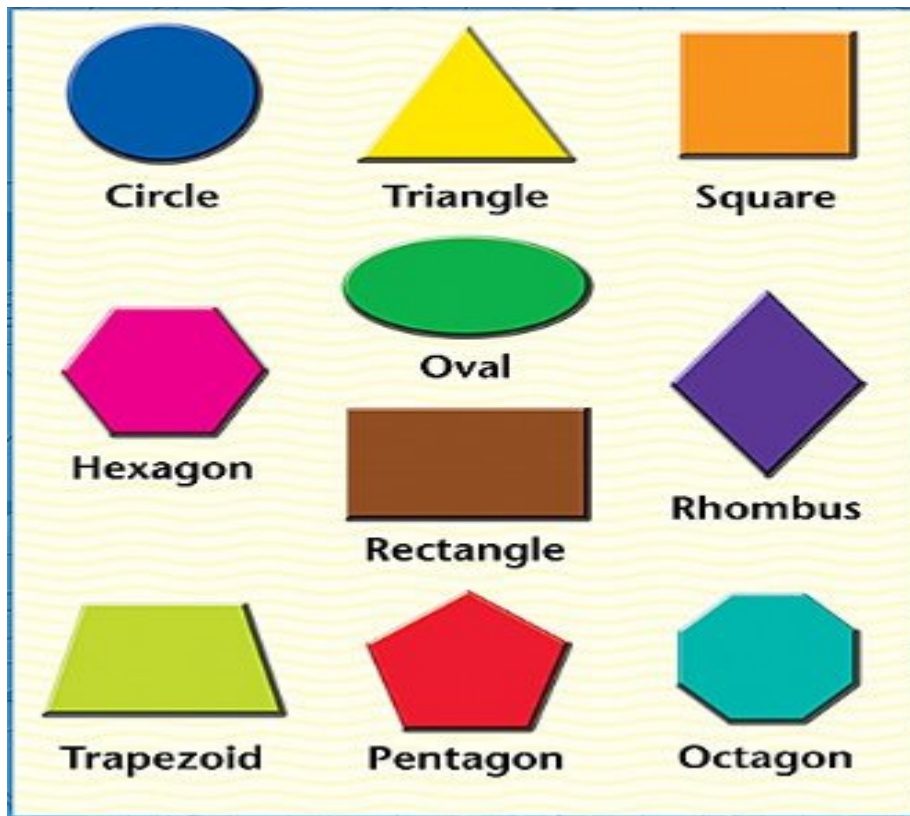
1. Identify different types of shapes like circle, square, triangle, straight line, rectangle, parallelogram, pentagon, hexagon etc.
2. Identifying and counting number of edges, corners, symmetry of axis etc.

Material required

Geo Board

Class room flow

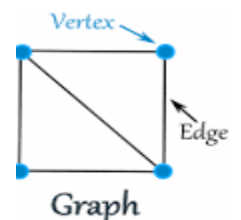
Different types of shapes. Explain to the students below types of shapes



Draw a shape in black board and explain how to create that shape using geo board.

Activity-1

Ask each group to name few examples of these shapes which they came across in their life. Introduce the concept of corner (vertex), side (edge) to children



Activity-2

- Randomly read out a shape name and ask each group to create that shape in Geo Board.

Activity-3

- Ask one group to create a shape in GEO board and ask other groups to name them and also ask them about number of corners and sides for each shape.

In the following sections we will introduce the concept of parallel, intersecting/perpendicular lines and using it to attribute to the properties of each shape. Like square/rectangle have pair of parallel lines whereas triangle does not have it.

- Parallel lines -- >Two lines whose distance between them remains the same. They don't meet each other at any point.
- Intersecting lines → two lines which will meet at some point. Distance between these lines vary depending upon which point we are measuring them
- Perpendicular lines are the ones whom intersect at right angle.

Activity-4

- Ask each group to name few examples of parallel and perpendicular line.

Activity-5

- On black board draw different types of lines and ask children to classify as parallel and intersecting, perpendicular lines.

Game-1

- Now it is game time. Ask 2 people from each group to come forward. If you say parallel then they need to keep their both hands parallel to ground and if you say perpendicular then they need to keep their both hands perpendicular to the GND. You can stand separately and for parallel you can show perpendicular and confuse the children whoever shows wrongly is out. Elimination goes on and the one remaining at the end wins the game. Repeat the same game for next 3 children from each group.

Activity-6

- Put all the shapes in the table and call a group of children to the front. Hand over a shape to each child and ask them to remember the name of the shape and its properties. Now call out a shape and the children with that shape should come out and tell its number of sides and corners. If they come out correctly award 5 marks and spelling out each property correctly award 5 marks each.

Game-2

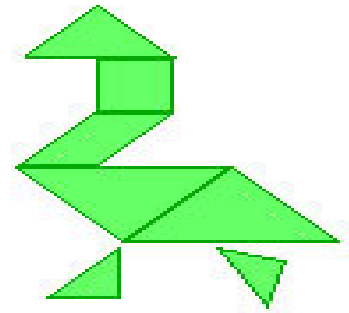
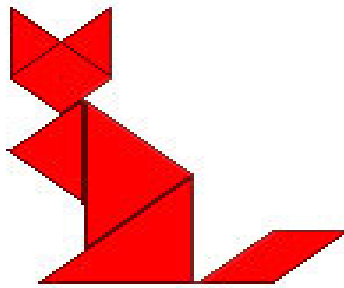
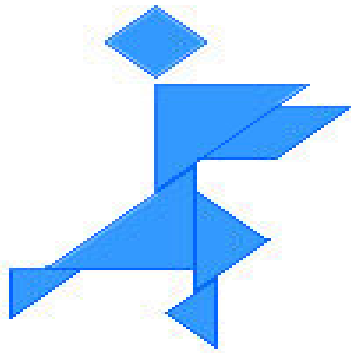
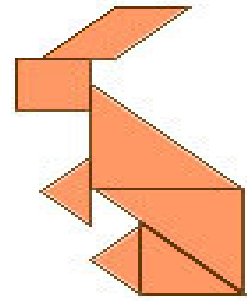
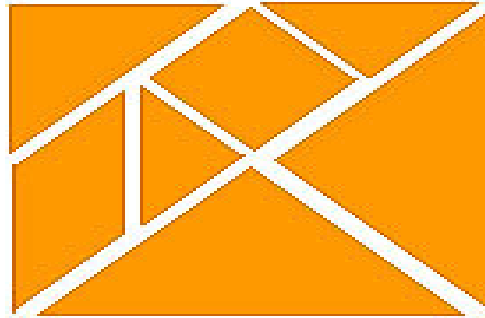
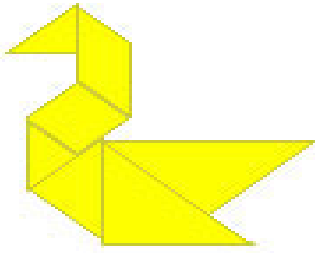
- Divide the children in to different groups. For each group assign a shape and they need to arrange themselves in that shape. For example circle they have to stand in circle, square they need to form a square etc.

Tangrams



A traditional Chinese puzzle made of a square divided into seven pieces (one parallelogram, one square and five triangles) that can be arranged to match particular designs

Children can use these shapes to make different images for example



Day 19
To Calculate Perimeter and Area of the shapes

At the end of this course student should be able

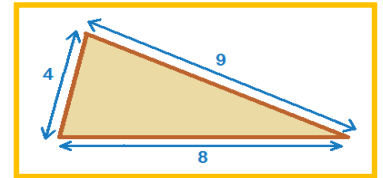
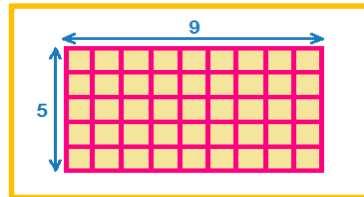
- Students will calculate the area and perimeter of a random shape
- Understand the relationship between numbers and symbols in formulas for area and perimeter.
- Students will learn to determine the area and perimeter of rectangles and square

Material required: Geo board

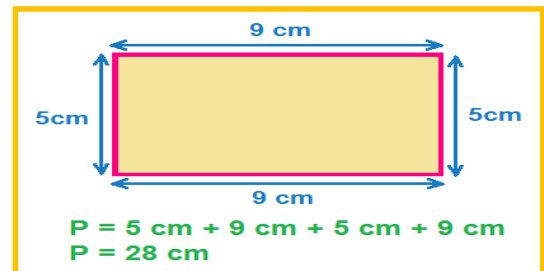
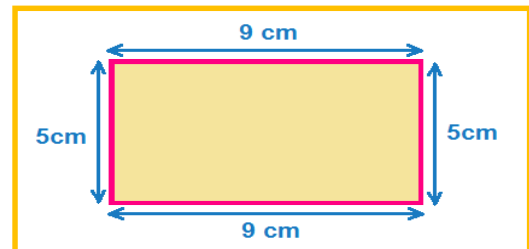
Class room flow

Activity :1

When your family puts up a new fence around your home, how will they know how much fencing they need?

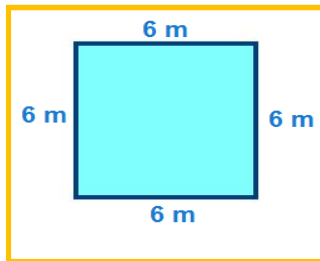


-----Perimeter : The **perimeter** of a figure is the distance all the way around the figure.

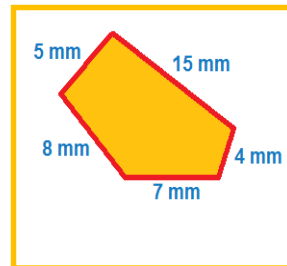


The **perimeter** is found by adding the lengths of the sides together

Other examples



$$P = 24 \text{ m}$$



$$P = 39 \text{ mm}$$

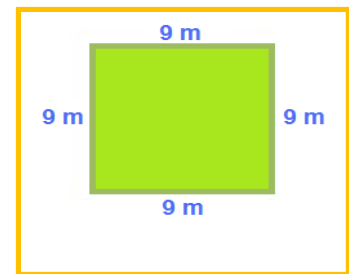
Teacher will help the students practically by making different shapes through Geo board

Activity : 2

Perimeter of a Square

1. A **square** is a figure with 4 equal sides.
2. The perimeter can be found by adding all 4 sides together.
3. It can also be found by multiplying the side length by 4.
4. So the formula for the perimeter of a square is:

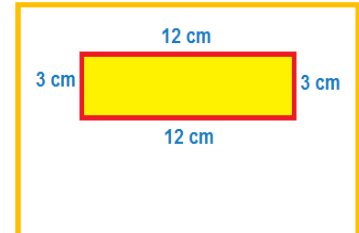
$$P = 4s$$



$$P=36\text{cm}$$

Perimeter of a Rectangle

- A **Rectangle** is a figure with 4 sides. Opposite sides are equal.
- The perimeter can be found by adding all 4 sides together.
- It can also be found by adding twice the width together with twice the length.
- So the formula for the perimeter of a rectangle is: $P = 2w + 2l$



$$P=30\text{cm}$$

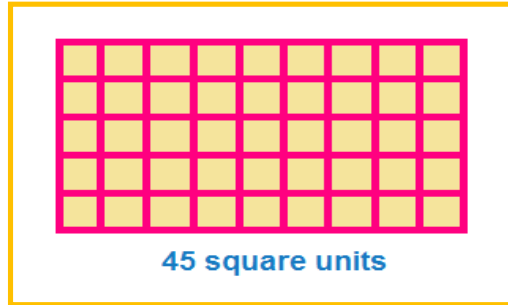
Activity : 3

Concept of Area

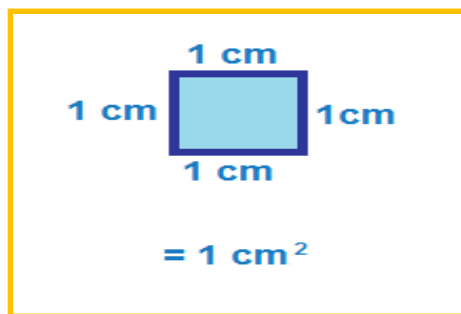
If your parents want to put new carpet in your room, how will they know how much carpet to buy?



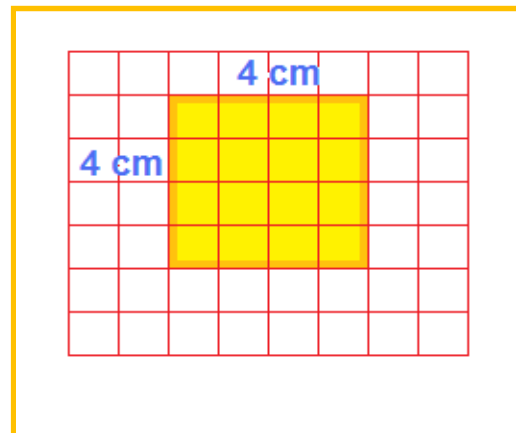
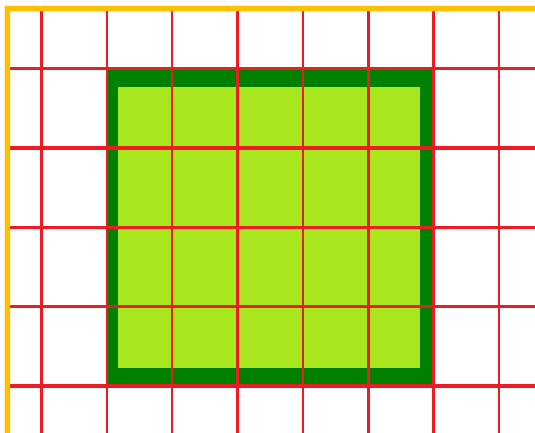
- The area of a figure is the number of square units that cover the surface of the closed figure.



- A square unit is a unit that has 4 equal sides.



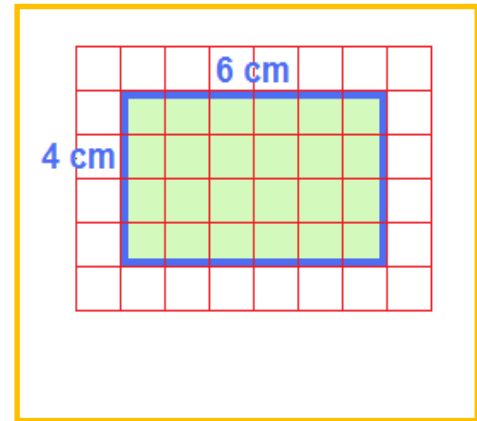
- The area of a figure is found by finding how many square units it takes to cover its surface.



$$A = 16 \text{ cm}^2$$

Area of a Rectangle

- The **area** of a rectangle is found by finding how many **square units** it takes to cover its surface.
- It can also be found by multiplying its length by its width.
- So the formula for the area of a rectangle is: $A = l \times w$

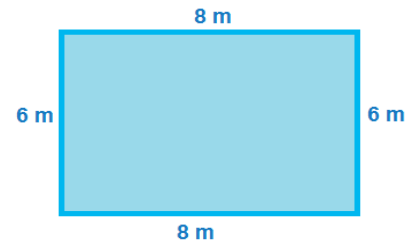


=

$$A = 24 \text{ cm}^2$$

Check for understanding. Find the perimeter & area of the figure.

- The perimeter is the distance **all the way around the figure**
 $P = 28\text{m}$
- The area is the number of **squarinites** it takes to cover its **surface**



$$A = 48 \text{ m}^2$$

Day 20
3D shape and properties

At the end of this course student should be able

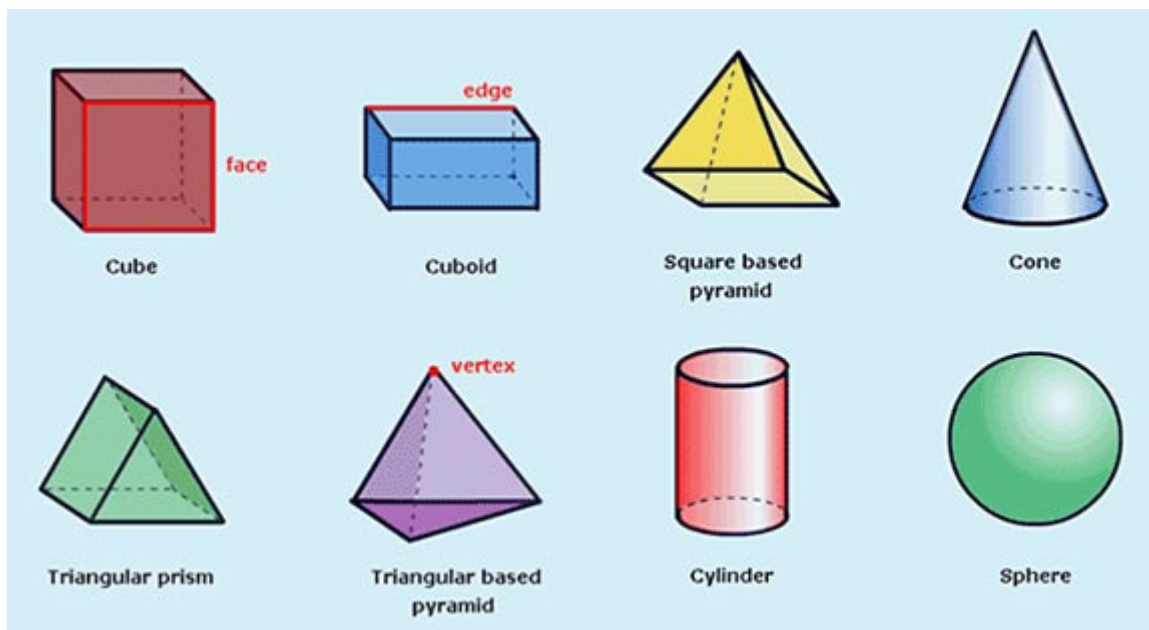
1. Identify different types of 3D shapes like cube, cylinder, cone, cuboid, square base pyramid and triangle base pyramid, hexagonal prism, triangular prism, sphere and pentagonal prism
2. Identifying and counting number of edges, corners, symmetry of axis etc.

Material required

Geo solids, craft paper, glue and art/craft paper

Class room flow

Different types of shapes. Explain to the students below types of shapes



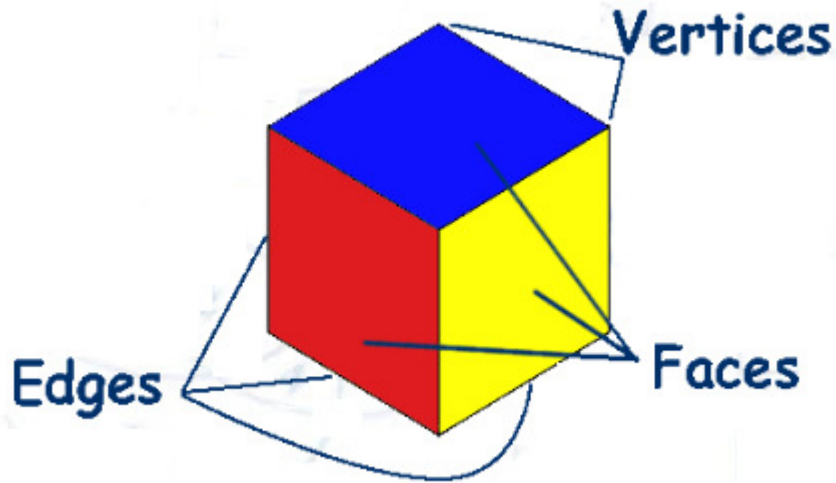
Activity -1

- From geo solid, display each solid and request a child from a group to spell out its name. Repeat this activity so that all shapes are covered and each group gets 2-3 questions.

Activity -2

- Ask each group to name few examples of these shapes which they came across in their life.

The concept of corner (vertex), side (edge) and face to children by using a geo solid.



Activity-3

- Distribute the Geo solids among all groups and ask them name the solid and also write down the number of faces, edges and corners of that solid. Pass on the Geo solid such that each group gets had on all solids.

Activity-4

- Put all the Geo solid shapes in the table and call one group of children to the front. Hand over a shape to each child and ask them to remember the name of the shape and its properties. Now call out a shape and the children with that shape should come out and tell its number of sides and corners. If they come out correctly award 5 marks and spelling out each property correctly award 5 marks each.

Activity-5

- Call out one child from each group one by one and blind fold them. Hand over a solid and by touching they should name the solid and also number of corners/edges/faces etc. Continue this game so that at least 2 person from each group gets a chance to practice.

Activity to teach Addition, Subtraction and Multiplication

Materials needed: Artificial money cards, some selling items like (they can take any materials such as leaves, flowers, and books)

Activity:

1. Make the children into two groups, one team will become buyers and the other team will become sellers
2. Seller team will organize the selling materials, name the materials differently.
3. Sellers can create different shops like Vegetable shop, Fruits shop etc...
4. Buyers group and sellers group will be given artificial money cards and coins.
5. Buyers will do the shopping, will spend the money.
6. Buyers group will make the list on paper that, how much money they have, how much they spent? And how much remaining money they have.
7. Sellers will do the list of how much money they have? and how much money added into their balance?.