

MATHS.....

I FEEL IT !



Activity Book **2**

GRADE-6

THE KAIZEN PILOT PROJECT FOR THE MASTER PLAN STUDY FOR
THE DEVELOPMENT OF SCIENCE AND MATHS EDUCATION IN
THE JUNIOR SECONDARY LEVEL

VEMBADI GIRLS' HIGH SCHOOL
JAFFNA
SRILANKA

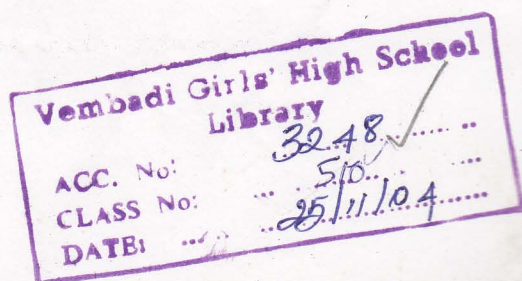
Maths . . .

I feel it!

ACTIVITY BOOK - 2 GRADE 6

*The kaizen Pilot Project
For
the master plan study
For
the development of Science and Maths Education
in
the junior secondary level*

**Vembadi Girls' High School
Jaffna
SriLanka**



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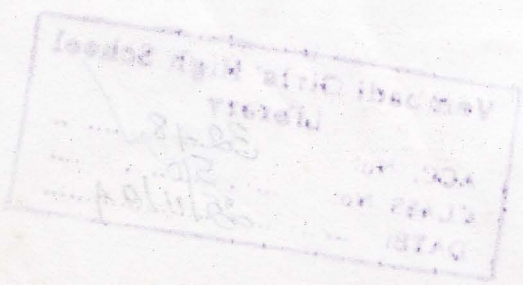
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PREFACE

The introduction of English medium to the school system provides an impetus to our students to reach greater heights in education through a global language. Books written in English are necessary prerequisites to make this transformation real and successful.

We are very much pleased to publish Mathematics Part II activity book for Grade 6 students under JICA project. This book has been compiled according to the syllabus of the Department of Education.

We are sure this book will be of much use, both to the students as well as to the teachers of English medium.

We hope this activity book will help the students to handle the subject easily with its simplified, interesting activities.

Publishers

Message from the Principal

The English medium classes have been started and progressing since 2003 in our institution. Though our teachers conduct these classes efficiently, the serious problem the students face is insufficiency of activity books and Teachers' guides in English.

During the second part of the JICA Project, the QE circle - 4 members have taken a great effort to produce this Part II of the Mathematics Activity Book which is a commendable task.

I greatly appreciate this effort.

***Mrs. K. Ponnampalam,
Principal,
J/ Vembadi Girls' High School.***

Acknowledgement

I am effusively grateful to all the people who helped us to make the Mathematics Activity Book Part 11 available in time.

First of all I wish to thank profusely our Principal Mrs. K. Ponnampalam who offered us an opportunity to publish the book for the benefit of the students.

It is also incumbent on me to thank Mrs. A. Thambiah, the co-ordinator of JICA Project who took the initiative to profound the proposals necessary for this project.

It behoves me to thank with gratitude the monitoring team of JICA project for encouraging us in the accomplishment of this arduous task by providing us the requisite funds and facilities.

I wish to acknowledge Mrs. S. Kannan and Mr. Jeyeswaran for rending their hands in this venture.

I am grateful to all the teachers who made this venture a success and profitable by writing activities for the selected units for this work book.

At the same time, another big thanks goes to all who translated the units and the teachers who participated in the workshop for giving precious suggestions and 2005 A/L maths students who helped in proof reading.

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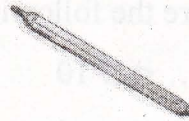
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UNIT 9

COMPARING NUMBERS

Activity

Some measuring equipments are shown in the following figures. Name these equipments.



Measuring lengths

Read the sentences given below and write them in words

a) Kala's height = 1.5m

.....

b) The thickness of a coin = 2mm

.....

c) The distance between Colombo and Jaffna > 100 km

.....

d) The length of a soap < The length of my palm.

Distance, height, thickness, length, width and depth are all measured in the units of measuring length

Units of measuring length

Lengths can be measured in metre (m), centimetre (cm), millimetre (mm), kilometre (km)

Unit Conversion

$$1 \text{ cm} = 10 \text{ mm}$$

$$100 \text{ cm} = 1 \text{ m}$$

Activity

Finding out: $1 \text{ m} = 100 \text{ cm}$

(Use a measuring tape)

1. Compare the following numbers using symbols $>$, $<$

eg :- 1) $8 \dots < \dots 10$

6) $(5+1) \dots \dots \dots (3+1)$

2) $12 \dots \dots \dots 6$

7) $(6+4) \dots \dots \dots (7+8)$

3) $7 \text{ cm} \dots \dots \dots 7.5 \text{ cm}$

8) $(10-3) \dots \dots \dots (09-05)$

4) $100 \text{ cm} \dots \dots \dots 1.5 \text{ m}$

9) $(8 \times 2) \dots \dots \dots (6 \times 3)$

5) $25 \text{ cm} \dots \dots \dots 1/2 \text{ m}$

10) $2 \text{ m} + 3 \text{ m} \dots \dots \dots 8 \text{ m}$

2. Write in words

eg: $13 > 5$ Thirteen is greater than five

a) $4 < 12$

.....

b) $7 \text{ cm} > 5 \text{ cm}$

.....

c) $115 \text{ cm} > 1 \text{ m}$

.....

Activity :

Get the measurements needed for a tailor to make a dress for you, list them and use $>$, $<$ to compare them.

.....
.....
.....

0.2 Measuring Weight

- 1) Name some equipment you use to measure weight?
.....
- 2) Draw a diagram of any equipment marked along a straight line and mark the measurements on it?

0.3 Measuring temperature

- 1) What equipment do you use to measure temperature?
.....

Draw a diagram and mark the measurements on it.

Measurements marked on curved line

Name some equipments with measurements marked on curved line.

Draw and mark one of them.

- 1)
- 2)
- 3)

Number line

Activity (Use the space below the instructions)

Step I – Use a straight edge to draw a horizontal line

Step II – Near the left edge of that line mark a point and name that initial point as P.

Step III – At a small distance away from P, to the right, mark a point A..

Step IV – Mark P as '0' and A as '1'

Step V – In that straight line on the right side of A, mark a point B as to get equal distance of OA from A.

Step VI – Like wise mark C, D, E, F
Mark them as 2, 3, 4, 5

Thus, you will get a numbered line and this is called as number line.

Exercise

1. Say whether the statements are right or wrong.

Put a (✓) if right and (X) if wrong.

eg: 1) $12 > 15$ (X) 4) $(3-1) > (2-1)$ ()

2) $6 < 18$ () 5) $(6+8) < (5+7)$ ()

3) $0 > 1$ () 6) $0 < 3$ ()

2. Represent the following numbers on a number line.

a) 3

b) 8

c) 4

d) 6

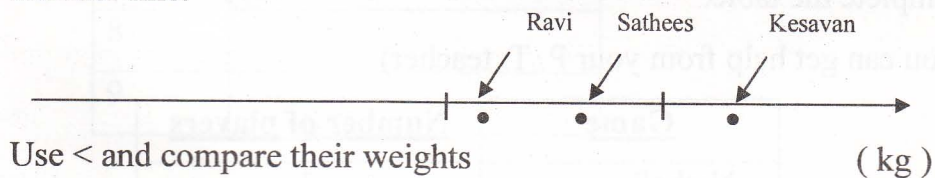
3) Fill the spaces within the brackets with three suitable whole numbers to satisfy the mathematical statements.

a) $\dots > 8$ (---, ---, ---) d) $5+1 > \dots$ (---, ---, ---)

b) $12 < \dots$ (---, ---, ---) e) $10-3 < \dots$ (---, ---, ---)

c) $0 < \dots$ (---, ---, ---) f) $8 > \dots$ (---, ---, ---)

4) The weights of Ravi, Sathees and Kesavan are marked in the given number line.



a. Draw number lines having numbers up to 12 and mark the following.

i. Odd numbers

ii. Even numbers

iii. Multiples of 5

iv. Factors of 12

UNIT 10

IDENTIFYING VARIOUS NUMBERS

Number of players in teams.

Activity :

Look at the table given below.

It is prepared to show the number of players participating in each team.

Some details are filled for you.

Complete the table.

(You can get help from your P. T. teacher)

<u>Game</u>	<u>Number of players</u>
Netball	7
Volleyball	---
Football	11
Basket ball	---
Elle	---
Cricket	---
Table tennis	1 or 2
Hockey	---
Relay	4
Kabady	---

Odd numbers and even numbers

Group Activity

Step I : Collect 45 tamarind seeds .

Separate them into groups having 1, 2, 3, 4, 5, 6, 7, 8, 9,

Seeds respectively.

Step II : Divide each group into pairs

Step III : Record them as dot patterns as shown below.

Eg;

1	•
2	⊙
3	⊙ •
4	
5	
6	
7	
8	
9	

Step IV :

- a) Write down five numbers into these circles which leave one remainder, when grouping them in to pairs



- b) Write down five numbers into these boxes, which do not leave any remainder when grouping into pairs.



Compare your numbers with the numbers written by your friend.

Now you could find that.

Numbers, which leave a remainder when grouping into pairs, are odd numbers.

Numbers that do not leave any remainder when grouping into pairs are even numbers.

Activity 2

Complete the table below

Number	When divided by two	
	Quotient	Remainder
1	0	1
2	1	0
3	1	1
4		
5		
6		
7		
8		
9		

- Write down five numbers greater than 20 that leave 1 as remainder, when divided by 2.

.....

- Write down five numbers greater than 20 that do not leave any remainder when divided by 2.

.....

Therefore,

Numbers like 1, 3, 5,, 15....., 25..... are odd numbers

Numbers like 2, 4, 6,, 12....., 20..... are even numbers

Now you have found that,

Odd numbers are numbers that leave 1 as remainder when divided by 2.

Even numbers are numbers that do not leave any remainder when divided by 2.

Discuss with your friend, whether activity 1 or activity 2 is the easiest way to find odd and even numbers.

Exercises

1) Write down the odd numbers between 10 and 25

.....

2) Write down the even numbers between 30 and 50.

.....

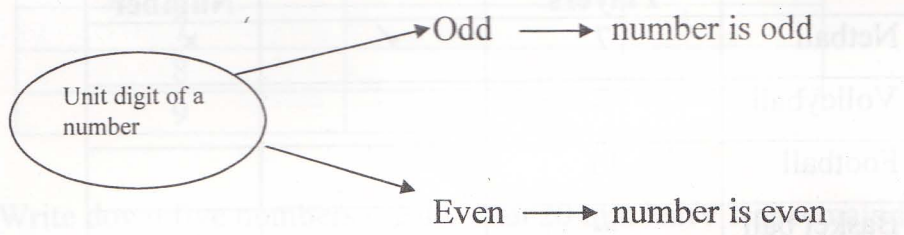
3) According to the details you obtained in a table before, complete the following table.

Game	Number of Players	Odd Number	Even Number
Netball	7	✓	✗
Volleyball	--		
Football	11		
Basket ball	--		
Elle	--		
Cricket	--		
Table tennis	1 or 2	✓	✓
Hockey	--		
Relay	4		
Kabady	--		

More odd numbers and even numbers.

Number	Digit in units place	Whether the unit digit is divisible by 2 (Divisible / not divisible)	Odd / Even number
26	6	Divisible	Even number
44			
45			

50			
53			
57			
58			
61			
65			
79			



Exercise

1) Tabulate the following numbers as odd numbers and even numbers.

1257, 756, 779, 916, 829, 1376, 1814, 39180, 8134, 247, 135

2) Using the numbers 0, 5, 6, 7, 8 write down four digit numbers for the following:

i) odd numbers _____, _____, _____, _____, _____, _____

ii) even numbers _____, _____, _____, _____, _____, _____

3) The last digit of the number 867□ is not given.

i) What is the smallest digit that could be filled so that the number to be an odd number?

ii) What is the largest digit that could be filled in order to make the number an even number ?.....

4) Complete the following cross number puzzle

A	B			C	
D			E		F
	G				
H			J		
		K			

From left to right

- A. The largest even number that could be formed using the digits 2, 3, 6.
- B. The 8th even number in the series 1, 2, 3, 4, 5, ...
- C. The number of players in one side of football team
- D. 14 X 14.
- G. If this number is divided by 5 the answer is 63.
- H. The number of player in the two teams playing in a net ball match.
- J. The largest even number which is a less than one thousand.
- K. The largest odd number in a calendar.

From top to bottom

- B. This number is formed using the digits 1, 2, 3, 4
- C. The sum of the digits of this number is 10.
- E. The odd number between 1589 and 1593
- F. The consecutive even number to this number is 700.

Prime number

6 can be expressed as product of two numbers in the following ways.

$$6 = 2 \times 3 \quad \text{So, } 2, 3 \text{ are factors of } 6$$

$$6 = 1 \times 6 \quad \text{So, } 1, 6 \text{ are also factors of } 6$$

So, the factors of 6 are 1, 2, 3, 6

There are 4 various factors for 6

Number	As product of two factors	Various factors (different from one another)	Number of factors
1	1 X 1	1	1
2	1 X 2	1, 2	2
3	1 X 3	.....	2
4	....., 2 X 2	.....	3
5	.....	1, 5	.....
6	..........	.....	.....
7	.....	.....	.....
8	1 X 8, .....	.....	.....
9		.....	.....
10	1 X 10, .....	.....	.....
11	.....	.....	.....

UNIT 11

DIFFERENT KINDS OF NUMBERS

1) Fill in the blanks.

Number	Factors	Number of factors
2	1, 2	2
3	1, 3	2
5	.....	.....
7	.....	.....
11	.....	.....
13	.....	.....
17	.....	.....
19	.....	.....
23	.....	.....
29	1, 29	.....

2) The numbers having only two factors are called

3) '1' is not a prime number. Is this statement correct?

4) The prime numbers between 30 and 40 are

5) Underline the prime numbers in the following numbers .
20 , 23 , 30 , 31 , 50 , 51 , 57 , 59 , 60.

6) How many prime numbers are there between 1 and 100 ?

Activity 02:

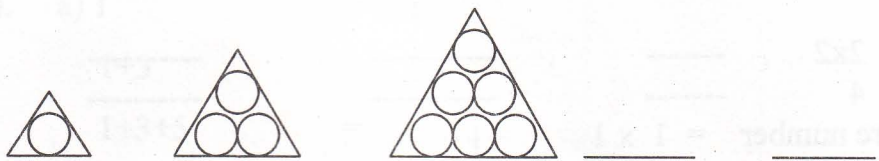
Fill in the blanks.

Number	Factors	Number of factors
4	1, 2 ,4	3
6		
8		
9		
10		
12		
14		
15		
16		

- 1) Numbers having more than two factors in the above table are
.....
- 2) Numbers having more than two factors are called
.....
- 3) Put a 'O' around the composite numbers, in the following numbers. 19, 20, 21, 23, 30, 25 , 26 , 50 , 53.
- 4) Write down the composite numbers between 30 and 50.
.....
- 5) Write down the composite numbers between 90 and 100.
.....
- 6) Write the composite numbers from 1 to 30.
.....
- 7) Write the composite numbers between 50 and 100.
.....

Activity 03

1) Complete the following pattern.



2) The first triangular number is

3) The second triangular number is

4) The 3rd triangular number is

5) The 4th triangular number is

6) Draw the pattern of the 6th triangular number.

7) The 6th triangular number is

$$1^{\text{st}} \text{ triangular number} = \frac{1 \times 2}{2} = \boxed{}$$

$$2^{\text{nd}} \text{ triangular number} = \frac{2 \times 3}{2} = \boxed{}$$

$$3^{\text{rd}} \text{ triangular number} = \frac{3 \times \boxed{}}{2} = \boxed{}$$

$$4^{\text{th}} \text{ triangular number} = \frac{\boxed{} \times \boxed{}}{2} = \boxed{}$$

$$5^{\text{th}} \text{ triangular number} = \frac{\boxed{} \times \boxed{}}{2} = \boxed{}$$

$$10^{\text{th}} \text{ triangular number} = \frac{\boxed{} \times \boxed{}}{\boxed{}} = \boxed{}$$

$$n^{\text{th}} \text{ triangular number} = \frac{n \times \boxed{}}{\boxed{}} = \boxed{}$$

Complete the following pattern.



1x1	2x2	-----	-----	-----
1	4	-----	-----	-----
1 st square number	= 1 x 1	= 1		

2nd square number = 2 x 2 = 4

3rd square number = x =

4th square number = x =

5th square number = x =

7th square number = x =

10th square number = x =

20th square number = x =

....th square number is 121.

....th square number is 256.

Ex:

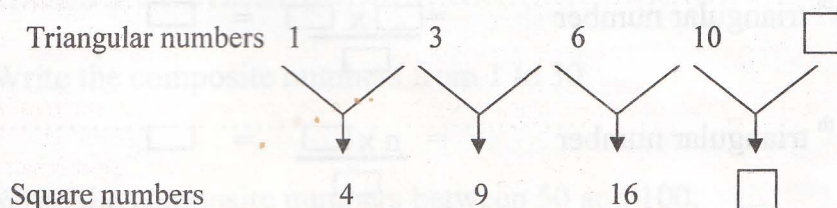
1. Number of factors of all the square numbers are odd is this statement correct?(Yes / No)

2. Put a around the square numbers in the following.

One example has been done for you.

9 10 11 16 25 26 36 49 100 125 225

3. a) Fill the blank cages.



b) Hence, when we add any two successive triangular numbers we will get a..... numbers.

4. a) 1 = 1

1+3 = 4

1+3+5 =

1+3+5+7 =

1+3+5+7+9 =

1+3+5+7+9+11 =

b) Hence, when we add any number of odd numbers starting from '1' we will get numbers.

c) The least number, which is both triangular and square number, is

d) The sum of first four odd numbers is the 4th Number

5. Write down the first twenty square numbers.

.....

.....

6. Can you make a rectangular pattern using any composite number?..... So, (all the, some of the) composite numbers are rectangular numbers.

Complete the following table.

eg

Natural numbers	Prime number	Composite number	Square number	Triangular number
1	X	X	√	√
2				
3				
4				
5				
6				
7				
8				

9				
10				
-				
-				
-				
-				
-				
-				
-				
-				
20				

Do the following crossword puzzle.

A	D		B
C			
			F
E			

Across

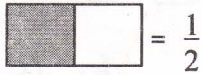
- A - 4^{th} square number.
 B - number which in both a prime number and an even number.
 C - the sum of first ten odd numbers.
 E - 5^{th} triangular number.

Down.

- A - a prime number between 10 and 20,
 D - a multiple of 10.
 F - addition of 5^{th} and 6^{th} triangular number

Unit 12

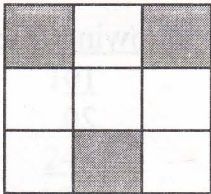
FRACTIONS



$\frac{1}{2}$ means one part from two equal parts

I.

1)



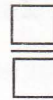
Shaded area

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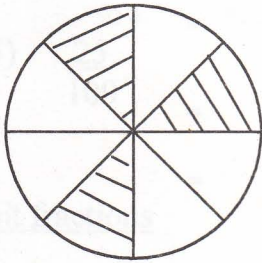


Unshaded area

=



2)



Shaded area

=

Unshaded area

=

II.

Write using figures.

eg: 1) two third = $\frac{2}{3}$

6) seven eighth = _____

2) one eighth = _____

7) eight tenth = _____

3) three fifth = _____

8) three fourth = _____

4) seven tenth = _____

9) one ninth = _____

5) five seventh = _____

10) five sixth = _____

III.

Write using words.

1) $\frac{3}{4}$ = three fourth

3) $\frac{2}{11}$ = _____

2) $\frac{5}{6}$ = _____

4) $\frac{3}{7}$ = _____

5) $\frac{7}{9}$ = _____

6) $\frac{3}{8}$ = _____

Equivalent fractions

$$\begin{aligned}\frac{1}{2} &= \frac{1 \times 2}{2 \times 2} = \frac{2}{4} \\ &= \frac{1 \times 3}{2 \times 3} = \frac{3}{6} \\ &= \frac{1 \times 7}{2 \times 7} = \frac{7}{14}\end{aligned}$$

Give any five equivalent fractions for each of the following fractions.

- 1) $\frac{2}{4} = \frac{1}{2} = \frac{4}{8} = \frac{6}{12} = \frac{8}{16} = \frac{10}{20}$
- 2) $\frac{1}{3} = \quad = \quad = \quad = \quad = \quad$
- 3) $\frac{2}{5} = \quad = \quad = \quad = \quad = \quad$
- 4) $\frac{2}{5} = \quad = \quad = \quad = \quad = \quad$
- 5) $\frac{4}{7} = \quad = \quad = \quad = \quad = \quad$
- 6) $\frac{1}{5} = \quad = \quad = \quad = \quad = \quad$
- 7) $\frac{2}{5} = \quad = \quad = \quad = \quad = \quad$
- 8) $\frac{4}{7} = \quad = \quad = \quad = \quad = \quad$
- 9) $\frac{8}{9} = \quad = \quad = \quad = \quad = \quad$
- 10) $\frac{4}{11} = \quad = \quad = \quad = \quad = \quad$
- 11) $\frac{1}{8} = \quad = \quad = \quad = \quad = \quad$

Simple fractions

$$\frac{5}{10} = \frac{5 \div 5}{10 \div 5}$$

$$= \frac{1}{2}$$

$$\frac{8}{12} = \frac{8 \div 4}{12 \div 4}$$

$$= \frac{2}{3}$$

Simplify the following as to get simple fractions.

V. 1) $\frac{5 \div \square}{25 \div \square} = \frac{1}{\square}$

2) $\frac{4}{10} = \frac{\square}{5}$

3) $\frac{6}{15} = \frac{\square}{5}$

4) $\frac{24}{100} = \frac{\square}{\square}$

5) $\frac{25}{100} = \frac{\square}{\square}$

6) $\frac{100}{125} = \frac{\square}{\square}$

7) $\frac{100}{625} = \frac{\square}{\square}$

8) $\frac{125}{1000} = \frac{\square}{\square}$

9) $\frac{30}{40} = \frac{\square}{\square}$

10) $\frac{40}{60} = \frac{\square}{\square}$

Unit fractions

A fraction is called as a unit fraction if its numerator is equal to \square

VI. Some unit fractions are $\frac{1}{2}, \frac{1}{3}, \frac{1}{4}, \frac{1}{5}, \frac{1}{6}, \frac{1}{\square}, \frac{1}{\square}, \frac{1}{\square}$

VII. Fractions with equal denominator

$\frac{1}{7}, \frac{2}{7}, \frac{3}{7}, \frac{\square}{7}, \frac{\square}{7}, \frac{\square}{7}$

Give three fractions with equal denominator

1) $\frac{5}{9}, \frac{\square}{9}, \frac{\square}{9}, \frac{\square}{9}$

2) $\frac{2}{8}, \frac{\square}{8}, \frac{\square}{8}, \frac{\square}{8}$

3) $\frac{3}{11}, \frac{\square}{11}, \frac{\square}{11}, \frac{\square}{11}$

4) $\frac{3}{10}, \frac{\square}{10}, \frac{\square}{10}, \frac{\square}{10}$

5) $\frac{7}{20}, \frac{\square}{20}, \frac{\square}{20}, \frac{\square}{20}$

VIII. Compare the following unit fractions

$$\frac{1}{2}, \frac{1}{3}, \frac{1}{4}, \frac{1}{6}, \frac{1}{7}$$

Largest fraction = $\frac{1}{2}$

Smallest fraction = $\frac{\square}{\square}$

Ascending order = _____, _____, _____, _____, _____

Descending order = _____, _____, _____, _____, _____

Compare the following fractions with same denominator

$$\frac{2}{7}, \frac{3}{7}, \frac{1}{7}, \frac{6}{7}$$

Largest fraction = $\frac{\square}{\square}$

Smallest fractions = $\frac{\square}{\square}$

Ascending order = _____, _____, _____

Descending order = _____, _____, _____

To Compare these ordinary fractions

$$\frac{1}{2}, \frac{2}{3}, \frac{3}{4}, \frac{5}{6}$$

write them with common denominator

$$\frac{6}{12}, \frac{\square}{12}, \frac{\square}{12}, \frac{\square}{12}$$

Largest fraction = $\frac{5}{6}$

Smallest fraction = $\frac{\square}{\square}$

Ascending order -----

Descending order -----

1. Use the symbols $<$, $>$ or $=$ to compare the following fractions

1. $\frac{1}{4} > \frac{1}{10}$

6. $\frac{7}{9} > \frac{5}{9}$

2. $\frac{5}{7} > \frac{2}{7}$

7. $\frac{7}{10} > \frac{9}{10}$

3. $\frac{1}{3} > \frac{1}{6}$

8. $\frac{10}{11} > \frac{5}{11}$

4. $\frac{1}{100} > \frac{1}{10}$

9. $\frac{1}{11} > \frac{5}{11}$

5. $\frac{3}{4} > \frac{2}{4}$

10. $\frac{5}{12} > \frac{2}{12}$

2. $\frac{1}{3}, \frac{3}{5}, \frac{5}{6}, \frac{1}{4}$

$= \frac{\square}{60}, \frac{\square}{60}, \frac{\square}{60}, \frac{\square}{60}$

L.C.M = 60

Largest fraction =

Smallest fraction =

Ascending order =

Descending order =

3. $\frac{1}{8}, \frac{5}{12}, \frac{1}{4}, \frac{5}{6}$

$= \frac{3}{\square}, \underline{\hspace{1cm}}, \underline{\hspace{1cm}}, \underline{\hspace{1cm}} \quad \text{L.C.M} = \underline{\hspace{1cm}}$

Largest fraction $\underline{\hspace{1cm}}, \underline{\hspace{1cm}}, \underline{\hspace{1cm}}, \underline{\hspace{1cm}}$

Smallest fraction $\underline{\hspace{1cm}}, \underline{\hspace{1cm}}, \underline{\hspace{1cm}}, \underline{\hspace{1cm}}$

Ascending order $\underline{\hspace{1cm}}, \underline{\hspace{1cm}}, \underline{\hspace{1cm}}, \underline{\hspace{1cm}}$

Descending order $\underline{\hspace{1cm}}, \underline{\hspace{1cm}}, \underline{\hspace{1cm}}, \underline{\hspace{1cm}}$

4. $\frac{3}{15}, \frac{7}{10}, \frac{1}{2}, \frac{2}{5}$

$= \underline{\hspace{1cm}}, \underline{\hspace{1cm}}, \underline{\hspace{1cm}}, \underline{\hspace{1cm}}$

Ascending order $\underline{\hspace{1cm}} \underline{\hspace{1cm}} \underline{\hspace{1cm}} \underline{\hspace{1cm}}$

Descending order $\underline{\hspace{1cm}} \underline{\hspace{1cm}} \underline{\hspace{1cm}} \underline{\hspace{1cm}}$

5. $\frac{1}{12}, \frac{1}{20}, \frac{1}{7}, \frac{1}{6}$

Ascending order _____

Descending order _____

6. $\frac{7}{10}, \frac{7}{12}, \frac{7}{15}, \frac{7}{20}$

Largest fraction _____

Smallest fraction _____

Ascending order _____

Descending order _____

In proper fraction

numerator < Denominator.

In improper fraction

numerator \geq Denominator.

Improper fractions can be converted into mixed fractions

Convert the following mixed fractions into improper fractions.

1) $1\frac{1}{2} = \frac{3}{2}$

6) $7\frac{1}{2} = \frac{\quad}{2}$

2) $3\frac{3}{4} = \frac{15}{\square}$

7) $10\frac{2}{3} = \frac{\quad}{3}$

3) $5\frac{1}{3} = \frac{\quad}{3}$

8) $20\frac{1}{5} = \frac{\quad}{5}$

4) $12\frac{1}{2} = \frac{\quad}{2}$

9) $3\frac{1}{3} = \frac{\quad}{3}$

5) $6\frac{1}{4} = \frac{\quad}{4}$

10) $9\frac{1}{11} = \frac{\quad}{11}$

Convert into mixed fractions

1) $\frac{10}{3} = 3\frac{1}{3}$

2) $\frac{25}{8} =$

3) $\frac{100}{11} =$

4) $\frac{29}{7} =$

5) $\frac{58}{5} =$

6) $\frac{110}{9} =$

7) $\frac{181}{4} =$

8) $\frac{295}{7} =$

9) $\frac{100}{11} =$

10) $\frac{201}{10} =$

Addition, Subtraction

10 1) $\frac{3}{10} + \frac{4}{15} = \frac{\boxed{}}{15}$ 15

2) $\frac{1}{20} + \frac{3}{20} = \frac{\boxed{}}{20} = \frac{\boxed{}}{10}$

3) $\frac{1}{5} + \frac{3}{5} = \frac{\boxed{}}{5}$

4) $\frac{1}{6} + \frac{5}{6} =$

5) $\frac{7}{12} + \frac{2}{12} =$

6) $\frac{5}{11} + \frac{2}{11} =$

7) $\frac{3}{7} + \frac{2}{7} =$

8) $\frac{6}{10} + \frac{3}{10} =$

9) $\frac{7}{10} - \frac{2}{10} = \frac{\boxed{}}{10}$ 10

10) $\frac{11}{12} - \frac{7}{12} = \frac{\boxed{}}{12}$

11) $\frac{8}{11} - \frac{5}{11} =$

12) $\frac{8}{17} - \frac{7}{17} =$

13) $\frac{12}{25} - \frac{7}{25} =$

14) $\frac{9}{20} - \frac{6}{20} =$

15) $\frac{15}{100} - \frac{6}{100} =$

16) $\frac{74}{95} - \frac{70}{95} =$

Add.

1) $1 + \frac{1}{2} = 1\frac{1}{2}$

2) $1 + \frac{2}{3} =$

3) $1 + \frac{3}{5} =$

4) $1 + \frac{2}{7} =$

5) $5 + \frac{3}{10} =$

6) $3 + \frac{2}{3} =$

7) $9 + 1\frac{1}{2} =$

8) $5 + 3\frac{1}{4} =$

9) $2 + 1\frac{2}{11} =$

10) $7 + 1\frac{5}{6} =$

Subtract

eg: 1) $1 - \frac{1}{3} = \frac{2}{3}$

2) $1 - \frac{1}{4} =$

3) $1 - \frac{2}{5} =$

4) $1 - \frac{3}{5} =$

5) $1 - \frac{4}{5} =$

6) $1 - \frac{1}{6} =$

7) $1 - \frac{5}{6} =$

8) $1 - \frac{1}{7} =$

9) $1 - \frac{2}{7} =$

10) $1 - \frac{3}{7} =$

eg:

11) $2 - \frac{5}{7} = 1\frac{1}{7}$

12) $2 - \frac{6}{7} =$

13) $2 - \frac{1}{8} =$

14) $3 - \frac{3}{8} =$

15) $4 - \frac{5}{8} =$

16) $5 - \frac{7}{8} =$

17) $10 - \frac{2}{9} =$

18) $10 - \frac{2}{9} =$

19) $9 - \frac{5}{9} =$

20) $3 - \frac{7}{9} =$

Subtract

1) $3 - 1\frac{3}{10} = 2 - \frac{3}{10} = 1\frac{7}{10}$

2) $6 - 2\frac{2}{5} = \square - \frac{2}{5} =$

3) $8 - 3\frac{5}{6} = \square - \frac{5}{6} =$

$$4) 7 - 5 = \underline{\hspace{2cm}} = \underline{\hspace{2cm}}$$

$$5) 12 - 3 \frac{7}{10} = \underline{\hspace{2cm}} = \underline{\hspace{2cm}}$$

$$6) 3 - 2 \frac{5}{7} = \underline{\hspace{2cm}} = \underline{\hspace{2cm}}$$

$$7) 8 - 4 \frac{7}{8} = \underline{\hspace{2cm}} = \underline{\hspace{2cm}}$$

$$8) 10 - 3 \frac{1}{6} = \underline{\hspace{2cm}} = \underline{\hspace{2cm}}$$

$$9) 7 - 6 \frac{2}{3} = \underline{\hspace{2cm}} = \underline{\hspace{2cm}}$$

$$10) 2 - 1 \frac{1}{2} = \underline{\hspace{2cm}} = \underline{\hspace{2cm}}$$

$$11) 2 \frac{1}{3} - 1 = \underline{\hspace{2cm}} = \underline{\hspace{2cm}}$$

$$12) 12 \frac{1}{5} - 2 = \underline{\hspace{2cm}} = \underline{\hspace{2cm}}$$

$$13) 10 \frac{3}{4} - 2 \frac{3}{4} = \underline{\hspace{2cm}} = \underline{\hspace{2cm}}$$

$$14) 2 \frac{5}{6} - 2 \frac{5}{6} = \underline{\hspace{2cm}} = \underline{\hspace{2cm}}$$

13. Write the fractions with same denominator and then add them

$$\begin{aligned} 1. \quad & \frac{1}{2} + \frac{1}{3} \\ & = \frac{3}{6} + \frac{2}{6} \\ & = \frac{5}{6} \end{aligned}$$

$$\begin{aligned} 2. \quad & \frac{3}{4} + \frac{5}{12} \\ & = \text{----} + \text{----} \\ & = \text{----} \end{aligned}$$

$$\begin{aligned} 3. \quad & \frac{1}{3} + \frac{1}{4} \\ & = \text{----} + \text{----} \\ & = \text{----} \end{aligned}$$

$$\begin{aligned} 4. \quad & \frac{1}{4} + \frac{1}{8} \\ & = \text{----} + \text{----} \\ & = \text{----} \end{aligned}$$

$$\begin{aligned} 5. \quad & \frac{1}{6} + \frac{1}{2} \\ & = \text{----} + \text{----} \\ & = \text{----} \end{aligned}$$

$$\begin{aligned} 6. \quad & \frac{5}{12} + \frac{1}{3} \\ & = \text{----} + \text{----} \\ & = \text{----} \end{aligned}$$

$$7. \frac{2}{3} + \frac{2}{5}$$

$$= \frac{\quad}{\quad} + \frac{\quad}{\quad}$$

$$= \frac{\quad}{\quad}$$

$$8. \frac{5}{8} + \frac{3}{16}$$

$$= \frac{\quad}{\quad} + \frac{\quad}{\quad}$$

$$= \frac{\quad}{\quad}$$

$$9. \frac{5}{8} + \frac{4}{6}$$

$$= \frac{\quad}{\quad} + \frac{\quad}{\quad}$$

$$= \frac{\quad}{\quad}$$

$$10. \frac{5}{9} + \frac{4}{27}$$

$$= \frac{\quad}{\quad} + \frac{\quad}{\quad}$$

$$= \frac{\quad}{\quad}$$

$$11. \frac{3}{10} + \frac{2}{5}$$

$$= \frac{\quad}{\quad} + \frac{\quad}{\quad}$$

$$= \frac{\quad}{\quad}$$

$$12. \frac{4}{11} + \frac{5}{22}$$

$$= \frac{\quad}{\quad} + \frac{\quad}{\quad}$$

$$= \frac{\quad}{\quad}$$

$$13. \frac{5}{7} + \frac{3}{14}$$

$$= \frac{\quad}{\quad} + \frac{\quad}{\quad}$$

$$= \frac{\quad}{\quad}$$

$$14. \frac{5}{16} + \frac{1}{9}$$

$$= \frac{\quad}{\quad} + \frac{\quad}{\quad}$$

$$= \frac{\quad}{\quad}$$

Write the fractions with same denominator and then subtract.

$$1) \frac{1}{2} - \frac{1}{3}$$

$$= \frac{3}{6} - \frac{2}{6}$$

$$= \frac{1}{6}$$

$$2) \frac{7}{8} - \frac{5}{24}$$

$$= \frac{\quad}{\quad} - \frac{\quad}{\quad}$$

$$= \frac{\quad}{\quad}$$

$$3) \frac{1}{3} - \frac{1}{4}$$

$$= \frac{\quad}{\quad} - \frac{\quad}{\quad}$$

$$= \frac{\quad}{\quad}$$

$$4) \frac{8}{15} - \frac{5}{30}$$

$$= \frac{\quad}{\quad} - \frac{\quad}{\quad}$$

$$= \frac{\quad}{\quad}$$

$$\begin{array}{r}
 5) \quad \frac{1}{2} - \frac{1}{6} \\
 = \quad _ \quad _ \quad _ \\
 = \quad _
 \end{array}$$

$$\begin{array}{r}
 6) \quad \frac{5}{7} - \frac{3}{14} \\
 = \quad _ \quad _ \quad _ \\
 = \quad _
 \end{array}$$

$$\begin{array}{r}
 7) \quad \frac{17}{12} - \frac{2}{3} \\
 = \quad _ \quad _ \quad _ \\
 = \quad _
 \end{array}$$

$$\begin{array}{r}
 8) \quad \frac{9}{13} - \frac{5}{26} \\
 = \quad _ \quad _ \quad _ \\
 = \quad _
 \end{array}$$

$$\begin{array}{r}
 9) \quad \frac{13}{20} - \frac{5}{10} \\
 = \quad _ \quad _ \quad _ \\
 = \quad _
 \end{array}$$

$$\begin{array}{r}
 10) \quad \frac{7}{8} - \frac{5}{12} \\
 = \quad _ \quad _ \quad _ \\
 = \quad _
 \end{array}$$

Subtract

$$\begin{array}{r}
 \text{Eg: } 1 \frac{1}{2} - \frac{2}{3} \\
 = \frac{3}{2} - \frac{2}{3} \\
 = \frac{9}{6} - \frac{4}{6} = \frac{5}{6}
 \end{array}$$

$$\begin{array}{r}
 1) \quad 1 \frac{3}{4} - \frac{7}{8} \\
 = \quad _ \quad _ \quad _ \\
 = \quad _
 \end{array}$$

$$\begin{array}{r}
 3) \quad 12 \frac{5}{6} - \frac{2}{5} \\
 = \quad _ \quad _ \quad _ \\
 = \quad _
 \end{array}$$

$$\begin{array}{r}
 2) \quad 7 \frac{2}{5} - \frac{2}{5} \\
 = \quad _ \quad _ \quad _ \\
 = \quad _
 \end{array}$$

$$\begin{array}{r}
 4) \quad 2 \frac{1}{2} - \frac{3}{4} \\
 = \quad _ \quad _ \quad _ \\
 = \quad _
 \end{array}$$

UNIT 13 DECIMALS

1) Convert the fractions into decimals.

eg: i. $\frac{1}{10} = 0.1$

ii. $\frac{3}{10} = \boxed{}$

iii. $\frac{5}{10} = \boxed{}$

iv. $\frac{6}{10} = \boxed{}$

v. $\frac{8}{10} = \boxed{}$

eg: vi. $3\frac{5}{10} = 3.5$

vii. $2\frac{9}{10} = \boxed{}$

viii. $5\frac{7}{10} = \boxed{}$

ix. $3\frac{3}{10} = \boxed{}$

x. $4\frac{1}{10} = \boxed{}$

2) Convert the fractions into decimals

eg: i. $\frac{1}{100} = 0.01$

ii. $\frac{3}{100} = \boxed{}$

iii. $\frac{5}{100} = \boxed{}$

iv. $\frac{22}{100} = \boxed{}$

v. $\frac{45}{100} = \boxed{}$

eg: vi. $12\frac{25}{100} = 12.25$

vii. $25\frac{7}{100} = \boxed{}$

viii. $10\frac{65}{100} = \boxed{}$

ix. $21\frac{75}{100} = \boxed{}$

x. $19\frac{17}{100} = \boxed{}$

3) Convert the fractions into decimals

eg: i. $\frac{2}{1000} = 0.002$

ii. $\frac{3}{100} = \boxed{}$

iii. $\frac{27}{1000} = \boxed{}$

iv. $\frac{60}{1000} = \boxed{}$

v. $\frac{175}{1000} = \boxed{}$

eg: vi. $12\frac{167}{1000} = 12.167$

vii. $1\frac{1}{1000} = \boxed{}$

viii. $13\frac{15}{1000} = \boxed{}$

ix. $7\frac{29}{1000} = \boxed{}$

x. $3\frac{170}{1000} = \boxed{}$

4) Convert into fraction

i) $0.5 =$

ix) $1.006 = 1 \frac{6}{1000}$

ii) $0.6 =$

x) $0.017 =$

iii) $0.7 =$

xi) $0.068 =$

iv) $0.9 =$

xii) $1.175 =$

v) $0.2 =$

xiii) $3.605 =$

vi) $0.25 =$

xiv) $8.375 =$

vii) $0.035 =$

xv) $1.35 =$

viii) $0.001 =$

xvi) $2.732 =$

5) Write using digits

- | | | |
|--------------------------------------|---|----------------------|
| 1) Zero point five | = | <input type="text"/> |
| 2) Zero point seven | = | <input type="text"/> |
| 3) Zero point one three | = | <input type="text"/> |
| 4) Sixteen point five | = | <input type="text"/> |
| 5) Twenty point one | = | <input type="text"/> |
| 6) Zero point zero one | = | <input type="text"/> |
| 7) One point two five | = | <input type="text"/> |
| 8) Hundred point five | = | <input type="text"/> |
| 9) Five point five five | = | <input type="text"/> |
| 10) Five point zero zero five | = | <input type="text"/> |
| 11) Thousand point zero zero one | = | <input type="text"/> |
| 12) Zero point Zero seven two | = | <input type="text"/> |
| 13) Twenty five point nine zero five | = | <input type="text"/> |
| 14) Hundred point one one one | = | <input type="text"/> |
| 15) Seven point one two three | = | <input type="text"/> |
| 16) Eleven point three two | = | <input type="text"/> |

6) Write in the reading manner.

- | | |
|------------|------------------------|
| 1. 0.78 | Zero point seven eight |
| 2. 0.05 | ..... |
| 3. 0.01 | ..... |
| 4. 1.1 | ..... |
| 5. 1.02 | ..... |
| 6. 3.005 | ..... |
| 7. 8.2 | ..... |
| 8. 125.005 | ..... |
| 9. 10.09 | ..... |
| 10. 0.001 | ..... |

7) In the decimal number 12.9758,

- | | |
|-------|--|
| i. | the place value of 9 is $\frac{1}{10}$ |
| ii. | the place value of 7 is ____ |
| iii. | the place value of 5 is ____ |
| iv. | the place value of 8 is ____ |
| v. | the place value of 2 is ____ |
| vi. | value of 9 is $\frac{9}{10}$ |
| vii. | value of 7 is ____ |
| viii. | value of 5 is ____ |
| ix. | value of 8 is ____ |
| x. | value of 2 is ____ |
| xi. | value of 1 is ____ |

8) A. Write the following decimals to show hundredths also

- | | |
|-------------------------|-------------------------|
| 1. $0.3 = 0.30$ | 2. $0.5 = \text{-----}$ |
| 3. $0.7 = \text{-----}$ | 4. $0.2 = \text{-----}$ |
| 5. $0.9 = \text{-----}$ | 6. $0.4 = \text{-----}$ |

B. Write the following to show thousandths also

1. $0.6 = 0.600$

1. $0.08 = 0.080$

2. $0.3 = \text{-----}$

2. $0.28 = \text{-----}$

3. $0.5 = \text{-----}$

3. $0.45 = \text{-----}$

4. $0.7 = \text{-----}$

4. $0.07 = \text{-----}$

5. $0.9 = \text{-----}$

5. $0.23 = \text{-----}$

6. $0.4 = \text{-----}$

6. $0.75 = \text{-----}$

7. $0.8 = \text{-----}$

7. $0.99 = \text{-----}$

C. Circle the number which is not equal

1.	0.5	0.50	0.500	0.05
2.	0.6	0.06	0.600	0.6000
3.	0.78	0.7800	0.780	0.078
4.	0.032	0.0320	0.0032	0.03200
5.	0.800	0.080	0.8	0.80
6.	0.95	0.950	0.9500	0.0095

9) $0.1, 0.01, 0.001$

$= \frac{100}{1000}, \frac{10}{1000}, \frac{1}{1000}$

Largest decimal number = 0.1

Smallest decimal number = 0.001

Ascending order = 0.001, 0.01, 0.1

Descending order = 0.1, 0.01, 0.001

1) 0.5, 0.005, 0.05

$$= \frac{\boxed{}}{1000} \quad \frac{\boxed{}}{1000} \quad \frac{\boxed{}}{1000}$$

1) Largest decimal number = _____

2) Smallest decimal number = _____

3) Ascending order = _____

4) Descending order = _____

2) 0.23, 0.2, 0.023

$$= \frac{\boxed{}}{1000} \quad \frac{\boxed{}}{1000} \quad \frac{\boxed{}}{1000}$$

1) Largest decimal number = _____

2) Smallest decimal number = _____

3) Ascending order = _____

4) Descending order = _____

3) 2.5, 0.25, 0.025

$$= \frac{\boxed{}}{1000} \quad \frac{\boxed{}}{1000} \quad \frac{\boxed{}}{1000}$$

1) Largest decimal number = _____

2) Smallest decimal number = _____

3) Ascending order = _____

4) Descending order = _____

4) 0.35, 0.3, 0.035

1) Write in ascending order = _____

2) Write in descending order = _____

5) Complete each mathematical statements by using $>$, $<$ or $=$

- 1) 0.5 _____ 0.52
- 2) 0.7 _____ 0.70
- 3) 0.35 _____ 0.350
- 4) 0.3 _____ 0.03
- 5) 2.35 _____ 6.35
- 6) 8.67 _____ 8.76
- 7) 0.23 _____ 0.023
- 8) 8.9 _____ 8.90
- 9) 7.12 _____ 0.712
- 10) 10.3 _____ 1.03

10) Add the following

- 1)
$$\begin{array}{r} 0.5 + \\ 0.3 \\ \hline \end{array}$$
- 2)
$$\begin{array}{r} 0.6 + \\ 0.3 \\ \hline \end{array}$$
- 3)
$$\begin{array}{r} 0.7 + \\ 0.2 \\ \hline \end{array}$$
- 4)
$$\begin{array}{r} 1.62 + \\ 2.35 \\ \hline \end{array}$$
- 5)
$$\begin{array}{r} 7.68 + \\ 1.79 \\ \hline \end{array}$$
- 6)
$$\begin{array}{r} 10.53 + \\ 3.77 \\ \hline \end{array}$$
- 7)
$$\begin{array}{r} 1.005 + \\ 5.785 \\ \hline \end{array}$$
- 8)
$$\begin{array}{r} 9.783 + \\ 3.009 \\ \hline \end{array}$$
- 9)
$$\begin{array}{r} 7.006 + \\ 3.004 \\ \hline \end{array}$$
- 10)
$$\begin{array}{r} 0.1 + \\ 0.01 \\ 0.001 \\ \hline \end{array}$$
- 11)
$$\begin{array}{r} 0.2 + \\ 0.02 \\ 0.002 \\ \hline \end{array}$$
- 12)
$$\begin{array}{r} 0.03 + \\ 0.3 \\ 0.003 \\ \hline \end{array}$$

11) Subtract the following

eg: 1) $1.1 - 1.01$

$$\begin{array}{r} 1.10 - \\ 1.01 \\ \hline \hline \end{array}$$

eg: 2) $0.2 - 0.12$

$$\begin{array}{r} 0.20 - \\ 0.12 \\ \hline \hline \end{array}$$

$$\begin{array}{r} 3) \quad 0.5 - \\ 0.08 \\ \hline \hline \end{array}$$

$$\begin{array}{r} 4) \quad 0.82 - \\ 0.48 \\ \hline \hline \end{array}$$

$$\begin{array}{r} 5) \quad 1.605 - \\ 0.721 \\ \hline \hline \end{array}$$

$$\begin{array}{r} 6) \quad 0.1 - \\ 0.01 \\ \hline \hline \end{array}$$

$$\begin{array}{r} 7) \quad 0.9 - \\ 0.09 \\ \hline \hline \end{array}$$

$$\begin{array}{r} 8) \quad 1 - \\ 0.9 \\ \hline \hline \end{array}$$

$$\begin{array}{r} 9) \quad 2.0 - \\ 1.8 \\ \hline \hline \end{array}$$

$$\begin{array}{r} 10) \quad 3.005 - \\ 2 \\ \hline \hline \end{array}$$

$$\begin{array}{r} 11) \quad 7.083 - \\ 3 \\ \hline \hline \end{array}$$

$$\begin{array}{r} 12) \quad 8.759 - \\ 2.009 \\ \hline \hline \end{array}$$

$$\begin{array}{r} 13) \quad 2.222 - \\ 1.111 \\ \hline \hline \end{array}$$

$$\begin{array}{r} 14) \quad 1 - \\ 0.9 \\ \hline \hline \end{array}$$

Unit 14

RATIOS THROUGH FOOD ITEMS

Ratio between two quantities is the numerical relationship between two quantities expressed in same measuring unit.

1) Write the ratios as you read.

eg: 1 : 2 = One is to four.

i) 2 : 3 =

ii) 10 : 7 =

iii) 5 : 4 =

iv) 6 : 11 =

v) 17 : 7 =

vi) 5 : 8 =

2) Write the following ratios in the simplest form.

eg:

i) 12 : 8 = $\frac{12}{8}$: $\frac{6}{4}$ =

ii) 25 : 50 = : =

iii) 10 : 20 = : =

iv) 5 : 15 = : =

v) 20 : 40 = : =

vi) 7 : 14 = : =

vii) 14 : 28 = : =

viii) 28 : 35 = : =

ix) 100 : 125 = : =

x) 8 : 10 = : =

3) Write the ratios in the form of a fraction

eg:

$$i) 1 : 2 = \frac{1}{2}$$

$$vi) 15 : 20 =$$

$$ii) 3 : 2 =$$

$$vii) 25 : 50 =$$

$$iii) 4 : 5 =$$

$$viii) 60 : 15 =$$

$$iv) 8 : 3 =$$

$$ix) 2 : 5 =$$

$$v) 25 : 100 =$$

$$x) 3 : 4 =$$

4) Write in Simplest form.

eg:

$$i) 1 \text{ kg} : 50 \text{ cm} = \text{----- cm} : \text{----- cm} = \text{-----} : \text{-----}$$

$$ii) 1 \text{ m} : 50 \text{ cm} = \text{----- cm} : \text{----- cm} = \text{-----} : \text{-----}$$

$$iii) 500 \text{ cm} : 2 \text{ m} = \text{----- cm} : \text{----- cm} = \text{-----} : \text{-----}$$

$$iv) 600 \text{ g} : 100 \text{ g} = \text{----- cm} : \text{----- cm} = \text{-----} : \text{-----}$$

$$v) 2 \text{ kg} : 250 \text{ kg} = \text{----- cm} : \text{----- cm} = \text{-----} : \text{-----}$$

$$vi) 2 \text{ kg} : 1500 \text{ g} = \text{----- cm} : \text{----- cm} = \text{-----} : \text{-----}$$

$$vii) 1 \text{ l} : 100 \text{ ml} = \text{----- cm} : \text{----- cm} = \text{-----} : \text{-----}$$

$$viii) 1 \text{ l} : 1000 \text{ ml} = \text{----- cm} : \text{----- cm} = \text{-----} : \text{-----}$$

$$ix) 400 \text{ g} : 1 \text{ kg} = \text{----- cm} : \text{----- cm} = \text{-----} : \text{-----}$$

$$x) 5 \text{ m} : 400 \text{ cm} = \text{----- cm} : \text{----- cm} = \text{-----} : \text{-----}$$

$$5) i) \text{ Weight of a} = 48 \text{ kg}$$

$$\text{Weight of b} = 36 \text{ kg}$$

$$\text{Weight of A : Weight of B} =$$

$$=$$

ii) The ratio between boys and girls in a class is 5 : 3

Number of boys in that class is 15

What is the number on roll of that class ?

iii) We have to share some money between A and B such that

$$A : B = 3 : 2$$

If A gets Rs 200, then total amount shared is _____

iv) The price of a mango is Rs. 5

Find the price of 10 mangoes?

v) Price of a book is Rs 50

Find the price of 10 books ?

vi) Price of 10 l Coconut oil = Rs. 550

Price of 1 l Coconut oil = _____

vii) Price for 100 Coconut = Rs 1550

Price for 1 Coconut = _____

viii) Price of 15 Pencils = Rs 45

Price of 8 Pencils = _____

Unit 15

MEASURING LIQUIDS

Group Activity 1:

Instruct the students to bring some bottles of different volumes with labels.

Complete the table.

Name of the content	Volume (ml /l)
Jam bottle	

Use the table to answer the following

1. Name some liquids which are measured in ml.
.....
2. Name some liquids which are measured in l.
.....
3. 1l =..... ml.
4. How many times should we use a 100 ml cup to fill a 1l bottle?
.....
5. If we use a 250 ml cup to fill a 2 l can, we have to use that cup
..... times.

Activity 2:

- 1) a) 4.5l =ml
- b) 400 ml = l
- c) 7l 250 ml = l
- d) 8l 125 ml =ml

2) You have only 10l and 3l cans

How do you measure 7l milk by using those 2 cans with least attempt?

3) You are given 5l and 2l cans,

How do you pour 8l water into a tank with minimum attempt?

Group activity

Complete the table below.

ml	l	l, ml
750	.....	.....
7410	.....	.....
.....	6.5	.....
.....	10.125	.....
4425	.....	4 , 425

Group activity

You are given 100 ml, 250ml, 500 ml containers.

Try to measure the following capacities with least attempts.

1. 1200 ml
2. 850 ml
3. 2750 ml
- 4) 700 ml
- 5) 900 ml
- 6) 1150 ml

explain the methods you have used to measure each volumes?

Eg. 1) To measure 1200 ml we have to use 2 times the 500 ml container and 2 times the 100ml container

2) _____

3) _____

4) _____

5) _____

6) _____

Activity 4:

A doctor gave a syrup to a patient. The dose is suggested thrice a day. He has to take 2 teaspoons of syrup in a dose. The bottle of syrup contains 300 ml.

1. ml syrup would be taken as a dose.
2.ml syrup would be taken on a day.
3. To finish the syrup in the bottle, how many does he has to take that medicine?

1 teaspoon = 5 ml

UNIT 16

SPACE

Width of this figure is 1 cm. Length of figure 1 is 1 cm.



1 cm

1 cm

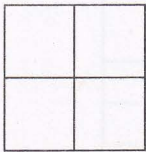
Figure 1

Area = length x width

$$= 1 \text{ cm} \times 1 \text{ cm}$$

$$= 1 \text{ cm}^2$$

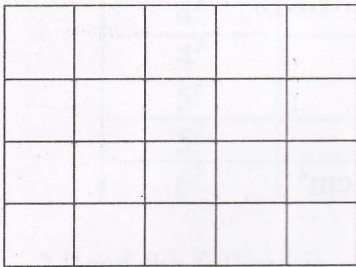
$$= \boxed{} \text{ square centimetre}$$



Number of small squares in figure 2 = $2 \times 2 = 4$

Area of this figure 2 = 4 times $\boxed{}$ square centimetres.

Figure 2



Number of small

squares in figure 3 = $\boxed{} \times \boxed{}$

Area of figure 3 = $\boxed{}$ times 1 cm^2

$$= \boxed{} \text{ cm}^2$$

$$= \boxed{} \text{ square centimetres}$$

Figure 3

From the above exercise we found out that area of a rectangle is

Length X Width.

Activity 1:

Step 1: Group the students.

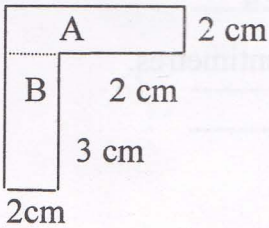
Step 2: Give them some rectangles, squares and some objects which have square shaped faces or rectangular shaped faces.

Eg. maths book , soap.

Step 3: Guide them to find the area of the surfaces using centimetre grid.

Things/ surfaces	Number of cm squares	Area

Activity 2:

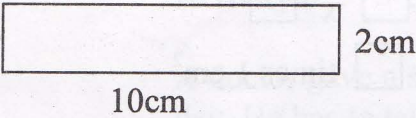


Find the area of this figure?

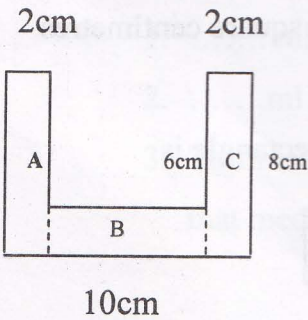
Area of A =

Area of B =

Total area =



Area is cm²



Area of A = cm²

Area of B = cm²

Area of C = cm²

Total area = cm²

Unit 17

INDICES THROUGH FAMILY TREES

$$16 = 2 \times 2 \times 2 \times 2$$

$$16 = 2^4 \leftarrow \text{Power / index}$$

↑
base

$$16 = 4 \times 4$$

$$= 4^2 \leftarrow \text{power / index}$$

↑
base

1. Numbers are given in the power form in the following table. Write down the base, index and find out the numbers by expanding them.

Power form	Base	Index	Expanded form	Number
2^2	2	2	2×2	4
2^5				
3^2				
3^4				
4^2				
4^3				
5^3				
5^5				
6^3				

2. Read the following numbers in power form and complete the table.

eg:

Power form	Method of reading
2^5	Two to the power five
3^6	
4^3	
5^2	
7^4	
3^{10}	

$$5^{\text{th}} \text{ square number} = 5 \times 5$$

$$= 5^2$$

$$= 25$$

So, 5th square number is 5^2

3. Write the numbers into perfect square and write also from which number we derives that perfect square.

Number	Perfect Square	The Number from which we drive that perfect square
9	3^2	3
16		
36		
49		
64		
81		
100		
121		
144		
169		

Product and power

4 times 3 = $4 \times 3 = 12$

3 times 4 = $3 \times 4 = 12$

but, 3 to the power 4 = $3^4 = 3 \times 3 \times 3 \times 3 = 81$

4. Match A with B

<u>A</u>	<u>B</u>
a) 5 times 2	32
b) 3 times 6	15^3
c) 6 to the power 3	25
d) 5 times 5	15×3
e) 5 to the power 5	18
f) 2 to the power 5	216
g) 15 to the power 3	10
h) 15 times 3	3125

5. Fill in the empty cages

a) $\square^5 = 32$

d) $64 = 2^{\square}$

b) $125 = 5^{\square}$

e) $1000000 = \square^6 = \square^3$

c) $729 = 3^{\square}$

f) $3^{\square} = 2187$

6. Write numbers as a product of prime factors and fill the empty cages in the form of base and index

a) $24 = 2 \times 2 \times 2 \times 3 = \square^{2^3} \times \square^3$

b) $45 = \text{-----} \times \text{-----} \times \text{-----} \times \text{-----} = \square \times \square \times \square$

c) $120 = \text{-----} \times \text{-----} \times \text{-----} \times \text{-----} = \square \times \square \times \square$

d) $180 = \text{-----} \times \text{-----} \times \text{-----} \times \text{-----} = \square \times \square \times \square$

Unit 8 TIME

Timetable of a student for a week

5.00 a. m. –		get up from the bed
5.00 a. m. –	5.30 a. m. –	morning duties, physical exercise
5.30 a. m. –	7.00 a. m. –	self learning
7.00 a. m. –	7.30 a. m. –	bath, prayers
7.30 a. m. –	8.00 a. m. –	break fast, ready for school
8.00 a. m. –	9.00 a. m. –	go to school
8.30 a. m. –	2.30 p. m. –	school activates
3.00 p. m. –	3.30 p. m. –	go home, take lunch
3.00 p. m. –	4.00 p. m. –	rest
4.00 p. m. –	5.00 p. m. –	private tuitions
5.00 p. m. –	6.00 p. m. –	play
6.00 p. m. –	6.30 p. m. –	rest
6.30 p. m. –	8.30 p. m. –	study
8.30 p. m. –	9.00 p. m. –	dinner
9.00 p. m. –	10.00 p. m. –	continuing the studies
10.00 p. m.		go to bed

1. Fill in the blanks by using information's in the above table

- i) Time duration for self learning _____
- ii) Time duration for rest _____
- iii) Time spending in the School _____
- iv) Time take for going School _____
- v) Time spending for sleeping _____
- vi) Time for sleeping for 5 days _____
- vii) Time spending for self learning in 5 days _____
- viii) Write the time (standard) that the student gets up from the bed _____

2. Fill in the blanks

- i) 7.00 a. m. = _____ h
 ii) 11.55 a. m. = _____ h
 iii) _____ = 12 00h
 iv) _____ = 20 30h
 v) _____ = 24 00h
 vi) 4.25 p. m. = _____ h
 vii) 9.30 p. m. = _____ h
 viii) 2 hours = _____ minutes
 ix) 1 hr. 25 min. = _____ minutes
 x) _____ hour = 240 minutes

3. Change the following times into standard times and prepare a school time table.

Our school starts at 8.30, students assemble for prayers From 8.40 to 9.00 a. m. we have prayer Each period contain 40 minutes. After four subjects the bell rings at 11.40 a. m. for interval. From 12.00 (noon) classes starts again. After 8th period the bell rings at 2.40 p. m. and take part the school song. At last our school activities furnished at 2.45 p. m.

Match A with B and put the correct numbers in the column

Column A

eg:

- a. Days in a week
 b. Months in a year
 c. Minutes in an hour
 d. Hours in a day (iv)
 e. Seconds in an hour
 f. Hours in a week
 g. Seconds in a day
 h. Weeks in a month

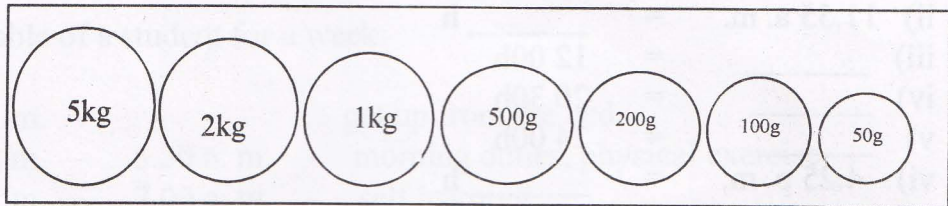
V

Column B

- (i) 24
 (ii) 86 400
 (iii) 3600
 (iv) 4
 (v) 7
 (vi) 12
 (vii) 60
 (viii) 168

Unit 19

MEASURING WEIGHTS



I. which weights from the given weigh set could be used to weight the following weights (Use minimum number of weights)

Eg 1) $1\frac{1}{2}\text{kg}$ = 1kg, 500g

2) $2\frac{1}{2}\text{kg}$ =

3) 2kg 150g =

4) $1\frac{1}{4}\text{kg}$ =

5) 5400g =

6) 3kg 550g =

7) 350g =

8) 800g =

9) 2kg 750g =

10) 4.5kg =

II. Fill in the blanks (Use minimum number of weights)

eg.:- 1) 2kg 450g = 2kg + 200g + 200g + 50g

2) 1kg 250g =

3) 5kg 750g =

4) 3kg 250g =

5) 4kg 150g =

6) 2kg 350g =

7) 6kg 500g =

8) 4kg 650g =

III. Write down the following weights in grams

eg.: - 1) 2kg 150g = 2150g

6) 1kg 650g =

2) 3kg 500g =

7) 4.5kg =

3) 7kg 125g =

8) 12kg 350g =

4) 5 $\frac{1}{2}$ kg =

9) 3 $\frac{1}{2}$ kg =

5) 3 $\frac{1}{4}$ kg =

10) 15kg 300g =

IV. Give the following weights in kg, g

eg.: - 1) 2600g = 2kg 600g

6) 4500g =

2) 3750g =

7) 15600g =

3) 2520g =

8) 1950g =

4) 15650g =

9) 2250g =

5) 7250g =

10) 6550g =

V. Find out the total weight of the following

eg.: - Ravi's weight = 25kg, Kumar's weight = 32kg 500g
Total weight = 57kg 500g

1) Weight of A = 16kg, Weight of B = 17kg 500g
Total weight =

2) Weight of a toy = 250g, weight of a box = 400g
Total weight =

3) Weight of cake = 2kg 500g, Weight of sweets = 1kg 250g
Total weight =

4) Weight of a cycle = 22kg, Weight of a car = 240kg
Total weight =

5) Weight of 10 apples = 2250g, Weight of 5 oranges = 850g
Total weight =

Unit 20

SOLID OBJECTS IN DECORATIONS

- 1) Write down the numbers of vertices, faces and edges of the following solid shapes

Solid	Number of Vertices	Number of faces	Number of edges
Cube	8		
Cuboid		6	
Tetrahedran			6

- 2) Can you suggest any relationship between the faces, edges and vertices of the above solids ?

.....
Give your suggestion

- 3) i) What can you say about the shapes of the faces of a cube ?

- ii) What can you say about the shapes of the faces of a cuboid ?

- iii) All the faces of a tetrahedran are

- 4) i) Give two solid objects which have only flat surfaces

- ii) Give two solid objects which have only curved surfaces

- iii) Give two objects which have both flat surfaces and curved surface

5) Draw a net to make each of the following shapes

1) Cube

2) Cuboid

3) Tetrahedran

UNIT 21

CIRCULAR SHAPES

Activity 1:

Complete the following table.

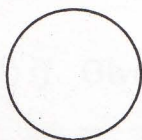
Circular shaped objects in your home	Circular shaped coins	Circular shaped food items
Lid of a tin	Two rupee coin	Round bun

Note: Discuss about the completed tables and get them know several circular shaped objects.

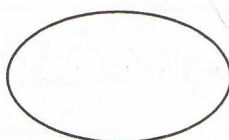
Activity 2:

Observe the following diagrams.

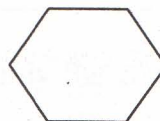
Select the circular shaped diagram and write the numbers of the selected figures here.



I



ii.



iii.



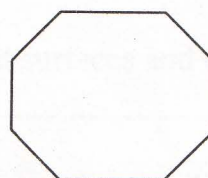
iv.



V



vi



vii

Activity3:

Drawing circles of different sizes

- I. Draw circles of different sizes using various coins (Eg: 2 rupee coin, 5 rupee coin)
- II. Draw circles of large size using bangles, caps of bottles and lids of tins and etc;

Activity 4:

Drawing circles by using a ruler

Step1: Mark a point A in the middle part of the paper.

Step2: Place the ruler with one edge of the ruler touching the point A.

Step3: Draw a line using a pencil along the other edge of the ruler.

Step4: Slightly rotate the ruler satisfying *step2* and do *step3*.

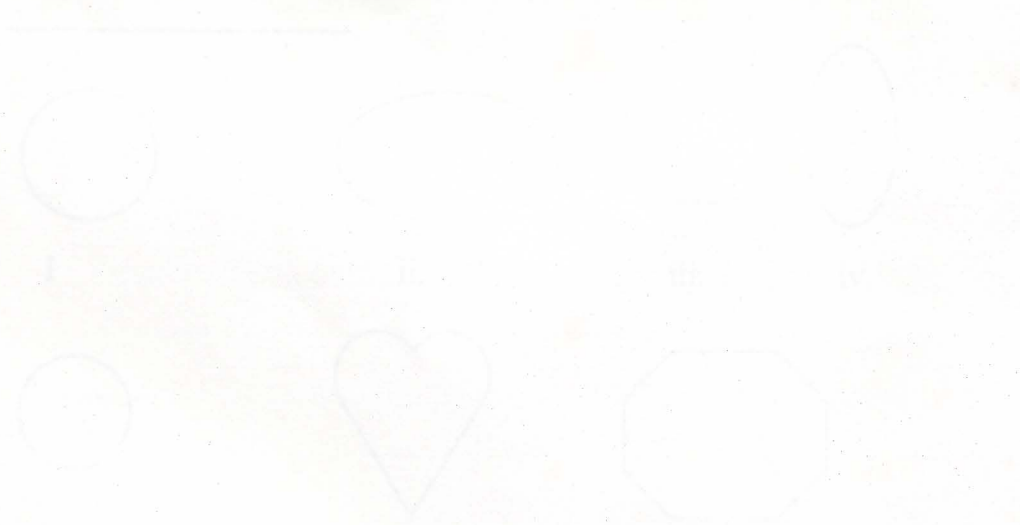
Step5: Repeat *step4* again and again.

Note: Observe the figure and write the number of the selected circular shaped object.

Activity 5:

Observe the following diagram.

Select the circular shaped diagram and write the numbers of the selected figures here.



Note : Discuss about the figure you have drawn.

Activity 5:

Drawing circles as for your wish

Step 1: Cut out a cardboard of 6cm length and of about 1 cm width.

Step 2: Mark “cm” scale on it..

Step 3: Make a hole at the initial point of the scale.

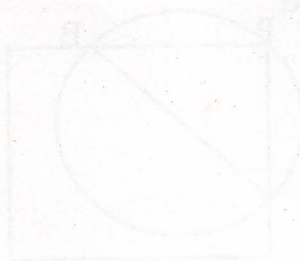
Step 4: Make another hole at a distance which you wish

Step 5: Place the cardboard on plain paper, fit a nail or pin into the hole and hold it tightly.

Step 6: Put a pencil into the other hole and move it.

Step 7: After making a full rotation remove the cardboard.

Now you could find a circle.



Activity 6:

Identifying the centre of a circle

Step 1: With the help of a bangle or other circular shaped objects, draw a circle on a plain paper and cut it out.

Step 2: To get two equal parts, fold the circle once.

Step 3: Then unfold it.

Draw a line along the folded mark.

Step 4: Do step 2 & step 3 for several times in order to get several symmetric axis.

How many symmetric axis could be drawn to a circle?

.....

Step 5: Observe that all the folded lines meet at one common point

The common point is defined as the centre of that circle.

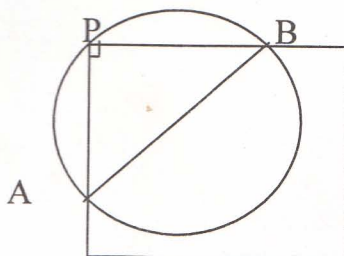
Activity 7:

Step 1: Cut out a rectangle of length 6cm, width 5cm from a bristol board.

Step 2: Draw a circle on a plain paper with the help of a bangle or a coin.

Step 3: On the circumference of the circle make a point 'P'.

Put a corner of the rectangle of the point P, such that the sides through 'P' of the rectangle will cut the circle at two points say A, B.

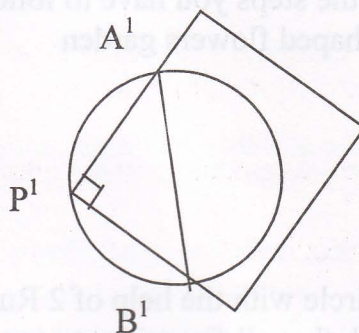


Step 4: Remove the rectangle.

Join the points A, B.

Note: Observe the figure you have drawn.

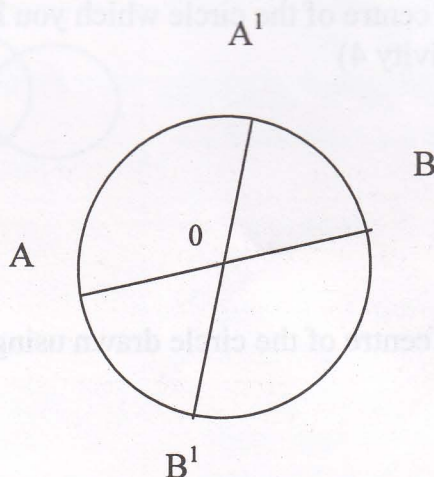
Step 5: Again select another point P^1 on the circumference. Follow the same Procedure *step3* and find the points A^1, B^1 .



Step 6: Join the points A^1, B^1 after removing the rectangle.

: The lines which you have drawn will meet at a point.
Name that point 'O'.

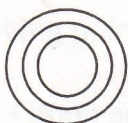
Now, O is the centre of the circle.



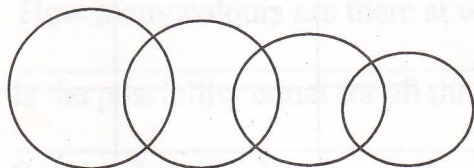
Exercises

- 1) Describe the steps you have to follow to draw a circle to make a large circular shaped flowers garden
- 2) Draw a circle with the help of 2 Rupee coin draw a square outside the circle such that all four sides touch the circle
- 3) Where is the centre of the circle which you have drawn by using a straight (Activity 4)
- 4) Where is the centre of the circle drawn using thread / strong cardboard? (Activity 5)
- 5) Draw a beautiful pattern using 2 rupee coin

- 6) Use coins of different sizes to make a pattern like this



- 7) Use different sizes of coin to make a pattern like this



Unit 22

PROBABILITY

Identifying events

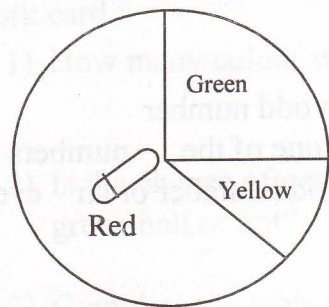
Tick '✓' in the suitable columns, which is suitable for the outcome of the events given.

No	Event	Certain	Impossible	Possible
1	Sun rise in the East	✓	—	—
2	Getting head when tossing a coin			
3	An iron bar will float			
4	Upward thrown stone will come to the earth			
5	You will get '6' when you throw a die numbered 1 – 6.			
6	Getting 1 st place in a lottery			
7	Writing will be in blue when you write with a red pen.			
8	Taking a red ball, while picking a ball at random from a box having only 3 red balls.			
9	You will meet with an accident when you come to school.			
10	There will be an odd number between two succeeding even numbers.			

Giving points in 0 – 10 scale

Group activity

Group - I



Colour a circular disc as shown in the figure.

Fix a safety pin, which could be rotated at the centre.

Give a force to the pin to rotate.

Work card :

- a) How many colours are there at which the safety pin will rest?
- b) Is the possibility equal for all three colours at which the pin comes rest?
- c) Does each colour have even chance?

Complete the table using 0 – 10 scale.

	Event	Value (0-10) (after 10 attempts)	Value (0-10) after 20 attempts	Value (0-10) after 50 attempts
1	Pin rests at red colour			
2	Pin rests at green colour			
3	Pin rests at yellow colour			

Group – II

1	2	3	4	5	6	7	8	9	10
---	---	---	---	---	---	---	---	---	----

Ten cards of same size are numbered from 1 to 10 as above.

Select one card at random

Work card :

1. How many chances are there to obtain an odd number
2. Does it have equal chance of getting any one of the numbers
3. Does it have equal chances of getting an odd number or an even number
4. Complete the table using 0 – 10 scale

Event	Value (0 – 10)
Obtaining number 20	
Obtaining number greater than five	
Obtaining a prime number	
Obtaining number 10	

Group III

Throw a die which is numbered from 1 – 10

Work card :

1. Is the change of getting any one of the number up equal or not?
2. Which event has more chance, getting a triangular number or a square number?
3. Complete the table using 0 – 10 scale

Event	Scale
Obtaining number 5	
Obtaining a prime number	
Obtaining a composite number	
Obtaining a number less than 4	

Group IV

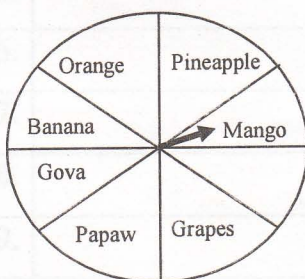
A box has 3 red balls and 2 green balls of same size.
Select a ball at random.

Work card :

- 1) How many colour would be the outcome?
- 2) Is the chance of getting a red ball equal to the chance of getting a green ball or not?
- 3) Complete the table using 0 – 10 scale.

Event	Value 0 -10
Out come being blue.	
Out come being red or green.	
Out come being green.	

Group V



A circular disk was divided into 8 equal parts
and each portion was named with same fruits

An indicator was fixed in the middle as shown
in the picture

Rotate the indicator and observe the fruit
where indicator rested

That fruit was considered to be the favourite
fruit.

1) Is the chance for each fruit being favourite equal?

2) Is the chance for an orange to be favourite higher?

3) Complete the table using 0 – 10 scale.

No	Event	
1	One of Mangos, Jack or Banana will be favourite.	
2	Banana will be favourite.	
3	Papaw will be favourite.	
4	A fruit with more than one seed will be favourite.	



Unit 23

SYMBOLS IN COMMUNICATION

Activity

Put the suitable mathematical symbols or mathematical notations $+$, $-$, \times , \div in the cages in order to make the true relationships.

I. $12 \quad \square \quad 8 = 4$

II. $15 = 45 \quad \square \quad 3$

III. $3 \times 4 = 9 \quad \square \quad 3$

IV. $20 \quad \square \quad 7 = 10 \quad \square \quad 3$

V. $56 \quad \square \quad 8 = 16 \quad \square \quad 3$

Group activity

Step I Let the students interchange their books themselves.

Step II Instruct them to write down some expressions in words in column A of the following table.

	A (Expressions in words)	B (Expressions using symbols)
01.	Multiply 7 by 8	7×8
02.		
03.		
04.		
05.		
06.		
07.		
08.		
09.		
10.		

Step III Let them have their own workbooks.

Step IV Let them complete column 'B' of the table.

Activity

Kamala's height is 7cm more than Vimala's height .

To satisfy the above statement (expression) complete the table below.

Kamala's height	Vimala's height
132	_____
_____	118
x	_____
_____	p - 7
x + 7	_____
_____	y + 3

Complete the following table.

Algebraic expression	Given value	Substitution	value of the algebraic expression
x + 5	x = 4	4 + 5	9
M - 7	M = 12	_____	_____
_____	Y = 6	15 - 6	_____
P - 5	_____	_____	8
7 + X	_____	_____	20
_____	A = 8	15 - 8	_____
P + 15	_____	_____	27
9 - M	M = 2	_____	_____
x - 4	_____	_____	4
Y + 12	_____	_____	21
_____	P = 15	8 + 15	_____

Unit 24

COLLECTING INFORMATION

Collecting Data by using Tally mark

Group activity

Group 1

Record the Mathematics marks of the students for the second Term test in the following table

Achievement Level	Tally Mark	Number of students
Red (81 – 100)		
Green (61 – 80)		
Yellow (21 – 60)		
Black (0 – 20)		

Group – 2

Students are requested to collect the numbers of children in their class members' families, in the following table.

Number of children	Tally Mark	Number of Families
1		
2		
3		
4		
5		

Group – 3

1 – 6 numbered die was thrown 50 times, and the numbers appeared in the upper face are recorded in the following table.

The Number appeared in the Upper face	Tally Mark	Number of times
1		
2		
3		
4		
5		
6		

Group 4

Students are asked to collect the numbers of index of their fellow students' dates of birth, according to the following table.

Index of the date of birth	Tally Mark	Number of students
1		
2		
3		
4		
5		
6		
7		
8		
9		

Group 5

Collect the data of the class students' various method of transport in the following table

Method of transport	Tally Mark	Number of students
Bicycle		
Bus		
Private Vehicle		
Parents Vehicle		
On foot		

Group – 6

Same sized 4 marbles with different colours as Red, Green, Blue, Yellow were taken out one by one spontaneously from a bag 50 times. The following table was drawn using the above data.

Colours of the Marbles	Tally Mark	Number of times
Red		
Green		
Blue		
Yellow		

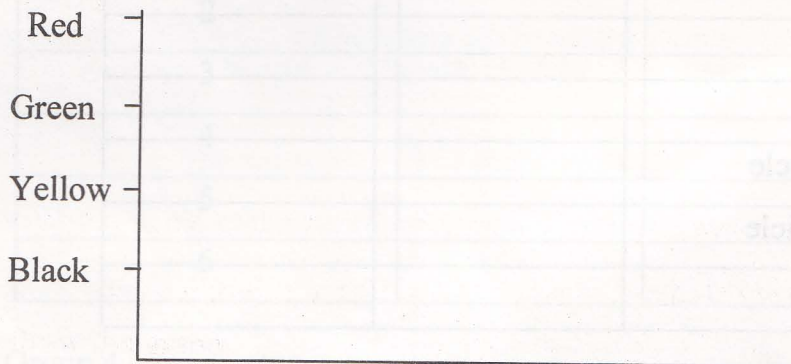
Explanation of Data

Group – 1

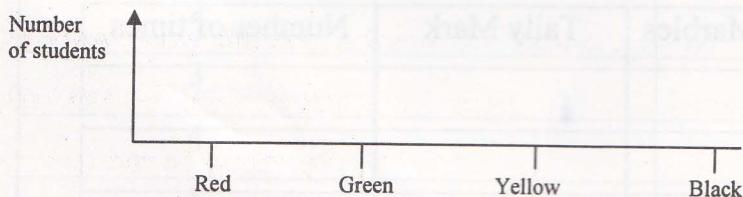
Write the name of the stubble diagram which you can draw to present your data

Draw the graph

Graph



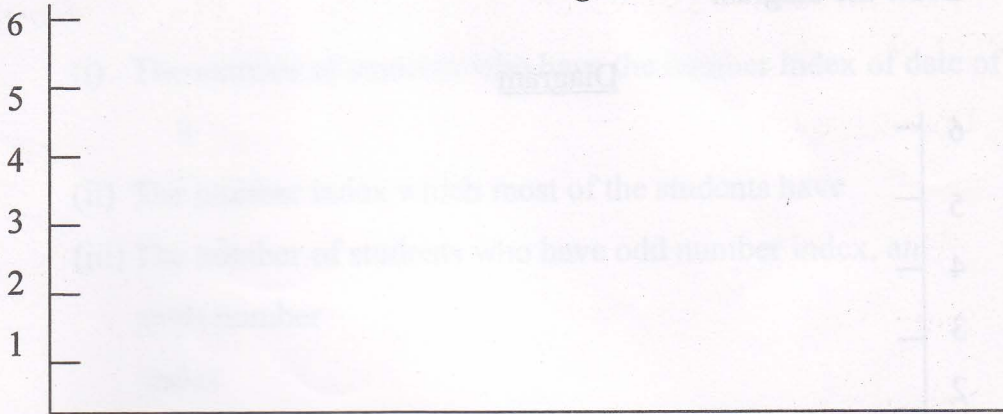
- i) How many students achieve the Yellow colour?
- ii) Give the achievement level range, which is achieved by the highest number of students?
- iii) It was decided to give a pen of Rs. 12.00 for students who achieved the level red. How much would you expect to buy pens?
- iv) Display this information in a bar chart?



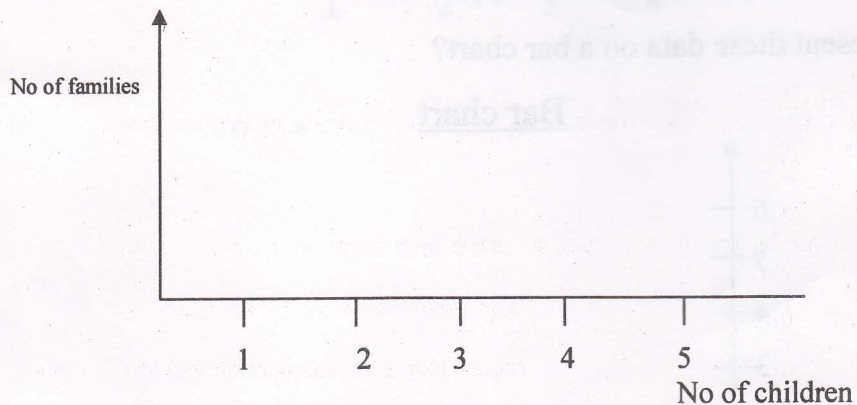
Group – 2

Select and write the suitable diagram -----

Diagram



- (i) How many students in your classroom have families with 3 children?
- (ii) Give the numbers of children, which the most of your class students have in their families?
- (iii) Display this data in a bar chart

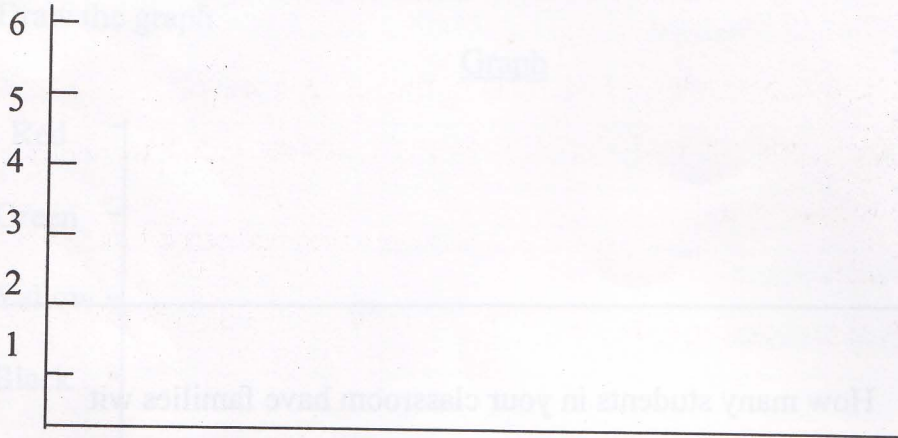


Group – 3

Select and write the suitable scale and the diagram -----

Draw the diagram

Diagram



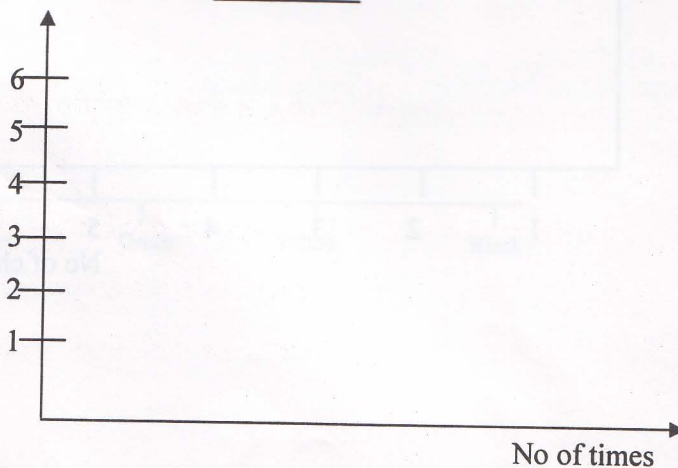
(i)

Give the numbers which is appeared in the upper face for the highest times

- (ii) The number is which is appeared for the lowest times
- (iii) How many times the No 2 appeared?
- (iv) Present these data on a bar chart?

Bar chart

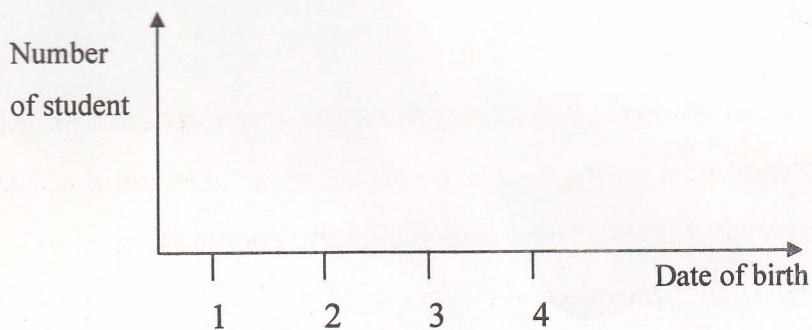
Numbers
in the face



Group – 4

Find out a suitable scale and a diagram

- (i) The number of students who have the number index of date of birth
9
- (ii) The number index which most of the students have
- (iii) The number of students who have odd number index, an
even number
index
- (iv) Present these data in a bar chart



629

07 NOV 2008

691

11 NOV 2008

11 MAR 2009

769

13 MAR 2009

19 MAR 2009

20 MAR 2009

26 MAR 2009

15 SEP 2009

09 JUL 2010

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