



MATHEMATICS-CLASS-IV

CHAPTER - FRACTIONS



Book Link

Std. IV
Chapter – 9
(FRACTIONS)

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Learning Objectives

- **Understand and explain the concept of fraction - As a part of a whole.**
- **Understand the types of Fractions.**
- **Find equivalent fractions from a given fraction.**
- **Conversion of Mixed fraction into improper fraction.**
- **Conversion of Improper fraction into mixed number**



EXAMPLE OF FRACTION CONCEPT IN REAL LIFE

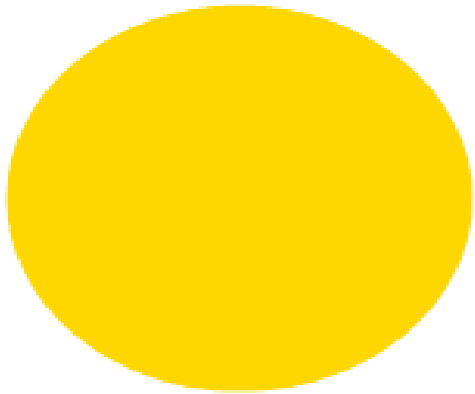
- ✓ **Time Telling** - Each minute is a fraction of an hour.
- ✓ **Baking** - Proper fraction of ingredients are used for a sweet cake or biscuits.
- ✓ **Sales and Discounts** - Fraction of discounts are provided on MRP during seasonal sale.
- ✓ **Chocolate Distribution on Birthday in Class** – Each child gets equal number of chocolate from the whole packet.
- ✓ **Manufacture of Jewellery** - 24 karats is pure gold, and 18 karats is $\frac{18}{24}$ which equals 75% gold. Using fractions to understand jewellery purity could save your money .
- ✓ **Photography** - Shutter speed of a camera is calculated in fraction unit of time.
- ✓ **Pizza for the kids** - Mealtime doesn't have to be a battle about who got more. Use fractions to split the pie evenly.



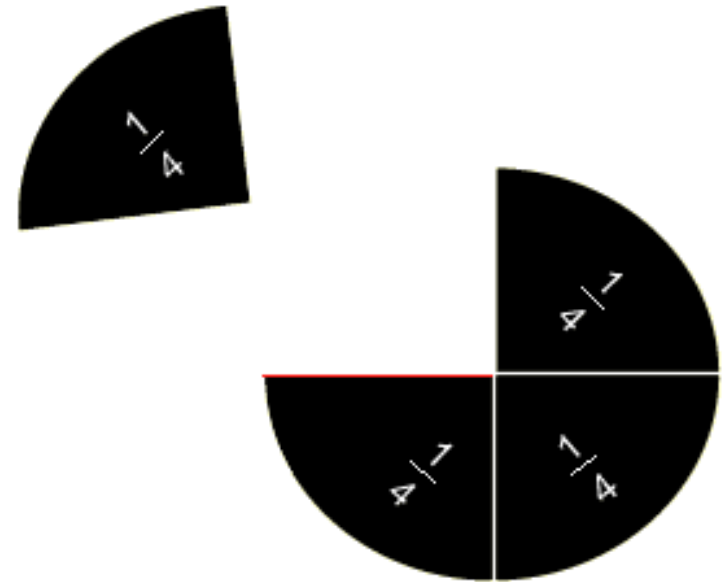
INTRODUCTION TO FRACTION

The word 'Fraction' comes from the Latin word 'Fractus' which means 'Broken part'.

Start



Fractions Mean
Parts





What are Fractions ?

- ✓ Parts of a Whole
- ✓ Example:

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

$$\frac{3}{4}$$

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

$$\frac{6}{7}$$

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


**Numerator
(Nr)**

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


**Denominator
(Dr)**

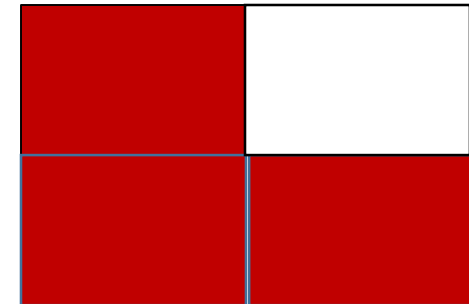
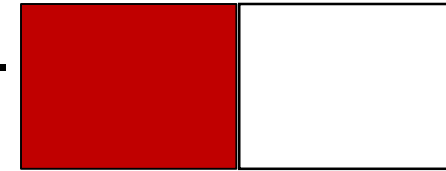


Fractions

What do they mean ...

➤ We have 1 of those parts. The whole is split into 2 parts

➤ We have 3 of those parts. The whole is split into 4 parts.



$\frac{1}{5}$	$\frac{3}{2}$	$\frac{6}{7}$	$\frac{3}{4}$
Examples of fractions			



TYPES OF FRACTIONS

✓ **Equivalent Fraction.**

✓ **Like Fraction.**

✓ **Unlike Fractions.**

✓ **Proper Fraction.**

✓ **Improper Fraction.**

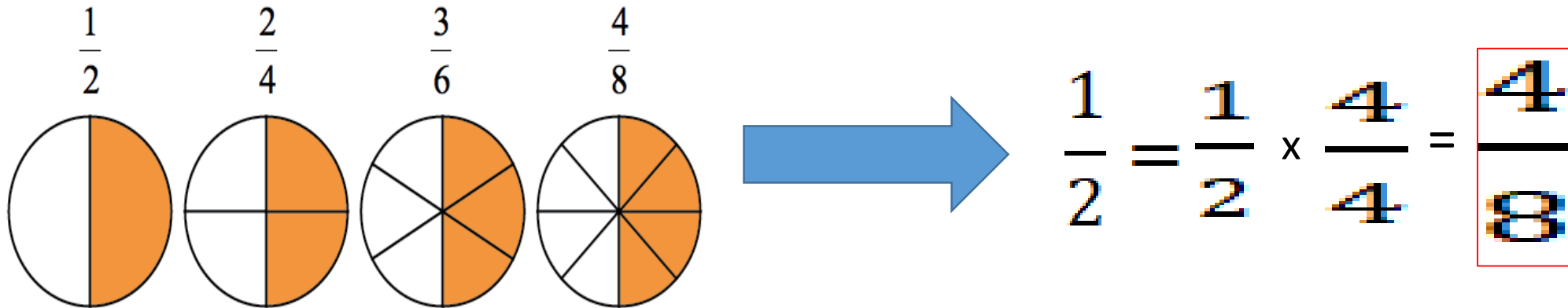
✓ **Unit Fraction.**

✓ **Mixed Number.**



EQUIVALENT FRACTION

Fractions which express the same part of a whole but have different names are called **Equivalent Fractions.**



Q .Change $\frac{4}{9}$ into an equivalent fraction with numerator as 20. (2 mark)

Ans: $\frac{4}{9} = \frac{4 \times 5 = 20}{9 \times 5 = 45} = \frac{20}{45}$



MISSING NUMERATOR OR DENOMINATOR OF EQUIVALENT FRACTIONS

$$\frac{3}{7} \begin{array}{l} \times 2 \\ \times 2 \end{array} = \frac{?}{14} = \frac{6}{14}$$

14 is 2 times 7
So, the missing numerator
must be 2 times 3.
 $3 \times 2 = 6$

$$\frac{5}{9} \begin{array}{l} \times 6 \\ \times 6 \end{array} = \frac{30}{?} = \frac{30}{54}$$

30 is 6 times 5
So, the missing numerator
must be 6 times 9.
 $9 \times 6 = 54$

$$\frac{30}{45} = \frac{6}{?} = \frac{6}{9}$$

$30 \div 5 = 6$
So, We divide 45 by 5.
 $45 \div 5 = 9$



CHECK FOR THE EQUIVALENCE OF TWO FRACTIONS

Is $\frac{2}{3}$ equivalent to $\frac{10}{15}$

$$\frac{2}{3} \quad \begin{array}{l} \nearrow \\ \searrow \end{array} \quad \frac{10}{15}$$

Cross product of $2 \times 15 = 30$

Cross product of $3 \times 10 = 30$

They are same



QUESTIONS

$$\frac{\quad}{3} = \frac{12}{18}$$

$$\frac{\quad}{2} = \frac{10}{20}$$

$$\frac{\quad}{4} = \frac{18}{24}$$

$$\frac{3}{5} = \frac{\quad}{40}$$

$$\frac{\quad}{5} = \frac{10}{50}$$

$$\frac{\quad}{10} = \frac{45}{50}$$

$$\frac{3}{4} = \frac{\quad}{20}$$

$$\frac{5}{8} = \frac{\quad}{56}$$



LIKE FRACTION



Fractions having the same denominators are called Like Fractions.

$$\frac{3}{8}, \frac{6}{8}, \frac{9}{8}, \frac{12}{8}, \frac{2}{8}, \frac{15}{8}, \frac{19}{8}$$

Addition and Subtraction of Like Fraction

$$\frac{5}{6} + \frac{9}{6} = \frac{14}{6}$$

Add the Numerators
 $5 + 9 = 14$

Denominators are same,
So we can add the numerators

$$\frac{15}{4} - \frac{12}{4} = \frac{3}{4}$$

Subtract the Numerators
 $15 - 12 = 3$

Denominators are same,
So we can subtract the numerators

Q. The fractions with same denominator are called as _____ fractions. (1 Mark)

(i) Proper (ii) Like (iii) Unit (iv) Unlike

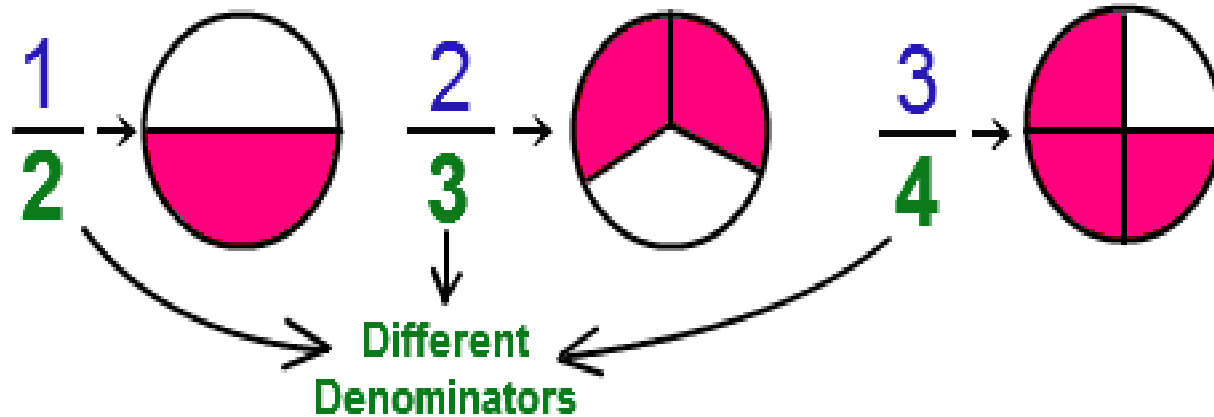
Ans: Like



UNLIKE FRACTION

Fractions having the different denominators are called Unlike Fractions.

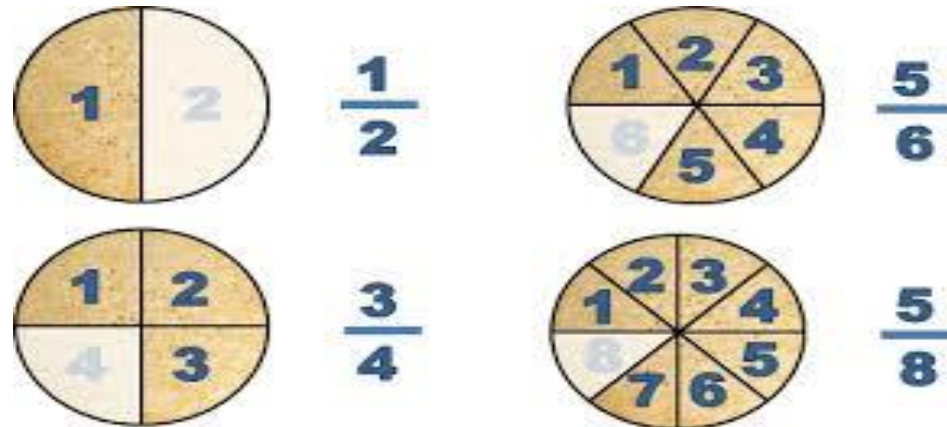
$$\frac{3}{5}, \frac{6}{9}, \frac{9}{25}, \frac{12}{6}, \frac{2}{10}, \frac{15}{11}, \frac{19}{36}$$





PROPER FRACTION

Fractions where numerators are smaller than denominators are called Proper Fractions



Value Of a Proper Fraction is always less than 1.

$$\frac{1}{3} < 1, \frac{2}{3} < 1, \frac{4}{13} < 1, \frac{7}{30} < 1$$



IMPROPER FRACTION

Fractions where numerators are greater than denominators are called Improper Fractions

$$\frac{33}{5}, \frac{16}{9}, \frac{99}{25}, \frac{12}{5}, \frac{22}{10}, \frac{15}{7}, \frac{19}{3}$$

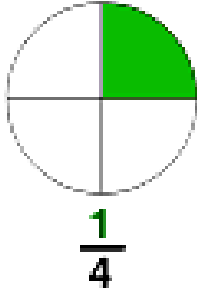
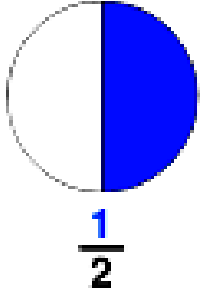
Value Of a Proper Fraction is always greater than 1.

$$\frac{33}{5} > 1, \frac{16}{9} > 1, \frac{99}{25} > 1$$



UNIT FRACTION

Fractions having 1 in the numerator are called Unit Fractions.



$$\frac{1}{5}, \frac{1}{9}, \frac{1}{25}, \frac{1}{5}, \frac{1}{10}, \frac{1}{7}, \frac{1}{3}$$

Q. What is a Unit Fraction? Give an example. (1 Mark)

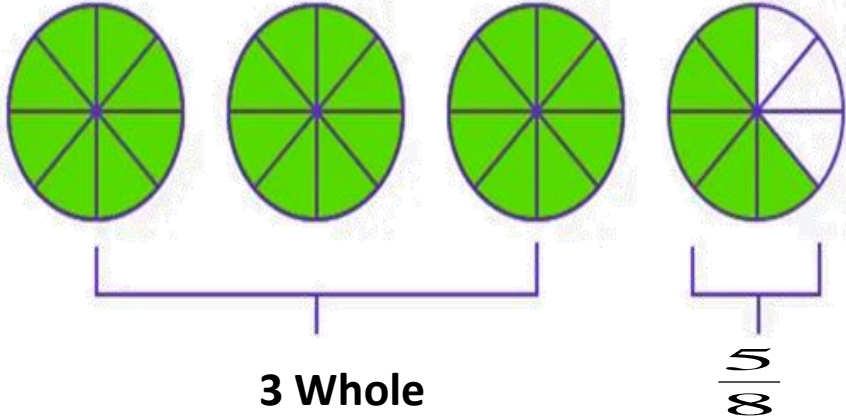
Ans: Fractions having 1 in the numerator are called Unit Fractions.

Example: $\frac{1}{5}$



MIXED NUMBER

Improper fraction written as a combination of a natural number and a proper fraction is called a Mixed Number.



$$3\frac{1}{5}, 6\frac{2}{3}, 7\frac{6}{8}, 11\frac{1}{5}, 33\frac{1}{3},$$

$$3 \frac{5}{8} \rightarrow \begin{array}{l} \text{Natural number} \\ \text{Proper fraction} \end{array}$$

Q. Convert $\frac{68}{13}$ into mixed number. (1 ½ Mark)

Ans: Natural Number Part = 5

Proper fraction = $\frac{5}{13}$



FRACTION AS DIVISION

Pasha has 4 marbles. He distributes these marbles equally among 2 of her friends.

$$\begin{aligned}\text{Each gets} &= 4 \div 2 \\ &= 2 \text{ Marbles}\end{aligned}$$

If Tobo has 2 mangoes to distribute equally among 2 of his friends.

$$\begin{aligned}\text{Each gets} &= 2 \div 2 \\ &= 1 \text{ Mango}\end{aligned}$$

If Dobo has 1 apple to distribute equally among 2 of his friends.

$$\begin{aligned}\text{Each gets} &= 1 \div 2 \\ &= \frac{1}{2} \text{ Apple}\end{aligned}$$

Some Other Examples

$$\frac{17}{5} = 17 \div 5 \qquad \frac{9}{5} = 9 \div 5$$

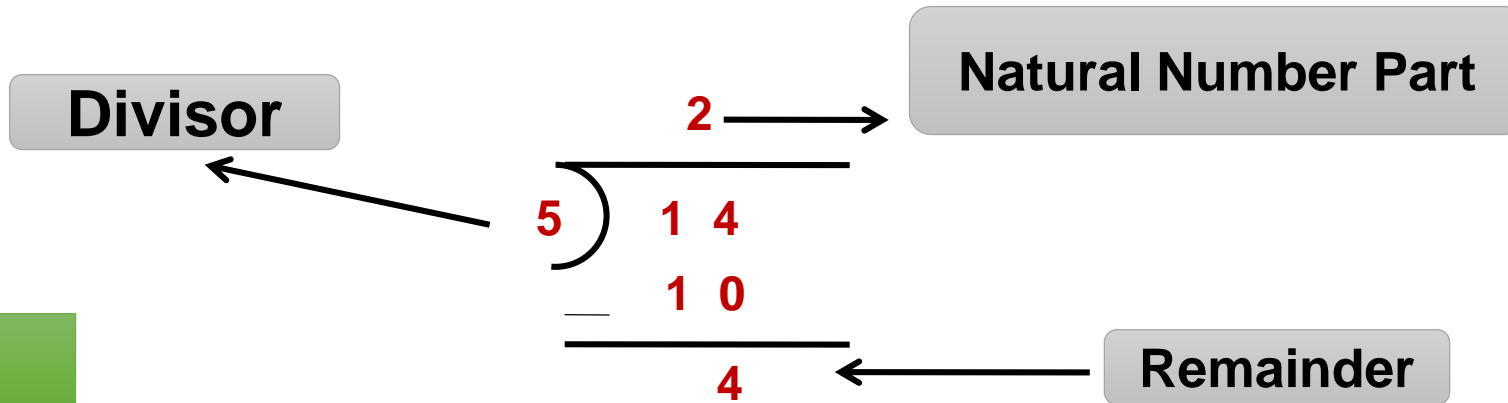


CHANGING FRACTIONS

1. Improper fraction into mixed number.

Example

$$14 \div 5$$



$$\frac{14}{5} = 2 \frac{4}{5}$$

Remainder

Divisor

Natural Number Part

Q. Convert $4\frac{5}{7}$ into improper fraction. (1 ½ Mark)

Ans: $\frac{33}{7}$



2. Mixed Number into Improper fraction

Step1: First multiply the whole number with denominator.

Step2: Then add product of whole number and denominator with numerator

Step3: Write the resultant number as numerator. Also write the denominator.

Example

$$33\frac{1}{3}$$

Natural Number Part x Denominator

$$(33 \times 3) = 99$$

Natural Number Part x Denominator + Numerator

$$(33 \times 3) = 99 + 1 = 100$$

Natural Number Part x Denominator + Numerator

Numerator

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



ACTIVITY ON EQUIVALENT FRACTION

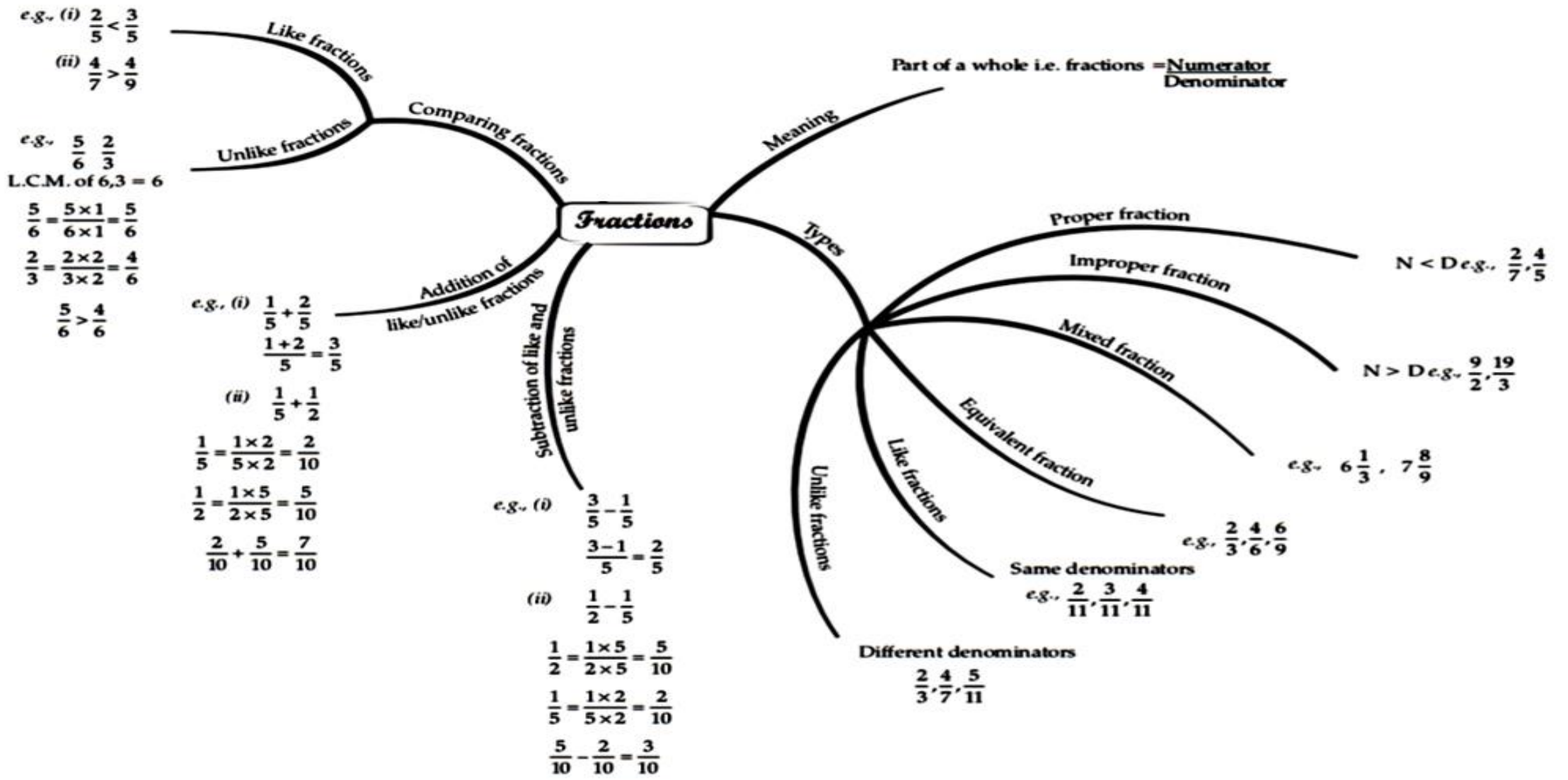
- ✓ Give 3 coloured paper strips to every student of the class.
- ✓ Let's make a fraction strip for $\frac{1}{2}$. (Student fold their strips into 2 pieces)
- ✓ Cut of the pieces to show $\frac{1}{2}$.
- ✓ Fold both $\frac{1}{2}$ pieces into half. Now we have 4 pieces.
- ✓ We should have 4ths now. How many of your 4ths equal to $\frac{1}{2}$? **(Ans-2)** . So, $\frac{1}{2}$ is equivalent to $\frac{2}{4}$.
- ✓ Try folding each of your $\frac{1}{2}$ pieces twice. So what fractions do you get? **(Ans-8ths)**
- ✓ How many 8ths are equivalent to $\frac{1}{2}$? **(Ans-4)**
- ✓ At the end we clear that multiplying the numerator and denominator by 2 is one good way to create equivalent fractions.

[Click Here](#)

<https://youtu.be/9k-7Kbf5GzU>



Mind Map





FRACTIONS

TYPES OF FRACTION

Part of a whole is a fraction. e.g. $\frac{5}{7}$

A fraction is made up of a numerator and a denominator. The numerator says how many equal parts are represented and the denominator says into how many equal parts it is divided.

Addition of like fractions: $\frac{12}{50} + \frac{24}{50} = \frac{12+24}{50} = \frac{36}{50}$

Subtraction of like fractions: $\frac{35}{50} - \frac{23}{50} = \frac{35-23}{50} = \frac{12}{50}$

❖ Like and Unlike: In Like fractions denominators are same and in Unlike fractions denominators are different.

❖ Proper and Improper: In Proper fractions Numerators are smaller than Denominators.

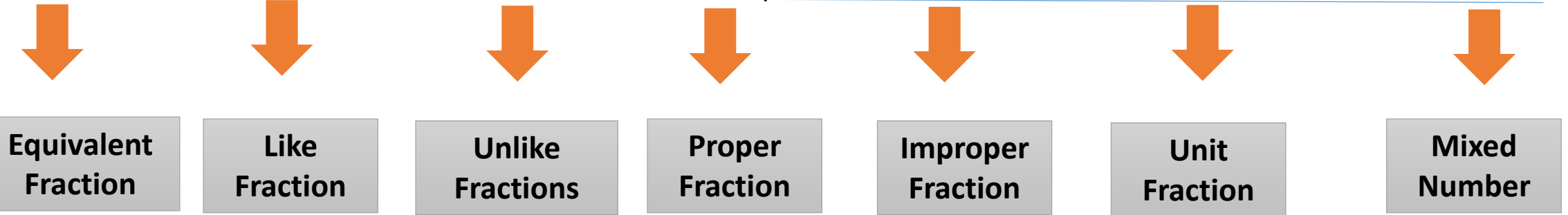
❖ Unit: Fractions having 1 in the numerator.

❖ Mixed Number: Improper fractions written as a combination of a natural number and a proper fraction is called a mixed number.



FRACTIONS

What are Fractions
Fractions are a PART of a WHOLE



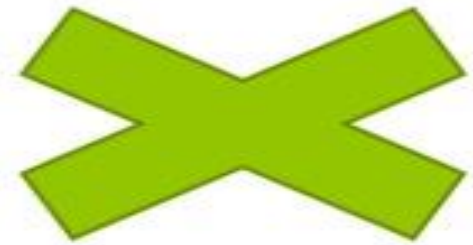
Examples

$\frac{1}{2}$ $\frac{3}{14}, \frac{7}{14}$ $\frac{13}{14}, \frac{17}{14}$ $\frac{3}{4}, \frac{9}{14}$ $\frac{17}{14}, \frac{99}{24}$ $\frac{1}{4}, \frac{1}{24}$ $4\frac{1}{4}, 5\frac{3}{20}$



Learning Outcomes

- **Fractions and use of fraction in real life.**
- **Finding of Fraction from a given fraction.**
- **Adding and Subtracting of like fractions.**
- **Converting fraction into mixed number.**
- **Converting mixed number into improper fraction.**



THANK YOU

