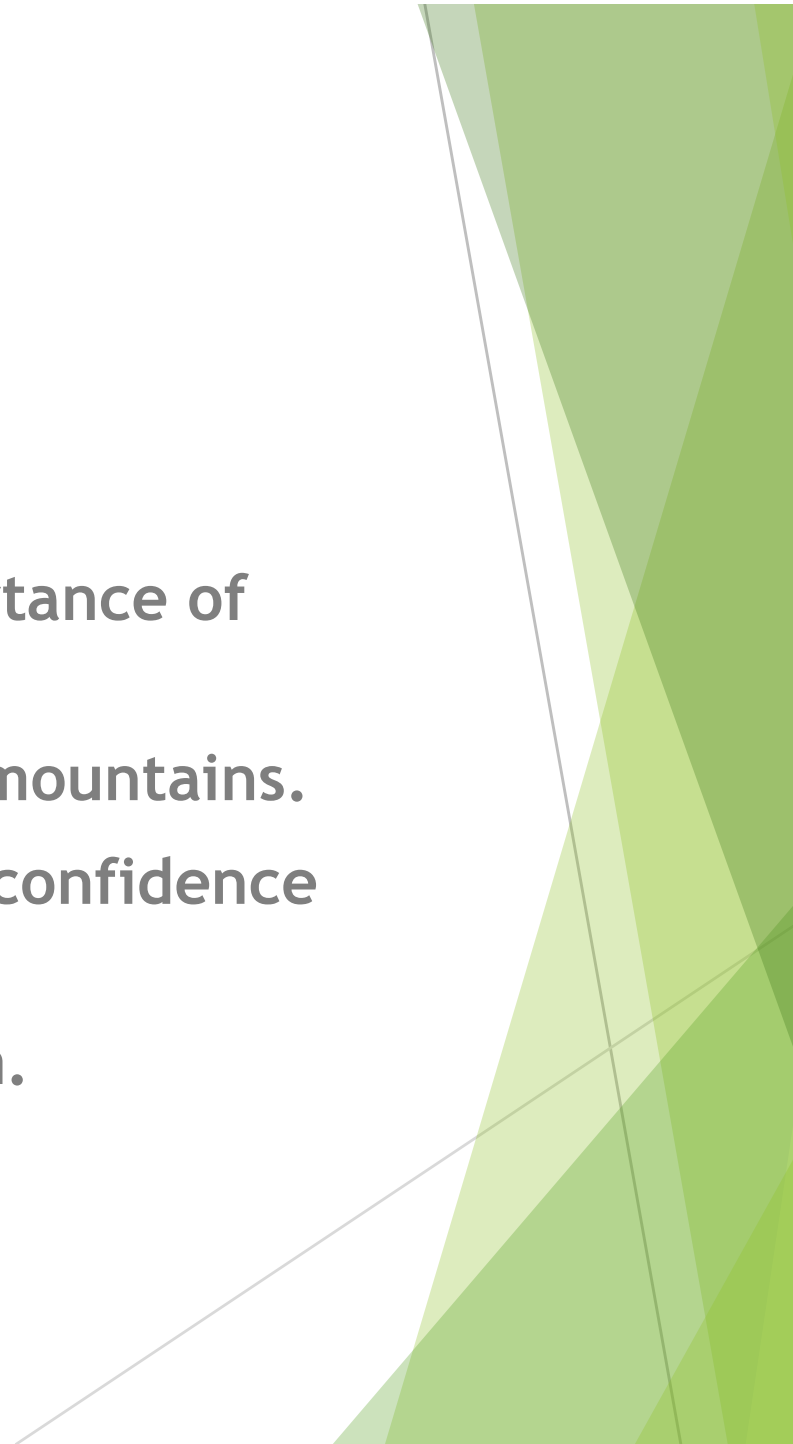# A Letter to God

G.L Fuentes

OBJECTIVES

To make the students understand the importance of faith.

To make them believe that faith can move mountains.

To develop such a faith in them to develop confidence in them.

To encourage them to develop faith in them.

GREGORIO LOPEZ FUENTES

Gregorio Fuentes (July 11, 1897 – January 13, 2002) was a fisherman and the first mate of the *Pilar*, the boat belonging to the American writer Ernest Hemingway.

Fuentes was born on Lanzarote in the Canary Islands. He first went to sea as deck boy with his father at age 10. As a teenager worked on cargo ships out of the Canary Islands to Trinidad and Puerto Rico, and from the Spanish ports of Valencia and Sevilla to South America. He migrated permanently to Cuba when he was 22. He attempted to reclaim his Spanish citizenship in 2001.[1]

Fuentes, a lifelong cigar smoker, died from cancer in Cojimar in 2002. He was 104 years old.

Interpret the picture

KEY POINTS

Lencho was a farmer and had the field of ripe corn.

He needed a downpour to make his harvest good.

But the rain turned into hailstones which destroyed his whole crop of corn.

He had nothing to eat so he decided to seek help from God.

He wrote a letter to god demanding 100 pesos.

The post office employees made fun of him. But the post master decided to help him.

He collected 70 pesos from his own effort.

But Lencho was angry to receive 70 pesos in place of 100.

He wrote another letter to God demanding rest of the money.

He also requested to send the money through another means because what he believed that post office employees were bunch of crooks.

earrange the following sentence

He wrote another letter to God demanding rest of the money.

But the rain turned into hailstones which destroyed his whole crop of corn.

Lencho was a farmer and had the field of ripe corn.

The post office employees made fun of him. But the post master decided to help him.

He had nothing to eat so he decided to seek help from God.

But Lencho was angry to receive 70 pesos in place of 100.

He wrote a letter to god demanding 100 pesos.

He also requested to send the money through another means because what he believed that post office employees were bunch of crooks.

He needed a downpour to make his harvest good.

He collected 70 pesos from his own effort

MATCH THE FOLLOWING

Crest — heavy rain

Downpour — refuse

Predict — a lonely

Draped — kind-hearted

Plague — top of a hill

Solitary — cause of disaster

Career — remark

Amiable — say in advance

Continent — refuse

Contentment — dressed/ covered

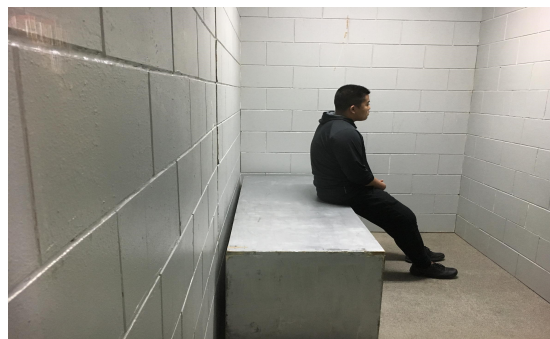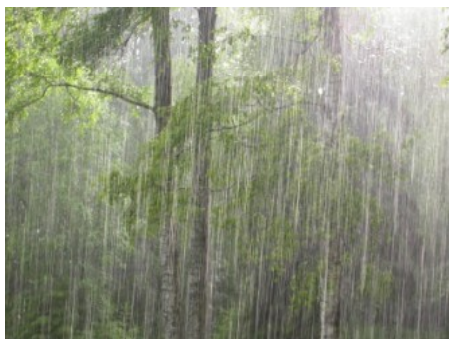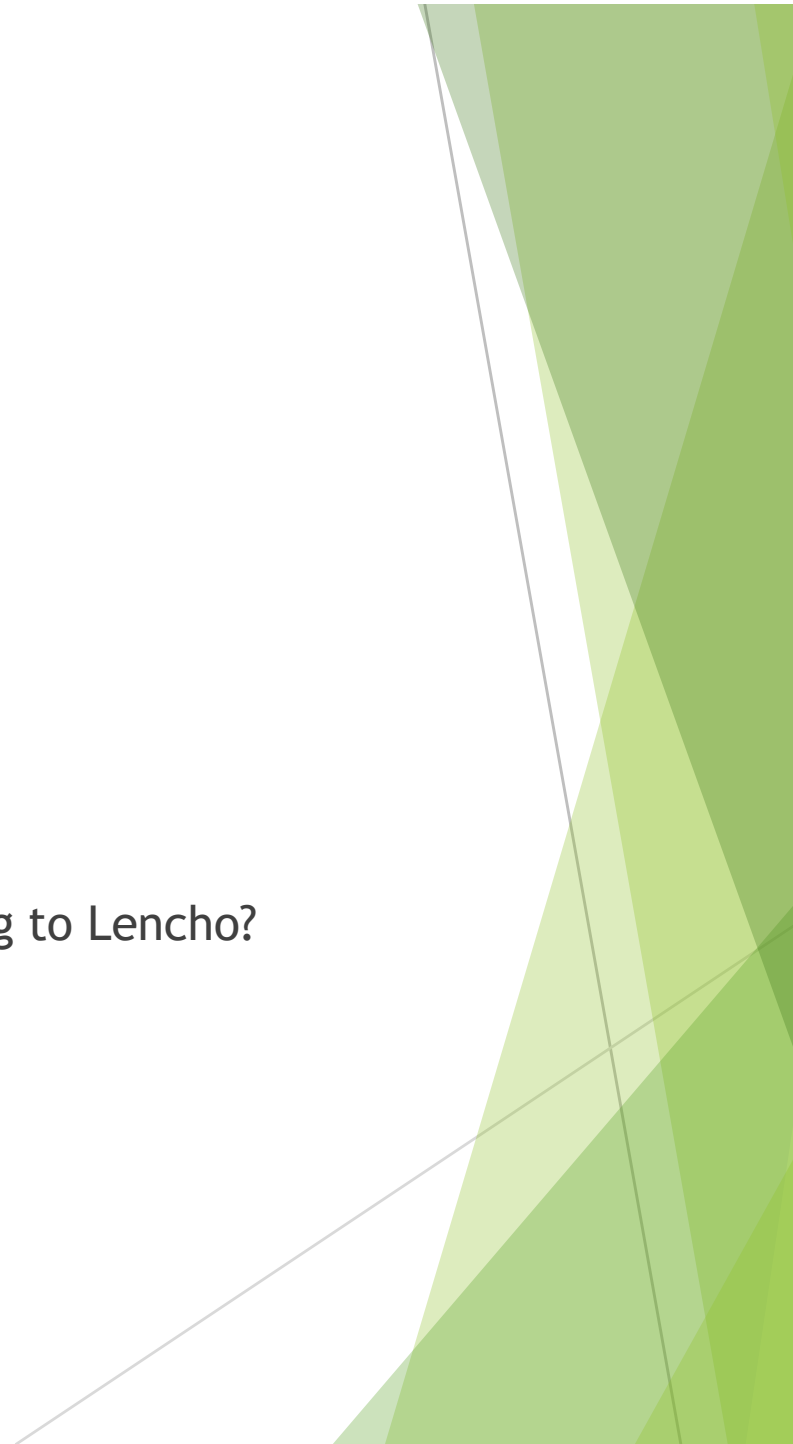Deny — determination

Resolution — a profession

MCQs

Q1- Where was Lencho's house situated?

A) bottom of the hill
B) top of a hill
C) top of a plateau
D) in a city

Q2- What was the only thing that the Earth needed according to Lencho?

A) a shower
B) a snowfall
C) strong winds
D) sunlight

- Where did Lencho expect the downpour to come from?
- north
- north-east
- north-west
- south-east

- What did Lencho compare the large raindrops with?
- silver coins
- pearls
- diamonds
- new coins

- Which crop was growing on Lencho's fields?
- Corn
- Barley
- Rice
- None of the above

What destroyed Lencho's fields?

eavy rainfall
ilstorm
ndslide
ood

The field looked as if it were covered in _____.

lt
custs
gar
e

Lencho compared the quantum of damage with

tack by rats
tack by crows
ague of locusts
one of the above

What was the only hope left in the hearts of Lencho's family?

ompensation from government
elp from farmer's association
elp from God
here was no hope left

- How did Lencho decide to contact his last resort?

y visiting them personally
hrough a letter
hrough e-mail
hrough fax

- How much money did Lencho ask for?

00 pesos
000 pesos
0 pesos
00 pesos

What was the immediate reaction of the postman on seeing the letter?

ughed whole-heartedly
ed
t sad about what happened
t empathetic

The postmaster was a fat, amiable man. What is the meaning of amiable?
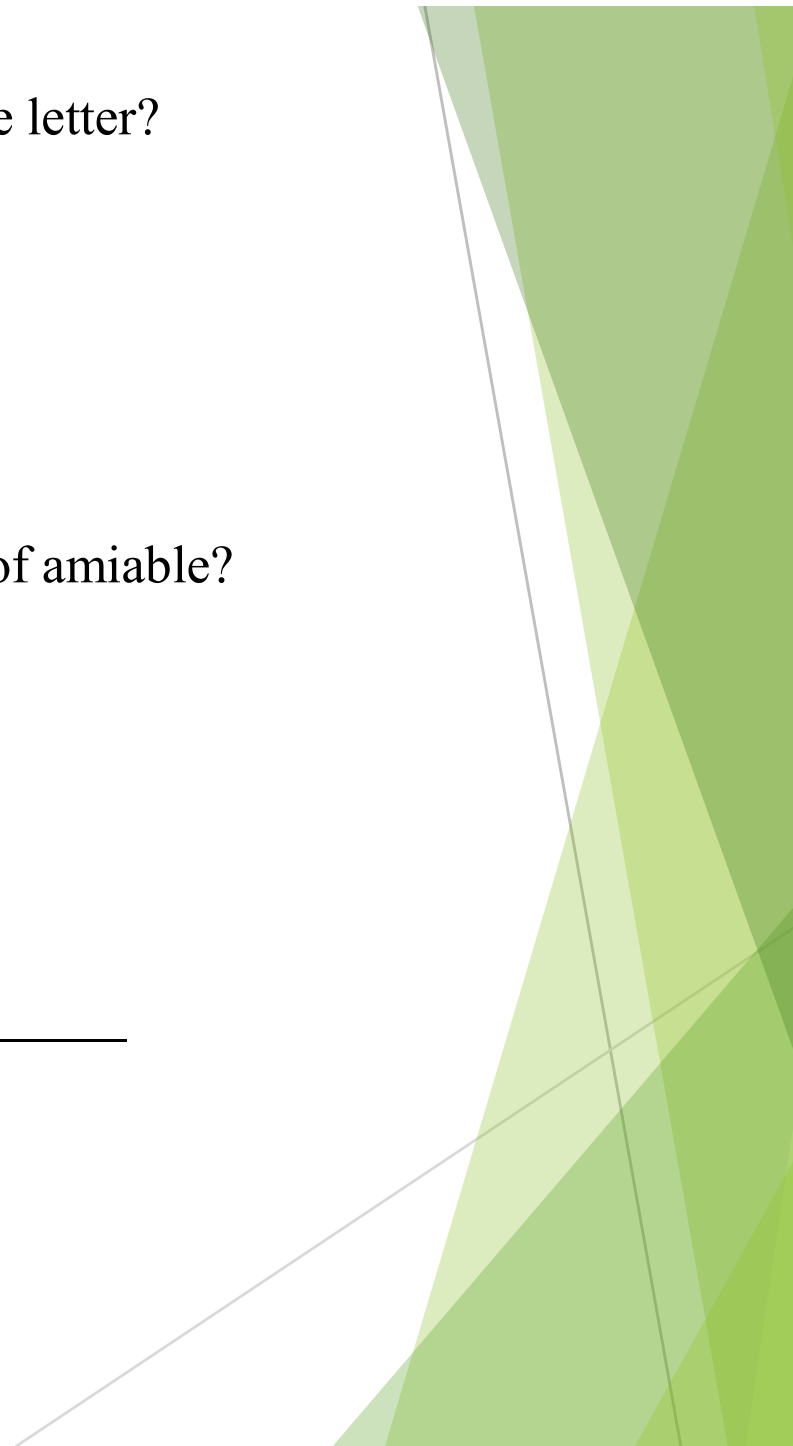
de
lpful
endly
thusaistic

On seeing the letter, the postmaster was moved by Lencho's _____

wavering faith
ndwriting
ve for God
termination

5- Why did the postmaster decide to reply to Lencho's letter?

he was a good man
he felt empathetic
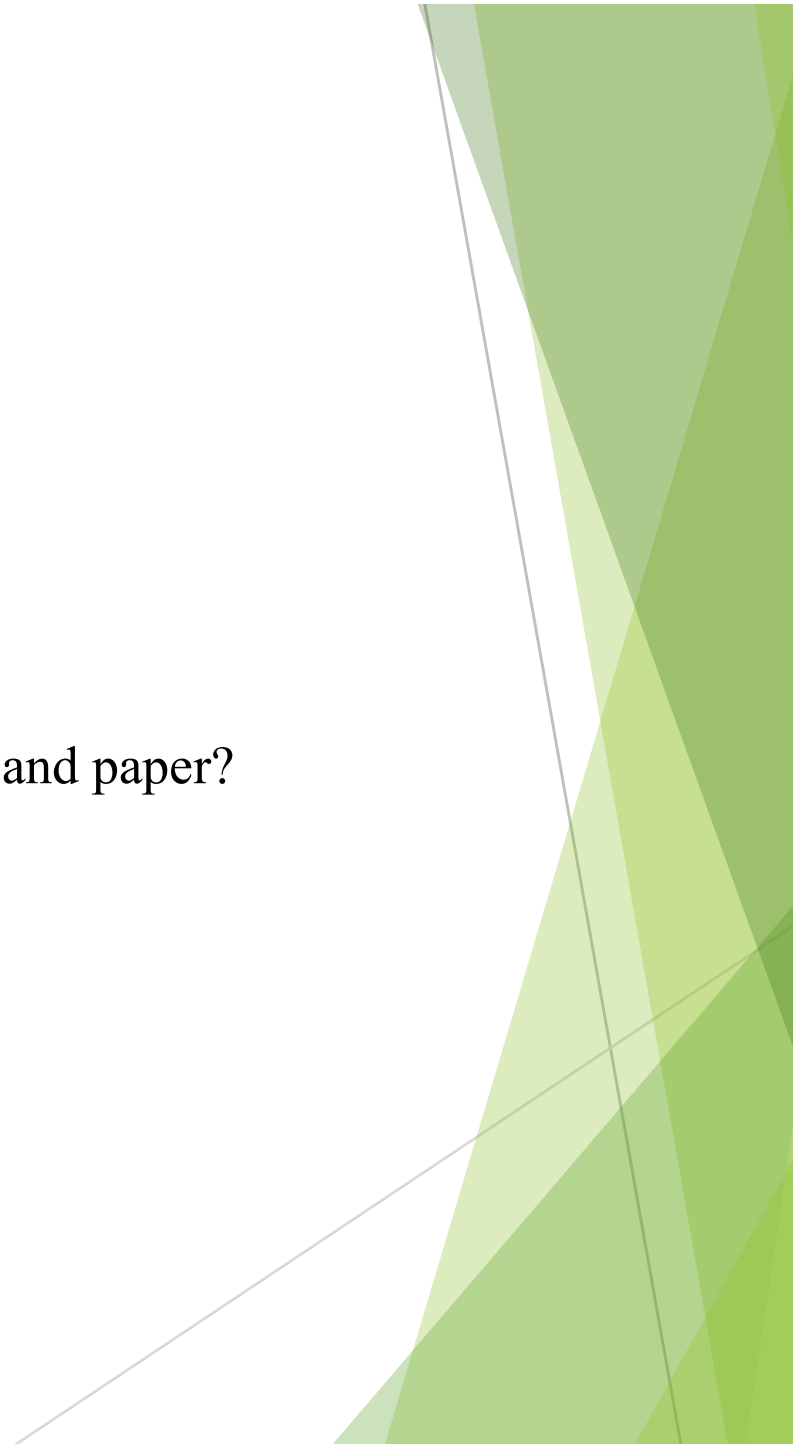to preserve Lencho's faith in God
all of the above

6- What else did the reply demanded apart from goodwill, ink and paper?

lost crop
money
God's signature
new seeds

Q19- Why was Lencho not surprised on seeing the money in the envelope?

A) he was too sad to acknowledge it
B) he had unwavering faith in God
C) he was an ungrateful man
D) none of the above

Q20- How did he feel when he counted the money?

A) grateful
B) joyful
C) relieved
D) angry

Q21- What did Lencho think of the post-office employees?

A) bunch of crooks
B) rude
C) unhelpful
D) proud

22- What did Lencho ask for in his second letter?

more money
remaining amount and not send it by mail
remaining amount and send it by mail only
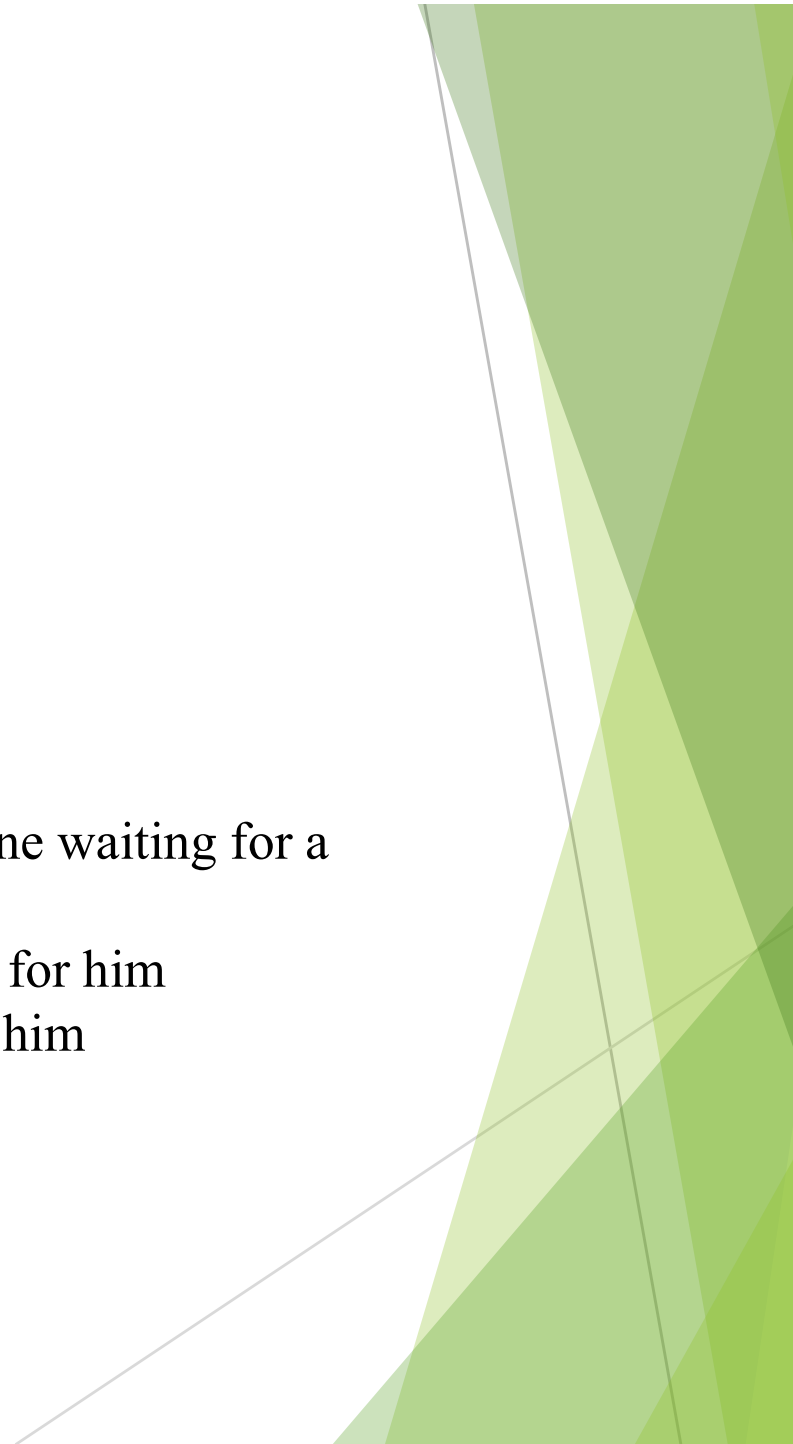he didn't ask for anything

23- What is the irony in this lesson?

Lencho was sad after the hailstorm even though he was the one waiting for a shower
Postmaster laughed at Lencho but still helped arrange money for him
Lencho blamed the post office employees who in fact helped him
there is no irony

-- What type of conflict does the chapter highlight?

conflict between nature and humans
conflict among humans
conflict among God and nature
both 1 and 2

- Who is the author of the lesson 'A Letter to God'?

G.L. Fuentes
.k. Rowling
William Shakespeare
Roald Dahl

ERY SHORT QUESTIONS

Who was Lencho?

Where was the house located?

Why do you think it is called 'the house' and not 'a house'?

Why did Lencho keep gazing at the sky?

How did Lencho feel when it started raining?

What was the effect of the rain on the crops?

Lencho had only one hope.What was it?

What had Lencho been doing throughout the morning?

What did Lencho's field need badely?

What does Lencho call the rain drops?

How did his field look after the hails had rained?

What was the effect of the hails storm on the valley?

Who did Lencho write a letter to?

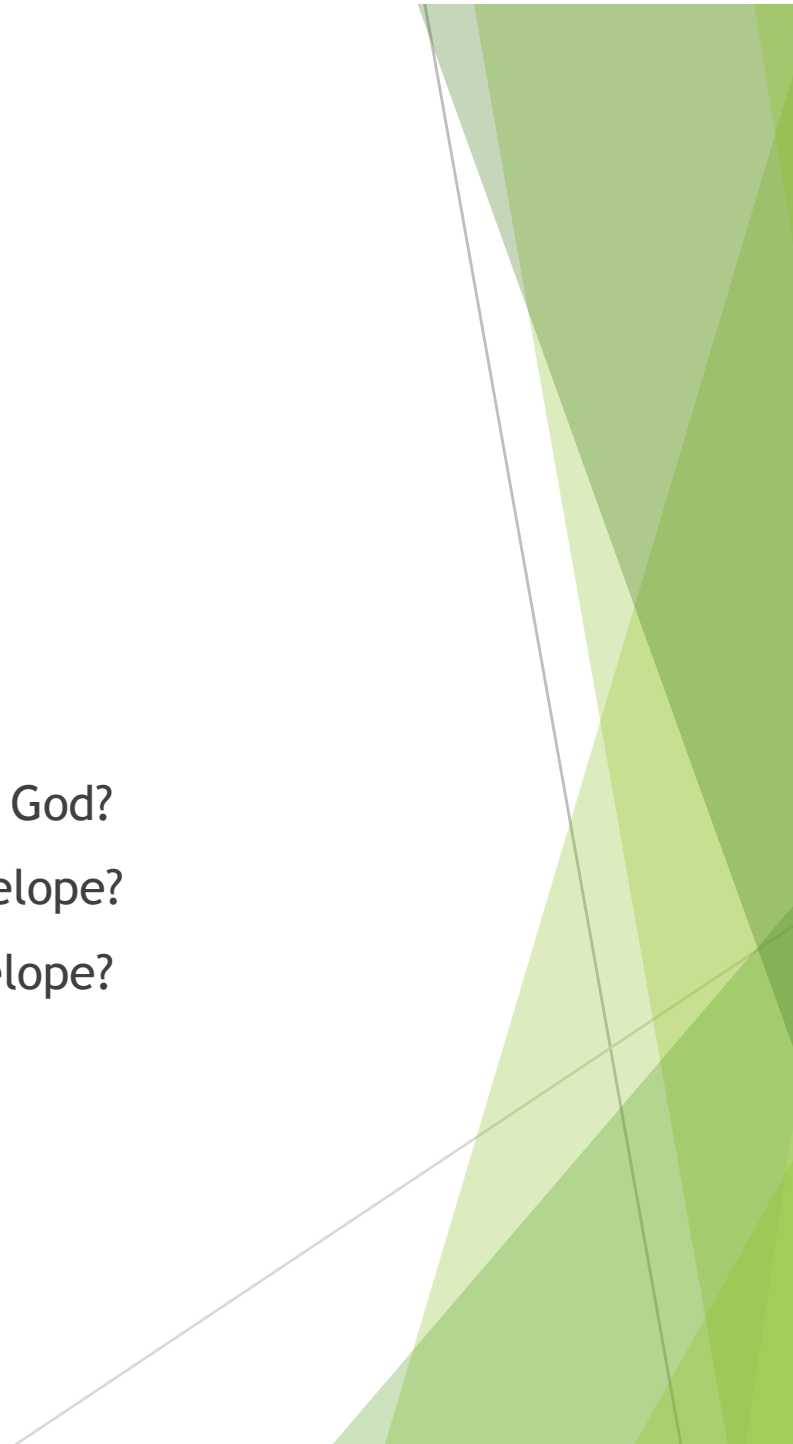How much money did Lencho receive from God?

Who sent the money to Lencho?

Why did the post master decide to answer Lencho's letter to God?

How did Lencho feel when he counted the money in the envelope?

Who did lencho blame for the loss of thirty pesos in the envelope?

What does Lencho call the post office employees?

ASSIGNMENT

Renu was disappointed with the performance of herself in the examination. Her friend encouraged her to develop faith in herself that she can also obtain good marks by doing hardwork. In context to the story 'A letter to God' explain that faith can move the mountains.
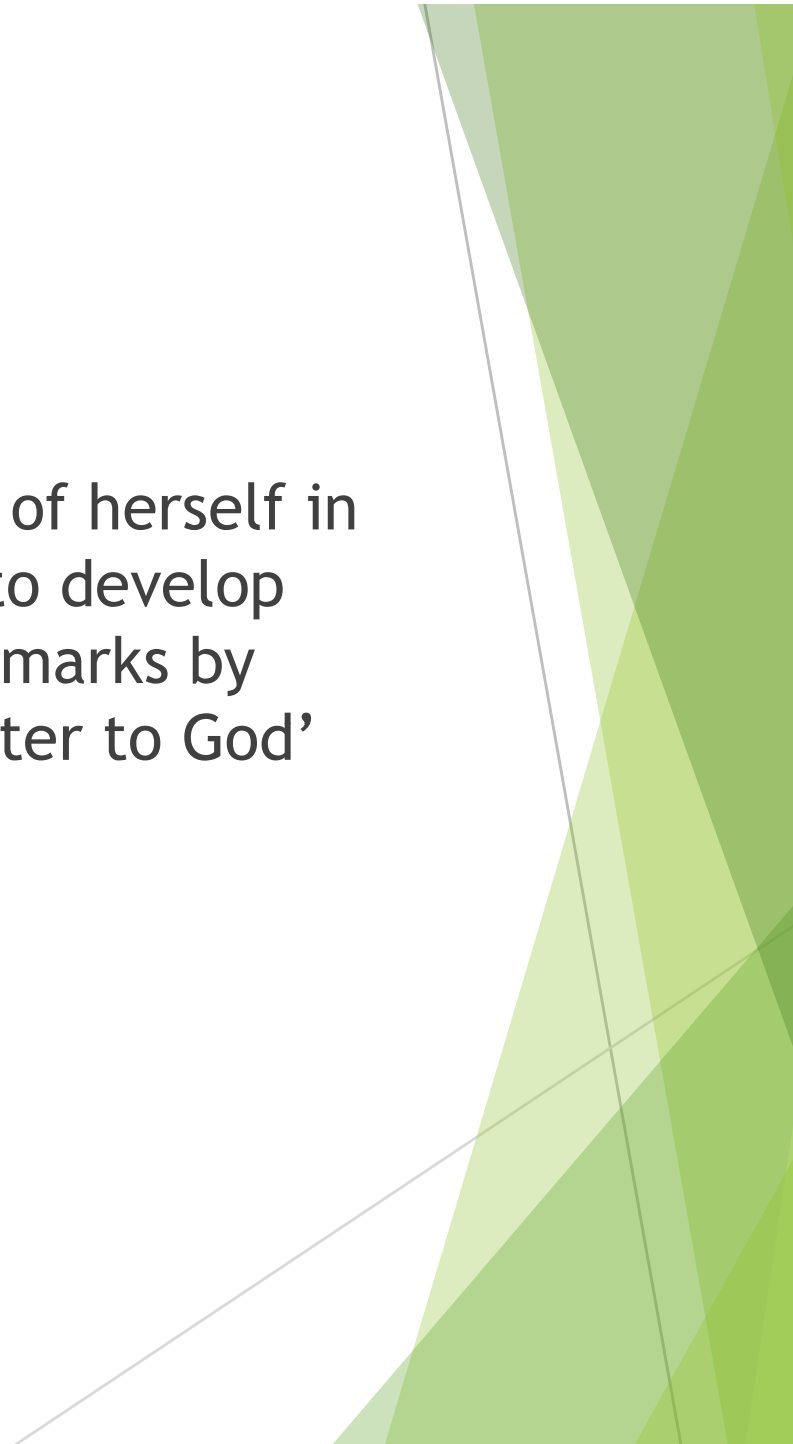
MORAL OF THE STORY

his lesson highlights immense power in man's faith in
God. It teaches us that if man has child-like faith in God,
e can accomplish anything considered impossible.
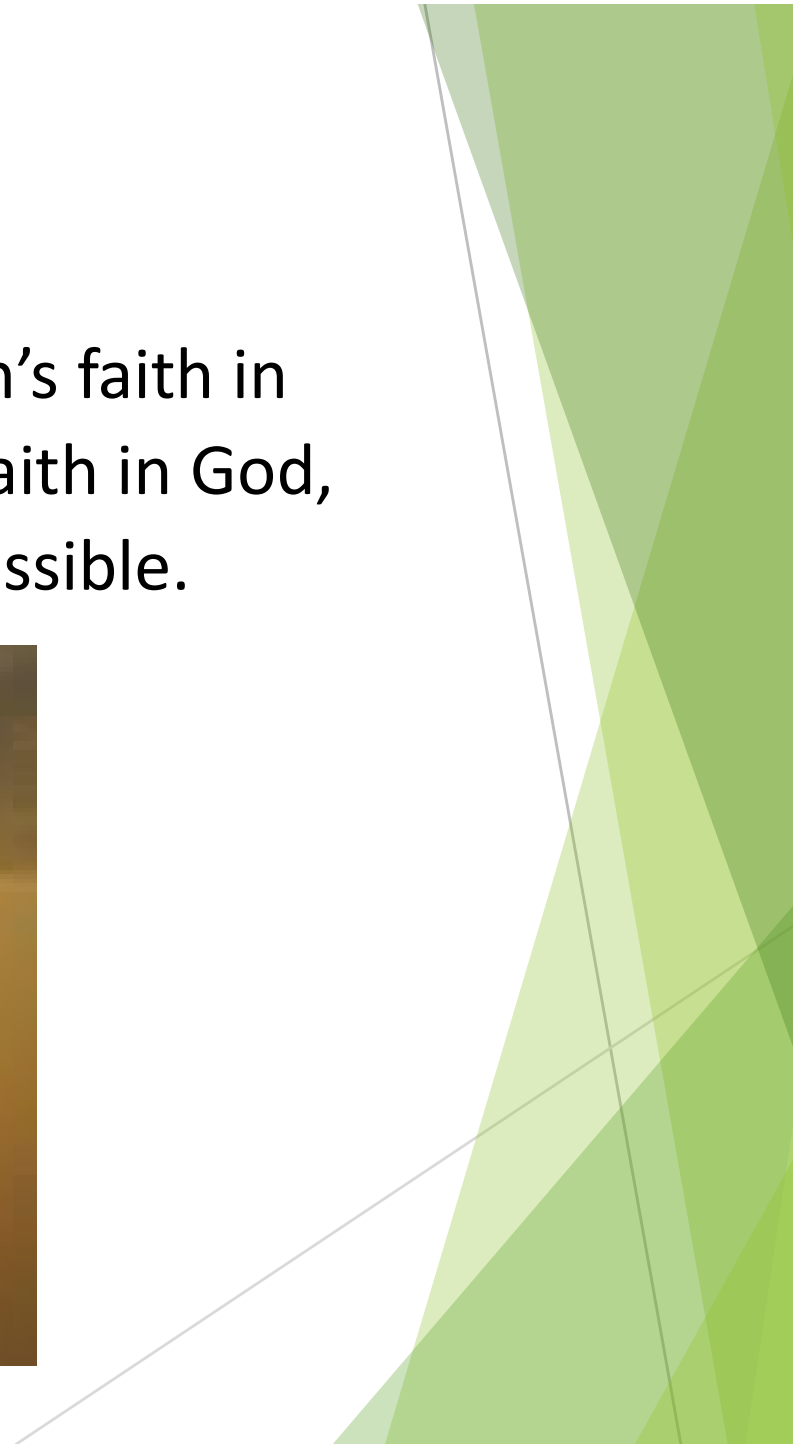
THANK YOU

AMUDHA R

TGT (ENGLISH)

KV, ARUVANKADU

Dust of Snow
BY **ROBERT FROST**

The way a crow
Shook down on me
The dust of snow
From a hemlock tree

Has given my heart
A change of mood
And saved some part
Of a day I had rued.

OBJECTIVES

- *To enable the students appreciate the beauty, rhyme and style of the poem.*

- *To make students understand the thought and imagination contained in the poem.*

- *To make students think about different human emotions and their effects.*

- *To inspire them write their feelings in the form of short poems.*

ROBERT FROST

Robert Lee Frost (March 26, 1874 – January 29, 1963) was an American poet. His work was initially published in England before it was published in America. Known for his realistic depictions of rural life and his command of American colloquial speech,[2] Frost frequently wrote about settings from rural life in New England in the early twentieth century, using them to examine complex social and philosophical themes.

Frost was honored frequently during his lifetime and is the only poet to receive four Pulitzer Prizes for Poetry. He became one of America's rare "public literary figures, almost an artistic institution."[3] He was awarded the Congressional Gold Medal in 1960 for his poetic works. On July 22, 1961, Frost was named poet laureate of Vermont.

Match the following

Snow
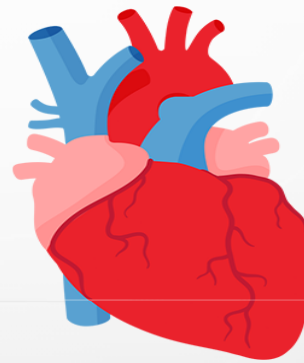
Crow

Heart

Hemlock

Dust of Snow Literary Devices

1.Rhyme Scheme- abab cdcd

2.Alliteration- the occurrence of the same letter or sound at the beginning of adjacent or closely connected words.
The instances of alliteration are as follows-

- **h**as given my **h**eart
- and **s**aved **s**ome part

- The way a crow
  shook down on me
  the dust of snow
  from a hemlock tree

- What did the crow do to the hemlock tree?

- What was there in the tree at that time?

- Where do you think was the poet then?

- Write the rhyming words.

Has given my heart
a change of mood
and saved some part
of a day I had rued.

- What had given the poet 'a change of mood'?

- What had the poet thought of that day?

- How was some part of the day saved for the poet?

- What is the rhyme scheme of this stanza

Very short questions

- Where was the crow sitting?

- What did the crow shakedown on the poet?

- In what mood was the poet before falling of snow on him?

- What type of plant is a hemlock tree?

- What fell on the poet from the hemlock tree?

- How did the dust of snow affect the poet?

- Who is the poet of the poem.

VALUE BASED QUESTIONS

- Positive attitude in life can make the world a better place to live in.do you agree or disagree with reference to the poem. Express your views bringing out the inherent values.

- Poets have great power of imagination. Robert Frost also explains his imagination very well and proves that sometimes the bad symbols change into a boon. Discuss.

NUMBER SYSTEM

✓ Human beings have trying to have a count of their belonging, goods, ornaments, jewels, animals, trees, goats, etc. by using techniques.

1. putting scratches on the ground

2.by storing stones-one for each commodity kept taken out

This was the way of having a count of their belongings without knowledge of counting

NUMBER SYSTEM

Number Systems

The questions of the type:

HOW MUCH?

HOW MANY?

Need accounting knowledge

The functions of learning number system

Are 11 functions, that to:

- ✓ Illustrate the extension of system of number from natural number to real (rational and irrational) numbers
- ✓ Identify different types of numbers
- ✓ Express an integers as a rational number
- ✓ Express a rational number as a terminating or non-terminating repeating decimal and vice-versa

The functions of learning number system

Number Systems

- ✓ Find rational numbers between any two rationals

- ✓ Represent a rational number on the number line

- ✓ Cites example of irrational numbers

- ✓ Represent $\sqrt{2}$, $\sqrt{3}$, $\sqrt{4}$ on the number line

- ✓ Find irrational numbers between any two given numbers

The functions of learning number system

Number Systems

- ✓ Round off rational and irrational numbers to given number of decimal places

- ✓ Perform the four fundamental operation of addition, subtraction, multiplication, and division on real numbers

1.1 EXPECTED BACKGROUND KNOWLEDGE

✓ It is about the accounting numbers in use on the day to day life

Accounting numbers

Day life

1.2 Recall of Natural Numbers, Whole Numbers, and Integers

✓ Natural Numbers

1, 2, 3, …

There is no greatest natural number, for if 1 added to any natural numbers. we get the next higher natural number, call its successor.

Example :

4+2=6

22-6=16

12:2=6

12×3=36

1.2 Recall of Natural Numbers, Whole Numbers, and Integers

Number Systems

Addition and multiplication of natural numbers again yield a natural numbers

But the subtraction and division of two natural number may or may not yield a natural numbers

Example:

2-6 = -4

6 : 4 = 3/2

Number line of natural numbers

1 2 3 4 5 6 7 8 9 ...

1.2 Recall of Natural Numbers, Whole Numbers, and Integers

✓ Whole Numbers

   The natural number were extended by zero (0)

      0, 1, 2, 3, …

There is no greatest whole numbers

The number 0 has the following properties:

a+0 = a = 0+a

a-0 = a but 0-a is not defined in whole numbers

a×0 = 0 = 0×a

Division by 0 is not defined

1.2 Recall of Natural Numbers, Whole Numbers, and Integers

Number Systems

The whole number in four fundamental operation is same

The line number of whole number

0   1   2   3   4   5   6   7   ...

1.2 Recall of Natural Numbers, Whole Numbers, and Integers

✓ Integers

Another extension of numbers which allow such subtractions. It is begin from negative numbers until the whole number.

The number line of integers

... -3 -2 -1 0 1 2 3 4 ...

1.2 Recall of Natural Numbers, Whole Numbers, and Integers

Number Systems

✓ Representing Integers on number line

A B   C D

... -4 -3 -2 -1 0 1 2 3 4 5 ...
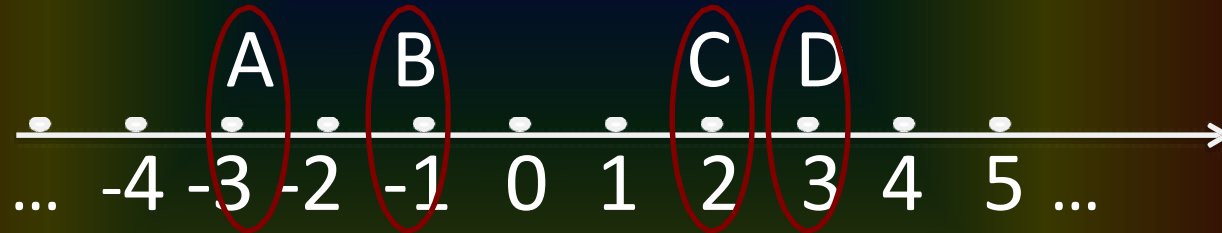
Then A = -3   C = 2

B = -1   D = 3

A < B, D > C, B < C, C > A

The rule:

1. A > B, if A is to the right of B

2. A < B, if A is to the left of B

1.3 Rational Number

✓ Rational Numbers

Consider the situation, when an integer a is divided by another non-zero integer b. The following case arise:

1. When A multiple of B

A = MB, where M is natural number or integer. Then, $A/B = M$

1.3 Rational Number

2. Rational number is when A is not A multiple B. A/B is not an integer. Thus, a number which can be put in the form p/q, where p and q are integers and q ≠ 0.

Example:

All Rational Numbers

$$\frac{-2}{3} \quad \frac{5}{-8} \quad \frac{6}{2} \quad \frac{11}{7}$$
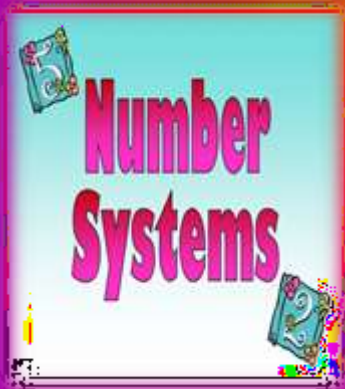
Number Systems

1.3 Rational Number

✓ Positive and Negative Rational Number

1. p/q is said positive numbers if p and q are both positive or both negative integers

2. p/q is said negative if p and q are of different sign. Example:

+

$$\frac{3}{4} \qquad \frac{-1}{-5}$$

-

$$\frac{-7}{4} \qquad \frac{6}{-5}$$
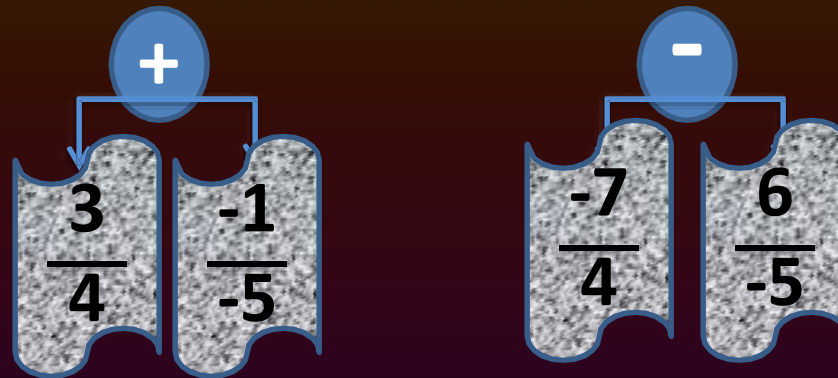
1.3 Rational Number

Number Systems

✓ Standard Form of a Rational Number

$$\frac{-p}{q} \quad \frac{p}{-q} \quad \frac{-p}{-q} \quad \frac{p}{q}$$

We can see that

-p/q = -(p/q)

-p/-q = -(-p)/-(-q)= p/q

p/-q= (-p)/q
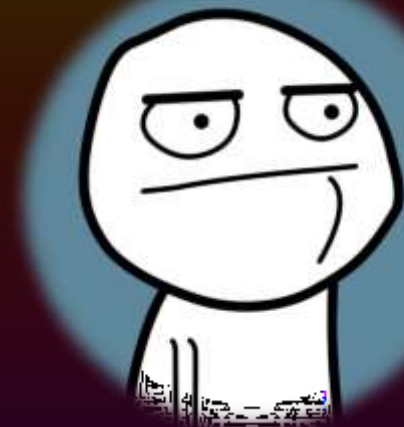
1.3 Rational Number

Notes:

    A rational number is standard form is also referred to as "a rational lowest form". There are two terms interchangeably

Example:

    18/27 can be written 2/3 in standard form (lowest form)
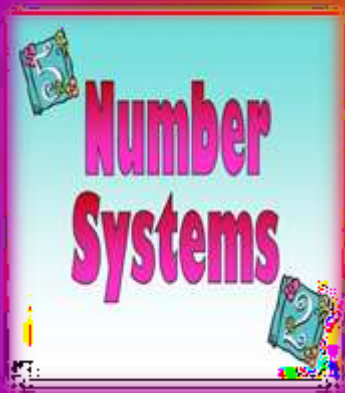
1.3 Rational Number

Some important result:

Reminder!

1. Every natural number is a rational number but vice-versa is not always true

2. Every whole number and integer is a rational number but vice-versa is not always true

1.7 FOUR FUNDAMENTAL OPERATIONS ON RATIONAL NUMBERS

✓ Addition of Rational Numbers

1. Consider the addition of rational numbers $\dfrac{p}{q}$, $\dfrac{r}{q}$

$$\frac{p}{q} + \frac{r}{q} = \frac{p+r}{q}$$

for example :

$$\frac{2}{3} + \frac{5}{3} = \frac{2+5}{3} = \frac{7}{3}$$
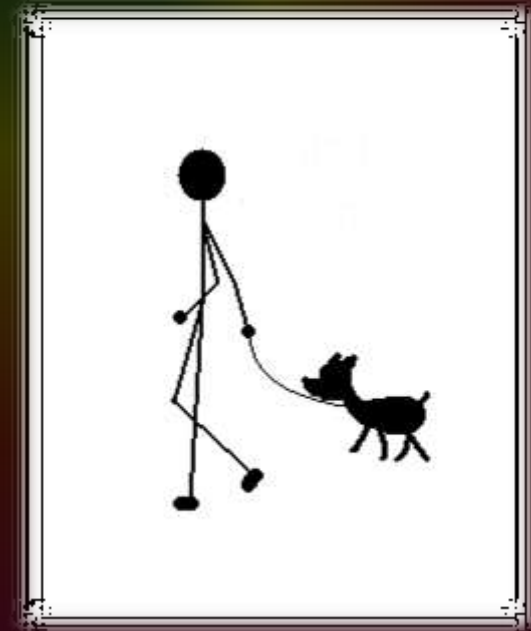
1.7 FOUR FUNDAMENTAL OPERATIONS ON RATIONAL NUMBERS

2. Consider the two rational numbers p/q   and r/s

$$p/q + r/s = ps/qs + rq/sq = \frac{ps + rq}{qs}$$

for example :

$$¾ + 2/3 = \frac{3x3 + 4x2}{4x3} = \frac{9 + 8}{12} = \frac{17}{12}$$

Number Systems

1.7 FOUR FUNDAMENTAL OPERATIONS ON RATIONAL NUMBERS

from the above two cases, we generalise the following rule:

(a) The addition of two rational numbers with common denominator is the rational number with common denominator and numerator as the sum of the numerators of the two rational numbers.

1.7 FOUR FUNDAMENTAL OPERATIONS ON RATIONAL NUMBERS

Number Systems

b) The sum of two rational numbers with different denominator is a rational number with the denominator equal to the product of the denominators of two rational numbers and the numerator equal to sum of product of the numerator of first rational with the denominator of second and the product of numerator of second rational number and the denominator of the first rational number.

1.7 FOUR FUNDAMENTAL OPERATIONS ON RATIONAL NUMBERS

Examples:

Add the following rational numbers :

(i) 2/7 and 6/7

(ii) 4/17 and -3/17

Solution:

(i) 2/7 + 6/7 = 8/7

(ii) 4/17 + (-3)/17 = 1/17

1.7 FOUR FUNDAMENTAL OPERATIONS ON RATIONAL NUMBERS

Number Systems

Add each of the following rational numbers, examples:

(i) 3/4 and 1/7

Solution :

(i) we have 3/4 + 1/7

$$= 3x7/4x7 + 1x4/7x4$$

$$= 21/28 + 4/28 \quad = 25/28$$

3/4 + 1/7 = 25/28 or 3x7+4x1 / 4x7

$$= 21+4/728 = 25/28$$

1.7 FOUR FUNDAMENTAL OPERATIONS ON RATIONAL NUMBERS

✓ Subtraction of Rational Numbers

(a) $p/q - r/q = p\text{-}r/q$

Example :

$7/4 - ¼ = \ldots$

$7/4 - 1/4 = 7 - 1$
           $\quad\quad\quad 4$

$= 6/4 = \dfrac{2\text{x}3}{2\text{x}2} = 3/2$

$3/5 - 2/15 = \ldots$

$3\text{x}12/5\text{x}12 - 2\text{x}5/12\text{x}5$

$= 36/60 - 10/60$

$= 26/60$

$= 13\text{x}2/30\text{x}2$

$= 13/30$

1.7 FOUR FUNDAMENTAL OPERATIONS ON RATIONAL NUMBERS

✓ Multiplication and Division of Rational Numbers

(i) Multiplication of two rational number (p/q) and (r/s) , q□0, s□0 is the

rational number pr/ps where qs□0

= product of numerators/product of denominators

(ii) Division of two rational numbers p/q and r/s , such that q□0, s□0, is the

rational number ps/qr, where qr □0

In the other words (p/q) □ (r/s) = p/r x (s/r)

Or (First rational number) x (Reciprocal of the second rational number)

Let us consider some examples

1.7 FOUR FUNDAMENTAL OPERATIONS ON RATIONAL NUMBERS

Examples :

(i) 3/7 and 2/9   (ii) 5/6 and (-2/19)

Solution :

(i) 3/7 x 2/9 = 3x2/7x9 = 3x2/7x3x3 = 2/21

$\square$ (3/7))x(2/9) = 2/21

(ii) 5/6 x (-2/19) = 5x(-2)/6x19 = - 2x5/2x3x19 = -5/57

$\square$ 5/6 x (-2/19) = -5/57

(i) $(3/4) \div (7/12)$

Solution:

(i) $(3/4) \div (7/12)$

$= (3/4)$ x $(12/7)$ [Reciplocal of 7/12 is 12/7]

$= 3$x$12/4$x$7 = 3$x3x$4/7$x$4 = 9/7$

$\div (3/4) \div (7/12) = 9/7$

1.8 DECIMAL REPRESENTATION OF A RATIONAL NUMBER

Number Systems

✓ You are familiar with the division of an integer by another integer and expressing the result as a decimal number. The process of expressing rational number into decimal from is to carryout the process of long division using decimal notation. Example: Represent each one the following into a decimal number   (i) $\dfrac{1\,2}{5}$ (ii) $\dfrac{-27}{25}$:

1.8 DECIMAL REPRESENTATION OF A RATIONAL NUMBER

Solution: Using long division, we get

(i)

$$\begin{array}{r} 2\,,4 \\ 5\overline{\smash{\big)}\,1\,2\,,} \\ 1\,0 \\ \hline 2\,,0 \\ 2\,,0 \\ \hline x \end{array}$$

Hence, $\dfrac{1\,2}{5} = 2{,}4$

(ii)

$$\begin{array}{r} -\,2\,7 \\ 2\,5\overline{\smash{\big)}\,2\,5} \\ 2\,0\,0 \\ 2\,0\,0 \\ \hline x \end{array}$$

(-1, 08)

hence, $\dfrac{-27}{25} = -1{,}08$

1.8 DECIMAL REPRESENTATION OF A RATIONAL NUMBER

From the above example, it can be seen that the division process stops after a finite number of steps, when the remainder becomes zero and the resulting decimal number has a finite number of decimal places. Such decimals are known as terminating decimals.

Note that in the above division, the denominators of the rational numbers had only 2 or 5 or both as the only prime factor

1.8 DECIMAL REPRESENTATION OF A RATIONAL NUMBER

Alternatively, we could have written $\dfrac{12}{5}$ as

$$\dfrac{12 \times 2}{5 \times 2} = \dfrac{24}{10} = 2{,}4$$

Other examples:

$$3 \,\overline{\big)\, \begin{array}{l} 2{,}33 \\ \hline 7{,}00 \\ 6 \\ \hline 1{,}0 \\ 9 \\ \hline 1{,}00 \end{array}}$$

Here the remainder 1 repeats.

The decimal is not a terminating decimal

$$\dfrac{7}{3} = 2{,}333\ldots \text{ or } 2{,}\overline{3}$$

1.8 DECIMAL REPRESENTATION OF A RATIONAL NUMBER

Number Systems
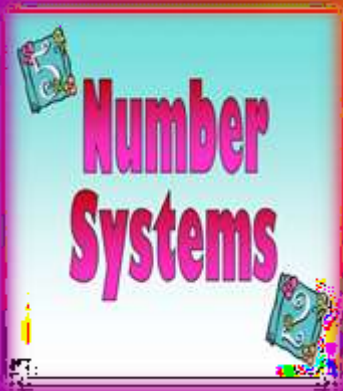
$$0,28571428$$

$$7 \overline{\smash{\big)}\, 2.000}$$

$$\underline{14}$$
$$60$$
$$\underline{56}$$
$$40$$
$$\underline{35}$$
$$50$$
$$\underline{49}$$
$$10$$
$$\underline{7}$$
$$30$$
$$\underline{28}$$
$$20$$
$$\underline{14}$$
$$60$$
$$\underline{56}$$
$$4$$

$$\frac{2}{7} = 0,2$$

Note: A bar over a digit or a of digits implies that group of digits starts repeating itself indefinitely.

1.8 DECIMAL REPRESENTATION OF A RATIONAL NUMBER

✓ Expressing decimal expansion of rational number in p/q form

Examples:

Express **0,48** in form p/q !

$$\frac{48}{100} = \frac{12}{25}$$

Express **0,666** in form p/q !

Let x = 0,666 (A)

◆ 10 x = 6,666 (B)

(B)-(A) gives 9x = 6 or

x = 2/3

The example above illustrates that:
A terminating decimal or a non-terminating recurring decimal represents a rational number

Number Systems

1.8 DECIMAL REPRESENTATION OF A RATIONAL NUMBER

Note :

The non-terminating recurring decimals like 0,374374374... are written as $0,\overline{374}$.

The bar on the group of digits 374 indicate that group of digits repeats again and again.

1.9 RATIONAL NUMBERS BETWEEN TWO RATIONAL NUMBERS

Number Systems

Is it possible to find a rational number between two given rational numbers. To explore this, consider the following example.

Example : Find rational number between $\frac{3}{4}$ and $\frac{6}{5}$

Let us try to find the number $\frac{1}{2}$ ($\frac{3}{4}$ + $\frac{6}{5}$)

$\frac{1}{2}$ ($\frac{15+24}{20}$) = $\frac{39}{40}$ now, $\frac{3}{4}$ = $\frac{3 \times 10}{4 \times 10}$ = $\frac{30}{40}$

And $\frac{6}{5}$ = $\frac{6 \times 8}{5 \times 8}$ = $\frac{48}{40}$ abviously, $\frac{30}{40} < \frac{39}{40} < \frac{48}{40}$

1.9 RATIONAL NUMBERS BETWEEN TWO RATIONAL NUMBERS

$\frac{39}{40}$ is a rational number between the rational numbers $\frac{3}{4}$ and $\frac{6}{5}$

Note : $\frac{3}{4}$ = 0,75. $\frac{39}{40}$ = 0, 975 and $\frac{6}{5}$ = 1,2

Than: 0,75 < 0, 975 < 1,2

This can be done by either way :

(i) reducing each of the given rational number with a common base and then taking their average

(ii) by finding the decimal expansions of the two given rational numbers and then taking their average

1.4 Equivalent Forms of a Rational Number

Number Systems

  A rational number can be written in an equivalent form by multiplying or dividing the numerator and denominator of the given rational number by the same number

Example :

$$2/3 = \frac{2\times2}{3\times2} = 4/6 \quad \text{and} \quad 2/3 = \frac{2\times4}{3\times8} = 8/12$$

  It's mean 4/6 and 8/12 are equivalent form of the rational number 2/3

1.5 Rational Numbers on the Number Line

Number Systems

✓ We know how to represent intergers on the number line. Let us try to represent ½ on the number line. The rational number ½ is positive and will be represented to the right of zero. As 0<½<1, ½ lies between 0 and 1. divide the distance OA in two equal parts. This can be done by bisecting OA at P

1.5 Rational Numbers on the Number Line

Let P represet ½. Similarly R, the mid-point of OA', represents the rational number -½.

```
                    A   R  0  P  A
  <-----•---------•----•--•--•--•------•--------•--------•----->
    …      -2        -1 -1/2 0 1/2 1       2        3       …
```
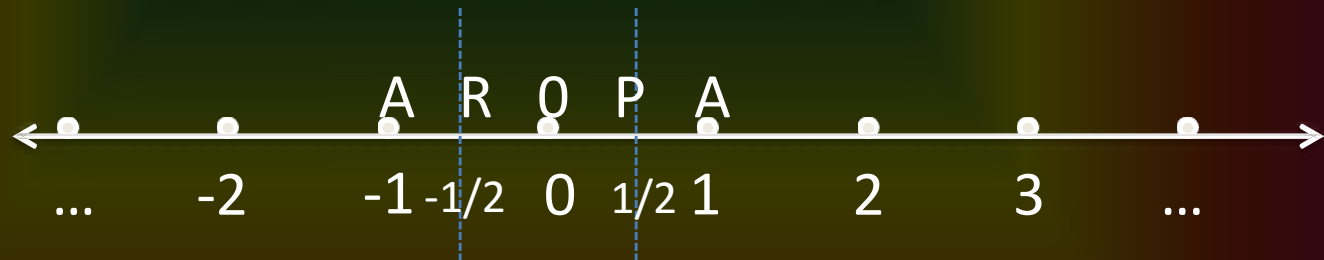
Similarly , $\dfrac{4}{3}$ can be represented on the number line as below:

```
          B'      A'      O      A  P  B      C
  <----•-----•-------•-------•----•--•--•------•-----•---->
    …     -2      -1       0      1     2      3       …
                                    4/3
```
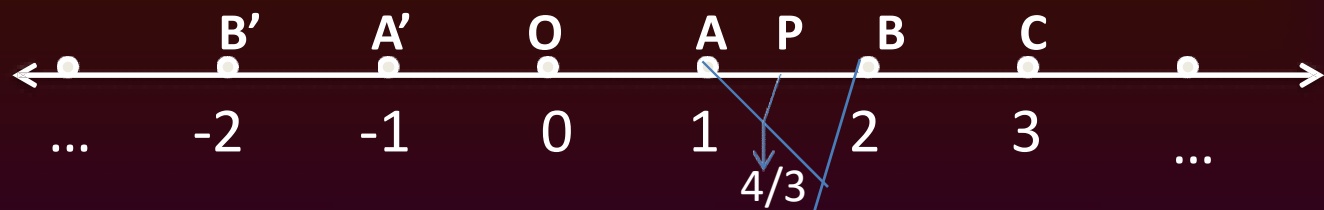
As 1 < 4/3 < 2 therefore, 4/3 between 1 and 2

1.6 COMPARISON OF RATION NUMBER

In order to compare to rational number, we follow any of the following methods:

(i)If two rational numbers, to be compare have the same denominator compare their numerators. The number having the greater numerator is the greater rational number. Thus for the two rational numbers $\frac{5}{17}$ and $\frac{9}{17}$, with the same positive denominator.

$17, \frac{9}{17} > \frac{5}{17}$ as 9>5. so, $\frac{9}{17} > \frac{5}{17}$

1.6 COMPARISON OF RATION NUMBER

(ii) If two rational number are having different denominator, make ther denominator equal by taking their equivalent form and then compare the numerator of the resulting rational numbers. The number having a greater numerator is greater rational number.

For example, to compare two rational numbers $\frac{3}{7}$ and $\frac{6}{11}$, we first make their denominator same in the following manner:
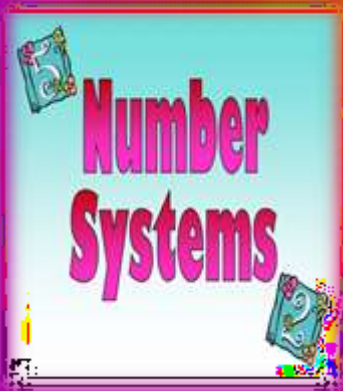
$$\frac{3 \times 11}{7 \times 11} = \frac{33}{77}$$

$$\frac{9 \times 7}{11 \times 7} = \frac{42}{77}$$

As 42>33, $\frac{42}{77} > \frac{33}{77}$ or $\frac{6}{11} > \frac{3}{7}$

(iii) By plotting two given rational numbers on the number line we see that rational number to the righ of the other rational number is greater.

Number Systems

1.6 COMPARISON OF RATION NUMBER

For example, take $\frac{2}{3}$ and $\frac{3}{4}$, we plot these number on the number line as below:

-2   -1   0   1   2   3

1.6 COMPARISON OF RATION NUMBER

0<⅔<1 and 0< ¾<1. it means ⅔ and ¾ both lie between 0 and 1. by the method of diving a line Into equal number of parts, A represent ⅔ and B represent ¾

As B is to the right of A, ¾>⅔ or ⅔<¾

So, out of ⅔ and ¾, ¾ is greter number.

Thank's for your attention

Number Systems

Real Numbers
CLASS - X
Mathematics

PRESENTED BY

G VIJAYALAKSHMI

Venn Diagram of the Real Number System

Real Numbers

• Real numbers consist of all the rational and irrational numbers.

• The real number system has many subsets:

• **Natural Numbers**

• **Whole Numbers**

• **Integers**

• **Rational Number**

• **Irrational Numbers**

REAL NUMBERS

RATIONAL NUMBERS

- Can be expressed in p/q form

- Gives terminating decimal or non-terminating repeating decimal

- Eg: 7,10,5/3,3/7 etc

IRRATIONAL NUMBERS

- Can not be expressed in p/q form

- Gives non-terminating non-repeating decimal

- Eg: $\sqrt{3}$, $\sqrt{5}$, $\sqrt{7}$ etc

DESCIPTION OF PARTS OF REAL
NUMBERS
Natural Numbers
• *Natural numbers are the set of counting numbers.*
{1, 2, 3,...}
Whole Numbers
•*Whole numbers are the set of numbers that include 0 plus the set of*
natural numbers.
{0, 1, 2, 3, 4, 5,...}
Integers
• *Integers are the set of whole numbers and their opposites.*
{...,-3, -2, -1, 0, 1, 2, 3,...}

Rational Numbers

• *Rational numbers are any numbers that can be expressed in the form of a/b*

　　　where *a and b are integers, and b ≠ 0.*

• They can always be expressed by using terminating decimals or repeating decimals.

　Examples:36.8, 0.125, 4.5

Irrational Numbers

• *Irrational numbers are any numbers that cannot be expressed in the form of a/b*

　　　where *a and b are integers, and b ≠ 0.*

• They are expressed as ***non-terminating, non-repeating decimals;*** decimals that go on forever without repeating a pattern.

　Examples:0.34334333433334…, 45.86745893…,

　(pi), 2

EUCLID'S DIVISION ALGORITHM

For every given positive integers a and b, there exists unique integers
q and r satisfying the condition:
a = bq + r ; where 0 ≤ r < b

Example of Euclid's Division

Algorithm:

Find the HCF of 4052 and 12576:
Since 12576 > 4052,we apply the division lemma to 12576 and 4052,to get :
12576 = 4052 * 3 + 420
Since, the remainder 420 = 0 , we apply the division lemma to 4052 and 420 , to get:
4052 = 420 * 9 + 272
We consider the new divisor 420 and the new remainder 272,and apply the division lemma to get :
420 = 272 * 1 + 148

We consider the new divisor 272 and the new remainder 148,and apply the division lemma to get :

272 = 148 *1 +124

We consider the new divisor 148 and the new remainder 124,and apply the division lemma to get :

148 = 124 *1 + 24

We consider the new divisor 124 and the new remainder 24,and apply the division lemma to get :

124 = 24 * 5 + 4

We consider the new divisor 24 and the new remainder 4,and apply the division lemma to get :

24 = 4 * 6 + 0

Now, the HCF is 4.

QUESTIONS

• **Use Euclid's division algorithm to find the HCF of:**
(i) 135 and 225
Answer:

135 and 225
Since 225 > 135, we apply the division lemma to 225 and 135 to obtain
225 = 135 × 1 + 90
Since remainder 90 ≠ 0, we apply the division lemma to 135 and 90 to obtain
135 = 90 × 1 + 45

We consider the new divisor 90 and new remainder 45, and apply the division lemma to
obtain
90 = 2 × 45 + 0
Since the remainder is zero, the process stops.
Since the divisor at this stage is 45,
Therefore, the HCF of 135 and 225 is 45.

(ii) 196 and 38220

Answer:

196 and 38220

Since 38220 > 196, we apply the division lemma to 38220 and 196 to obtain

38220 = 196 × 195 + 0

Since the remainder is zero, the process stops. Since the divisor at this stage is 196

Therefore, HCF of 196 and 38220 is 196.

(ii) 196 and 38220

Answer:

196 and 38220

Since 38220 > 196, we apply the division lemma to 38220 and 196 to obtain

38220 = 196 × 195 + 0

Since the remainder is zero, the process stops. Since the divisor at this stage is 196,

Therefore, HCF of 196 and 38220 is 196.

(iii) 867 and 255

Answer:

867 and 255
Since 867 > 255, we apply the division lemma to 867 and 255 to obtain
867 = 255 × 3 + 102
Since remainder 102 ≠ 0, we apply the division lemma to 255 and 102 to obtain
255 = 102 × 2 + 51
We consider the new divisor 102 and new remainder 51, and apply the division lemma to obtain
102 = 51 × 2 + 0
Since the remainder is zero, the process stops.
Since the divisor at this stage is 51, Therefore, HCF of 867 and 255 is 51.

• An army contingent of 616 members is to march behind an
army band of 32 members in a parade. The two groups are
to march in the same number of columns. What is the
maximum number of columns in which they can march?

Answer:

HCF (616, 32) will give the maximum number of columns in
which they can march.
We can use Euclid's algorithm to find the HCF.
$616 = 32 \times 19 + 8$
$32 = 8 \times 4 + 0$
The HCF (616, 32) is 8.
Therefore, they can march in 8 columns each.

Use Euclid's division lemma to show that the square of any positive integer is either of form 3m or 3m + 1 for some integer m.

Answer:

Let a be any positive integer and b = 3.

Then a = 3q + r for some integer q ≥ 0

And r = 0, 1, 2 because 0 ≤ r < 3

Therefore, a = 3q or 3q + 1 or 3q + 2 Or,

<u>case : 1</u> $a^2 = (3q)^2 = 3 \times (3q^2)$ ⟶ 3 m form

<u>case : 2</u> $a^2 = (3q+1)^2 = 9q^2 + 6q + 1 = 3 \times (3q^2 + 2q) + 1$ ⟶ 3m + 1 form

<u>case : 3</u> $a^2 = (3q+2)^2 = 9q^2 + 12q + 4 = 3 \times (3q^2 + 4q + 1) + 1$ ⟶ 3m + 1 form

(Where m is some positive integers)

Hence, it can be said that the square of any positive integer is either of the form 3m or 3m + 1.

- Express each number as product of its prime factors:

(i) 140

Answer: 140 = 2 × 2 × 5 × 7 = 2 × 2 × 5 × 7

(ii) 156

Answer: 156 = 2 × 2 × 3 × 13 = 2 × 2 × 3 ×13

(iii) 3825

Answer: 3825 = 3 × 3 × 5 × 5 × 17 = 3 × 2 × 5 × 2 ×17

(iv) 5005

Answer: 5005 = 5 × 7 × 11 × 13

(v) 7429

Answer: 7429 = 17 × 19 × 23

•Use Euclid's division lemma to show that the cube of any positive integer is of the form 9*m*, 9*m* + 1 or 9*m* + 8.

Answer

Let *a be any positive integer and b = 3*

a = 3q + r, where q ≥ 0 and 0 ≤ r < 3

a = 3q or 3q + 1 or 3q + 2

Therefore, every number can be represented as these three forms.

There are three cases.

Case 1: When *a = 3q*,

$a^3 = (3q)^3 = 27q^3 = 9(3q^3) = 9m$

Where *m is an integer such that m = 3q^3*

Case 2: When $a = 3q + 1$,
$a^3 = (3q + 1)^3$
$a^3 = 27q^3 + 27q^2 + 9q + 1$
$a^3 = 9(3q^3 + 3q^2 + q) + 1$
$a^3 = 9m + 1$

Where *m is an integer such that m = $(3q^3 + 3q^2 + q)$*

Case 3: When $a = 3q + 2$,
$a^3 = (3q + 2)^3$
$a^3 = 27q^3 + 54q^2 + 36q + 8$
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Assignment

1. Using Euclid's algorithm, find the HCF of 240 and 228.

2. Using Euclids division algorithm , find H C F of 960 and 432.

3. Show that ,24^n cannot end with zero for any natural number

4. Use Euclid's Division Algorithm to find the HCF of 726 and 275.

5. State fundamental theorem of arithmetic. Also find prime factors of 546.

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CLASS - X
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Where m is an integer such that $m = (3q^3 + 3q^2 + q)$

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10. The number of $7x \, 6x \, 5x \, 4x \, 3x \, 2x \, 1 + 5$ is

   (a) divisible by 5   (b) an even number (c) a prime number

   (d) divisible by 3

CHEMICAL REACTIONS AND EQUATIONS

1. Name the chemical substance present in Magnesium ribbon.

2. Why should a Magnesium ribbon be cleaned before burning in air?

3. What are balanced chemical equations? Give any two examples.

4. Explain exothermic and endothermic reactions with clear cut examples.

5. Identify the chemical reactions:

     a) $CaO + H_2O \rightarrow Ca(OH)_2$ ---

     b) $CH_4 + 2O_2 \rightarrow CO_2 + 2H_2O$ ---

     c) $CaCO_3 \rightarrow CaO + CO_2$ -----

     d) $Fe + CuSO_4 \rightarrow FeSO_4 + Cu$ ---

     e) $Na_2SO_4 + BaCl_2 \rightarrow BaSO_4 + 2NaCl$ ---

6. Name the substance oxidised and reduced in the following reactions:

   a) $ZnO + C \xrightarrow{Zn} CO$

   b) $2Cu + O_2 \xrightarrow{} 2CuO$

   c) $MnO_2 + 4HCl \xrightarrow{} MnCl_2 + 2H_2O + Cl_2$
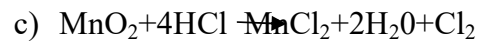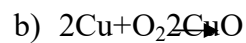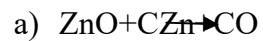
7. Name the substance which prevents the oxidation of food.

8. Why does the colour of $CuSO_4$ solution change when an iron nail is dipped in it?

9. What is Corrosion? Write the methods to prevent corrosion.

10. What is rancidity? How can it be prevented?

KENDRIYA VIDYALAYA ARUVANKADU

WORKSHEET 1(class-IX)

2020-21

MATTER IN OUR SURROUNDINGS

1.   Name the five basic elements of matter classified by early Indian philosophers.

2.   Particles of matter are continuously moving. Is it true? Why?

3.   What is diffusion ?

4.   What happens when you open a bottle of perfume?

5.   What are the characteristics of particles of matter?

6.   A doctor advices to use ice pad on forehead to bring down high fever instead of using   water at
0°C? Why?

7.   Expand CNG and LPG.

8.   Anything that occupies space has mass and volume. Name it.

9.   During summer water kept in earthen pot becomes cool because of the phenomenon of-----------
(diffusion, transpiration, osmosis, evaporation)

10.   Osmosis is a special kind of diffusion. Comment.

French revolution

Fall of the Bastille

Art Resource, NY/Giraudon

On 14 July, 1789, the prison of the Bastille was stormed by a mob, for whom it represented the despotic power of the hated Bourbon monarchy.

.

French Revolution is the cataclysmic political and social upheaval, extending from 1789 to 1799.

Louis XVI

Marie Antoinette

REVOLUTIONARY ARMIES

Encarta Encyclopedia, Robert Harding Picture Library/Bulloz/George Rainbird Ltd.

The slogan on the banner of this unit of French troops from the early 1790s, reading "Live Free or Die", demonstrates the radical spirit and high morale of the revolutionary armies

.

GUILLOTINING OF LOUIS XVI

Encarta Encyclopedia, Bridgeman Art Library, London/New York/Giraudon
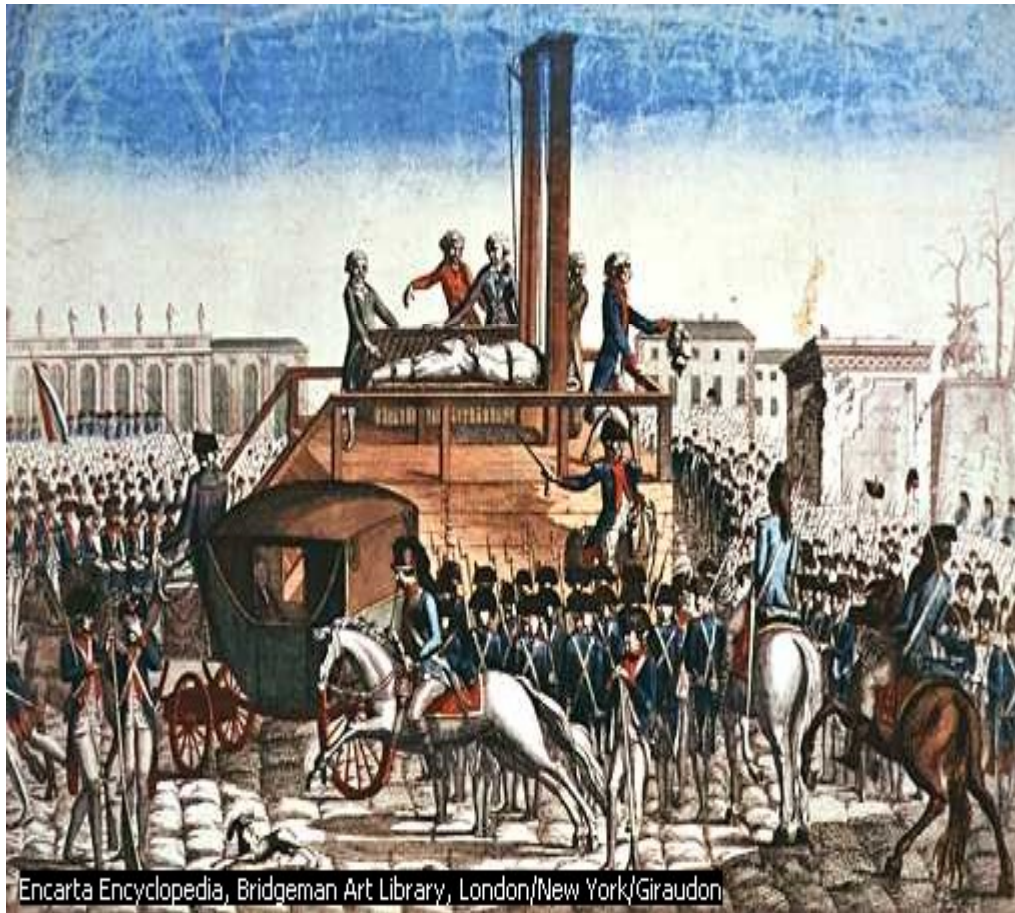
On January 21, 1793, Louis XVI of France went to the guillotine after his conviction for treason and the proclamation of France's First Republic.

MAXIMILIEN ROBESPIERRE
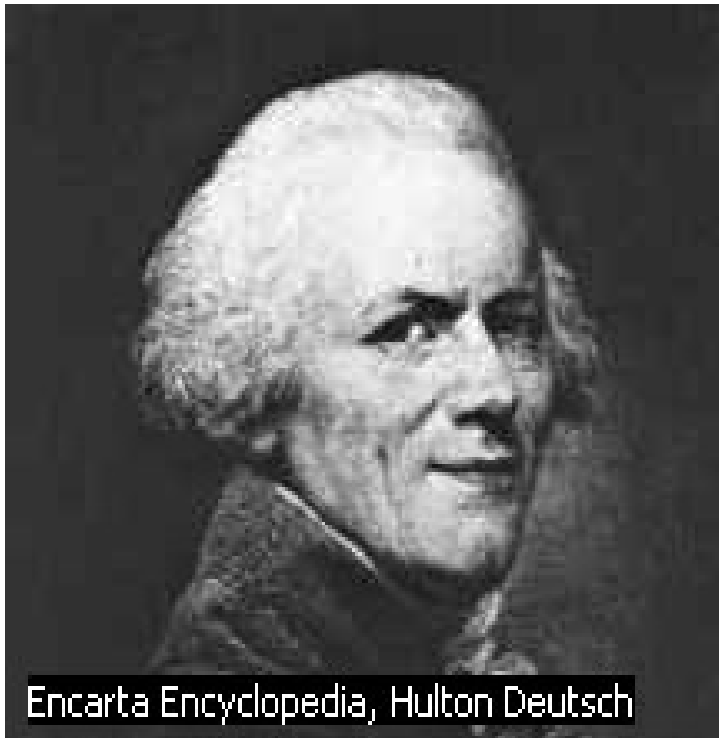
Encarta Encyclopedia, Hulton Deutsch

Maximilien Robespierre was one of the most controversial figures in the French Revolution. In the cause of fostering democracy, Robespierre helped bring about the Reign of Terror, in which thousands were executed by the guillotine. He eventually met the same fate.

NAPOLEON BONAPARTE

Napoleon Bonaparte was the greatest military genius of the 19th century. He conquered most of Western Europe and Egypt for France, while instituting reforms in these new territories aimed at guaranteeing civil liberties and improving the quality of life. He crowned himself emperor of France in 1804 and introduced reforms intended to unify the revolution-fractured nation. Many of Napoleon's reforms are still in effect today.

Causes of the French Revolution

Age of Enlightenment

- Challenged the absolute right to rule
- Liberal society can flourish with free commerce
- Appealed to bourgeoisie grievances

Population divided into three states

1. Clergy- The First Estate
2. Nobility- The Second Estate
3. Commoners- The Third Estate (majority of population)

Introduction to revolutionary ideas

- Take up arms against tyranny
- Liberal freedoms for all men
- No taxation without representation
- A republic is superior to a monarchy

France sent troops and supplies to aid the American revolutionaries

France was an absolute monarchy with a weak monarch

King Louis XVI

- He preferred personal interests to court interests
- He was strongly influenced by his wife, Marie Antoinette
- He was incapable of strong decisive action

Financial difficulties

- Need for tax reform
  - The peasants and bourgeoisie were unhappy because they had to pay all the taxes
  - Nobles were determined not to give up their tax concessions
- Government had large debts with heavy interest
  - Extravagant spending on courts
  - Over ambitious wars

FRENCH REVOLUTION

GEOGRAPHY

CLASS 10th

RESOURCES AND DEVELOPMENT

1068CH01

Everything available in our environment which can be used to satisfy our needs, provided, it is technologically accessible, economically feasible and culturally acceptable can be termed as 'Resource
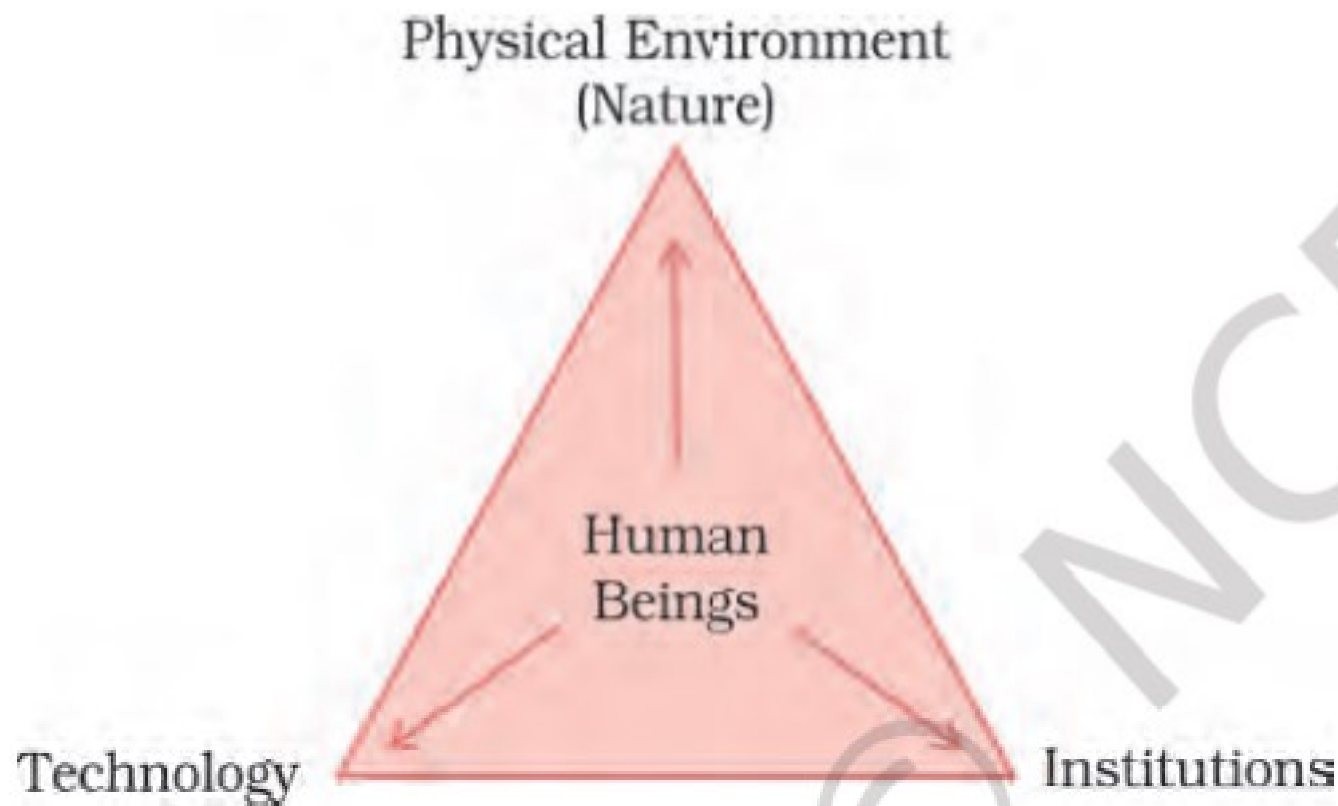
Fig. 1.1: *Interdependent relationship between nature, technology and institutions*

Human beings interact with nature through technology and create institutions to accelerate their economic development.

Do you think that resources are free gifts of nature as is assumed by many?

- Resources are a function of human activities
- They transform material available in our environment into resources and use them

Classification of resources
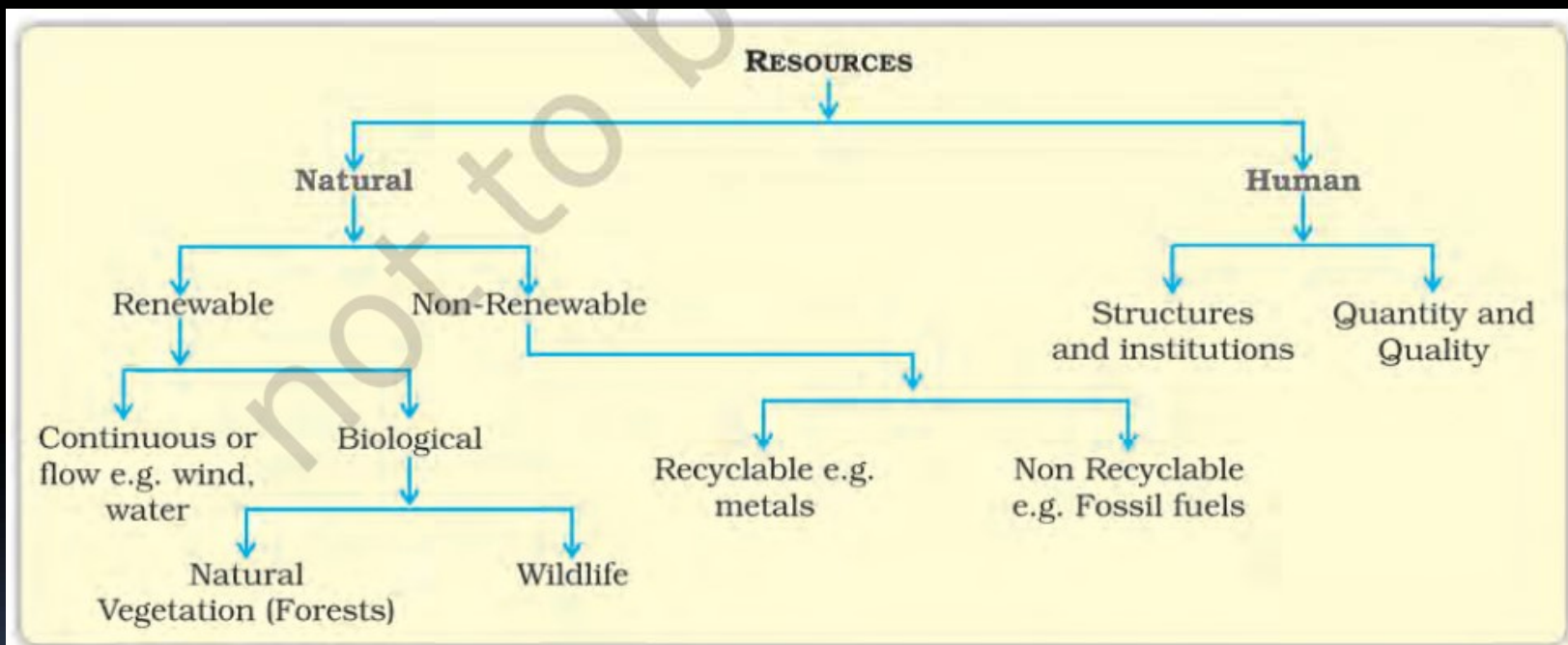
Fig. 1.2: Classification of resources

TYPES OF RESOURCES

On the Basis of Origin

Biotic Resources

Bio means life

- obtained from biosphere
- have life
- Example- human beings, flora and fauna , fisheries, livestock etc

Abiotic Resources

- non-living things
- examples- rocks and metals

Origin

Biotic Resources

Forests

Land Animals

Sea Animals

Human Beings

Origin

Rocks

Minerals

Metals

Abiotic Resources

On the Basis of Exhaustibility

Renewable Resources:

- Can be reproduced by physical, chemical or mechanical processes
- Also known as Replenishable resources
- For example-solar and wind energy, water, forests and wildlife.

Renewable Resources:

continuous or flow like- water , wind

Biological

Natural vegetation (forests)

wildlife

Non-Renewable Resources:

- ✓ These occur over a very long geological time.
- ✓ take millions of years in their Formation
- ✓ like – minerals, fossil fuels

Some of the resources like metals are recyclable and some like fossil fuels cannot be recycled and get exhausted with their

Exhaustiblity

Renewable Resources

Non renewable

Exhaustiblity

Coal   Natural Oil   Natural Gas

On the Basis of Ownership

Individual Resources

(owned privately by individuals)

Community Owned Resources

(accessible to all the members of the community. grazing grounds ponds)

National Resources

(belong to the nation like roads, canals, railways water resources, forests, wildlife

International Resources:

Regulated by international institutions

beyond 200 nautical miles of the Exclusive Economic Zone

Note:- land within the political boundaries and oceanic area up to 12 nautical miles (22.2 km) from the coast termed as territorial water and resources therein belong to the nation.

Ownership

19.2 Km
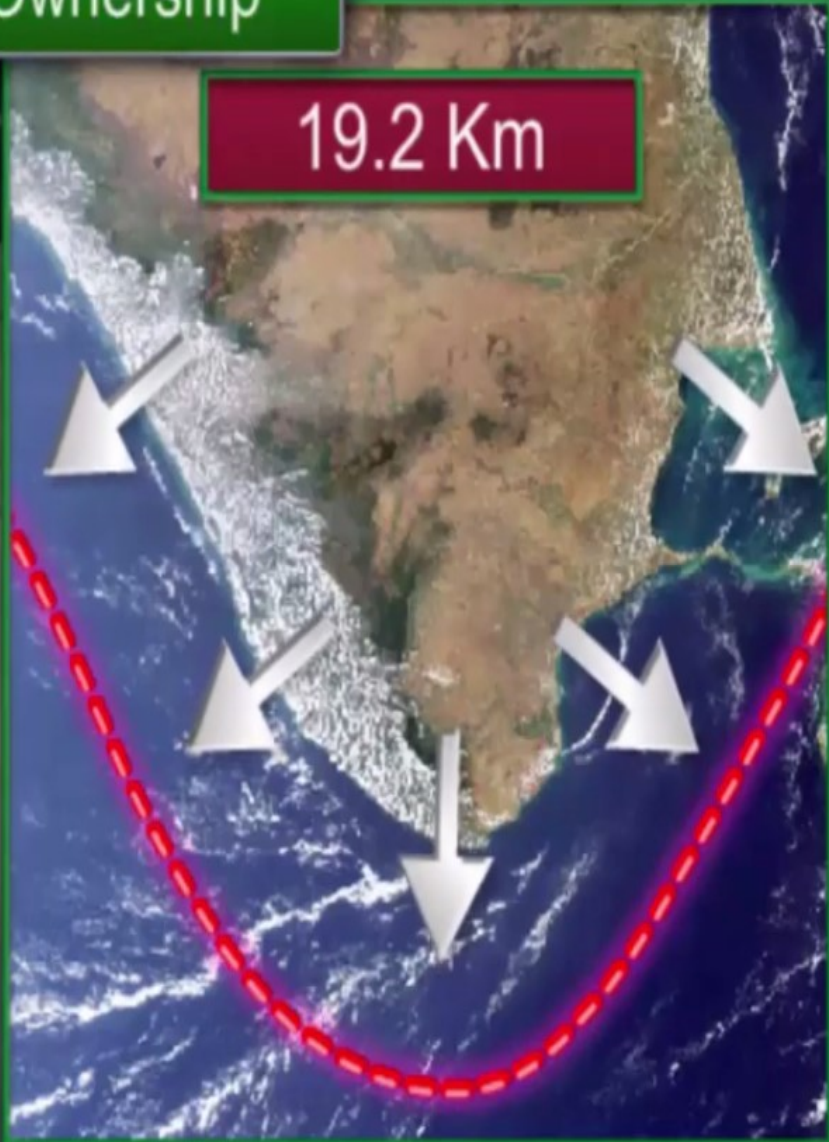
Ownership

Individual Resources

Ownership

Community Owned Resources

On the Basis of the Status of Development

Developed Resources

Resources which are

surveyed and their quality and quantity have been determined for utilization. The development of resources depends on technology and level of their feasibility

Potential Resources

found in a region, but have

not been utilized.

For example, the western parts of India particularly Rajasthan and Gujarat have

enormous potential for the development of

wind and solar energy, but so far these have

not been developed properly

Stock:

have the potential to satisfy human needs but human beings do not have the appropriate technology to access these .Like:- water is a compound of two gases; hydrogen and oxygen. Hydrogen can be used as a rich source of energy. But we do not have advanced technical 'know-how' to use it

Reserves

Use of stock has not been started.

can be used for meeting future requirements.

River water for Hydroelectric power

On the outline map of India show regions having different kinds of resources.

DEVELOPMENT OF RESOURCES

Sustainable development

Sustainable Economic Development Means 'Development Should Take Place Without Damaging The Environment, And Development In The Present Should Not Compromise With The Needs Of The Future Generations.

In June 1992, more than 100 heads of states met in Rio de Janeiro in Brazil, for the first International Earth Summit.

for addressing urgent problems of environmental protection and socioeconomic development at the global level.

The assembled leaders signed the Declaration on Global Climatic Change and Biological Diversity.

The Rio Convention endorsed the global Forest Principles and adopted Agenda 21 for achieving Sustainable Development in the 21st century

Agenda 21

It is the declaration signed by world leaders

aims at achieving global sustainable development.

It is an agenda to combat environmental damage, poverty, disease through global co-operation on common interests, mutual needs and shared responsibilities.

One major objective of theAgenda 21 is that every local government should draw its own local Agenda 21.

AGENDA 21

What is RESOURCE PLANNING?

- Resource planning is a strategy for judicious use of resources.
- It is important for maintaining the quality of life.
- It is essential for sustainable economic development.

Assignment: Explain what is Sustainable Development?

Why is resource planning essential?

BECAUSE

\# There are some regions which are rich in certain types of resources but are deficient in some other resources.

For example, the states of Jharkhand, Chhattisgarh and Madhya Pradesh are rich in minerals and coal deposits. Arunachal Pradesh has abundance of water resources but lacks in infrastructural development.

\# The state of Rajasthan is very well endowed with solar and wind energy but lacks in water resources.

\# The cold desert of Ladakh is relatively isolated from the rest of the country. It has very rich cultural heritage but it is deficient in water, infrastructure and some vital minerals. This calls for balanced resource planning at the national, state, regional and local levels.

STEPS FOR Resource Planning

Resource planning is a complex process which Involves:-

- (i) identification and inventory of resources across the regions of the country. This involves surveying, mapping and qualitative and quantitative estimation and measurement of the resources.

- (ii) Evolving a planning structure endowed with appropriate technology, skill and institutional set up

- (iii) Matching the resource development plans with overall national development plans. for implementing resource development plans.

Subject Enrichment

- Prepare a list of resources found in your state and identify the resources that are deficit.

- Collect information on how the state authorities has worked out for its sustainable development.

Conservation of Resources

Gandhiji :- "There is enough for everybody's need and not for any body's greed." He placed the greedy and selfish individuals and exploitative nature of modern technology as the root cause for resource depletion at the global level. He was against mass production and wanted to replace it with the production by the masses

CAUSES FOR DEPLETION OF RESOURCES:

RESOURCES are owned by a few individuals, that is accumulation of resources in the hands of a few.
Over use of resources.
Wastage of resources .
Misuse of resources
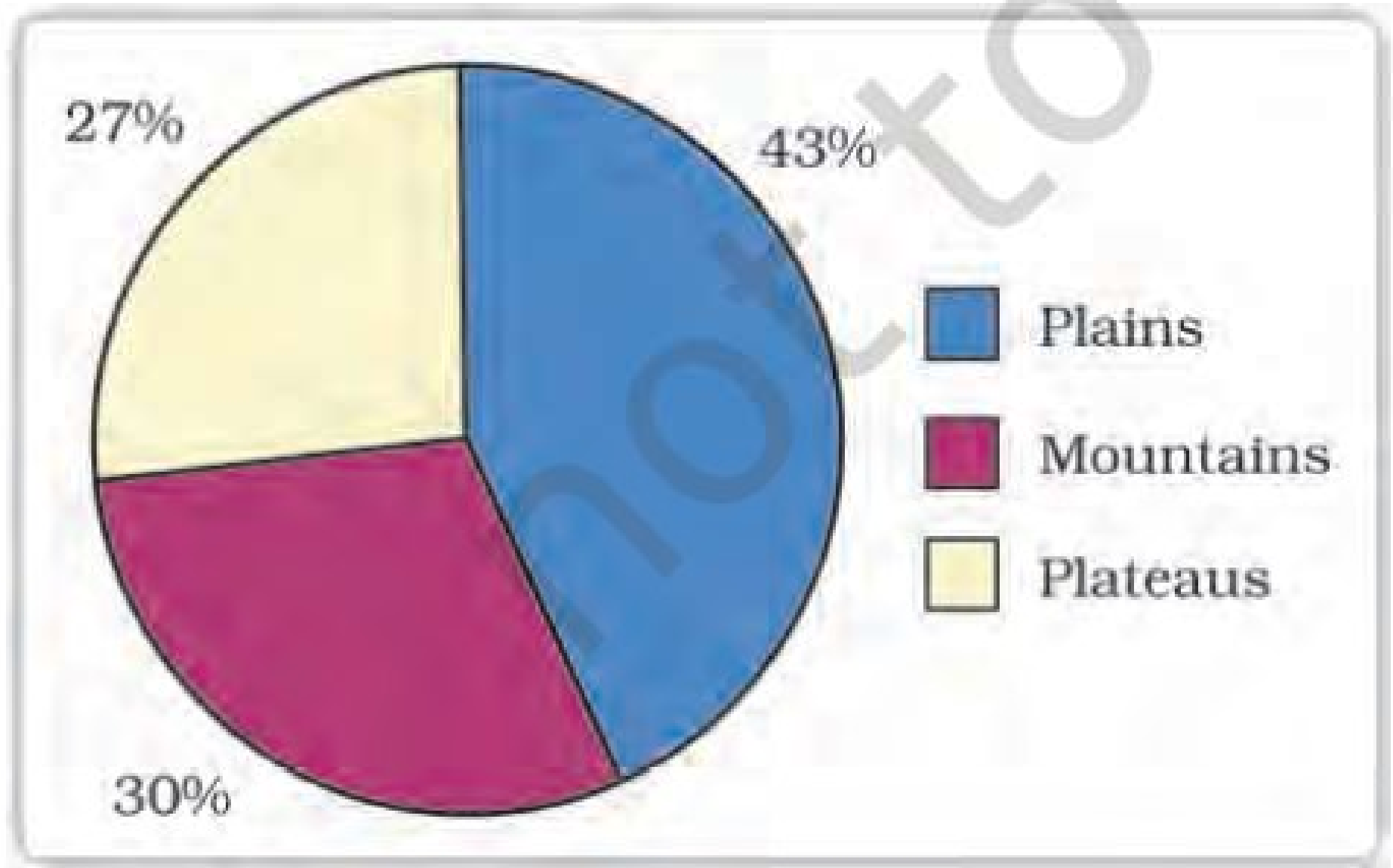
Fig 1.3: India : Land under important Relief

LAND UTILISATION

1. Forests

2. not available for cultivation (a) Barren and waste land (b) Land put to non-agricultural uses, e.g.buildings, roads, factories, etc.

3. Other uncultivated land (excluding fallow land) (a) Permanent pastures and grazing land, (b) Land under miscellaneous tree crops groves (not included in net sown area), (c) Cultruable waste land (left uncultivated for more than 5 agricultural years).

4. Fallow lands (a) Current fallow-(left without cultivation for 1 or less than 1 agricultural year),

(b) Other than current fallow-(uncultivated for the past 1 to 5 years).

5. Gross cropped area = Net sown area Area sown more than once in an agricultural year + net sown.

LAND USE PATTERN IN INDIA

- **The use of land is determined both by physical factors such as topography, climate, soil types as well as human factors such as population density, technological capability and culture and traditions etc.**

General land use categories—1960–61   **General land use categories—2014–15**

Reporting Area: 100 Per cent

1960–61: 18.11%, 46.26%, 18.11%, 4.95%, 4.71%, 1.50%, 6.23%, 3.50%, 3.73%

2014–15: 23.3%, 45.5%, 5.5%, 8.7%, 3.3%, 1%, 4.0%, 3.6%, 4.9%

- ■ Forest
- ■ Barren and unculturable waste land
- ■ Area under non-agricultural uses
- ■ Permanent pasture and grazing land
- ■ Area under misc. tree crops and groves
- ■ Culturable waste land
- ■ Fallow other than current fallow
- ■ Current fallow
- ■ Net sown area
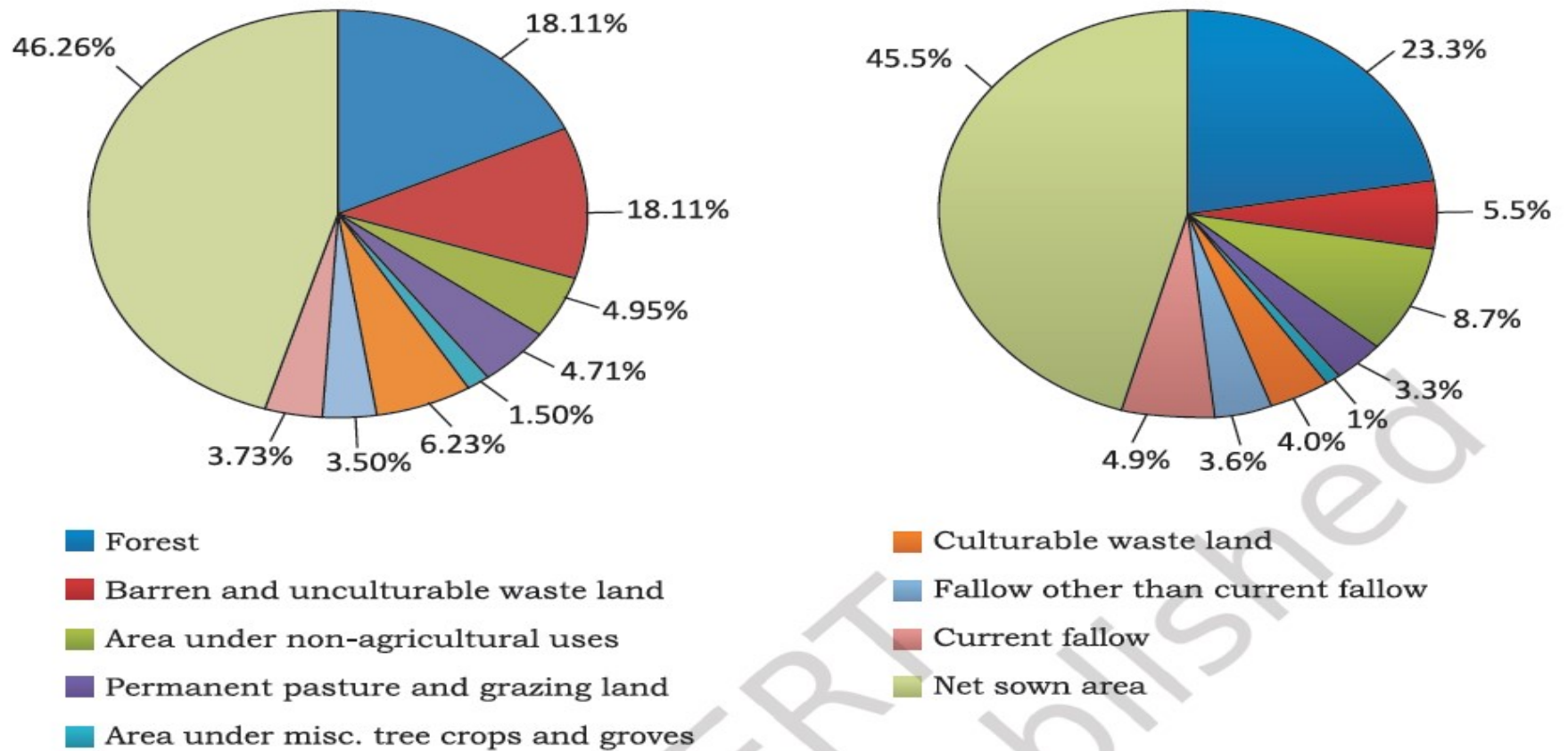
Source : Directorate of Economics and Statistics, Ministry of Agriculture, 2017
Fig. 1.4

Total geographical area of India is 3.28 million sq km

- **NET SOWN AREA** – over 80 percent of the total area in Punjab and Haryana but less than 10 per cent in Arunachal Pradesh, Mizoram, Manipur and Andaman Nicobar Islands

- Subject Enrichment

Find out reasons for the low proportion of net sown area in these states.

Forest area in the country is far lower than the desired 33 per cent of geographical area, as it was outlined in the National Forest Policy (1952).

LAND DEGRADATION AND CONSERVATION MEASURES

Ninety-five per cent of our basic needs for food, shelter and clothing are obtained from land.

deforestation due to mining - In states like Jharkhand, Chhattisgarh, Madhya Pradesh and Odisha

Overgrazing- In states like Gujarat, Rajasthan, Madhya Pradesh and Maharashtra

Over irrigation- In the states of Punjab, Haryana, western Uttar Pradesh

CONSERVATION MEASURES

- **Afforestation**
- **proper management of grazing**
- **Planting of shelter belts of plants**
- **control on over grazing**
- **stabilisation of sand dunes by growing thorny bushes**
- **Proper management of waste lands**
- **control of mining activities**

SOIL AS A RESOURCE

- ➢ **Soil is Renewable natural resource**
- ➢ **It takes millions of years to form soil upto a few cm in depth**
- ➢ **Soil also consists Of organic (humus) and inorganic materials**

Fig. 1.5: Soil Profile

Top soil
the upper soil layer

Subsoil weathered
rocks sand and
silt clay

Substratum
weathered parent
rock material

Unweathered
parent bed rock

Top soil with humus and vegetation

Sub soil with sand, silt and clay

Weathered rock material

Parent rock

Parent Rock
Determines colour, texture, chemical properties mineral, content, permeability

Climate
Temperature, Rainfall influence rate of weathering and humus

Soil

Relief
Altitude and slope, determine accumulation of soil

Flora, Fauna and Micro-organism
Affect the rate of humus formation

Time
Determines thickness of soil profile

Fig. : *Factors affecting soil formation*
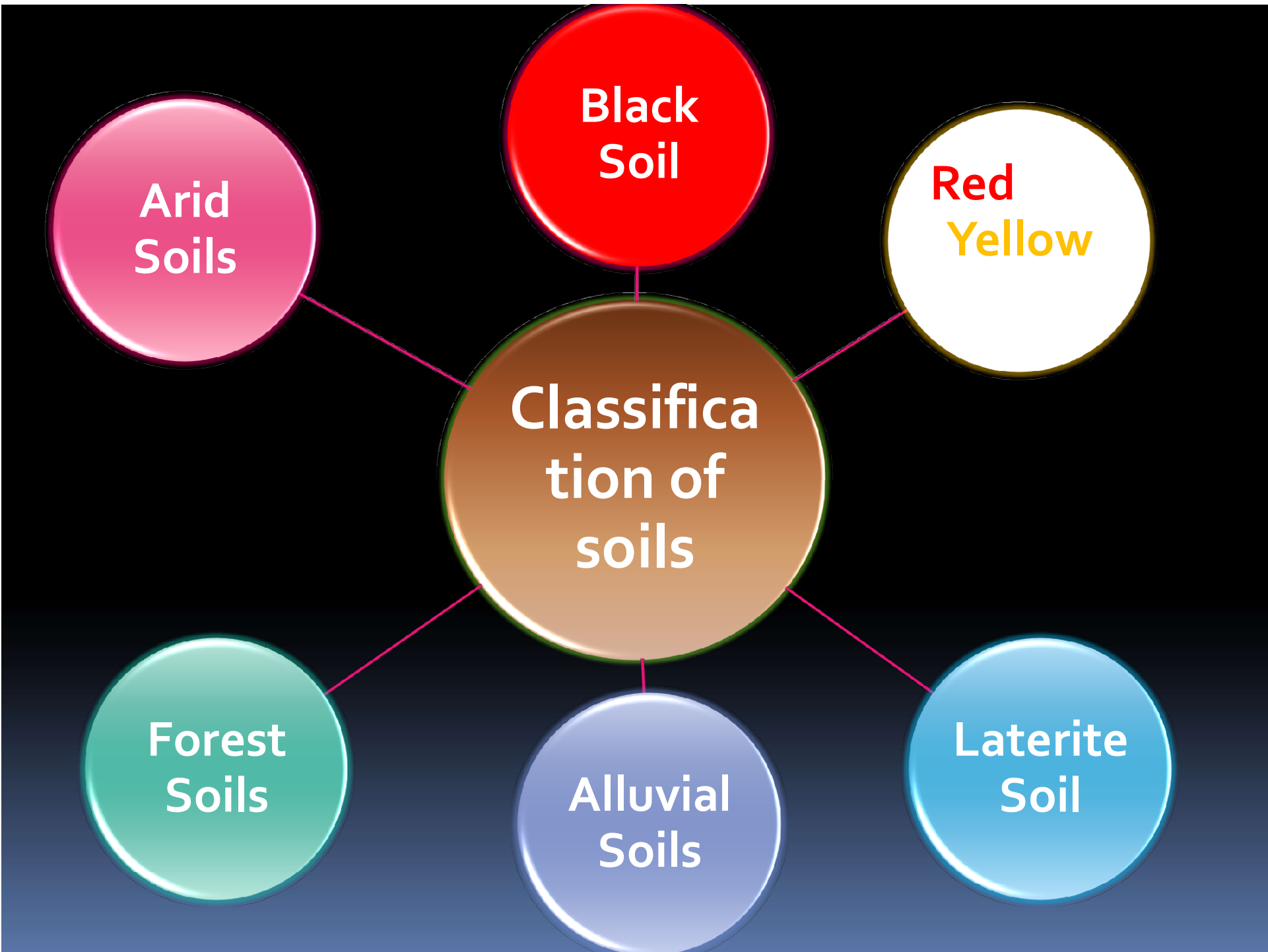
Alluvial Soils

most widely spread and important Soil the entire northern plains are made of alluvial

also extend in Rajasthan and Gujarat through a narrow corridor

eastern coastal plains particularly in the deltas of the Mahanadi, the Godavari, the Krishna and the Kaveri rivers.

consists of various proportions of sand, silt and clay

Alluvial Soils

INDIA
MAJOR SOIL TYPES

PAKISTAN

CHINA
(TIBET)

NEPAL

BHUTAN

BANGLADESH

Tropic of Cancer

MYANMAR

ARABIAN
SEA

BAY OF
BENGAL

Forest & Mountainous
Alluvial
Red and Yellow
Black
Laterite
Arid

LAKSHADWEEP
(INDIA)

ANDAMAN & NICOBAR ISLANDS
(INDIA)

SRI
LANKA

INDIAN OCEAN

According to their age alluvial soils can be classified as

Old alluvial (bangar)

The bangar soil has higher concentration of *kanker nodules*.

New alluvial (khadar).

More fine particles and is more fertile than the bangar.

these soils contain adequate proportion of potash, phosphoric acid and lime which are ideal for the growth of sugarcane, paddy, wheat and other cereal and pulse crops.

Black Soil (Regur soils)

Black soil is ideal for growing cotton so known as *black cotton soil*

Found In Deccan trap (*Basalt*) *region spread over northwest* Deccan plateau and is made up of lava flows. plateaus of Maharashtra, Saurashtra, Malwa, Madhya Pradesh and Chhattisgarh and along the Godavari and the Krishna valleys.

well-known for their capacity to hold moisture

rich in calcium carbonate, magnesium, potash ,lime & poor in phosphoric contents

INDIA
MAJOR SOIL TYPES

PAKISTAN

CHINA (TIBET)

NEPAL

BHUTAN

BANGLADESH

Tropic of Cancer

MYANMAR

ARABIAN SEA

BAY OF BENGAL

Forest & Mountainous
Alluvial
Red and Yellow
Black
Laterite
Arid

ANDAMAN & NICOBAR ISLANDS (INDIA)

LAKSHADWEEP (INDIA)

SRI LANKA

INDIAN OCEAN

0   200   400   600 km

Black soil made up of extremely fine clayey material.

develop deep cracks during hot weather

Red and Yellow Soils

develops on crystalline igneous rocks in areas of low rainfall in the eastern and southern parts of the Deccan plateau ..

in parts of Odisha, Chhattisgarh, southern parts of the middle Ganga plain

along the piedmont zone of the Western Ghats.

These soils develop a reddish colour due to diffusion of iron in crystalline and metamorphic rocks

It looks yellow when it occurs in a hydrated form.

INDIA
MAJOR SOIL TYPES

Forest & Mountainous
Alluvial
Red and Yellow
Black
Laterite
Arid
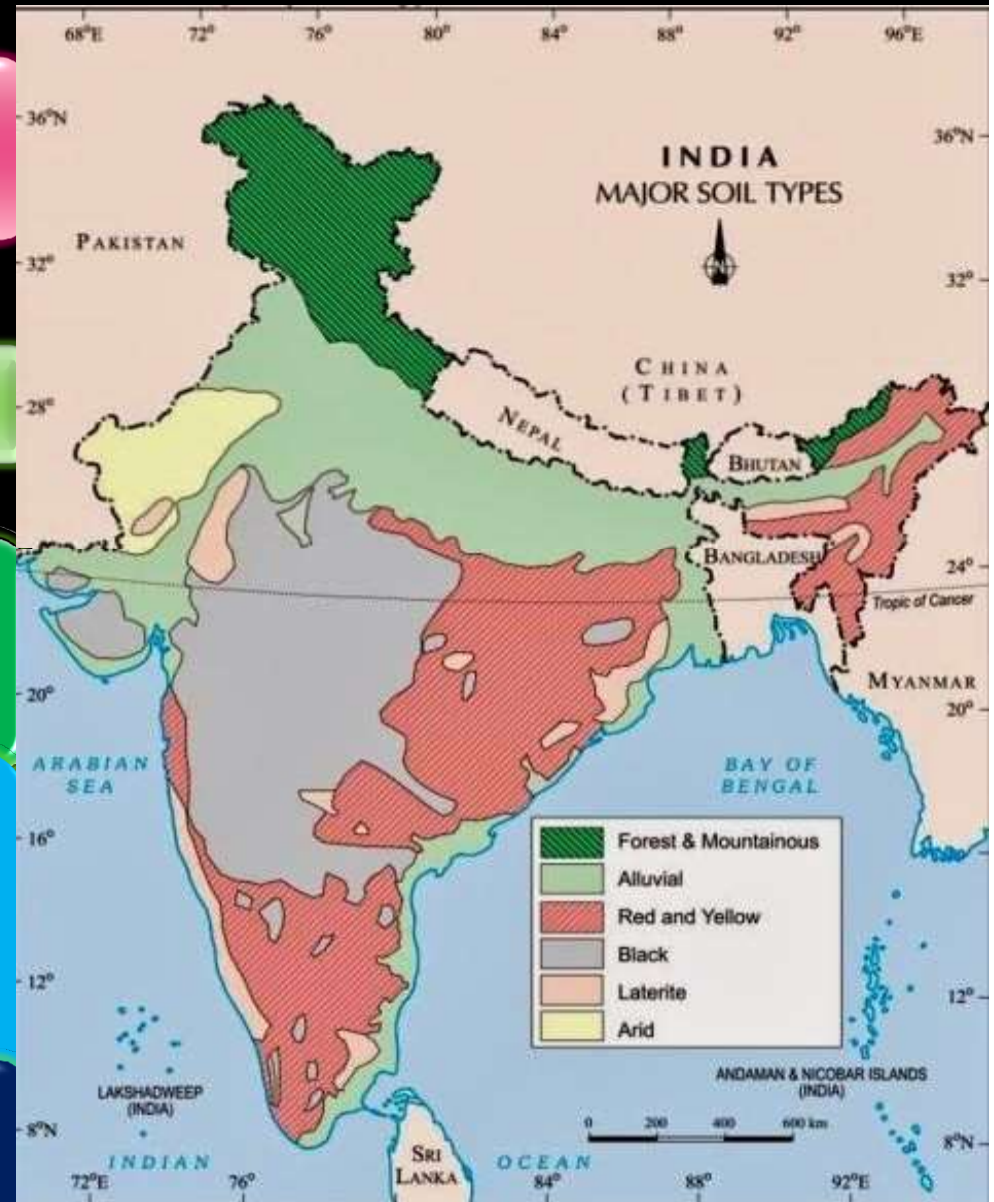
Laterite Soil

Latin word 'later' which means brick

develops under tropical and sub tropical climate with alternate wet and dry season

result of intense leaching due to heavy rain.

Lateritic soils are mostly deep to very deep,

acidic (pH<6.0),, generally humus poor

Found in southern states, Western Ghats region of Maharashtra, Odisha, some parts of West Bengal and North-east regions

After adopting soil conservation techniques particularly in the hilly areas of Karnataka, Kerala and Tamil Nadu, this soil is very useful for growing tea & coffee.

Red laterite soils in Tamil Nadu, Andhra Pradesh and Kerala are more suitable for crops like cashew nut.

Fig. 1.8: Laterite Soil

Arid Soils

- ❖ generally sandy in texture and saline in nature.
- ❖ range from red to brown in colour
- ❖ Due to the dry climate, high temperature, evaporation is faster and

The lower horizons of the soil are occupied by *Kankar* because of the increasing calcium content downwards. The *Kankar layer formations in* the bottom horizons restrict the infiltration of water. After proper irrigation these soils become cultivable as has been in the case of western Rajasthan

Forest Soils

They are loamy and silty in valley sides and coarse grained in the upper slopes.

found in the hilly and mountainous areas where sufficient rain forests are available

In the snow covered areas of Himalayas, these soils experience denudation and are acidic with low humus content.

found in the lower parts of the valleys particularly on the river terraces

alamy stock photo

Soil Erosion

due to human activities like deforestation, over-grazing, construction and mining etc., while naturalforces like wind, glacier and water lead to soil erosion.

The denudation of the soil cover and subsequent washing down is described as soil erosion.

Gullies erosion-The running water cuts through the clayey soils and makes deep channels as **Gullies.** The land becomes unfit for cultivation and is known

Fig. 1.11: Gully Erosion

Fig. 1.10: Soil Erosion

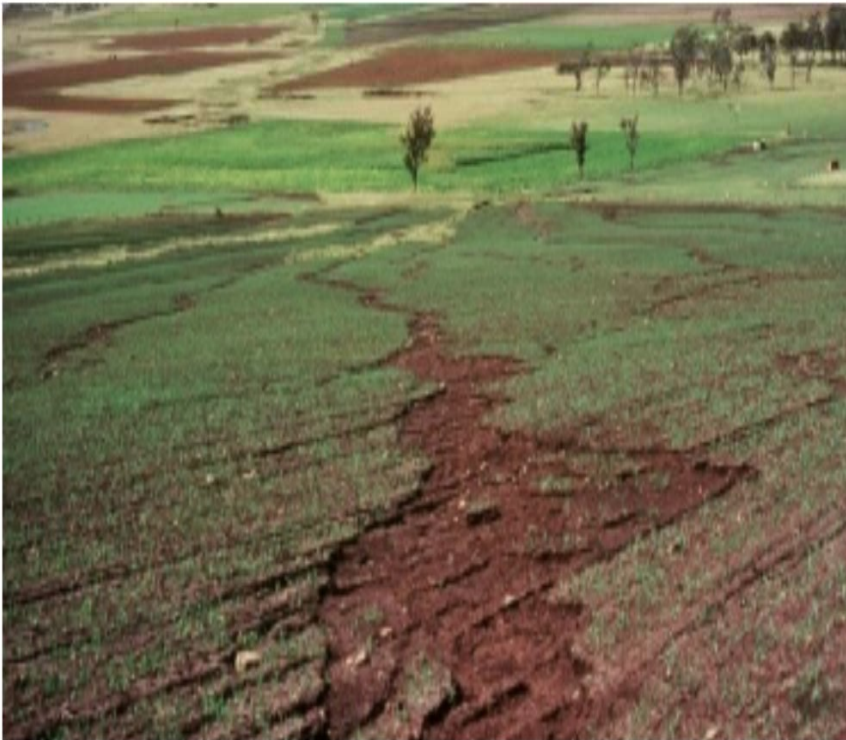**In the Chambal basin such lands are called ravines**

Chambal basin ravines

Sheet erosion

Sometimes water flows as a sheet over large areas down a slope. In such cases the top soil is washed away. This is known as sheet erosion.

Rill and sheet erosion on a cultivated paddock

Soil Conservation

Contour ploughing

Ploughing along the contour lines can decelerate the flow of water down the slopes. This is called contour ploughing.
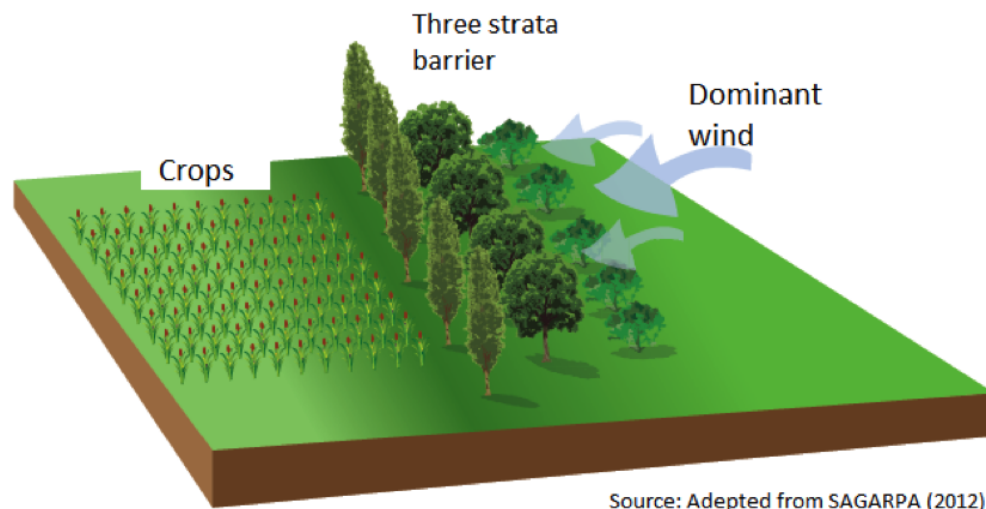
Strip cropping.

Large fields can be divided into strips. Strips of grass are left to grow between the crops. This breaks up the force of the wind. This method is known as strip cropping

Terrace farming

shelter belts

Three strata barrier

Dominant wind

Crops

Source: Adepted from SAGARPA (2012).

Self evaluation

1.Which one of the following is the main cause of land degradation in Punjab?

(a) Intensive cultivation (c) Over irrigation

(b) Deforestation (d) Overgrazing

2 . In which of the following states black soil is predominantly found? (a) Jammu and Kashmir (c) Rajasthan(b) Maharashtra (d) Jharkhand

3. What type of soil is found in the river deltas of the eastern coast? Give three main features of this type of soil.

4. What are the biotic and abiotic resources ? Give some examples.

ASSIGNMENT

- On the map of India show the major soil types state wise.

- Find out how much of oil resources does the countries of the world have and for how many years it can last if it is consumed at the rate we are consuming today.

- Bring out the consequences of exhaustionof oil supplies and its effect on our life style.

THANK YOU