Government of Tamilnadu

STANDARD FIVE

TERM II

VOLUME 2

MATHEMATICS

SCIENCE

SOCIAL SCIENCE

NOT FOR SALE

Untouchability is inhuman and a crime

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CONTENTS

MATHEMATICS (1 – 46)

SCIENCE (47 – 85)

SOCIAL SCIENCE (86 – 124)

MATHEMATICS

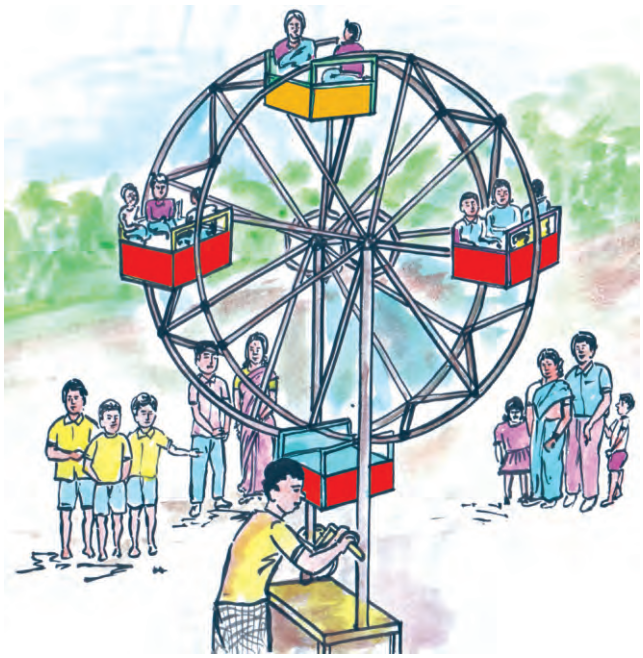
STANDARD FIVE

TERM II

1 Symmetry

Half a Turn

In a small town, Raja earned his living by running a mini 'Giant wheel' during the festive seasons near the temple. Many people visited the temple with their children and the children loved to ride on the giant wheel. He earned a lot of money but there was one problem. He was not able to keep count of the exact number of times the wheel had rotated. The children kept calling out saying that there was one more round to be completed. He had difficulty in counting because all the cabins looked alike. All the four cabins were painted bright red. He was worried that he was losing money. His young daughter suggested a solution for the problem.



Can you guess it? She gave a very simple solution. she suggested that one cabin be painted yellow. Do you think the problem is solved?

Try and solve the following problems.

- In a numberless wristwatch, there is no indication of the numerals. How will you tie it around your left wrist?

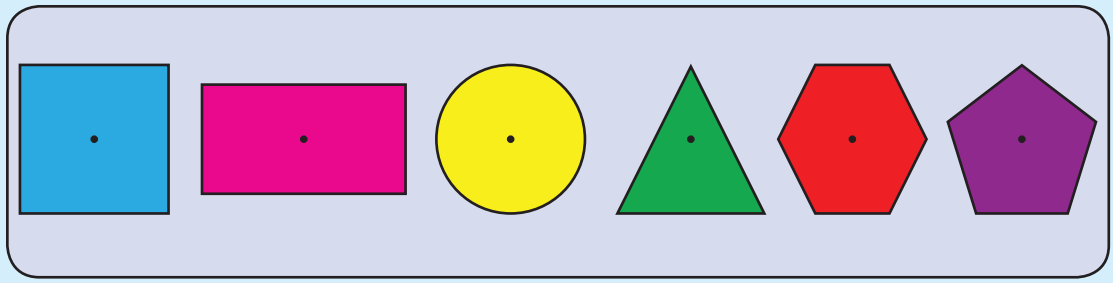
- A school boy held the digital watch upside down and noted 15 seconds as 51 seconds. What should he do to correct his mistake?

- In a hostel, rooms are numbered as NO 11, NO 12, ... NO 17
  No one dared to enter room NO 17 why?

- In a library, comic books are pasted with 5 digit numbers starting from 35000 to 35030. No one touched the particular book titled "You are a winner". It was found that a particular number was pasted, upside down over the word "winner". Can you guess the reason and the number.

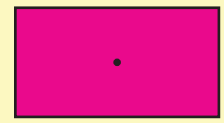
Activity

Guess which of the shapes below would look the same after half a turn ?

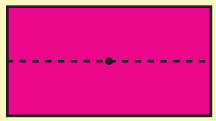


Do you find it difficult to say? If yes, then there is a way to check your guess. Here's how you can do it. Take any of the shapes.

Trace its outline on a sheet of paper. Cut the shape and take it out. Here a rectangular shape is taken.



Then draw a horizontal line passing through its centre.



Fold it once horizontally, so that the fold falls on the centre. One half fits exactly over the other half. We say that rectangular shapes look the same after half a turn.

Repeat the same procedure for other shapes given above and check whether the guessed answers are correct.

Practice Time

(1) Find out which of the following letters look the same after half a turn.

N A T D O

(2) Which of these English words read the same on half a turn?

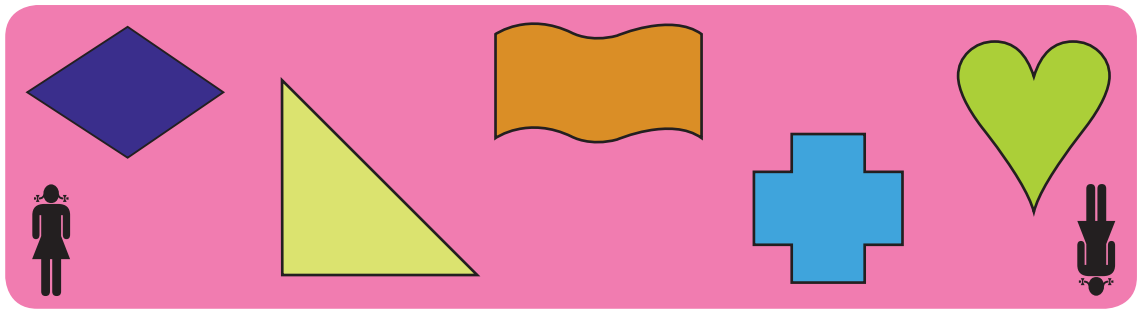
SIS, MOON, NOW, NOON

(3) Give half a turn to the numbers given below. Find which of them still look the ~~same~~.

6 3 5 1 7 0

(4) Write all 5 digit numbers which look the same on half a turn.

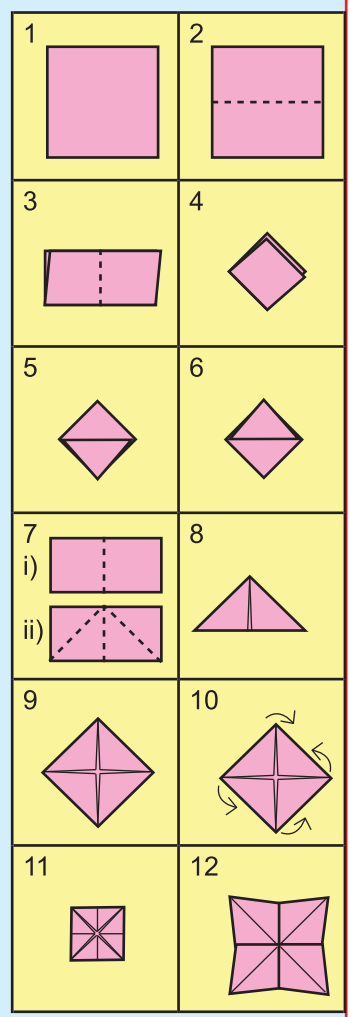
(5) Which among the following pictures will look the same on half of a turn? Put a tick mark (✓)



Activity

Have you seen four cups made of paper. Let us make four cups

1. Take a square sheet of paper
2. Fold it in half
3. Fold it again in half
4. Turn the folded paper such that the folded two sides are at the bottom.
5. From the four flaps take one flap and fold it.
6. Turn the folded shape and take another flap and fold it.
7. Turn it inside out. One side is like 7 (i) and the other side is like 7 (ii).
8. Then fold other two flaps backwards to get the figure 8.
9. Open it out.
10. Reverse it and fold the four corners towards the centre. Repeat the steps 2 and 3.
11. Open it out.
12. The four cups are ready.

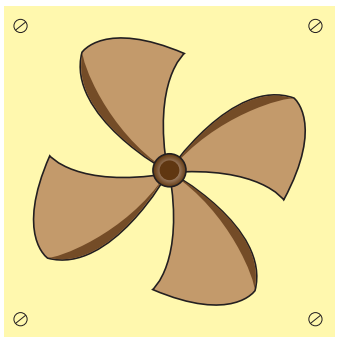


Rotate it and observe

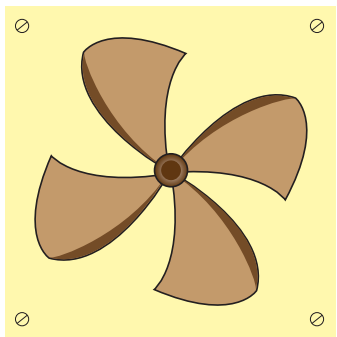
- Do the four cups look the same on $\frac{1}{4}$ of a turn?
- Does it look the same on half a turn? Discuss.

One-fourth turn

The blades of an exhaust fan look the same on $\frac{1}{4}$ of a turn.



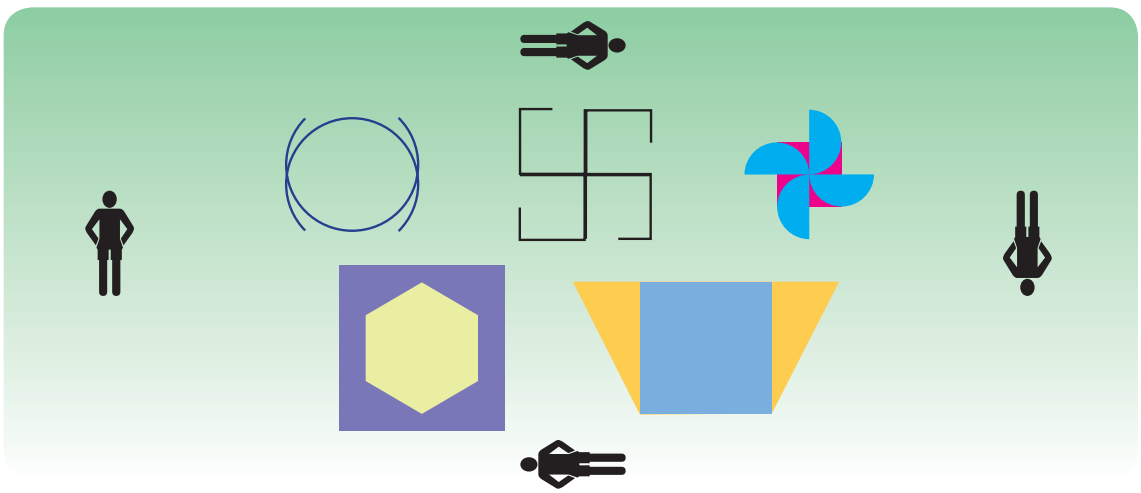
Before turning it



After $\frac{1}{4}$ of a turn.

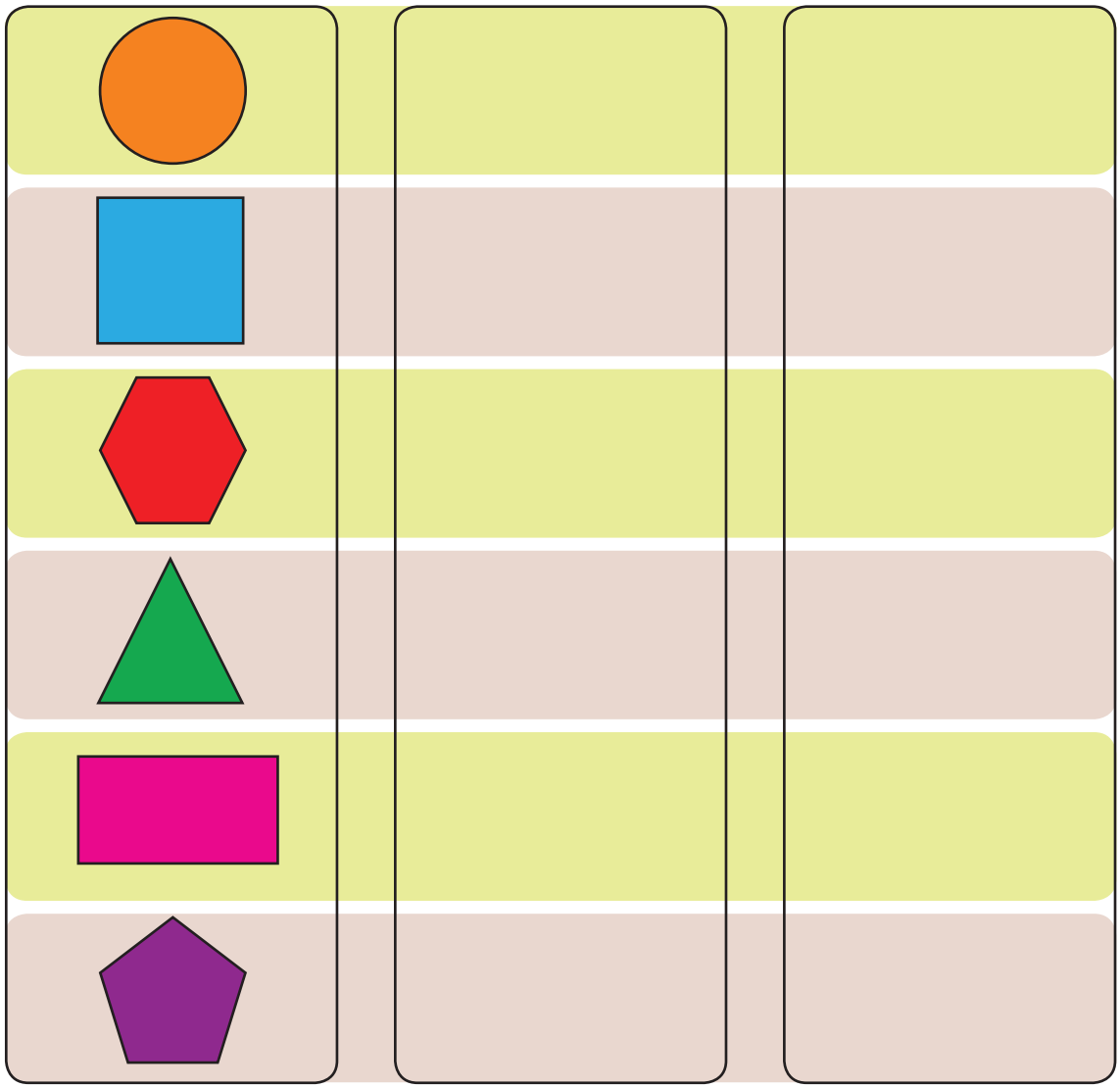
Practice Time

(1) Among the following shapes, find out which one would look the same after $\frac{1}{4}$ of a turn. Put a mark (✓)



(2) Draw what the following shapes would look like on $\frac{1}{4}$ of a turn and half of a turn.

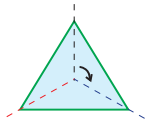
On $\frac{1}{4}$ of a turn On half of a turn



(3) Draw three shapes which will look the same after half of a turn.

(4) Draw three shapes which will look the same after $\frac{1}{4}$ of a turn.

One-third turn

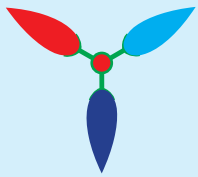


Which one will look the same on $\frac{1}{3}$ of a turn? Put a tick mark (✓) for the correct one.

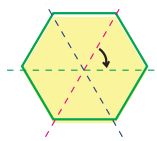
(a)

(b)

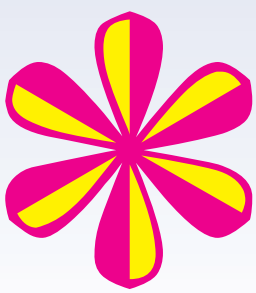
Draw the shape after $\frac{1}{3}$ of a turn

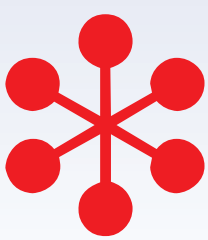


One-sixth turn



Can you observe that these shapes look the same on $\frac{1}{6}$ of a turn





Draw the shape after $\frac{1}{6}$ of a turn

Practice Time

(1) Look at the following shapes. Draw how they will look on $\frac{1}{3}$ of a turn and $\frac{1}{6}$ of a turn.

	$\frac{1}{3}$ of a turn	$\frac{1}{6}$ of a turn
		
		
		
		
		

(2) Draw three shapes which will look the same after $\frac{1}{3}$ of a turn.

(3) Draw three shapes which will look the same after $\frac{1}{6}$ of a turn.

Group Activity

Collect and draw *kolams* in your notebook which will look the same after half a turn, $\frac{1}{4}$ of a turn, $\frac{1}{3}$ of a turn and $\frac{1}{6}$ of a turn.

Symmetry

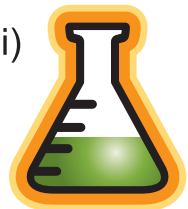
The front view pictures of a tiger, an architectural marvel, a rocket, a butterfly, a bird and a flower are some of the examples exhibiting symmetry.

The bodies of most of the animals are symmetrical. Their left and right sides are mirror images of each other.

Practice Time

(1) List any four symmetrical objects that you see on your way to school and draw them.

(2) Identify the shapes given below. Check whether they are symmetrical or not. Draw the line of symmetry if they are symmetrical.

(i) 

(ii) 

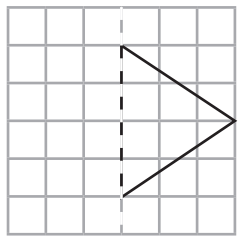
(iii) 

(iv) 

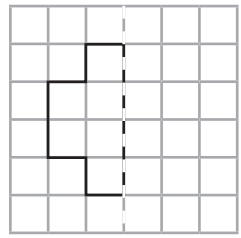
(v) 

Complete them such that the dotted line is the line of symmetry.

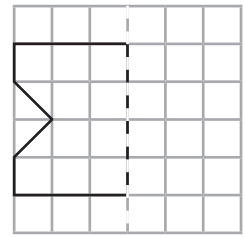
(i)



(ii)



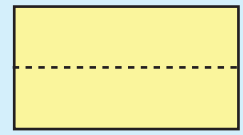
(iii)



Activity (3)

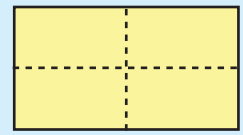
Figures with two lines of symmetry

Take a rectangular sheet. Fold it length wise, so that one half fits exactly over the other half.



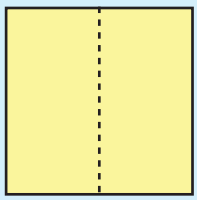
1st fold

Then fold it breadthwise in the same way. These two lines are the lines of symmetry.



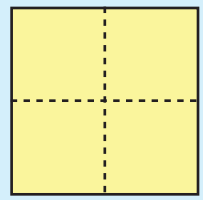
2nd fold

Figures with multiple (more than two) lines of symmetry



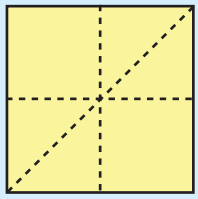
1st fold

Take a square sheet. Fold it into half vertically.



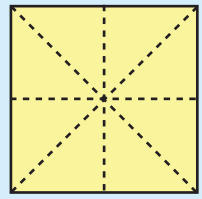
2nd fold

Fold it again into half horizontally.



3rd fold

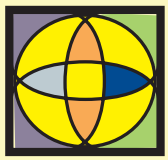
Holding the closed ends as the base fold the two joined flaps along the base.



Open out the fold. There are four lines of symmetry.

Try these

(1) Find the number of lines of symmetry for each of the following shapes.

(i) 

(ii) 

(iii) 

(iv) 

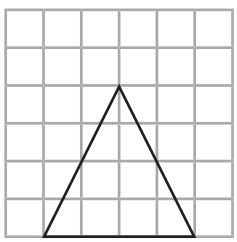
(v) 

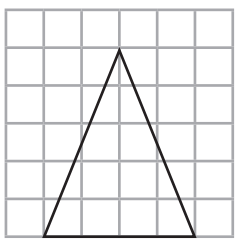
(vi) 

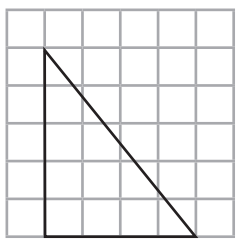
(vii) 

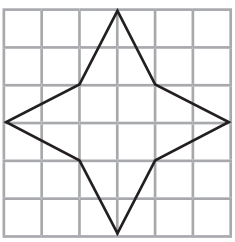
(viii) 

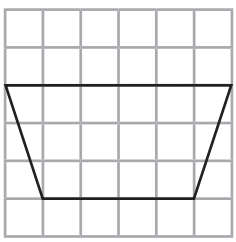
(2) Trace each figure and draw the lines of symmetry ,if any.

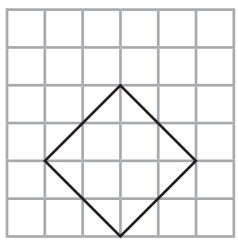
(i) 

(ii) 

(iii) 

(iv) 

(v) 

(vi) 

Reflection and symmetry

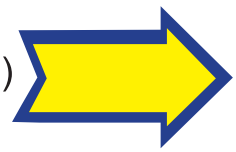
The mirror image of the face and the face itself are symmetrical about the plane of the mirror. Fold the paper in such a way that one face exactly falls on the other. Then the mirror line becomes the line of symmetry. Observe that the image is the reflection of the object at the mirror line.

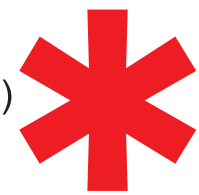
Practice Time

(1) Find the number of lines of symmetry in each of the following shapes. Check your answer by placing a mirror on the lines of symmetry.

(i) 

(ii) 

(iii) 

(iv) 

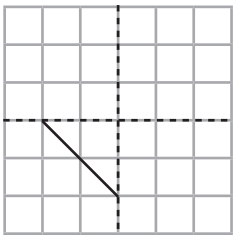
(v) 

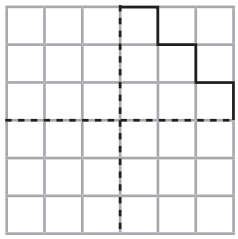
(vi) 

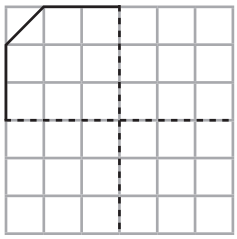
(vii) 

(viii) 

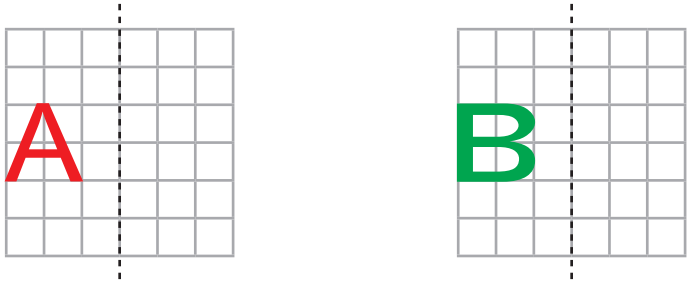
(2) Copy the following on a squared paper. Complete each one of them in such a way that the resultant figure has two dotted lines as two lines of symmetry.

(i) 

(ii) 

(iii) 

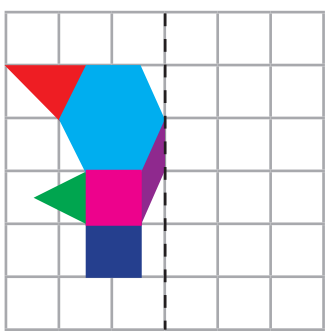
3) Take a mirror image of the letter in the given line. Find which letters look the same after reflection and which do not.

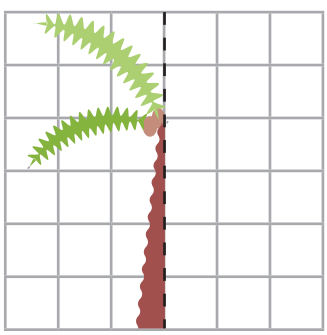


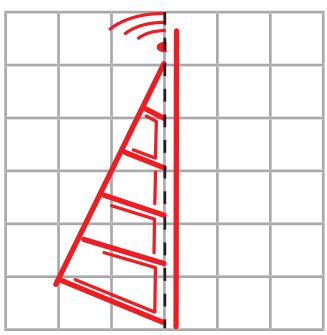
Try for other letters of the English alphabet.

C, D, E, F, G, H, M, N, O, R, S

(4) Place the mirror along the line shown, get the other side and draw and colour it.

(i) 

(ii) 

(iii) 

Project work

Collect and draw ten *kolams* in your notebook with one, two and three lines of symmetry.

2 Multiples & Factors

Multiples

Mary, Meena, Emily, Noorjahan and Taj are friends. It was raining then and hence they decided to play an indoor game.

Emily has a board in which numbers 1 to 50 were written as seen in the picture. She also has a set of cards numbered 1 to 10.

Emily explains the rules to her friends. To start the game, one person picks a card and notes down the number. For example, the person picks 4, she places a small stone on number 4 on the board. Then she adds 4 to the number on the board, and she gets 8, and places a stone on 8, then she again adds 4 and places a stone on 12 on the board and so on. The game continues, with others taking their turns.

Taj picked one card and she got number 3. Can you tell on which boxes she kept the stones?

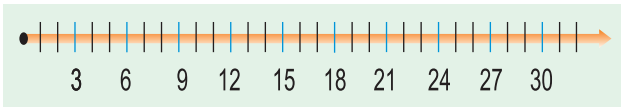
Look at the table given below.

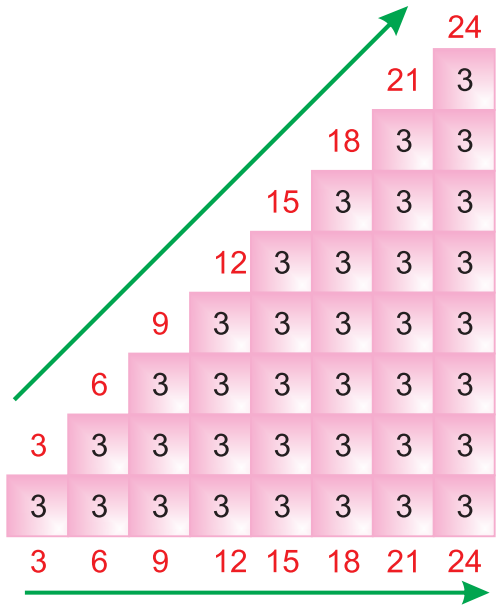
1	2	3	4	5	6	7	8	9	10
11	12	13	14	15	16	17	18	19	20
21	22	23	24	25	26	27	28	29	30
31	32	33	34	35	36	37	38	39	40
41	42	43	44	45	46	47	48	49	50

Number started with 3 and its consecutive summations are

3, 6, 9, 12, 15, 18, 21, 27, ...

Mark these numbers on the number line.

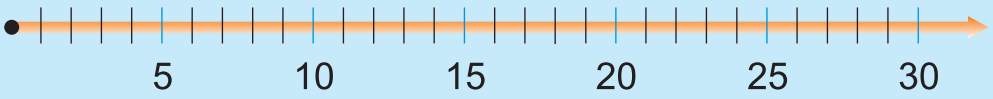




When a number is added repeatedly, the resulting numbers are called its multiples.

Mark the numbers, picked up by the other friends on the number line.

Noorjahan picked the number **5**



So, multiples of 5 are 5, 10, 15, 20, 25, 30,...

Emily picked the number **6**

So, multiples of 6 are _____

Meena picked the number **9**

So, multiples of 9 are _____

Mary picked the number **4**

So, multiples of 4 are _____

Each number is a first multiple of itself.

Practice Time

1.Fill in the blanks, with the multiples.

(i) 8, 16, _____, _____,_____ 48 _____, _____.

(ii) 13, 26, _____, _____,_____ 78_____, _____.

(iii) 20, _____, _____, 80 _____, _____.

2.Write 5 multiples of each of the following numbers.

(i) 15 (ii) 25 (iii) 50

Project Work

The multiple of numbers from 1 to 10 are given in two ways that is from left to right and from top to bottom.

Follow the instructions and encircle the multiples.

1	2	3	4	5	6	7	8	9	10
2	4	6	8	10	12	14	16	18	20
3	6	9	12	15	18	21	24	27	30
4	8	12	16	20	24	28	32	36	40
5	10	15	20	25	30	35	40	45	50
6	12	18	24	30	36	42	48	54	60
7	14	21	28	35	42	49	56	63	70
8	16	24	32	40	48	56	64	72	80
9	18	27	36	45	54	63	72	81	90
10	20	30	40	50	60	70	80	90	100

Left to right:

From the 3rd multiple to the 8th multiple of 3

From the 3rd multiple to the 8th multiple of 6

From the 3rd multiple to the 8th multiple of 9

Top to bottom:

4th and 5th multiple of 3

7th and 8th multiple of 8

Shade the circles and enjoy.

What do you see? This year you are studying in ____ Standard.

What is the connection between multiple of a number and its multiplication table?

Factors

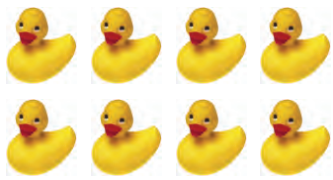
Abdulla and Fathima got 4 cream biscuits each from their mom as snacks. Since Fathima is crazy about cream biscuits, Abdulla tempted her, and said "I will give you one more biscuit, if you answer my question".

Fathima eagerly awaited the question. The question was to write 8 as a product of 2 numbers in all possible ways and use the toys to represent the different products.

Observe Fathima's answer:

$8 = 1 \times 8$

$8 = 2 \times 4$



$8 = 4 \times 2$

$8 = 8 \times 1$

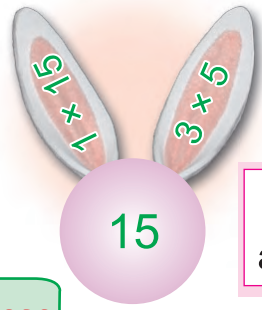
If a number can be written as a product of two or more numbers, those numbers are called factors.

Abdulla appreciated Fathima and gave her one more cream biscuit. He concluded saying that 8 can be expressed as the product of two different pairs of numbers.

$8 = 1 \times 8$
$8 = 2 \times 4$

Hence, the factors of 8 are 1, 2, 4 and 8.

i) Find the factors of 15.



Factors of 15 are 1, 3, 5, 15

ii) Find the factors of 9.

$9 = 1 \times 9$

$9 = 3 \times 3$

Factors of 9 are 1, 3, 9

Try these

(i) Find the factors of 10.

Factors of 10 are _____

(ii) Find the factors of 6.

6 =

6 =

Factors of 6 are _____

(i) Find the factors of 20.

Factors of 20 are 1, 2, 4, 5, 10, 20

(ii) Find the factors of 18.

$18 = 1 \times 18$

$18 = 2 \times 9$

$18 = 3 \times 6$

Factors of 18 are 1, 2, 3, 6, 9, 18

Try these

(ii) Find the factors of 24.

Factors of 24 are _____

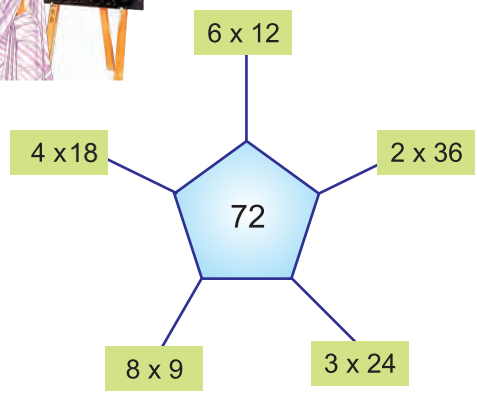
(ii) Find the factors of 36.

Factors of 36 are _____

Note

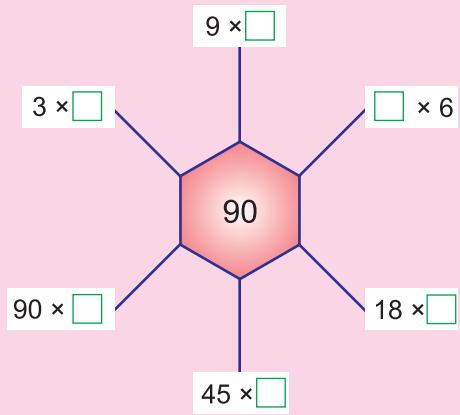
Observe the factors of 8, 15 and 20. For any number, 1 and the number itself are the factors. They are called trivial factors. Generally, we don't mention the trivial factors when we write these factors.

Find the factors of 72



Factors of 72 are
2, 3, 4, 6, 8, 9, 12, 18, 24, 36

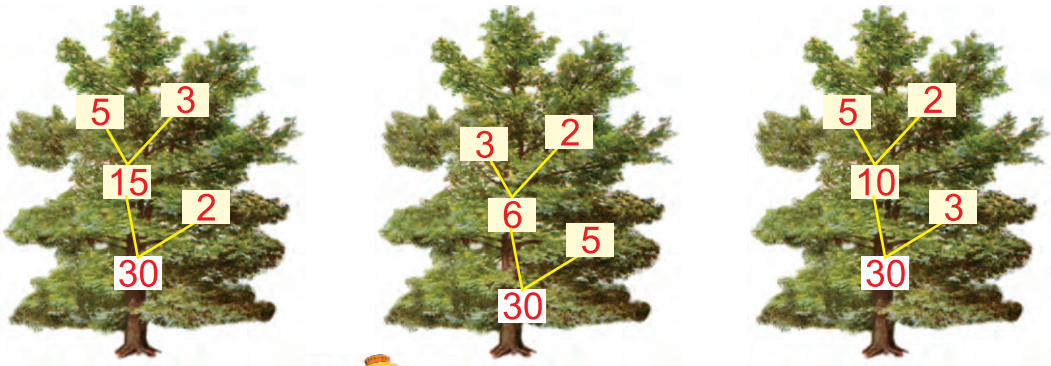
Fill in the boxes with suitable numbers and write the factors of 90



Factors of 90 are

FACTOR TREE

The factor tree for 30 are given in three different ways



Practice Time

1. Write the following numbers as multiplication of two numbers in all possible ways and write the factors: (i) 48 (ii) 50
2. Draw the factor tree for 60 in all possible ways.

To think

The factors of a number can divide the number without remainder.

Activity 1

Two children can do the activity together.

Collect as many tamarind seeds as you can and divide them into groups of say 4 seeds each. Ask you friend to give the answer for say 5x4. Write down his answer.

From the group of seeds pick out 5 groups and count the number of seeds in them. Does it match with the answer given by your friend?

You can continue this activity with different number of seeds in a group.

Activity 2

Step 1 : Take 24 beads. Divide it into groups of 2 each. Note down whether any bead is left after making the groups.

Step 2 : Next make groups of 3 and see if any bead remains. Continue with 4, 5, ... and so on till you make a group of 24.

Step 3 : In each case note down the numbers in which no bead remains after grouping.

Step 4 : Find the factors of 24. Check whether the number you got in step 3 matches with the factors you have found.

This activity can be done using other numbers to find the factors.

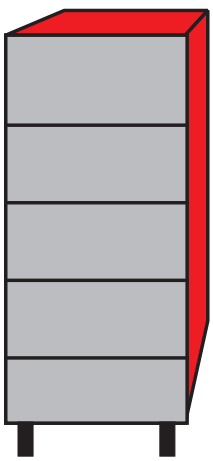
3 Fractions

Happy Birthday Celebration

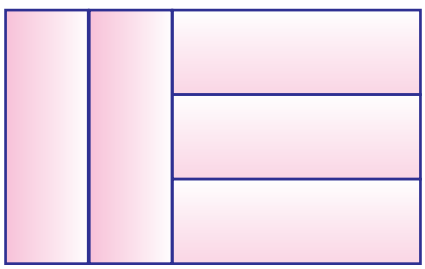
Gowtham wanted to celebrate his birthday in an orphanage with children. Hearing this, his parents, Seenu and Lakshmi felt very happy.

There were ten children in the orphanage. With the help of his father, he cut the cake into ten equal parts and distributed them. He gave_____ part of the cake to each child. There were 7 girls and 3 boys. Then _____ part of the cake was given to girls and _____ part of the cake was given to boys. Circle who has got the larger portion. Girls / boys.

During Holiday



Ranjitha helped her mother to arrange the clothes in the wardrobe. There were 5 shelves in it. In $\frac{3}{5}$th part of the shelves, the clothes were neatly arranged. In _____ part of the shelves, the clothes were not arranged.



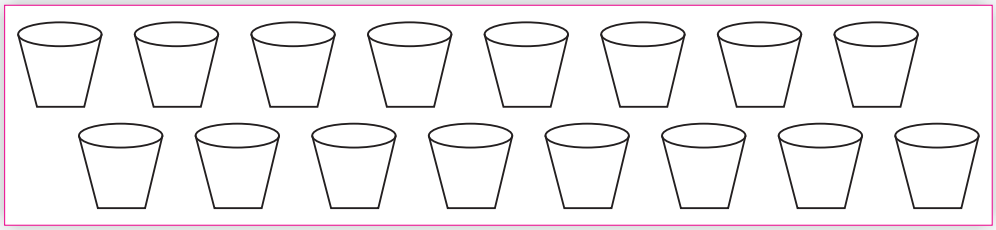
Have you seen wardrobes with five equal shelves in any other form. One way is given in the figure.

Activity

Create your own rectangular wardrobes in different ways with 5 equal shelves.

Activity

Colour $\frac{1}{4}$ of the flower pots in red. Colour half of them in blue. The remaining are to be coloured in green.



How many flower pots are red?

How many flower pots are blue?

How many flower pots are green?

Fraction is a number representing part of a whole.
Whole may be a single object or a group of objects.

Kavitha shows a piece of chocolate having 5 equal parts.

It was decided that three-fifth of it belongs to Raman. This can be represented in a fraction as $\frac{3}{5}$.

A fraction is written as $\frac{\text{numerator}}{\text{denominator}}$

In the fraction $\frac{3}{5}$, 3 is the numerator and 5 is the denominator.

- What does 5 stand for?
  It is the number of equal part into which the whole has been divided.
- What does 3 stand for?
  It is the number of equal parts that has been selected from the whole.

Practice Time

(1) Pick out the denominator and numerator in each of the following fractions. Write them in the respective boxes.

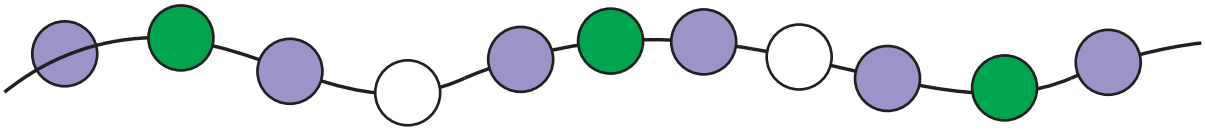
In $\frac{4}{6}$, Denominator is [6] and Numerator is [4]

In $\frac{7}{12}$, Denominator is [ ] and Numerator is [ ]

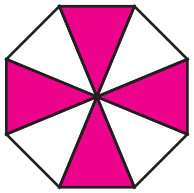
In $\frac{13}{20}$, Denominator is [ ] and Numerator is [ ]

(2) In the given string of beads, number of white beads are _____ .

_____ beads are violet and _____ beads are green.



(3) Write the fraction representing the shaded portion.



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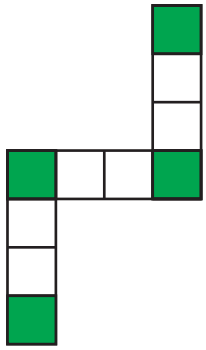

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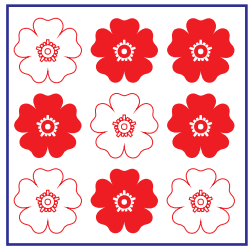

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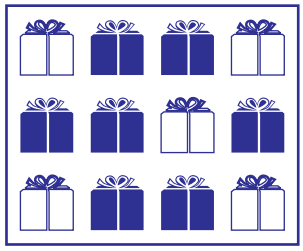
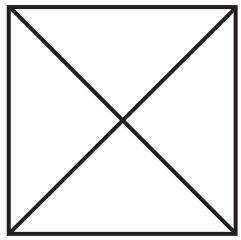
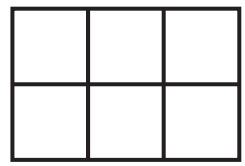


[ ]

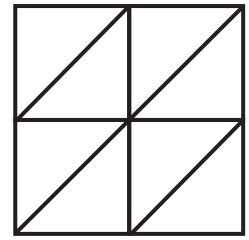
(4) Colour the part according to the given fraction:



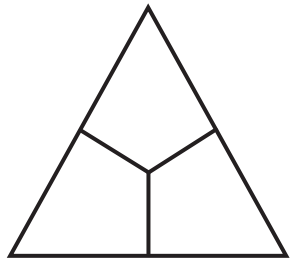
$\frac{3}{4}$



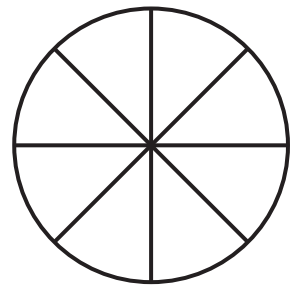
$\frac{5}{6}$



$\frac{2}{8}$

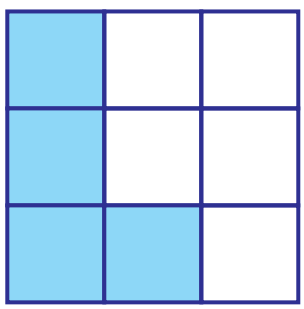


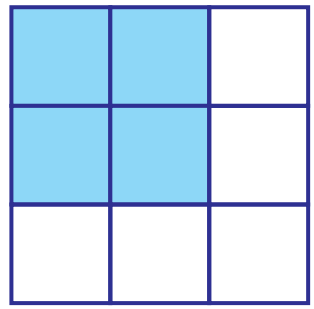
$\frac{2}{3}$

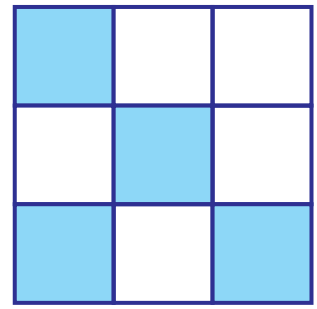


$\frac{3}{8}$

(5) In a 3 × 3 grid, the following figures show different ways of shading $\frac{4}{9}$. Make three more ways of shading $\frac{4}{9}$ in your notebook.

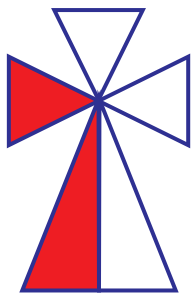


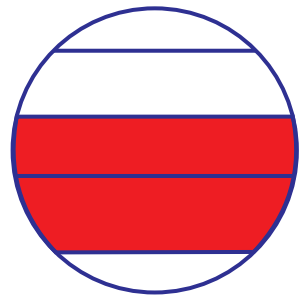


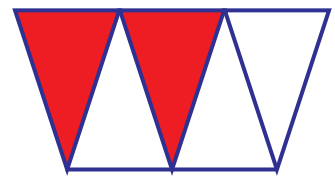


(6) Put the tick mark (✓) for the correct picture.

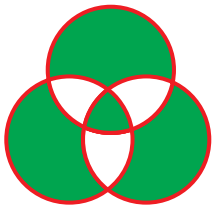
(i) $\frac{2}{5}$

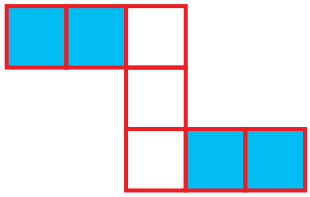


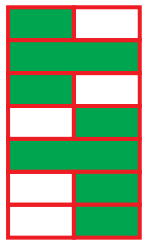




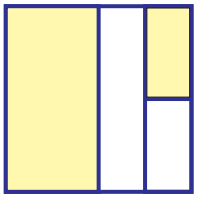
(ii) $\frac{4}{7}$

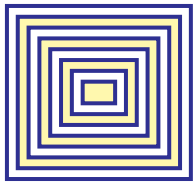


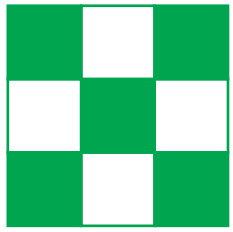




(iii) $\frac{5}{8}$







(7) Write the numbers from 1001 to 1021. Find the fraction of the even number from the list.

(8) What is the fraction of 5 hours in a day?

Activity

In our national flag,

- The uppermost part is saffron.
- The lowest part is coloured green.

Observe the picture and write.

What part of the flag is green?

_____ part is saffron.

Is the white colour a little less than $\frac{1}{3}$ of the flag? Why?

Project Work

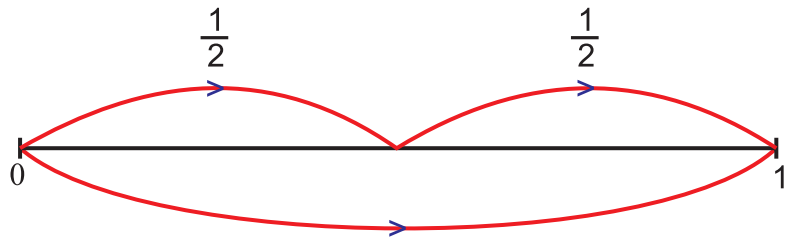
Collect the flags of 20 different countries. Stick them in your note book. Check whether they can be used to represent fraction. If so, write the fraction for each colour used in the flag.

TYPES OF FRACTIONS

Fraction less than 1

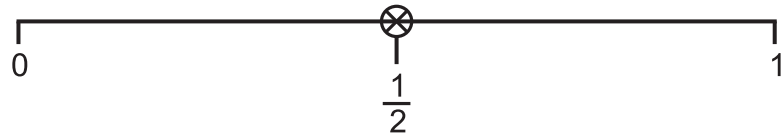
You have already learnt to show multiples of 2, 3, ... on a number line.

We can also show fractions on a number line .

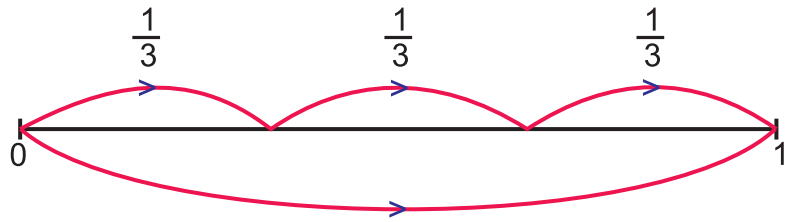


We divide the gap between 0 and 1 into two equal parts and show that each part is $\frac{1}{2}$.

Mark the point which divides the line into two equal halves as $\frac{1}{2}$.



Suppose we want to show $\frac{1}{3}$ on a number line into how many equal parts, should the length between 0 and 1 be divided?



We divide the length between 0 and 1 into 3 equal parts and show that each part is $\frac{1}{3}$.

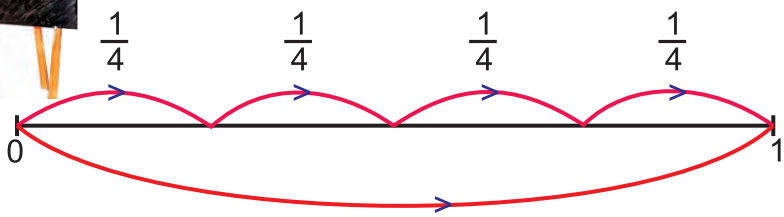
Can you show $\frac{2}{3}$ on this number line? $\frac{2}{3}$ means 2 times of $\frac{1}{3}$ and $\frac{3}{3}$ means 3 times of $\frac{1}{3}$.

Observe that

$\frac{0}{3} = 0$ and

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

Plot $\frac{0}{4}, \frac{1}{4}, \frac{2}{4}, \frac{3}{4}$ and $\frac{4}{4}$ on this number line.

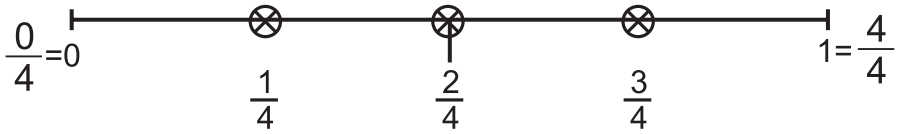


STEP 1

To plot these points divide the gap between 0 and 1 into 4 equal parts.

STEP 2

Mark the points $\frac{1}{4}$, $\frac{2}{4}$ and $\frac{3}{4}$ on the number line.



Kavitha recalls that the above fractions on the numberline represent parts of the whole. Raman adds that they are proper fractions. The denominator shows the number of parts into which the whole is divided and the numerator shows the number of parts that has been selected. Both of them concluded by saying that

All the fractions we have learnt so far are less than 1. These are called proper fractions. In a proper fraction the numerator is always less than the denominator.

Try these

(1) Give a proper fraction :

i) Whose numerator is 5 and the denominator is 6.

ii) Whose denominator is 10 and the numerator is 3.

iii) Make 5 proper fractions on your own.

(2) Locate the fractions $\frac{1}{2}, \frac{3}{5}$ $\frac{9}{10}, \frac{0}{9}$ and $\frac{5}{7}$ on separate number lines.

(3) Choose the correct answer and put (✓) mark against the correct column.

Fraction	equal to 0	less than 1	equal to 1
$\frac{1}{2}$		✓	
$\frac{4}{5}$			
$\frac{4}{4}$			
$\frac{5}{6}$			
$\frac{0}{7}$			
$\frac{200}{200}$			

A way to Share

Sathya had three guavas and wanted to share them equally with her friend Madan. How can they divide the three guavas equally between them? Sathya and Madan tried to find a solution in their own way.

Sathya first shared one guava to each of them. Then she cut the third guava into two equal halves and shared between them equally. Thus each of them got one whole and one half guava. So, each one got $1 + \frac{1}{2}$ which is written as $1\frac{1}{2}$.

Fractions such as $1\frac{1}{2}$ are called mixed fractions. A mixed fraction is the combination of a whole and a fractional part.

Madan said, "I will divide like this". He cut each of the guavas into two equal halves and each of them got 3 half guavas.

In Madan's way, each share is equal to three halves which is written as $\frac{3}{2}$.

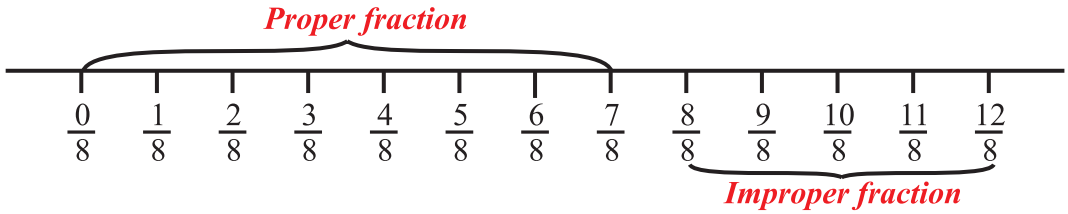
Madan observed that in the above fraction, the numerator is greater than the denominator. Such fractions are called improper fractions.

The fractions, in which the numerator is greater than or equal to denominator are called improper fractions.

Remember

In both the ways each of them got the same share. But the same share can be represented in two different ways.

Improper fractions are greater than or equal to 1. We can mark fraction such as $\frac{0}{8}, \frac{1}{8}, \ldots \frac{12}{8}$ on the number line.



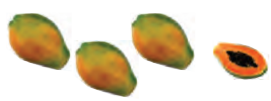
What about $\frac{0}{8}$ and $\frac{8}{8}$? We have already learnt that $\frac{0}{8}$ is 0 and $\frac{8}{8}$ is 1.

Try these

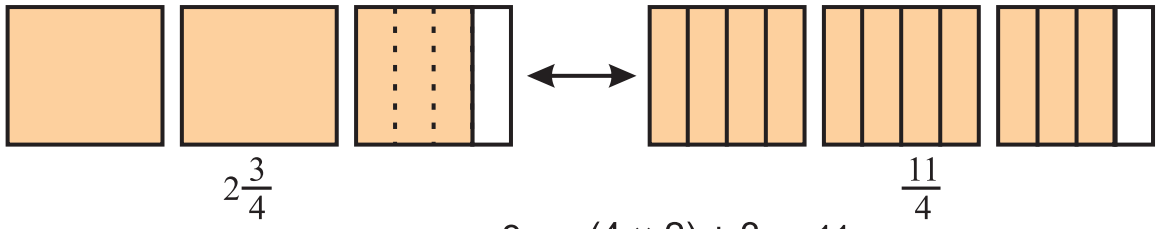
Draw the number line and locate the given points on it. List out the proper and improper fractions. (i) $\frac{2}{5}, \frac{3}{5}, \frac{8}{5}, \frac{4}{5}$ (ii) $\frac{1}{13}, \frac{15}{13}, \frac{8}{13}, \frac{17}{13}$

Mixed Fraction into Improper Fraction

Complete the table for two given mixed fractions $5\frac{1}{2}$ and $6\frac{1}{2}$.

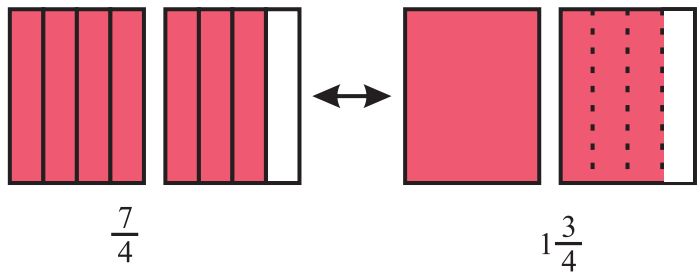
Mixed Fractions	Improper Fractions	Mixed Fractions into Improper Fractions
$2\frac{1}{2}$ 		$\frac{(2 \times 2)+1}{2} = \frac{5}{2}$
$3\frac{1}{2}$ 		$\frac{(2 \times 3)+1}{2} = \frac{7}{2}$
$4\frac{1}{2}$ 		$\frac{(2 \times 4)+1}{2} = \frac{9}{2}$

Conversion of mixed fraction $2\frac{3}{4}$ into improper fraction



The Improper fraction of $2\frac{3}{4}$ is $\frac{(4 \times 2) + 3}{4} = \frac{11}{4}$

Conversion of improper fraction $\frac{7}{4}$ into mixed fraction



$$4\overline{)7}\quad 1,\ 4,\ 3$$

The mixed fraction of $\frac{7}{4}$ is $1\frac{3}{4}$.

Mixed fraction can be expressed as improper fraction and improper fraction can be converted into mixed fraction.

We can express a mixed fraction as an Improper fraction

Improper fraction = $\frac{\text{(Whole} \times \text{Denominator) + Numerator}}{\text{Denominator}}$

Try these

(1) Change these into improper fractions: a) $3\frac{3}{4}$ b) $2\frac{5}{7}$

(2) Change these into mixed fractions: a) $\frac{16}{3}$ b) $\frac{13}{5}$

MOTHER'S DAY

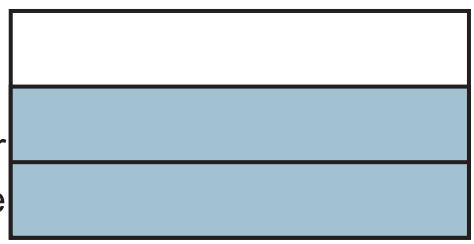
Mano and Meena each had a saving of ₹ 500. They wanted to greet their mother with a gift on the Mother's Day.

With half of his saving, Mano bought a saree worth ₹ 250. Meena bought a hand bag and bangles each for ₹ 125 each of which is one-fourth of her saving. Hence, she has spent two-fourth $\left(\frac{1}{4}+\frac{1}{4}\right)$ of her savings. Both the children spent, equal share of their savings to greet their mother. So, $\frac{1}{2}=\frac{2}{4}$.

Changing a fraction to higher terms.

Paper folding activity

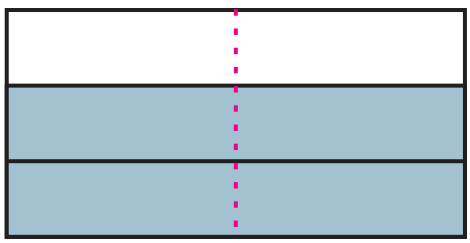
Take a rectangular sheet of paper measuring 6cm × 3 cm and represent the fraction $\frac{2}{3}$.



From the above picture

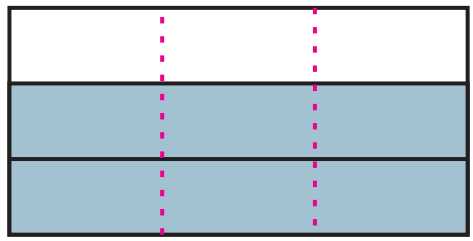
$$\frac{2}{3}\times\frac{1}{1}=\frac{2}{3}$$

Fold it exactly into two halves and unfold as shown.



$$\frac{2}{3}\times\frac{2}{2}=\text{—}$$

In another sheet of paper do the same activity as given above for representing $\frac{2}{3}$ and fold it into 3 equal parts and then unfold as done before.



$\frac{2}{3} \times \frac{\square}{\square} = \frac{6}{9}$

We infer that $\frac{2}{3} = \frac{4}{\square} = \frac{\square}{\square}$

These are called equivalent fractions. They represent the same part of a whole.

To find an equivalent fraction, multiply both the numerator and the denominator of the given fraction by the same number.

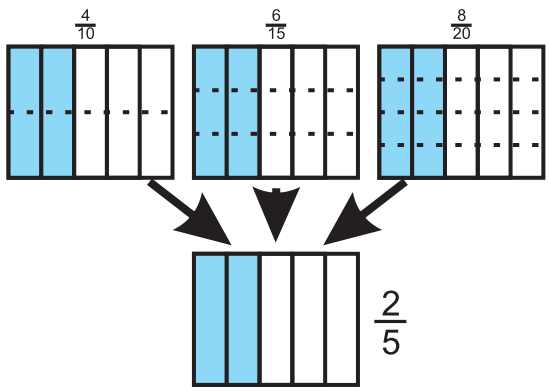
Try these

(1) Find the equivalent fractions of $\frac{3}{4}$ through paper folding until the numerator comes to 12.

(2) Find five equivalent fractions of $\frac{1}{5}$, $\frac{2}{7}$ and $\frac{4}{11}$.

Changing a fraction to lower terms.

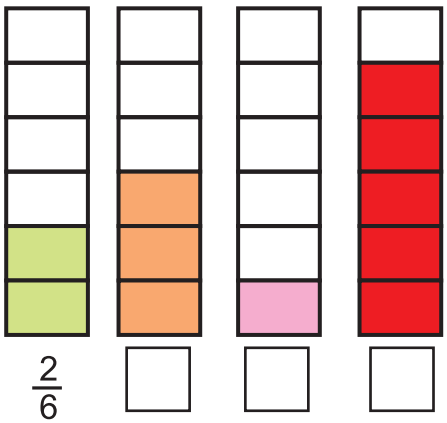
Look at the following representation of fractions.



To find an equivalent fraction, divide both the numerator and the denominator by the same number.

Like Fractions

Look at the shaded portion and write the fraction.



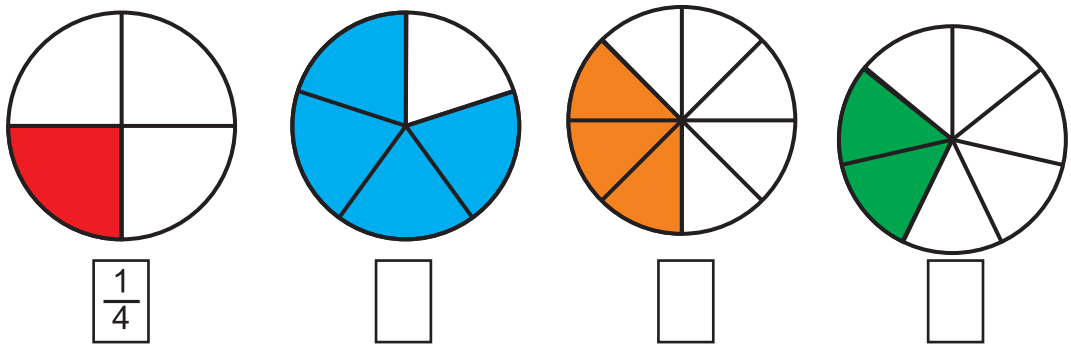
$\frac{2}{6}$ $\square$ $\square$ $\square$

What is common in all these fractions?

In these fractions the whole is divided into 6 equal parts. That is, the denominator of all fractions is equal to 6.

Fractions with same denominators are called like fractions.

Observe the following shaded portion, Find the fraction



$\frac{1}{4}$ $\square$ $\square$ $\square$

The whole of each is divided into different equal parts. That is, the denominators of all fractions are different.

Fractions with different denominators are called unlike fractions.

Try these

Group the given fractions into three groups of like fractions and one group of unlike fractions:

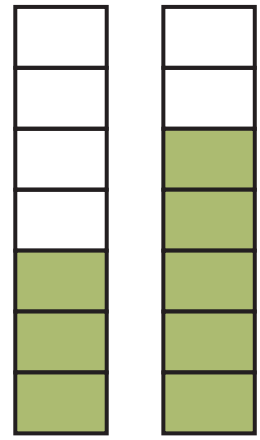
$\frac{1}{9}, \frac{7}{9}, \frac{5}{12}, \frac{7}{15}, \frac{7}{12}, \frac{8}{15}, \frac{5}{9}, \frac{8}{9}, \frac{4}{15}, \frac{1}{12}, \frac{1}{15}, \frac{8}{17}, \frac{9}{19}, \frac{7}{8}, \frac{2}{5}$

Comparing like Fractions

Let us compare two fractions $\frac{3}{7}$ and $\frac{5}{7}$.

In both the fractions, the whole is divided into 7 equal parts. The first and second fractions, 3 and 5 parts respectively are shaded from the divided whole. That is 3 times of $\frac{1}{7}$ is less than 5 times of $\frac{1}{7}$.

Hence $\frac{3}{7}$ is less than $\frac{5}{7}$.



$\frac{3}{7}$ $\frac{5}{7}$

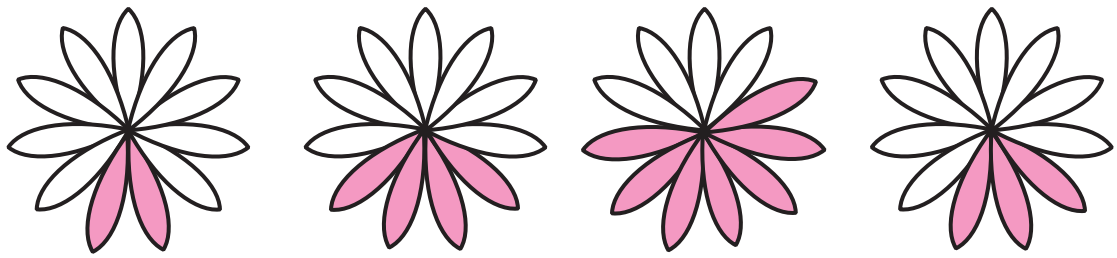
Try these

Circle the greater fraction: (i) $\frac{4}{5}$, $\frac{3}{5}$ (ii) $\frac{11}{20}$, $\frac{13}{20}$ (iii) $\frac{17}{19}$, $\frac{15}{19}$

Small to Big

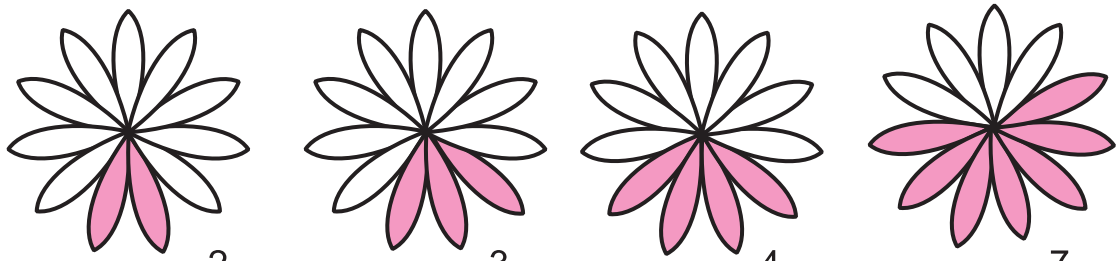
Arrange the following like fractions $\frac{2}{11}$, $\frac{4}{11}$, $\frac{7}{11}$ and $\frac{3}{11}$ in ascending order.

Pictorial representation of the given fractions:



$\frac{2}{11}$ $\frac{4}{11}$ $\frac{7}{11}$ $\frac{3}{11}$

Let us rearrange them from the smallest to the greatest fractions.



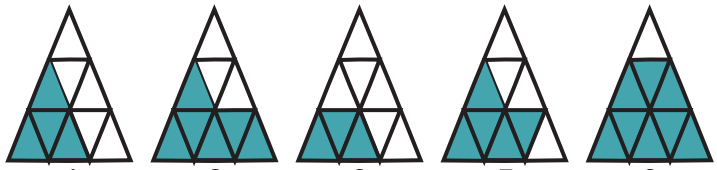
$\frac{2}{11}$ $\frac{3}{11}$ $\frac{4}{11}$ $\frac{7}{11}$

Ascending order of fractions are $\frac{2}{11}$, $\frac{3}{11}$, $\frac{4}{11}$, $\frac{7}{11}$

Big to Small

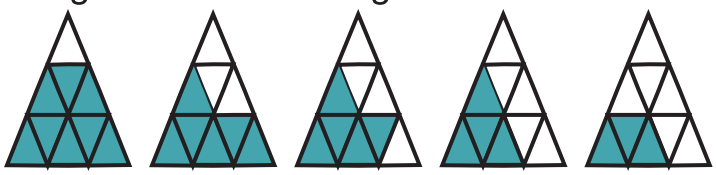
Arrange the following like fractions $\frac{4}{9}, \frac{6}{9}, \frac{3}{9}, \frac{5}{9}$ and $\frac{8}{9}$ in descending order.

Pictorial representation of the given fractions:



$\frac{4}{9}$ $\frac{6}{9}$ $\frac{3}{9}$ $\frac{5}{9}$ $\frac{8}{9}$

Let us rearrange these from the greatest to the smallest fractions.



$\frac{8}{9}$ $\frac{6}{9}$ $\frac{5}{9}$ $\frac{4}{9}$ $\frac{3}{9}$

Descending order of fractions are $\frac{8}{9}, \frac{6}{9}, \frac{5}{9}, \frac{4}{9}, \frac{3}{9}$

Remember

We observe that

- To arrange like fractions in ascending order, we have to arrange the numerators of each of the fractions in ascending order.
- To arrange like fractions in descending order, we have to arrange the numerators of each of the fractions in descending order.

Practice Time

1. Write these in ascending and also in descending order

(i) $\frac{2}{8}, \frac{7}{8}, \frac{6}{8}, \frac{1}{8}$ (ii) $\frac{9}{7}, \frac{7}{7}, \frac{6}{7}, \frac{1}{7}$ (iii) $\frac{13}{12}, \frac{5}{12}, \frac{7}{12}, \frac{11}{12}, \frac{10}{12}$

2. Latha painted $\frac{3}{8}$ part of the wall in her room. Sudhakar helped her and he painted $\frac{5}{8}$ part of the wall. Find out who painted more?

3. Vani wanted to take her two daughters to a book exhibition. So, she asked both of them to say the time they needed to visit the book stall. Karthika said that it would take $\frac{1}{4}$ of two hours for her. Meghala said that it would take $\frac{3}{4}$ of an hour for her. Find who takes more time?

Activity

Take the fraction discs used for teaching fraction from the mathematics kit box. Take the disc which represents the fraction $\frac{1}{2}$ and place it separately. Then take the fractional discs which represent $\frac{2}{4}$ and place it above $\frac{1}{2}$. In the same way place the fractional discs representing $\frac{4}{8}$ and $\frac{5}{10}$ above $\frac{1}{2}$. What do you find out? Put the appropriate symbols (<, >, =) in the box below based on your observation.

$\frac{1}{2}$ ☐ $\frac{2}{4}$ ☐ $\frac{4}{8}$ ☐ $\frac{5}{10}$

You can also make fractional parts using circular paper or chart paper prepared with the help of teacher.

Activity

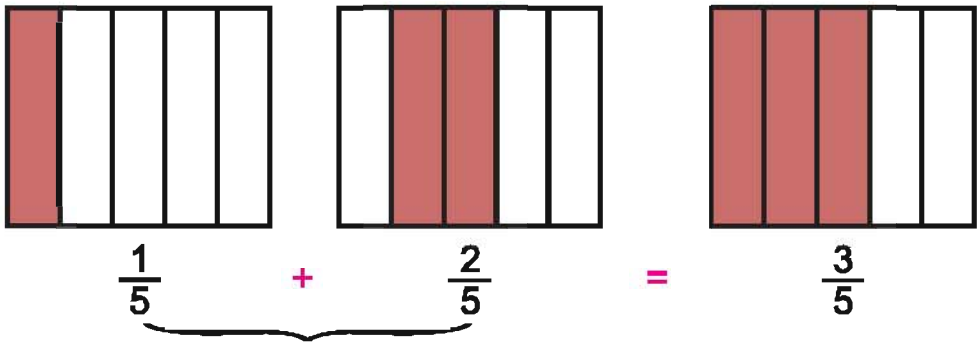
Saravanan and Sankari are siblings. Their mother shared two apples by cutting each apple into two equal halves. There were totally four parts. Out of these four parts she gave three parts to Saravanan. Then she gave one full apple and the remaining one part to Sankari. Represent each one's share as fraction. Then take fractional discs from the kit box representing each one's share. Compare both the fractions by placing one above other.

4 Addition, Subtraction and Multiplication of Fractions

Addition of like fractions

Geetha said that her mother uses $\frac{1}{3}$ of a litre of milk in the morning and $\frac{1}{3}$ of a litre of milk in the evening. Then the total quantity of milk she uses is $\frac{1}{3} + \frac{1}{3} = \frac{2}{3}$.

Find the sum: $\frac{1}{5} + \frac{2}{5}$



The sum of two or more like fractions can be obtained as follows.

Step 1 : Add the numerator $1 + 2 = 3$

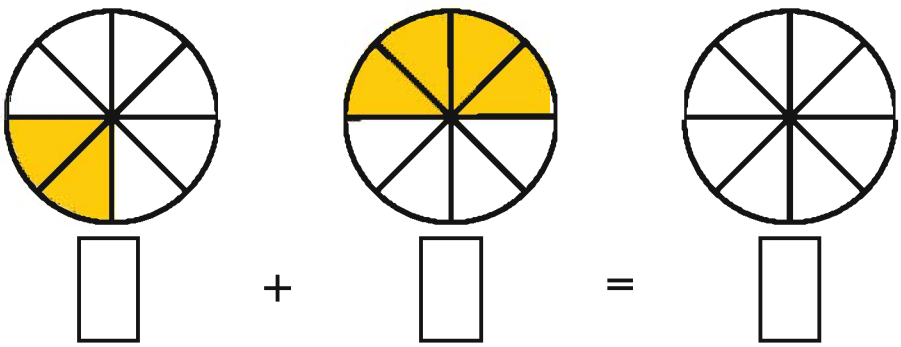
Step 2 : Retain the common denominator 5

Step 3 : $\frac{\text{Result of Step 1}}{\text{Result of Step 2}} = \frac{3}{5}$

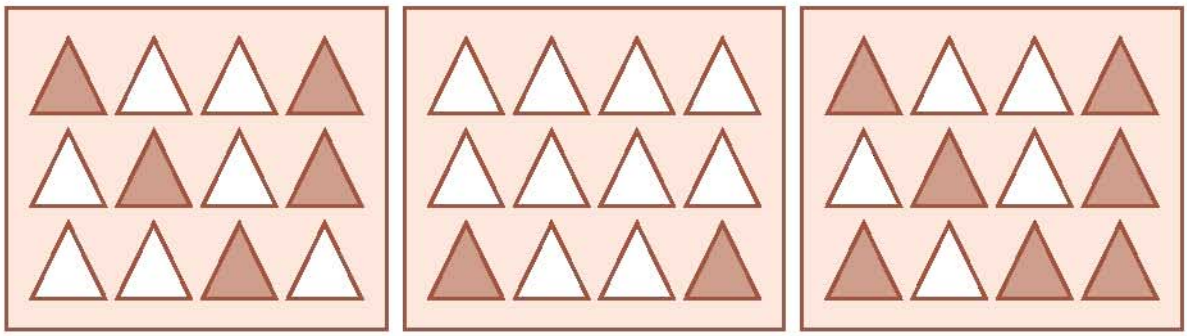
$$\frac{1}{5} + \frac{2}{5} = \frac{1+2}{5} = \frac{3}{5}$$

Try these

Write the fractions for the shaded part of the first two figures. Add them and shade the resultant part in the third figure.



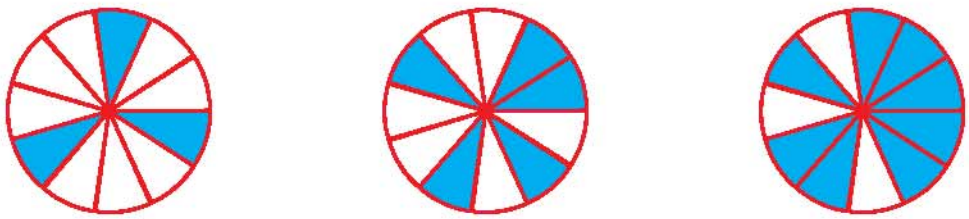
Find the sum of $\frac{5}{12}$ and $\frac{2}{12}$.



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

Try these

Find the sum of the following:

1. 

□ + □ = □

2. 

□ + □ = □

3. Add the like fractions (i) $\frac{3}{11} + \frac{7}{11}$ (ii) $\frac{4}{13} + \frac{8}{13}$

(iii) $\frac{4}{17} + \frac{9}{17}$ (iv) $\frac{7}{20} + \frac{2}{20}$

Finding the Balance

Shekar has $\frac{5}{6}$ part of the chocolate bar. He gave $\frac{2}{6}$ part of it to his younger sister. How much chocolate is left with him?

$$\frac{5}{6} - \frac{2}{6} = \frac{3}{6}$$

Thus the difference between two like fraction can be obtained as follows.

Step 1 : Subtract the smaller numerator from the bigger numerator $5 - 2 = 3$

Step 2 : Retain the common denominator 6

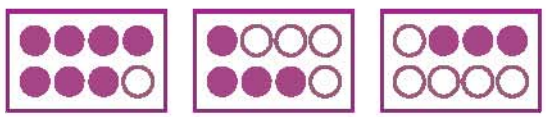
Step 3 : $\frac{\text{Result of Step 1}}{\text{Result of Step 2}} = \frac{3}{6}$ (or) $\frac{1}{2}$

$$\frac{5}{6} - \frac{2}{6} = \frac{5-2}{6} = \frac{3}{6} = \frac{1}{2}$$

Try these

1. 

$\square - \square = \square$

2. 

$\square - \square = \square$

3. Fill in the missing fraction

(i) $\frac{13}{18} - \frac{7}{18} =$ (ii) $\frac{8}{12} - \square = \frac{5}{12}$

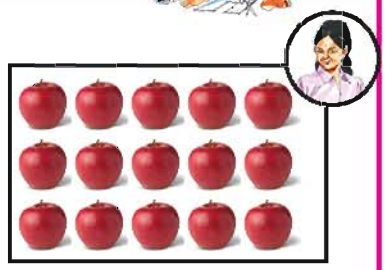
(iii) $\square - \frac{3}{14} = \frac{9}{14}$ (iv) $\frac{7}{9} - \square = \frac{4}{9}$

4. Can you subtract $\frac{3}{10}$ from $\frac{8}{10}$

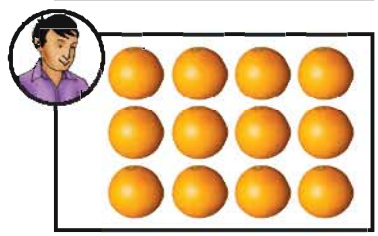
5. Find the difference between $\frac{5}{8}$ and $\frac{7}{8}$

Activity

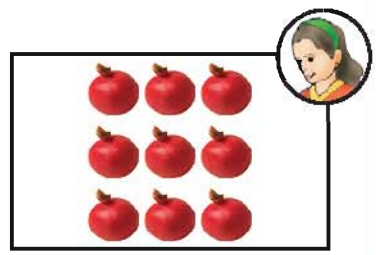
Balu bought fruits for his friend's family. He bought 15 apples, 9 pomegranates and 12 oranges. His friend's daughter Mrithika received the fruit basket and she started sharing the fruits between her brother Gowtham and her cousin Madhu keeping her own share. She grouped the apples into 3 equal parts. Each one got _____ apples.



She grouped the pomegranates into 3 equal parts. Each one got _____ part of pomegranates. As Goutham did not like pomegranate, he gave his share to Mrithika.



Now, Mrithika has $\frac{3}{9} + \square = \square$ part of pomegranates.

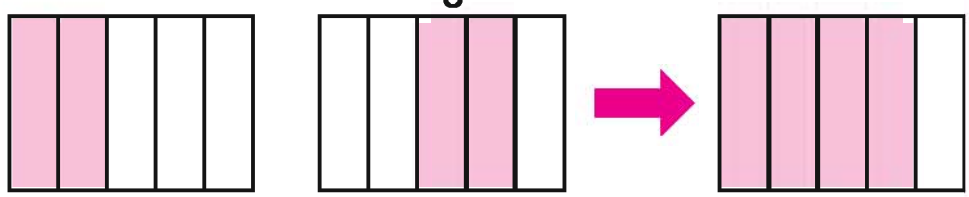


She grouped the oranges into 3 equal parts.

Each one got $\square$ part of oranges.

Multiplication of fraction

Look at the picture and find $\frac{2}{5} \times 2$.



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

2 times of $\frac{2}{5}$

Step 1 : Multiply the numerator of the fractions $2 \times 2 = 4$

Step 2 : Retain the denominator 5

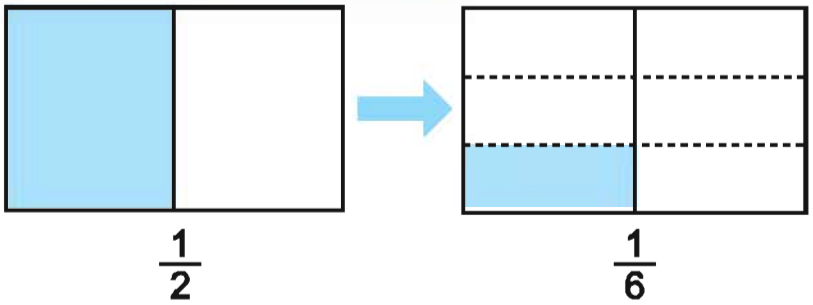
Step 3 : $\frac{\text{Result of Step 1}}{\text{Result of Step 2}} = \frac{4}{5}$

$$\frac{2}{5} \times 2 = \frac{2 \times 2}{5}$$

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

Multiply a fraction with another fraction

Find $\frac{1}{2} \times \frac{1}{3}$



From the figure $\frac{1}{3}$ of $\frac{1}{2}$ is found out.

Step 1 : Multiply the numerator of both the fractions $1 \times 1 = 1$

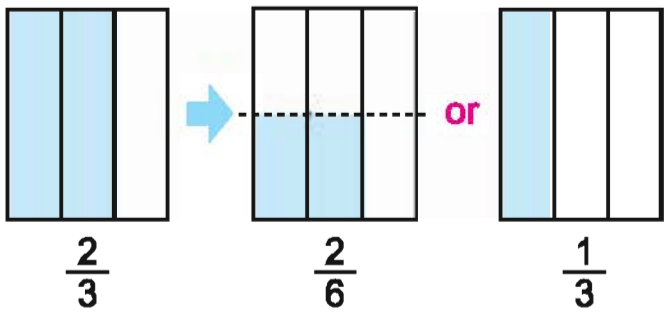
Step 2 : Multiply the denominator of both the fractions $2 \times 3 = 6$

Step 3 : $\frac{\text{Result of Step 1}}{\text{Result of Step 2}} = \frac{1}{6}$

$$\frac{1}{2} \times \frac{1}{3} = \frac{1 \times 1}{2 \times 3} = \frac{1}{6}$$

Find $\frac{2}{3} \times \frac{1}{2}$

$$\frac{2}{3} \times \frac{1}{2} = \frac{2 \times 1}{3 \times 2} = \frac{2}{6} = \frac{1}{3}$$



From the figure $\frac{1}{2}$ of $\frac{2}{3}$ is found out.

Try these

Find the answers for the following.

(i) $\frac{4}{7} \times 3 = \square$

(ii) $\frac{5}{9} \times 2 = \square$

(iii) $\frac{7}{15} \times 2 = \square$

(iv) $\frac{4}{11} \times 5 = \square$

(v) $\frac{3}{5} \times \frac{1}{4} = \square$

(vi) $\frac{3}{7} \times \frac{2}{5} = \square$

(vii) $\frac{7}{5} \times \frac{2}{3} = \square$

(viii) $\frac{4}{9} \times \frac{1}{5} = \square$

Practice Time

1. Round the greater fraction from the given pairs of fractions.

   (a) $\frac{3}{5}, \frac{4}{5}$ (b) $\frac{1}{7}, \frac{3}{7}$ (c) $\frac{3}{8}, \frac{6}{8}$ (d) $\frac{4}{9}, \frac{7}{9}$

2. Write the following fractions in ascending and descending order.

   (a) $\frac{3}{12}, \frac{6}{12}, \frac{10}{12}, \frac{5}{12}$ (b) $\frac{5}{8}, \frac{3}{8}, \frac{2}{8}, \frac{7}{8}$

3. Add

   (a) $\frac{3}{8} + \frac{2}{8} = \square$ (b) $\frac{2}{5} + \square = \frac{3}{5}$ (c) $\square + \frac{3}{6} = \frac{5}{6}$

4. Subtract

   (a) $\frac{4}{10} - \frac{1}{10} = \square$ (b) $\frac{7}{19} - \square = \frac{4}{19}$ (c) $\square - \frac{2}{17} = \frac{4}{17}$

5. Find the answers

   (i) Subtract $\frac{2}{5}$ from $\frac{3}{5}$ (ii) Subtract $\frac{1}{9}$ from $\frac{5}{9}$

   (iii) Subtract $\frac{8}{15}$ from $\frac{12}{15}$

6. The distance between Bhavani's house and her school is $\frac{1}{4}$ km. How long does she have to walk to go to school and come back?

7. Saran sleeps $\frac{1}{4}$ a day. How many hours does he sleep in 4 days?

8. In an egg case, 36 eggs can be placed. How many eggs can be placed in half of the egg case?

9. In a flower bouquet, there are 7 yellow roses and 13 red roses. Maran took 5 yellow roses and 8 red roses. Express the fraction of red and yellow roses taken by Maran ? Find out the fraction of red and yellow roses left in the bouquet?

10. Mani planted wheat in $\frac{3}{5}$ of his 15 acres of land. In how many acres of land did he plant?

11. The cost of 1 kg of Tomato is ₹ 18 and the cost of 1 kg of Onion is ₹ 16. Find the total cost of $2\frac{1}{2}$ kg of Tomatoes and $1\frac{1}{4}$ kg of Onions?

A challenge for you !

An old man had three sons. He owned 17 goats too. In his will, he has written: "After my lifetime $\frac{1}{2}$ part of the goats will go to Dass, $\frac{1}{3}$ will go to Muthu and $\frac{1}{9}$ will go to Mohan", making sure that all the 17 goats are alive.

The sons tried to divide the goats as per the will. $\frac{1}{2}$, $\frac{1}{3}$, $\frac{1}{9}$, of 17 goats? Not possible! They could not solve the problem. They approached a wise man. The wise man said, "take one of my goats and then share as per the will. After sharing, return my goat to me".

How many goats did Dass get?_____
Number of goats given to Muthu _____
Mohan got _____ goats.
Did the wise man get his goat back?

Decimals

Madan and Ravi were given a square sheet of paper with sides measuring 10cm each. They were asked to make 100 equal parts. Both of them started trying. Ravi started making small bits. Madan thought for a while and planned well. He started to cut the paper into 10 equal parts in lengthwise and breadthwise. He got 100 equal parts.

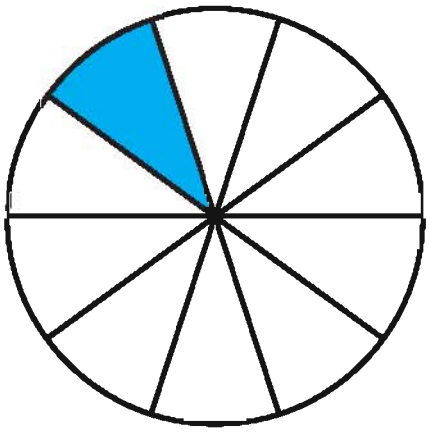
Among the 100 parts, what does each part represent? It is $\frac{1}{100}$

Can you imagine how small $\frac{1}{100}$ is?

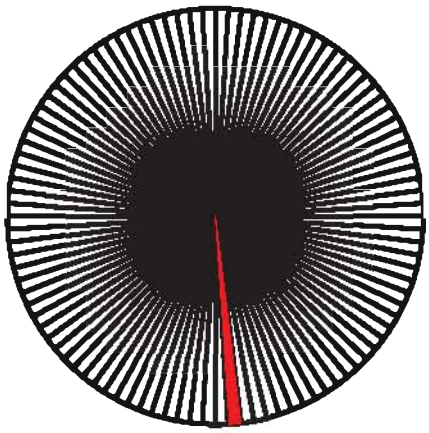
We see that

Fraction numbers whose denominators are 10 and 100 can be expressed as decimal numbers. Here '*Deci*' means ten.

Observe the following pictures.



$\frac{1}{10}$



$\frac{1}{100}$

The portion shaded in blue colour is $\frac{1}{10}$ and it is represented as 0.1

The portion shaded in red colour is $\frac{1}{100}$ and it is represented as 0.01

Change the following fractions into decimals.

(i) $\frac{2}{10} = 0.2$ (ii) $\frac{35}{100} = 0.35$ (iii) $\frac{6}{100} = 0.06$

Change the following decimals into fractions.

(i) $0.9 = \frac{9}{10}$ (ii) $0.44 = \frac{44}{100}$ (iii) $0.03 = \frac{3}{100}$

Try these

1. Write decimal number for the following fractional numbers.

(i) $\frac{5}{10} = \square$ (ii) $\frac{8}{10} = \square$ (iii) $\frac{3}{10} = \square$

(iv) $\frac{36}{100} = \square$ (v) $\frac{48}{100} = \square$ (vi) $\frac{6}{100} = \square$

2. Write the fractional numbers for the following decimal numbers.

(i) $0.7 = \square$ (ii) $0.15 = \square$ (iii) $0.21 = \square$

Group Activity

Take a graph paper. Divide it into 100 equal parts. Shade the decimal portion. Use a separate sheet for each sum.
(i) 0.15 (ii) 0.37 (iii) 0.45 (iv) 0.40 (v) 0.07

Worksheet

Answer the following:

1. The fraction which is less than 1 is called _____

   i) Proper fraction ii) Improper fraction

   iii) Mixed number iv) unlike fraction

2. The sum of $\frac{2}{11}$ and $\frac{1}{11}$ is _____

   i) $\frac{3}{11}$ ii) $\frac{6}{11}$ iii) $\frac{7}{11}$ iv) $\frac{9}{11}$

3. From the fractions given below the fraction which is not equivalent to the other three is _____

   i) $\frac{8}{10}$ ii) $\frac{4}{5}$ iii) $\frac{28}{35}$ iv) $\frac{5}{4}$

4. The difference between $\frac{8}{18}$ and $\frac{3}{18}$ is _____

   i) $\frac{5}{18}$ ii) $\frac{7}{18}$ iii) $\frac{1}{8}$ iv) $\frac{11}{18}$

5. $4\frac{8}{3}$ is equal to _____

   i) $\frac{8}{3}$ ii) $\frac{13}{3}$ iii) $\frac{10}{3}$ iv) $\frac{20}{3}$

6. The product of $\frac{2}{3}$ and 5 is _____

   i) $\frac{5}{3}$ ii) $\frac{7}{3}$ iii) $\frac{2}{8}$ iv) $\frac{10}{3}$

7. $\frac{1}{2}$ of 3 _____

   i) $\frac{3}{2}$ ii) $\frac{2}{3}$ iii) $\frac{1}{6}$ iv) $\frac{1}{5}$

8. If 1 litre of milk costs ₹ 20, the cost of $\frac{1}{2}$ litre is _____

   i) ₹ $20\frac{1}{2}$ ii) ₹ $10\frac{1}{2}$ iii) ₹ 10 iv) ₹ 15

9. If ☐☐☐☐☐☐☐☐ represents 8, ☐☐☐☐ represents

   i) $\frac{1}{2}$ of 8 ii) $\frac{1}{4}$ of 8 iii) $\frac{3}{4}$ of 8 iv) $\frac{1}{3}$ of 8

10. $\frac{2}{10}$ can be expressed as _____

    i) 0.2 ii) 0.5 iii) 0.1 iv) 0.02

‘I can, I did’

Student’s Activity Record

Subject :

S.No	Date	Lesson No.	Topic of the Lesson	Activities	Remarks

SCIENCE

STANDARD FIVE

TERM II

What do these icons stand for?

Fact

Project

For your attention

Do and See / Activity

Evaluation

1. Food

Dharani ate some fruits and drank the glass of milk given to her by her mother. Then she went upstairs to study. There was a foul smell in the room which was nauseating. She looked around the room to find the source of the bad smell. She found a glass of milk under the table. She realised that she had forgotten to drink the milk her mother had given her two days ago. The glass of milk had become spoilt and was responsible for the bad smell.

What caused bad odour from the milk? – examine.

Food will be spoiled if it is not prepared, preserved and handled in the correct way.

We will learn in this lesson, the symptoms and causes of food spoilage, its prevention and also about the preservation of food.

Symptoms of food spoilage

All food items get spoilt over a period of time. We know that the food is spoilt if there is

- a change in the original state of the food item or
- a bad smell or
- the growth of fungi

Spoilt Pumpkin

Causes of food spoilage

Spoilage of food occurs due to the influence of air, moisture, heat and light which help in the growth of micr-organisms like fungi and bacteria. Food is also spoilt by the action of enzymes present in fruits and vegetables and insects like worms, fruit flies and bugs.

Bread with fungus

FACT

Food items once refrigerated should not be kept outside the refrigerator for a long period of time. This is because at room temperature, growth of bacteria and fungi spoils the food.

If we consume spoiled food it will lead to a number of diseases. The fungi and bacteria that grow on spoiled food cause these diseases. Some of the diseases that are caused are as follows:

- Food poisoning
- Diarrhoea
- Amoebic dysentery
- Indigestion
- Stomach ache.
- Fever

Prevention of food spoilage

Let us see whether the spoilage of food can be prevented. There are measures that can be taken to prevent the growth of fungi and bacteria which cause the food to spoil.

- By refrigerating food - At low temperature bacteria and fungi do not grow.
- By preserving - Using of various preservation techniques prevent the growth of bacteria.

Preservation of food items:

We need to preserve food items because

- All fruits and vegetables are not available during all seasons.
- To prevent spoilage of food.
- Fruits and vegetables will remain fresh for a longer period of time.
- Preserved food can be transported to distant places without spoilage.

Methods of preservation.

From ancient times we have been using various methods to protect food items from microbes.
A few are

- Salting
- Drying
- Pickling
- Freezing
- Refrigeration

Use of food preservatives

Salt ,oil, honey and sugar have been in use for many years to preserve vegetables and fruits. Pickles and jam are favourite food items for many people.We use oil and salt to prevent the growth of microbes in pickles. In jam and fruit sugar acts as a preservative. These are natural preservatives.

Pasteurization of milk:

It is a process of heating milk to a temperature of 63°C for 30 minutes and then rapidly cooling it .By this process harmful bacteria are destroyed and milk can be stored for a longer period of time.

Drying and dehydration:

When water is removed from the food products it is called dehydration.

Vegetables, fruits, meat and fish are salted and then dried in the sun. These salted and dried items can now be stored for a long period without getting spoilt. The growth of micro-organisms is prevented by the addition of salt and the removal of water.

Facts

- Vinegar and citric acid are used to prevent food spoilage.
- Louis Pasteur discovered pasteurization method of preserving milk.
- In Tamilnadu, Pasteur Institute is located at Conoor.

ACTIVITY :

Shall we fill in?

Food Items	Method of Preservation
Paddy	Drying
Fish	
Gooseberry	
Meat	
Grapes	
Milk	
Green gram dhal	
Idly Batter	

Food Storage.

Food can be stored in two ways

- Dry storage
- Cold storage

Dry storage: Cereals and pulses are stored for a year by keeping them in a dry place in air tight containers.

Cold storage: Vegetables, fruits , meat and fish are perishable goods that get spoilt when kept at room temperature. Therefore these are stored at a low temperature in refrigerators. They are also transported from one place to another in refrigerated containers. They remain fresh for a longer period.

Protection from diseases

Cleanliness and hygiene are important when handling food. Food prepared and eaten in unhygienic surroundings causes many diseases.We have to keep the following points in mind to maintain hygiene.

- The area where food is prepared should always be kept clean and dry.
- The cooking utensils and equipment should be cleaned and dried properly.
- The persons who cook should wash their hands thoroughly before cooking.
- We should wash our hands before eating.

- Cooked food should be kept in covered containers.
- Cooked and uncooked food should be kept separately.
- Perishable foods should be kept in a refrigerator.
- Food should be cooked in such a way that the nutrients are not destroyed.

Safety in the kitchen

- We should not keep easily inflammable substances like kerosene in the kitchen.
- We should make sure that the stove is put off before leaving the kitchen.
- The valve of the gas cylinder should be kept closed when the stove is not in use, particularly at night.
- Medicines should not be kept in the kitchen.
- Small children should not be left alone in the kitchen.
- Pet animals should not be allowed in the kitchen.
- Spoilt food should be thrown into the dustbin immediately.

EVALUATION

I. Choose the right answer :

1. _____ is a natural food preservative.

   a) Water vapour b) Common salt c) Rice bran d) Butter

2. The natural food, which does not get spoiled when it is preserved for a long period of time, is _____ .

   a) Vegetables b) Fruit juice

   c) Honey d) Butter

3. The Pasteur Institute in Tamilnadu is located at _____ .

   a) Ooty b) Conoor

   c) Kotagiri d) Kodaikanal

4. The thing which should not be kept in a kitchen is _____ .

   a) Salt b) Rice c) Tamarind d) Medicine

5. Pasteurization of milk was discovered by _____ .

   a) Flemming b) Louis Pasteur

   c) Edison d) Sir Isaac Newton

II. Write True or False :

1. Food items should be covered and kept in closed containers.
2. Do not eat spoiled food items.
3. Allow pet animals to enter into the kitchen.
4. We can have food items in all seasons by preservation.
5. Milk is preserved by Pasteur's method.

III. Answer in one or two sentences :

1. Write any four methods of food preservation.
2. Name any three natural food preservatives.
3. What is meant by Pasteurisation ?
4. What are the symptoms of food poisoning?
5. Name the nutrients present in food.

IV. Answer in detail :

1. Describe a few methods used to protect food items.
2. Why should food items be preserved?
3. Explain any two methods of food preservation.
4. What do you know about kitchen safety?
5. Find out and list the methods used by our ancestors to preserve food for a long time without spoiling.

V. Project :

1. You may visit a milk processing centre and collect information about how milk is processed so that it does not get spoilt easily.
2. Collect information about how food is preserved in your house.
3. Collect information about the harmful effects of packaged food.
4. Take any six perishable food items from your house and leave it out for two or three days, observe and record the changes (colour, smell and change in state) that take place in them. Submit a report after a week.

2. Save Energy

Keerthana was very tired when she returned home from school. She kept her school bag and went straight away to bed. Her mother was washing clothes. She called Keerthana to help her. “Mom I cannot help you, I played for a long time in the playground. I am feeling very giddy and hungry” said Keerthana. At once, her mother fed her with her favourite rice with greens. The food was very tasty and she ate everything. Now, she felt energetic. She ran to her mother and helped her.

We need energy to walk, run and to do work. We get energy from the food we eat.

From where do the plants get energy to prepare food?

Plants prepare food by using energy from the sun during photosysnthesis.

We get energy from food. Where do the following get energy from?

Electrical Energy

Electricity is generated through Hydroelectric power stations, Atomic power stations, Thermal power stations and wind mills.

Fact

Electricity is also generated using solar energy and from waste products.

Hydro electric power station

Atomic power station

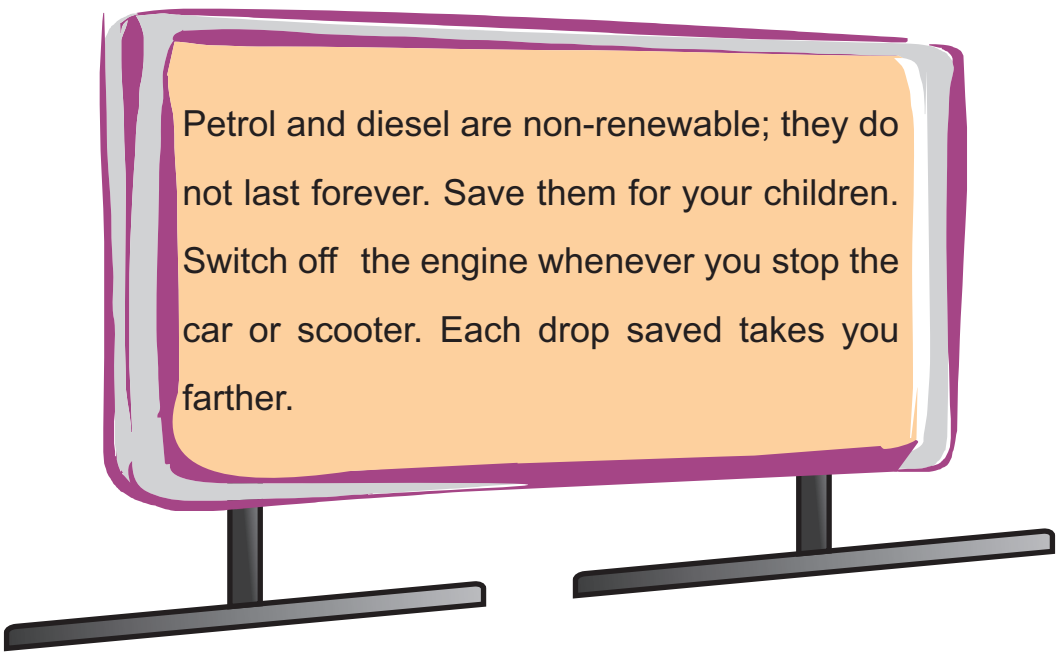
Thermal power station

Facts

100 units of electrical energy is to be generated to provide 20 units of energy to our house. 80 units of energy is wasted when they flow through the transmission wires.

Energy Resources

Keerthana went to the shop with her father by scooter. While returning home, her father stopped at a petrol station to fill petrol in his scooter. There Keerthana read the advertisement written on a board and was surprised.



She showed the board to her father and asked why petrol and diesel would not last long. Her father answered that they are available only in a few places deep under the earth and would get exhausted shortly. We should use our vehicles only when absolutely necessary.

Non-Renewable Energy Sources

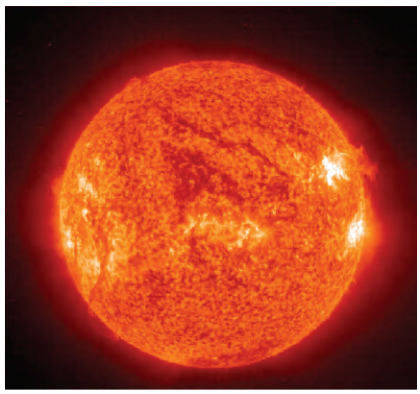
The animals and plants were buried under the earth million years ago. Due to high pressure and temperature, they decomposed to become coal and petroleum

.

Petrol, diesel, bio-gas and coal are available only in limited amounts. We consume them continually in large amounts, they are depleting fast. They could be formed again only after another million of years. They are called non-renewable resources.

Renewable resources:

The sources that can be produced naturally and not be exhausted are called renewable resources.



We get energy from many sources.
Sun is the ultimate source of all kinds of energy on earth.

Renewable resources

1. Sun
2. Air
3. Water
4. Cow dung(Organic matter)

Fact

The hawkers at the sea shore of Chennai use solar lamps at night

Solar panel

Solar lights

Uses of Solar energy

- Solar cells produce electricity during the day and store it to illuminate the street lights and lights of houses at night.
- Villages on the hills use solar cells.
- Solar cookers help us to cook without using fuels like kerosene or gas.

Other equipments that use solar energy

Solar watch

Solar cooker

Solar calculator

Do and See

Take some fresh cow dung, mix it in water and pour the mixture into a bottle. Close the bottle tightly and keep for three days. When you open the bottle, a kind of gas comes out. It is inflammable. This is gobar gas. When it is produced in large quantity it is used as a fuel.

Making Cow-dung Cakes

Gobar Gas

Facts

India stands first in annual solar power generation, Second in bio-gas, third in hydroelectric power generation and fourth in wind power generation at the world level. Tamilnadu stands first in wind power production.

Keerthana's project:

Keerthana's teacher said, "If we save one unit of electrical energy at home, we save the production of 5 units at the power station. So, we should save at least 4 units of electrical energy weekly by using the electrical appliances carefully".

With the help of her father Keerthana noted the meter reading at her house on Sunday morning of that week. She monitored the use of all the electrical appliances in her house carefully for a week.

- She unplugged the television every day at night before she went to bed.
- She switched off the fans and lights whenever they were not necessary.
- She switched off the charger as soon as her father's cell phone was completely charged.
- She opened all the doors and asked her mother to avoid the use of fans and lights during day time.
- She reduced the use of television.
- In the same manner she handled all other electrical appliances carefully for a month .

She was glad when her father said that they had reduced the consumption of electricity by 20 units during that month.

Ah! Keerthana saved the production of 100 units of electrical energy!

Why don't you try these methods and save electrical energy consumption of your house?

ACTIVITY

With the help of parents children are asked to note the meter reading at a fixed time everyday. Have a discussion about the importance of conserving and saving electricity.

Facts

- Using CFL lamps(Compact Flourescent Lamps) instead of tungsten lamps would save electrical energy.
- The National Energy Conservation Day is celebrated on December 14.

Saving energy means judicial use of energy at all levels.

EVALUATION

I. Choose the right answer :

1. The source of all kinds of energy on the earth is _____.
   a) water b) wind c) sun d) fire
2. The non-renewable energy source is _____.
   a) coal b) water c) cow dung d) sun
3. For which energy production does India stand first at the world level?
   a) wind power b) hydroelectric power
   c) bio gas d) solar power
4. Which is the energy produced by wind mills?
   a) light energy b) electrical energy
   c) heat energy d) sound energy

II. Fill in the blanks :

1. A non-renewable source of energy is _____.
2. The national Energy Conservation Day is _____.
3. Plants use _____ energy for the production of food.
4. _____ produces electrical energy using solar energy.
5. It takes _____ years for the formation of petroleum.

III. Answer in one or two sentences :

1. What is the energy resource used by buses and two wheelers?
2. Which is the source that gives energy to human beings?
3. From which do the thermal power stations receive energy?
4. What kind of energy is solar energy?

IV. Which one will you select to save energy in the following situations:

1. To go to a nearby shop (Two wheeler / bicycle)
2. To heat the water for bathing (Gas stove / Solar stove)
3. To illuminate an open-yard (CFL lamps / Tungsten lamps)
4. To make the study room bright at day (Open windows / electric lamps)
5. List the renewable and non-renewable energy resources in the following :

   Kerosene, Coal, Sun, Sea waves, Petrol, Gobar gas, Wind, Wood, Water

V. Answer in detail :

1. What are non-renewable resources of energy?
2. What are renewable power resources?
3. How is coal formed?
4. Why are coal and petroleum non-renewable resources?

VI. Project :

List the different ways of saving energy.

3. Hygiene and Prevention of Diseases

The half yearly exams had just got over that day. That night Akalya and her brother Selvin were talking for a long time. They were thrilled because they were to visit their grandmother the next day. At last, they slept. The next day they went with the family to their native place. Akalya and Selvin went around the places of the village and happily played for two days. The third day dawned. Selvin was still sleeping. His mother tried to wake him up. She found his body terribly hot. They got worried and took him to a hospital. The doctor checked him and gave him some medication. But fever did not come down for the next two days. The doctor advised a blood test. The test confirmed that Selvin was suffering from Malaria.

The lakes and ponds we find in our places are highly useful for domestic use, agriculture,fishing and for creating natural environment. But the same water becomes the breeding places of mosquitoes which spread illnesses like Malaria, Dengue and Chikungunya. When water gets polluted by man, diseases increase.

Do you welcome mosquitoes?

Warning!

- Mosquitoes spread fever like Malaria, Dengue and Chikungunya.
- Do not allow water to stagnate around houses.
- Cover the vessels containing water.
- Breed fishes in all water sources.

Mosquitoes that spread diseases

Anopheles

Female Anopheles mosquitoes bite human beings and animals at night. They are the causes of spreading Malarial fever

Culex

Culex is another kind of mosquito that bites people at night. They spread filarial germs that cause a disease called Filariasis. They also spread brain fever.

Aedes

Aedes bites people during the day. They breed and lay eggs in stagnating water, in old tyres, coconut shells, etc., These mosquitoes spread Dengue fever.

Diseases spread by mosquitoes:

Name of Disease	Causative Agent	Disease carriers
Malaria	Plasmodium	Anopheles
Filariasis	Wuchereria bancrofti	Culex
Brain fever	Japanese encephalitis	Culex
Dengue fever	Flavi virus	Aedes
Chikungunya	Toga virus	Aedes

Dengue fever

This disease was identified nearly two hundred years ago. Flavivirus causes this fever and Aedis mosquito spreads this fever. These mosquitoes bite people generally during the day.

Symptoms of Dengue

1. High fever
2. Severe head ache
3. Severe joint pain and muscular pain
4. Vomiting

Ways to control Dengue

1. Protect yourself from mosquito bites.
2. Keep the surroundings clean.

Filariasis

Causative Agent

Wuchereria bancrofti

Carriers of Disease

Culex mosquito

Symptoms

Swollen legs.

Prevention of Disease

1. Take care that water does not stagnate around the houses.
2. Keep the surroundings clean.
3. Personal Hygiene.

Filariasis

Chikungunya

Causative Agent

Toga virus

Symptoms

1. Fever (102.2˚F)
2. Head ache
3. Allergic to light
4. Joint pain
5. sleeplessness

Prevention of Disease

So far there is no medicine to cure this disease. There are no injections for the prevention. But, there is a blood test to confirm this disease.

- Keep safe from mosquito bites.
- Take complete rest when you are ill.

Swine Flu

Causative Agent

Influenza A, B, C viruses

Symptoms

Fever (above 100 °F), Cough, Headache, muscular pain, tiredness, difficulty in breathing, vomiting etc.

Treatment of the disease

Medicines like Tamiflu and Relenza are to be taken within 48 hours after the onset of fever.

Ways to control the spread of swine flu.

- Keep the living place and the surroundings clean.
- Wash your hands frequently using soap and wipe them with a clean towel.
- Cover your mouth with towel while you cough.

Fact

In 1918, the virus H1N1 which spreads swine flu had affected and caused death of nearly 5 crores of people.

Disease that spread through air

Name of Disease	Causative Agent	Symptoms	Control and prevention
Common cold	Viruses	Cough, sneezing, head ache, running nose	Complete rest, intake of warm liquids. The duration of cold can be reduced by taking foods rich in vitamin C.

Disease that spread through water

Name of Disease	Causative Agent	Symptoms	Control and prevention
Cholera	Vibrio cholerae (Bacteria)	Continuous Diarrhoea, Vomiting, Rapid dehydration, Reduced urine output.	Take hygienic food. Take preventive injection. Consume plenty of liquid.

Controlling of Disease carriers

Controlling of disease carriers include watching the movements of the carriers, cleaning up their breeding places, controlling them using biological and chemical techniques and creating awareness among the people.

Biological Control

The Gambusia fishes, grown in the water sources, consume the larvae of mosquitoes as their food. Controlling a species by growing another species is known as biological control.

Chemical control

Malathion, DDT and organophosphates can be sprayed on the roof and walls of the house in order to control mosquitoes. This method is known as chemical control.

How to prevent diseases from spreading?

- Don't spit in common places.
- Drink only boiled and filtered water.
- Cover your mouth and nose while coughing and sneezing.
- Strictly avoid using public place as toilet.

There are so many diseases that are spreading through air and water. Our government is taking different steps to control diseases. We should also learn to keep away from diseases by keeping our surroundings and ourselves clean. Only then we can prevent diseases from spreading.

ACTIVITY

Divide the class into groups. By means of lots, each group chooses the name of a disease. Through role - play, each person of the group tells the class anyone of the following.

a. Disease causing agent.

b. Symptoms of the disease.

c. Control and preventive measures.

Health Care Centres

Nowadays, Public Health Care Centres like primary health centres in villages, Government Hospitals in towns and District Government Hospitals at every District Headquarters are functioning effectively. These centres not only provide free medical care to the economically backward classes, but also conduct Health Awareness Programmes and Preventive Measures to control diseases.

EVALUATION

I. Choose the right answer :

1. Which mosquito bites people during the day?
   a) Culex b) Aedes
   c) Male Anopheles d) Female Anopheles
2. Kind of fish that are bred in water resources to control mosquitoes
   a) Mullet b) Marine Cat Fish
   c) Gambusia d) Tilapia
3. Mosquito that spreads Malaria
   a) Culex b) Aedes
   c) Male Anopheles d) Female Anopheles
4. Brain Fever affects people
   a) who are below age 10 b) above age 10
   c) above age 15 d) people of all ages.

5. Tamiflu is used as medicine for which disease

a) Dengue b) Malaria c) Chikungunya d) Swine flu

II. Match the following :

1. Malaria	a) Japanese encephalitis
2. Filariasis	b) Plasmodium
3. Dengue	c) Influenza
4. Brain fever	d) Wuchereria bancrofti
5. Swine flu	e) flavivirus

III. Answer in one or two sentences :

1. What is biological control?
2. Differentiate Culex and Aedes mosquitoes.
3. What are the ways of preventing the spreading of swine flu?
4. What are the symptoms of chikungunya?
5. Write a note on prevention of diseases.
6. Mention the name of any two disease carrying insects.
7. Mention the chemicals used to control Mosquitoes.
8. Write a note on Filariasis.

IV. Answer in detail :

1. Explain any one disease that spreads through air.
2. Explain any one disease that spreads through water.
3. Describe Swine flu.
4. What do you know about Chikungunya?
5. List any five diseases that are spread through carriers and write causative agents.

V. Project :

1. Collect information from your nearby Health Centre about contagious diseases.
2. Prepare an assignment about the diseases that spread during the rainy season and how we can be aware of them.

4. Materials around us and different types of Houses

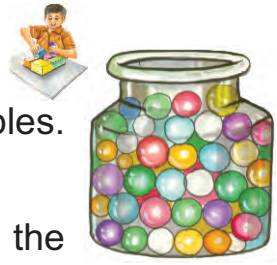
It was a Sunday morning. Elango and his friends sat under a tree after a hard game of foot ball. But soon, they all sprang up shaking their legs. They found a multitude of ants. They were struck with wonder at the sight of rows and rows of ants carrying particles to build their house. The following Sunday, Elango and his friends, to their surprise, found a huge ant-hill under the same tree. What a wonder! Particles by which the whole universe is built is called in general as matter.

Matter is of three kinds. They are

1. Solid
2. Liquid
3. Gas

Properties of matter

Do and see



Take a glass jar. Fill it carefully with marbles. what are the shapes of Marbles?

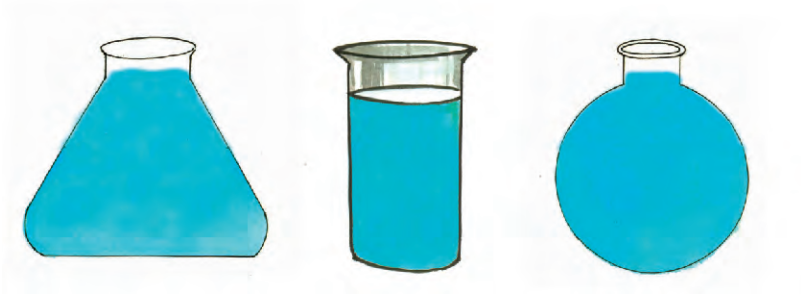
How much space do the marbles occupy in the jar?

Matters that occupy specific spaces and have specific shapes are called solids.

Do and see

What is the shape of water ?

Take a conical flask, beaker and round bottom flask. Fill them with water. Observe the shape of water.



Liquid has no specific shape or size. It takes the shape of the container that holds the liquid.

Can you mention how much space water occupies in the above shown glass container?

Matter which has no specific shape but occupies a specific space is called liquid matter.

Do and see

What is the shape of air?

Take five balloons. Blow them up with air to different sizes. Can you now mention the shape of air?

Gaseous matter has no shape. They take the shapes of the things that contain them.

Can you mention correctly how much space air occupies in each balloon?

Matters which do not occupy specific space and have no specific shapes are called gaseous matter.

Anything that occupies space and has a specific mass is called matter.
Examples: stone, water, air.

Do and see

1. Keep a stone on the floor. Does it move by itself?
2. Pour a bucket of water on the same floor. Does water splash fast and flow in one direction?
3. Take a balloon filled with air. Prick it with a needle. Does air rush out?

Solid matter does not flow by itself. Liquid matter flows by itself. Gaseous matter flows by itself in all direction.

Do and see

1. Take a stone, press it. What happens?

2. Fill an open vessel with water. Press the surface of the water with your hands. What changes do you see?

3. Press a balloon filled with air. What changes do you see?

Solid matters and liquid matters do not undergo any change due to pressure. But the space occupied by gaseous matter gets reduced due to pressure.

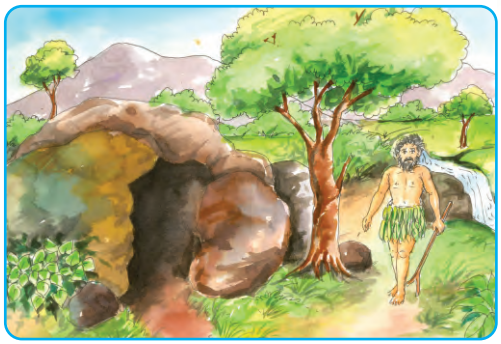
Since

1. Solid matters have definite shape.
2. It occupies specific space.
3. It does not under go any change due to pressure.

We are using solid materials to build houses.

House

A house is the dwelling place for human beings. Ancient men lived in caves. The caves protected them from wild animals, air, rain and cold weather. Is there anyone who still lives in caves? In modern days, houses are built according to the environment and weather.



Kinds of houses

1. Snow Houses

These types of houses are found in Arctic parts. Since the temperature remains below -46˚C throughout the year, these houses do not get melted. Eskimos live here.

These houses look like the shell of a tortoise. The snow houses are called as igloos.

2. Bamboo houses

We find this type of houses especially in earthquake prone places.

Mostly, these are found in Andaman, Indonesia and Japan. Even if the houses get affected during earthquake and volcanoes people are not injured due to the light weight of these houses.

3. Apartment type of houses

Concrete houses built in many layers are called apartment type of houses. The foundation for this building should be very strong. Pillars are raised from the foundation and each floor is connected with strong bond. Many families can reside in this type of houses. These types of houses are found in cities like Chennai and Mumbai.

4. Tents

They are temporary houses. They are built using cloth, ropes, nylon, polythene and wire. The soldiers, N.S.S and NCC students make these type of houses for their stay during camps. They are also called mobile houses.

5. House built on a tree

They are called safe houses or upper houses. These houses are built by the people in jungles and mountains to protect themselves from wild animals. They are built on trees.

A platform is first constructed on the tree at the required height. The trunk of the tree itself becomes the pillar for the platform. The light wood is used for building the rest of the house. A ladder is used to enter the house. During the night, the ladder is removed to protect the inhabitants from animals. Such houses are also found in coastal islands.

6. Skyscrapers

These type of buildings are found in large cities. They look as if they are touching the sky. These type of buildings are built on account of the space crunch in large cities. These houses have got many floors. There is lift facility to go to each floor.

Facts

The tallest building in the world is in Dubai and it is known as Burj khalifa. The height of this building is 828 meters. It has got 160 floors.

Characteristics of a good house

- A house should be built in such a way that it has enough ventilation for air and light. The flooring of the house must be level.
- The doors and windows of the house should be large enough and it should ensure the safety of the house.
- Rainwater harvesting must be provided.
- It should have drinking water facilities.
- It must have good toilet facilities.

Maintenance of a house

- Sweep and clean the house daily.
- Wash the bathrooms and toilets every day.
- A good drainage system should be there so that water does not stagnate around the house.
- The cleanliness of the surroundings will help for the healthy atmosphere of the house.
- Painting the walls, windows and doors will give a neat look to the house.

EVALUATION

I. Choose the right answer :

1. The type of housing found in the Arctic region
   a) Igloo b) Bamboo houses
   c) Apartment type houses d) Tiled houses
2. The houses built to protect us from animals
   a) Bamboo houses b) House built on trees
   c) Apartment type houses d) Huts
3. Housing found in earthquake prone areas
   a) Apartments b) Igloo
   c) Huts d) Bamboo houses
4. Subtance that does not flow
   a) Oil b) Brick c) Water d) Air
5. Solid matter is
   a) hard b) has no shape
   c) flows d) soft

II. Fill in the blanks :

1. _____materials do not undergo any change due to pressure.
2. _____has no specific shape.
3. The house found in Japan is made of _____.
4. Snow house is also called _____.
5. The houses found in cities are mostly _____.

III. Match the following :

1. Bamboo houses	a) Moving houses
2. Snow houses	b) Indonesia
3. Houses on the trees	c) Eskimos
4. Tents	d) Dubai
5. Skyscrapers	e) Safe houses

IV. Answer in one or two sentences :

1. Touch and press with your finger an iron ball and water in a glass separately. What do you feel? Why?
2. How does a liquid get its shape?
3. Gaseous matter has flowing nature. Explain it with an example.
4. Write a short note on tree houses.
5. What do you know about skyscrapers?

V. Answer in detail :

1. Differentiate solid, liquid and gaseous matters.
2. Explain with experiment any two characteristics of solid, liquid and gaseous matters.
3. Describe the different kinds of houses.
4. What are the characteristics of a good house?

VI. Project

1. List the types of houses you find on the way from your home to the school.

1._____ 2._____

3._____ 4._____

2. Shall we design the rooms in our home!

Kitchen

Guestroom

Bathroom

Studyroom

3. Make use of the waste materials you find in your home and design a house and decorate it.
4. Collect pictures of different types of houses and prepare an album.
5. Collect information on unique buildings found in different parts of the world and make an assignment.

‘I can, I did’

Student’s Activity Record

Subject :

S.No	Date	Lesson No.	Topic of the Lesson	Activities	Remarks

SOCIAL SCIENCE

STANDARD FIVE

TERM II

1. OUR GREEN COVER

NATURAL VEGETATION

Forest are large areas of land that are covered with small plants and trees that grow naturally in the region. Climate, soil and rainfall influence the growth of these plants and trees.

Natural vegetation in India is not uniform. Climate, soil and rainfall influence the growth of plants in distinctive forms.

MAJOR TYPES OF FORESTS

Indian forests are broadly classified into five types. They are

1. Tropical Evergreen Forests
2. Tropical Deciduous Forests (Monsoon forests)
3. Mangrove Forests
4. Thorn Forests
5. Himalayan Forests

TROPICAL EVERGREEN FORESTS

These forests are found in the areas of the Western Ghats, the eastern parts of Himalayas and the Andaman and Nicobar Islands which receive more than 200 cm rainfall.

Ebony, Mahogany, Bamboo, Rubber, Rose Wood and Sandalwood are the important trees grown here.

Tiger, Rhinoceros, Bears, Leopards, Pythons and Swamp deer are found here.

TROPICAL DECIDUOUS FORESTS (MONSOON FORESTS)

Peninsular India and the Northern parts of India are covered by monsoon forests. These areas receive 100 cm rainfall.

Teak, Sandalwood, Sal, Deodar, Bamboo and Ebony are some of the important trees grown here. These trees shed / their leaves during summer because of less rainfall. These forests are called deciduous forests. The wood is used for making furniture.

Do you know?

Very little wildlife can be found here as the forests are not dense .

MANGROVE FORESTS

Mangrove forests are seen in the Indian coastal line, in the Ganga delta and Brahmaputra region, in some backwater areas and salt marshes.

The roots of the trees of most forests are found usually under the ground. But salt water trees have aerial roots which are above the water in order to survive in the salt water. These prevent soil erosion and prevent fertile soil from being washed away into the ocean. The marshy forest in the Glanga delta is known as Sunderbans after the Sundari trees that grow there.

Vedaranyam and Pichavaram areas in Tamilnadu have mangrove forests.

Pichavaram forests protected many people from The Tsunami waves in 2004.

Do you know?

Deltas are formed when sand mounds are formed by wind and waves.

THORN FORESTS

Thorn forests are found in the areas which receive less than 50 cm rainfall.

Parts of the Deccan Plateau and Rajasthan have thorny trees like acacia, babul and palmyra.

HIMALAYAN FORESTS

The Himalayan Forests are covered with tall coneshaped leaves and are also called confierous forests.

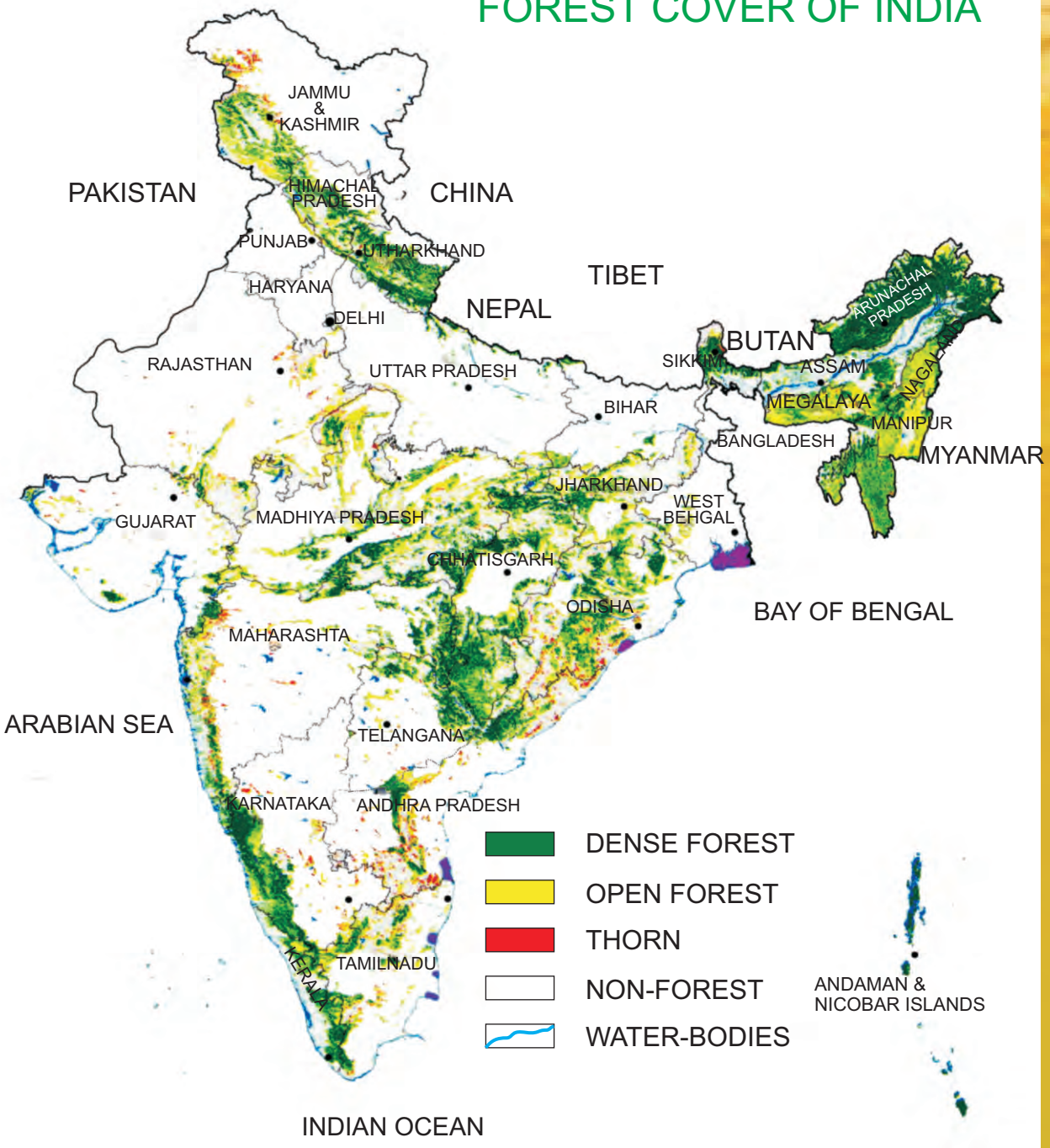
The lower Himalayas have evergreen forests. The Middle Himalayas have temperate forest trees like Pine, Birch, Cedar, Oak, Chestnut, Walnut and Apple.

You can see some of these trees in Ooty, Upper Nilgiris and Kodi Hills.

Activity

Compare the trees of other forests with respect to size, shape, structure of the leaves etc.

FOREST COVER OF INDIA



Think over: How can we increase the forest cover in India?

THE USES OF FORESTS

- Forests provide oxygen for living things.
- Forests provide timber / wood for various types of construction work from house to ship building.
- Forests give us firewood, fruits, nuts and medicinal leaves (herbs).
- Forests have their own value; they bring rainfall, control soil erosion and purify the air by providing Oxygen.
- Forests give revenue to the Government and employment opportunities to people
- Forests provide shelter for wild animals like lion, tiger, elephant, bison, deer and hundreds of birds and wild creatures.
- The dry leaves combine with the soil and change into manure thus adding fertility to the soil.
- Forests are used to produce paper, gum, resin, olive oil and natural dyes.

Nowadays the benefits have declined considerably… Do you know why?

This is because of all our activities. The growing population has reduced the forests to less than 17 % of our country's total area. Remember, a country should have more than 33% of area under forest cover to get the maximum benefits from forests and for remarkable economic development.

Man has cleared the forests for human settlements, industrial purposes, construction of roads, railways and dams. Clearing of forests is called deforestation.

Other than this, valuable trees are illegally cut down and animals are hunted by poachers. In this way we have lost a lot of our forest wealth.

Results of that …

Afforestation - The government encourages people to plant trees. Van mahotsav is celebrated at the beginning of the rainy season and trees are planted.

- We receive unseasonal and irregular rainfall.
- The earth's temperature is gradually increasing. “Man cannot tolerate the Earth's temperature after 300 years” is the prediction of US Climate Agencies 2010.
- We have lost our rare variety of plants and animals which are our country's rich heritage.
- Our National animal Tiger is facing the danger of extinction.

Do you know?

Over half of the world's wild tigers live in India, Nepal and Bangladesh.

- To protect some endangered animals there are some sanctuaries.
  - Gir forest in Gujarat for lions.
  - Mudumalai forest in TamilNadu for elephants.
  - Kaziranga in Assam for the rhinoceros.

“Grow more trees Save the Earth”

CHIPKO Movement

CHIPKO movement - In 1974 the villagers in Chamoli started a novel movement to prevent cutting of trees. They put their arms around trees and refused to allow the cutting of trees. It was started by Sunderlal Bahuguna.

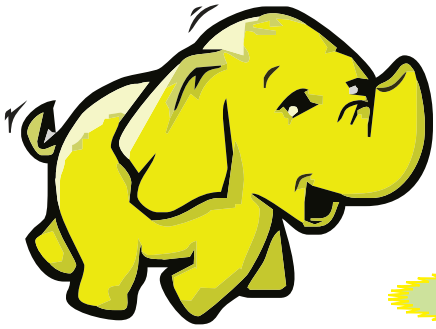
Song of a tree

I am a tree , a tree ,
A useful thing am I ;
I give you oxygen free
And the air I purify.
My leaves, flowers and fruits
Give shade, give food, as you can see
The soil is held tight by my roots
Animals and birds find homes in me.
I give wood, I bring rain
I protect weather naturally;
Please don't give me pain!
Don't cut me! Don't cut me!

Sudha Vyas

Interesting Facts

- ★ 19.39% of the total area of India is covered by forests.
- ★ 90% of the land of Andaman and Nicobar Islands is covered by forests.
- ★ Assam is the largest producer of tea in the world.
- ★ Uttar Pradesh is the largest producer of sugarcane in India.
- ★ The major hill stations of India namely Nainital, Mussoorie, Almora and Ranikhet are in Uttar Pradesh.
- ★ Kodaikanal and Ooty are the summer hill resorts of Tamil Nadu.
- ★ The Indian state of Kerala accounts for 90% of the rubber production in the country.
- ★ Sikkim exports medicinal herbs.
- ★ Punjab stands first in the cultivation of wheat.
- ★ Manipur has a valley filled with flowers.
- ★ Meghalaya is the only state with a museum of butterflies.



Exercise

I. State whether each of the statements is true or false

1. Climate affects the natural vegetation of a place.
2. Evergreen forests have trees that shed their leaves.
3. Thorn forests are found in desert areas.
4. Mangrove forests have trees with aerial roots.
5. Forests bring rainfall.

II. Mention any two crops or trees that grow in these forests

1. Tropical evergreen forests
2. Monsoon forests

III. Match the following

1. Vedaranyam	-	a) Deciduous forests
2. Andaman	-	b) Coniferous forests
3. Peninsular India	-	c) Thorn forests
4. Middle Himalayas	-	d) Mangrove forests
5. Thar	-	e) Evergreen forests

III. Answer the Following

1. What is the difference between deciduous and evergreen forests?
2. Who Started the Chipko movement? What was novel about it?
3. What is the result of deforestation?

IV. Write a note on conservation of forests and wildlife

Project

Let us grow more trees-Save Nature

Name of student :

Class :

Date of Birth :

Name of the parents :

Address :

Phone number: Mobile number:

Sir/Madam,

Subject:-Tree plantation

My son/daughter will plant a tree (type of tree)_____on(date) _____ at (place) _____ as a part of the project "Conservation of trees".

Signature of the student Signature of the parent

Date:

Place:

2. TREASURES UNDER THE GROUND

Among the following things pick out those we use for purposes like cooking, travelling and making ornaments.

petroleum	gold	cotton	wool
coal	copper	aluminium	leather

We call products like petroleum, coal, copper and gold minerals.

Minerals are products that are found in rocks and under the ground. The mining industries are responsible for obtaining minerals . A mine is an excavation in the earth from which ores of minerals can be extracted. The availability of minerals helps to establish many industries which contribute to the development of a country.

India is rich in mineral wealth. Minerals are of two kinds namely Metallic and Non-metallic. Iron, manganese, bauxite, copper and gold are the important metallic minerals while petroleum and coal are the important non-metallic ones. Most of these minerals are found in the Deccan Plateau and Chota Nagpur Plateau of India.

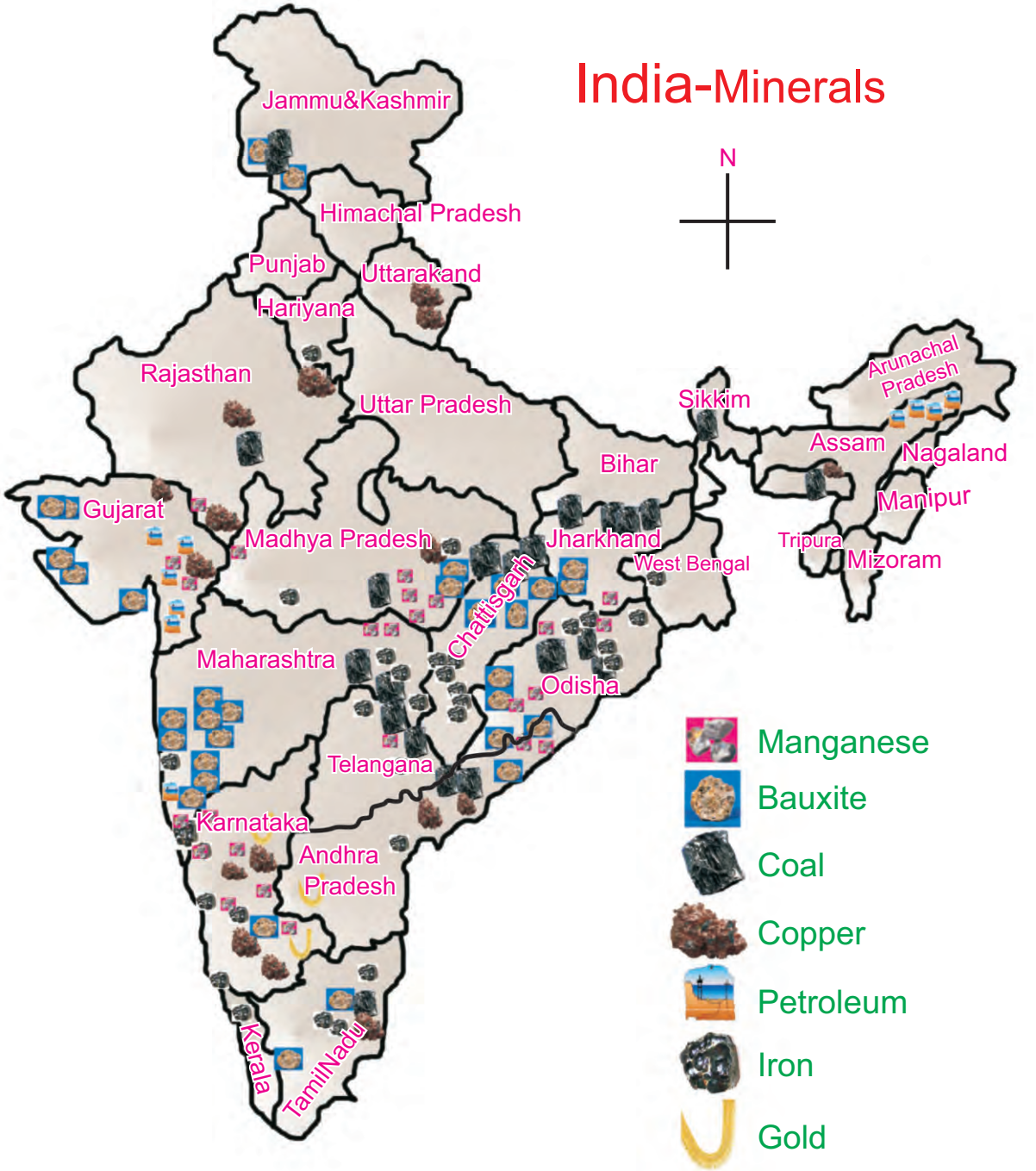
Do you know?

The study of minerals is called Mineralogy.

Iron

Iron is called the key mineral. Industries are mainly dependent on it. The best variety of iron ore is found in India in the states of Bihar, Odisha and Karnataka. Iron is also found in Jharkhand, West Bengal, Madhya Pradesh, Tamil Nadu and Maharashtra.

(eg.) USES OF IRON



One-fourth of all the iron ore in the world is found in India. Iron is useful to us in many ways. We make different vehicles and machines using iron. It is also used in buildings and bridges.

Iron is one of the major exports of India. Through the ports of Paradweep in Odisha and Vishakapatnam in Andhra Pradesh, iron is exported to different foreign countries.

EXPORT AND IMPORT

When we send products from our country to other countries it is termed as export. When we bring products from other countries to our country it is termed as import.

More export and less import will contribute to the progress of our country.

GOLD


Gold mine


Gold

Gold enjoys great popularity in India. Indians love gold ornaments and objects made of gold. The gold industry is booming in India. It is even importing gold.

Gold was primarily found in the mines of Kolar in Karnataka and a few places in Andhra Pradesh.

MANGANESE

Manganese is found in abundance in India. This is used in making iron products and in the glass industry.

Manganese is largely found in Odisha. It can also be found in Madhya Pradesh, Andhra Pradesh, Goa and Karnataka.


Manganese

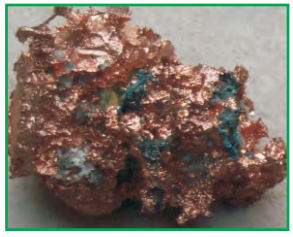
BAUXITE

Bauxite is an ore of aluminium. Aluminium is light in nature. It is used in making vessels, electrical wires, automobiles, machines and aircraft.

It is found in the following states: Tamil Nadu, Odisha, Madhya Pradesh, Bihar and Andhra Pradesh.

COPPER

Copper was the first metal used by human beings. It is widely used in electrical equipments. Copper is mined in Uttaranchal, Jharkhand, Madhya Pradesh and Rajasthan.



COAL

Coal is one of the most important minerals found under the earth.

Coal is primarily used as fuel. Asia accounts for one-third of the total coal found in the world. Railway engines, iron factories, industries and houses use coal as fuel for industrial use and cooking.

Coal mine

Coal

Coal is largely found in Madhya Pradesh, Bihar, West Bengal, Odisha, Tamil Nadu and Andhra Pradesh. Neyveli in Tamil Nadu has a number of coal mines.

PETROLEUM

Petroleum is a natural resource. It is believed that petroleum was formed over millions of years from the remains of sea animals.

The by-products of petroleum are petrol, diesel and kerosene all of which are used for generating energy and as fuel. Petroleum gel or paraffin is also another by - product.

Petroleum is found in large quantities at Digboi in Assam and Ankuleshwar in Gujarat. It is also found in the offshore station of Mumbai under the sea.

Petroleum is purified in Mumbai, Chennai and Cochin and many by - products are derived from it.

These two underground Non-Metallic Minerals, Coal and Petroleum play a vital role in the industrial development of India.

CONSERVING OUR MINERALS

Our minerals are being consumed so rapidly that there is a danger of their running out. We must learn to save them by using them wisely.

Alternate sources of energy and fuel are being considered. Chief among them are solar and wind energy. This aims at conserving the available mineral resources from being rapidly depleted.

Points to remember

- Minerals are found in rocks and under the earth.
- Through mines these minerals are obtained.
- Iron, copper and gold are the most used minerals in India.
- Coal and petroleum are non-metallic minerals.
- Conserve the minerals and use them wisely.

Some interesting facts:-

- ★ Karnataka is the only state where mercury is found.
- ★ Bihar is the only state in India where pyrite is found.
- ★ Platinum has been discovered in Namakkal District recently.
- ★ Some years ago, dentists used gold to fill cavities in teeth.
- ★ Gypsum is found in the state of Himachal Pradesh in India.

Exercise

I. Choose the Correct Answer?

a. Which metal is used in constructing bridges?
   i. Gold ii. Copper iii. Aluminum iv. Iron

b. Which of these is found in an off-shore station in Mumbai?
   i. Coal ii. Petroleum iii. Goal iv. Iron

c. The mines of kolar are in:
   i. Odisha ii. Madhya Pradesh iii. Karnataka iv. Andhra Pradesh

d. The mines of kolar are in:
   i. Petroleum ii. Gold iii. Aluminum iv. Iron

II. Answer the following questions

1. What are minerals?
2. Name the major minerals found in India.
3. How was petroleum formed?
4. What are the by-products of petroleum? What are they used for?
5. What are the alternate sources of energy?

III. Activity

1. Find out if there are minerals found in your area. Tell your friends about them.
2. Form two groups and find out what minerals are used at home and in your school and for what purposes.
3. Write a small report of your findings and read it out.

Project

1. Bring samples of some minerals. Display them on a table. Label them and appoint students to speak about each of the minerals.
2. Make a rock collection and display it in Class.

3. BEYOND FRONTIERS

SPACE

Human beings have been extremely curious to know more about space. What is space? The atmosphere surrounds the earth upto a distance of 1600kms.Beyond this is the limitless space. It is an extension of the sky. The solar system is part of this space. Ancient Indian scientists and astronomers like Aryabhatta and Bhaskara have given a lot of facts about space and the heavenly bodies through their intense studies and research. Research about space continues even today.

ARTIFICIAL SATELLITES

Space scientists have created artificial satellites to study space. Satellites are machines specially made by scientists. These satellites are sent into space by means of rockets. Space stations are set up in space to conduct research.

Russia and U.S.A have competed with each other in sending satellites into space. On Oct 4-1957 Russia sent Sputnik -1.This was the first space satellite. In the very same year during the month of November, Russia sent a dog Laika in Sputnik 2, an another satellite. After this, America sent its own satellite "Explorer" to space.

Do you know?

From the year 1975 to July 2010, India has sent 56 satellites into space.

INDIAN SATELLITES

On 19th April 1974, India sent its first satellite Aryabhatta into space followed by Bhaskara 1, Rohini, Apple, Insat-1A, Insat-1B, PSLV C-etc.

In October 2008 India sent Chandrayaan-I, an unmanned satelite to the moon. It was intended to study the surface in detail.

In July 2010 through the satellite PSLV C - 15, five smaller satellites have been launched for space research.

For your information

PSLV C -15 was launched from Satish Dhawan space centre in Sriharikota. Images taken by its camera can be used for planning roads in villages, building harbours, preparing accurate maps etc.

THE FIRST MAN IN SPACE

Russia realized its dream of being the first to send a man into space. On April 12th, 1961, Yuri Gagarin, a Russian cosmonaut, became the first human to travel into space in Vostok I. After his return, he became an instant celebrity.

Do you know?

Astronauts - Space travellers.

Cosmonauts - Space travellers from Russia.

THE FIRST MAN ON THE MOON

America was not far behind in space travel. In July, 1969, Neil Armstrong of America was the first to set foot on the moon. The second man was Edwin Aldrin who went along with him in the spaceship Apollo XI.They brought back samples of rock and soil from the lunar surface.

Armstrong spoke the famous words, "One small step for man, a giant leap for mankind". Aldrin and Armstrong said that they had come from the planet earth in a spirit of friendship and peace. They signed under these words on a plate and left it on the moon.

SPECIAL TRAINING GIVEN TO SPACE TRAVELLERS

1. To swim in the deep water of the ocean.
2. To wear a space suit and play tennis in water.
3. To stay in a room with low atmospheric pressure for hours together and rectify the defects of the machines.
4. To stay in a place with less gravitational force for certain hours.
5. To operate all the machines connected with a space vehicle.

THE SPACE SUIT

Astronauts need to wear a special dress known as the space suit while going into space. This protects them from breathlessness as there is no air in space. This protects the body from excessive cold. This suit is also designed to provide enough oxygen to breathe and it helps to keep up the blood pressure of the body. Without this suit, space travel is impossible.

SPACE STATION

16 Nations of the world set up an international space station in space to conduct thorough research and gather information. Astronauts from different countries spend time there and send useful information to the earth.

INDIAN ASTRONAUTS

On 2nd April 1984 India sent Rakesh Sharma into space in Soyuz T-11 a spacecraft. He became the first Indian space traveller. He spent 8 days in space aboard the Salyut 7 space station in order to do research.

India ranks 7th in sending satellites into space.

Apart from Rakesh Sharma two women of Indian origin namely Kalpana Chawla and Sunitha Williams went into space to do research.

Do you know?

Valentina Tereshkova was the first woman to go into space.

KALPANA CHAWLA

Kalpana Chawla of Indian origin went to space in the space ship Columbia in the year 1997. In her first mission she was mission specialist and prime robotic arm operator on space shuttle STS 87. In her second mission she was one of the seven members of the crew of STS-107 as mission specialist. This mission from 16th January 2003 to 1st February 2003 lasted 15days, 22hours and 21 minutes in space. The crew conducted nearly 80 experiments related to microgravity, earth and space science, advanced technological development and astronaut's health and safety. Unfortunately while returning, the space craft exploded in space. All the astronauts on board were killed.

SUNITHA WILLIAMS


Sunitha Williams

Sunitha Williams was born on September 19th 1965 in Cleveland in the district of Ohio in USA. Her father is Doctor Deepak Pandya of Indian Origin.

EDUCATION

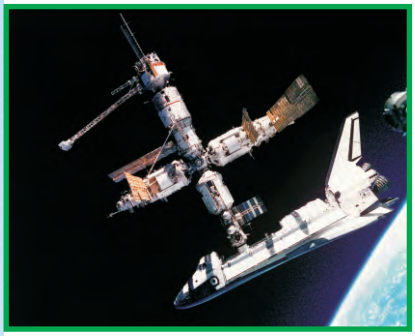
Sunitha was full of grit and determination from childhood itself. After her graduation in 1987, she joined in navy and flew helicopters. She has the experience of 2770 flying hours in 30 different types of aircraft.

AMBITION TO BECOME AN ASTRONAUT

She dreamt of flying into space as she flew helicopters. In order to qualify herself for this, she did higher studies in engineering in the Institute of Technology in Florida. She was selected in 1998 as an Astronaut.

SPACE TRAVEL

On December 9, 2006 she travelled to the international space station in STS-116 launched by the shuttle Discovery. She spent 6 months there.



She installed a new instrument in the space station to get electricity from solar rays. She completed 3 space walks in 9 days.

INTERESTING EXPERIENCES IN SPACE

In space, eating and drinking should be done with utmost care. Once when Sunitha Williams started taking almonds, all slipped away from her hand and began to float in the space craft. She had to swim inside to pick them up one by one.

she narrates interesting experience, of how she tried to mix sauce in her food. As she opened the packet, the sauce came out with force and floated here and there. She tried to catch it and failed. Then she found the lid and closed the packet with great difficulty.

ACHIEVEMENTS IN SPACE

Doctor Catherine held the record of the longest stay in space. Sunitha Williams broke this record by staying 195 days in space. This became the longest stay of any person in space.

In 2012, she served as a flight engineer for Expedition 32 and then commander for Expedition 33. In addition to holding the record for the longest single space flight by a women. She holds the record for number of spacewalks for a woman.

Recent News : A group of scientists under the leadership of astro-scientist Crowther Paul of London Sheffield university has discovered a star 320 times bigger and brighter than the sun. They have named it the “Monster star”. This is 265 times heavier than the sun.

USES OF SATELLITES

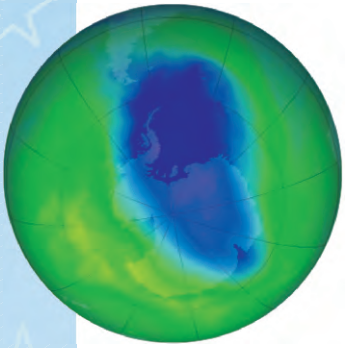
Satellites are useful to mankind in many ways.

1. They have contributed significantly towards understanding earth based activities.
2. They help us in understanding about the ozone layer.
3. They help us in discovering the archeological sites or geological formations which were impossible to identify otherwise.
4. They connect people of all countries through effective communication.
5. They help us in understanding climatic changes.

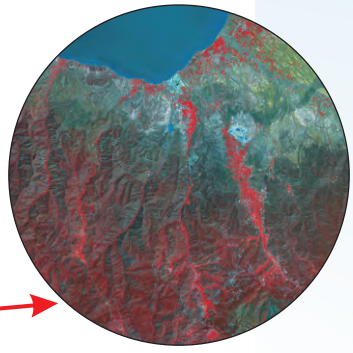
Space will continue to fascinate people. A day will come when space tourism may become possible.

Agriculture

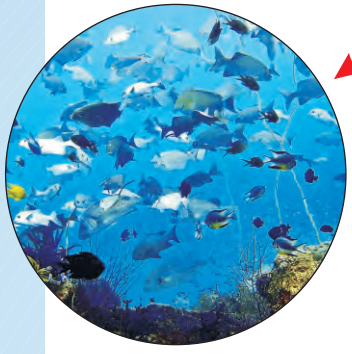
Seismic Activity



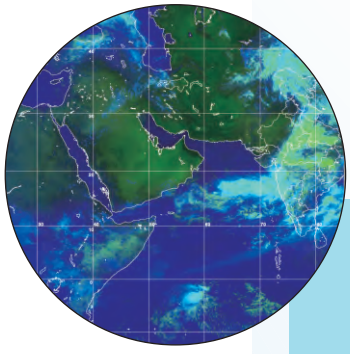
Ozone Layer



Mineral Wealth



Fishing



Climatic Changes

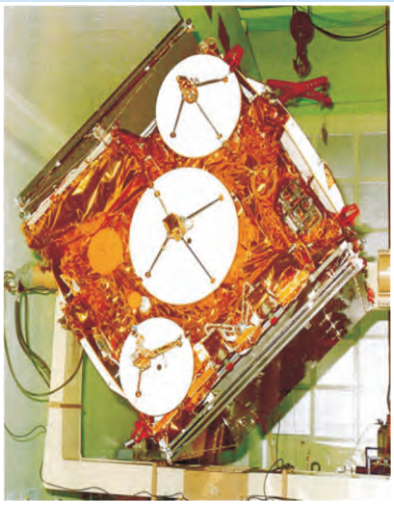
Communication

Some interesting facts.

1. The youngest person to fly in space is Gherman Titov. He was 25 years old when he flew Vostok 2.
2. The oldest person to fly in space was John Glena. He was 77 years old when he flew on STS – 95.
3. SHAR stands for Sriharikota. It is the launching centre for all Indian satellites.
4. Dr.Vikram Sarabhai is considered as the father of the Indian Space Programme.
5. The main factor in space travel is the gravity change experienced by the body.
6. To do any work in space, Astronauts have to move only the body parts like hands and legs and not the entire body.
7. The famous motto of Kalpana Chawla was “Follow your dreams”.
8. Chandrayaan's most important discovery was the presence of water molecules in lunar soil.

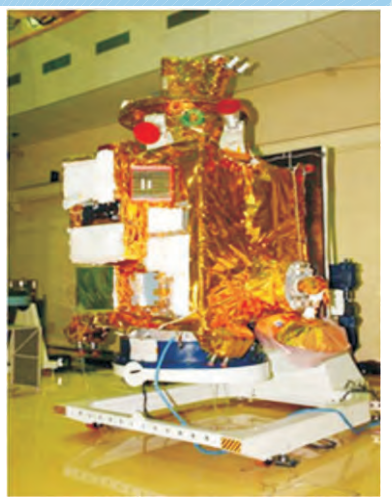
Expansions:

1. INSAT	-	Indian National Satellite System
2. EDUSAT	-	Educational Satellite
3. PSLV	-	Polar Satellite Launch Vehicle
4. GSLV	-	Geo –synchronous Satellite Launch Vehicle
5. ISRO	-	Indian Space Research Organization
6. NASA	-	National Aeronautics and Space Administration



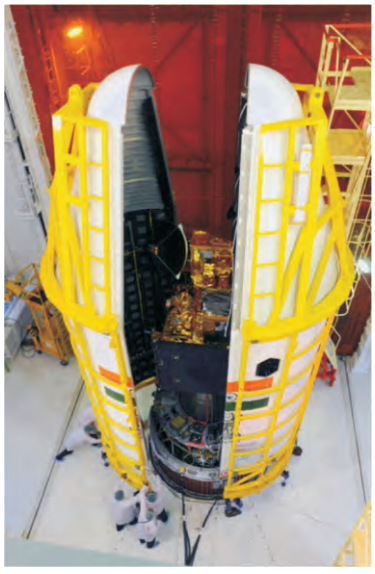
INSAT-2C in preparatory stage
(1995-1996)

The first Indian Satellite
to the moon



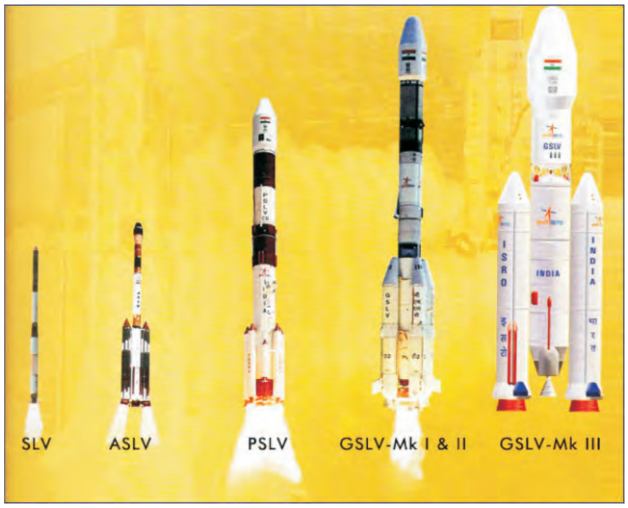
Chandrayaan-1

Fixing the Satellite



Rocket carrying the Satellite

Satellite launch



Indian Missiles

Artificial Satellites around the earth

Exercise

I. Choose the correct answer.

1. Cosmonauts is the name given to space travellers in
   a. Russia b. USA c. Germany
2. The first country to launch a satellite into space was
   a. America b. Russia c. India
3. The first satellite in space was
   a. Sputnik I b. Explorer c. Bhaskara
4. The space ship in which Sunitha Williams travelled was
   a. Discovery b. Apollo c. Explorer
5. The number of days spent by Sunitha Williams in space was
   a. 200 b. 195 c. 190

II. Answer in a word.

1. First animal in space _____.
2. First man in space _____.
3. First man to set foot on the Moon _____.
4. The first satellite launched by India _____.
5. Name of India's satellite to the Moon _____.

III. Fill in the blanks.

1. Y—r—G—g —r—n
2. Sr—ha— —k—t—
3. A—y—b—a—t a
4. A—dr— —
5. R—h—n—

IV. Write brief answers.

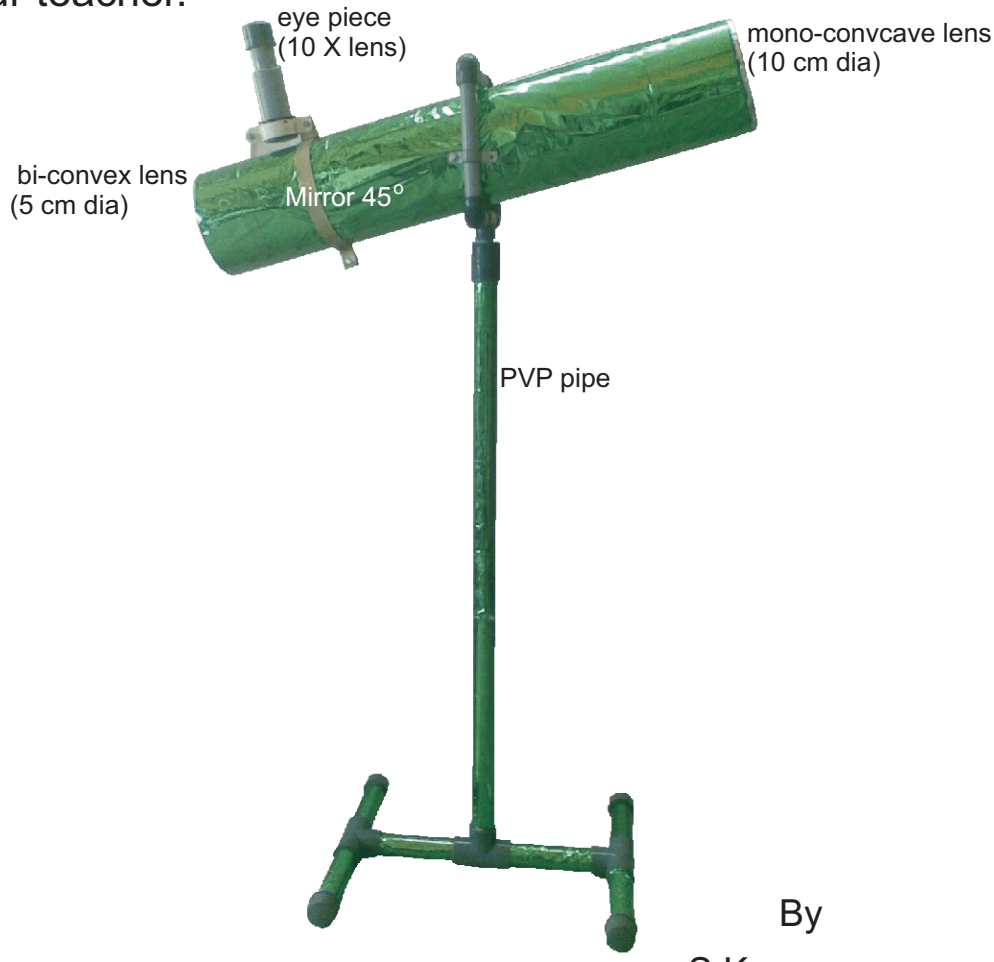
1. Experience of Sunitha Williams in space.
2. The Space Suit.
3. Any two uses of satellites.

V. Activity.

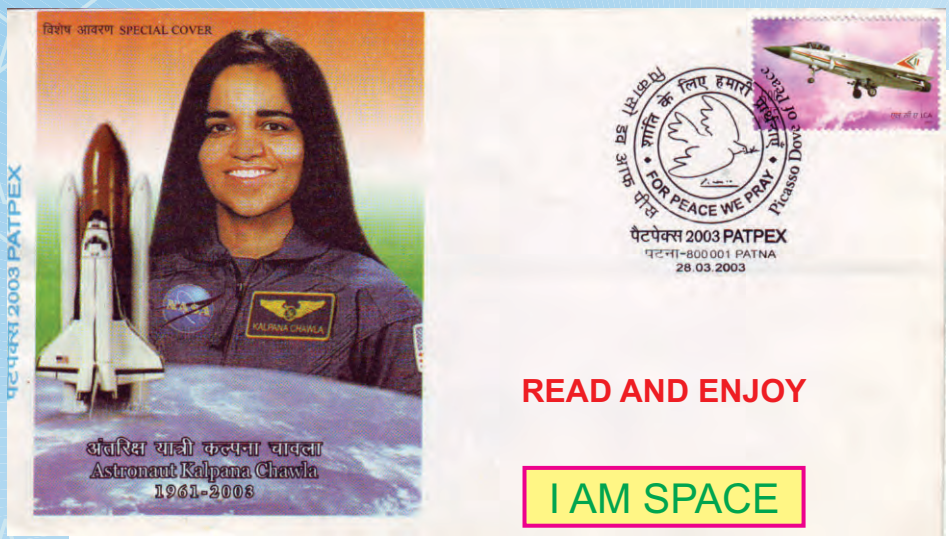
Discuss with your teacher about the changes that take place during Space Travel.

Project

- Visit the Birla Planetarium and record your observations.
- Try to make a telescope using PVC pipes with the help of your teacher.



By
S.Kumaresan



READ AND ENJOY

I AM SPACE

I am the limitless space here
To speak to you Children dear!
Humans to explore me did aspire,
In rockets did fly higher and higher,
Yuri Gagarin, Neil Armstrong - two brave hearts,
Were the world's pioneer astronauts.
Russia and America, then came India,
She sent her own Rakesh Sharma.
Then came the gritty Kalpana
Followed by adventurous Sunitha.
More and more to me are drawn
Space Research is going on and on...
So children! have faith, dream and fly
Be brave and set your goals high!

N.Bhuvaneswari

4. OUR GOVERNMENT

Elango's family is visiting Delhi. His parents, Elango and Minnal, his sister visit the Parliament House of India in New Delhi. They see the Rashtrapathi Bhavan too, which is the residence of the Indian President. Both Minnal and Elango asked a lot of questions about the President, the Prime Minister and other ministers governing our nation. His mother, Mangai who is a government employee in the Secretariat, Chennai responds to their curious queries by explaining about the government, State Government, Central Government and Union Territories.

We live in groups because many conveniences like roads, water, electricity, transport, schools and hospitals can serve all of us. It is cheaper and more efficient when we share such facilities. But at the same time, we need rules on how to live in groups. We select some people among us to write these rules and ensure that all of us follow these rules.

Those whom we select to do these tasks form a government. Government makes common rules into laws. All of us need to follow the laws laid down by the government. The government is the agency which enforces these common rules or laws upon society.

Government functions at different levels. Just as you have classrooms in your school and then primary school, middle school and high school sections, we have different levels of government. Chennai for example is a city. It has a form of government called "Municipal Corporation". Villages have a local government called panchayat.

Chennai is in a larger piece of land called Tamil Nadu, just as your class is part of the primary section of your school. Larger areas like Tamil Nadu are called states. We who live in this area elect members of the government. This government is called the state government

Tamil Nadu is part of a larger land and society called India, just as the primary section of your school is part of the whole school. There are 29 such states. All these states together form the Indian Union and we have a Union or Central Government.

Democracy is the government of the people, by the people and for the people.

Democratic country

India follows a democratic form of governance. In a democratic country, people elect their representatives or leaders through elections. Citizens of 18 years and above can cast their vote in the elections. These elected leaders form the government. The majority of our population lies in the villages and the rest live in towns and cities. It is not possible for the central government to see to the needs of the people living in many states. So, in India, we have the following three levels of government.

- The Central Government or Union Government
- State Governments
- Local Self Governments

DO YOU KNOW ?

The Constitution has laid down some directions for the government to follow. These are called Directive Principles .They help the government to function better for the welfare of the people.

Important subjects like foreign affairs, defence and finance are with the central government .During any crisis the central government comes to the rescue of the state government.

THE CENTRAL GOVERNMENT

This consists of the President, Vice-president and a Council of Ministers headed by the Prime Minister. The Parliament is the law making body. It consists of the President and the two houses namely- Lok Sabha and Rajya Sabha.

THE LOK SABHA OR THE LOWER HOUSE

It consists of 545 members. Its members are elected directly by the people. So this is also called the House of the People.This is the primary source of political power in the country. The members of the Lok Sabha are elected for a term of 5 years. Any Indian who is 25 years of age can contest in elections for the Lok Sabha.

The country is divided into many constituencies. The candidate who gets the highest number of votes in a constituency is declared as a member. The Lok Sabha can have a maximum of 552 members.

The Lok Sabha elects one of its own members as its Presiding Officer and he is called the Speaker. He is assisted by the Deputy Speaker , who is also elected by the Lok Sabha. The conduct of business in the Lok Sabha is the responsibility of the speaker.

DO YOU KNOW ?

The first Lok Sabha was formed in 1952.

Ms.Meira Kumar became the first woman Speaker of the Lok Sabha.

THE RAJYA SABHA OR THE UPPER HOUSE

The members of Rajya sabha are elected by Members of State Legislative Assemblies. There can be a maximum of 250 members.-238 elected members and 12 members nominated by the President of India. They are elected for a term of 6 years.One third of its members retire every 2 years.New members replace them. The Vice- President is the Chairman of the Rajya Sabha.

DO YOU KNOW ?

The Rajya Sabha is a permanent body. It cannot be dissolved. The Lok Sabha however can be dissolved by the President.

THE PRESIDENT (FIRST CITIZEN OF THE COUNTRY)

The members of the two houses are called Members of Parliament or MPs. The members of the Parliament and the State Legislative Assemblies elect the President of India. The President of India is the Head of the country. He resides at the Rashtrapathi Bhavan. The President is elected for a term of 5 years.

DO YOU KNOW ?

Mrs. Pratibha Patil is the first woman President of India.

HOW IS GOVERNMENT FORMED?

The most important feature of our democracy is the multi-party system. Different parties put up their candidates for election. The party that gets the maximum number of votes forms the government.

The party that forms the government then elects its leader. The President appoints him as the Prime Minister and on his advice the other ministers. But the Prime Minister is the powerful and effective head of the government. The Prime Minister chooses ministers for different portfolios like foreign affairs, agriculture, defence etc. They are appointed by the president and together they form the council of ministers or Union Cabinet. The ministers in the Union Cabinet can be either from the Lok Sabha or Rajya Sabha.

STATE GOVERNMENT

Government at the state level is called State Government. Every state has the Legislative Assembly. The representatives who win the elections are called Members of Legislative Assembly (M L As) They are elected by the people who are 18 years of age and above. They are elected for a term of 5 years.

The President appoints the Governor of the state, who is the head of the state. The Governor appoints the leader of the majority party as Chief Minister. The Chief Minister forms his / her council of ministers.

UNION TERRITORIES

A Union Territory is an administrative division of India. Unlike states, which have their own governments, Union Territories are directly ruled by the Central Government.

During the British rule, some of our regions were either directly ruled by the British or as Princely States by the local rajas. After 1956, these colonies especially French and Portuguese colonies in India were incorporated into the Republic as Union Territories..

S.No	Union Territories	Capitals
1.	Andaman and Nicobar Islands	Port Blair
2.	Chandigarh	Chandigarh
3.	Dadra & Nagar Haveli	Silvassa
4.	Daman & Diu	Daman
5.	Lakshadweep	Kavaratti
6.	Puducherry (Pondicherry)	Puducherry
7.	**National Capital Territory of Delhi**	**New Delhi**

Activity

Enact a role play of Central Government and its ministers and State Government and its ministers in the class with the help of your teacher to discuss an urgent problem to be solved at once.

JUDICIARY

In India, our constitution has provided an independent judiciary. The Supreme Court in New Delhi is the highest judicial body. Its decision is final in any legal case. The Chief Justice of Supreme Court is appointed by the President on the advice of the Prime Minister.

Supreme Court

The highest court in the State is the High Court. There are District Courts at the district level.

Find Out

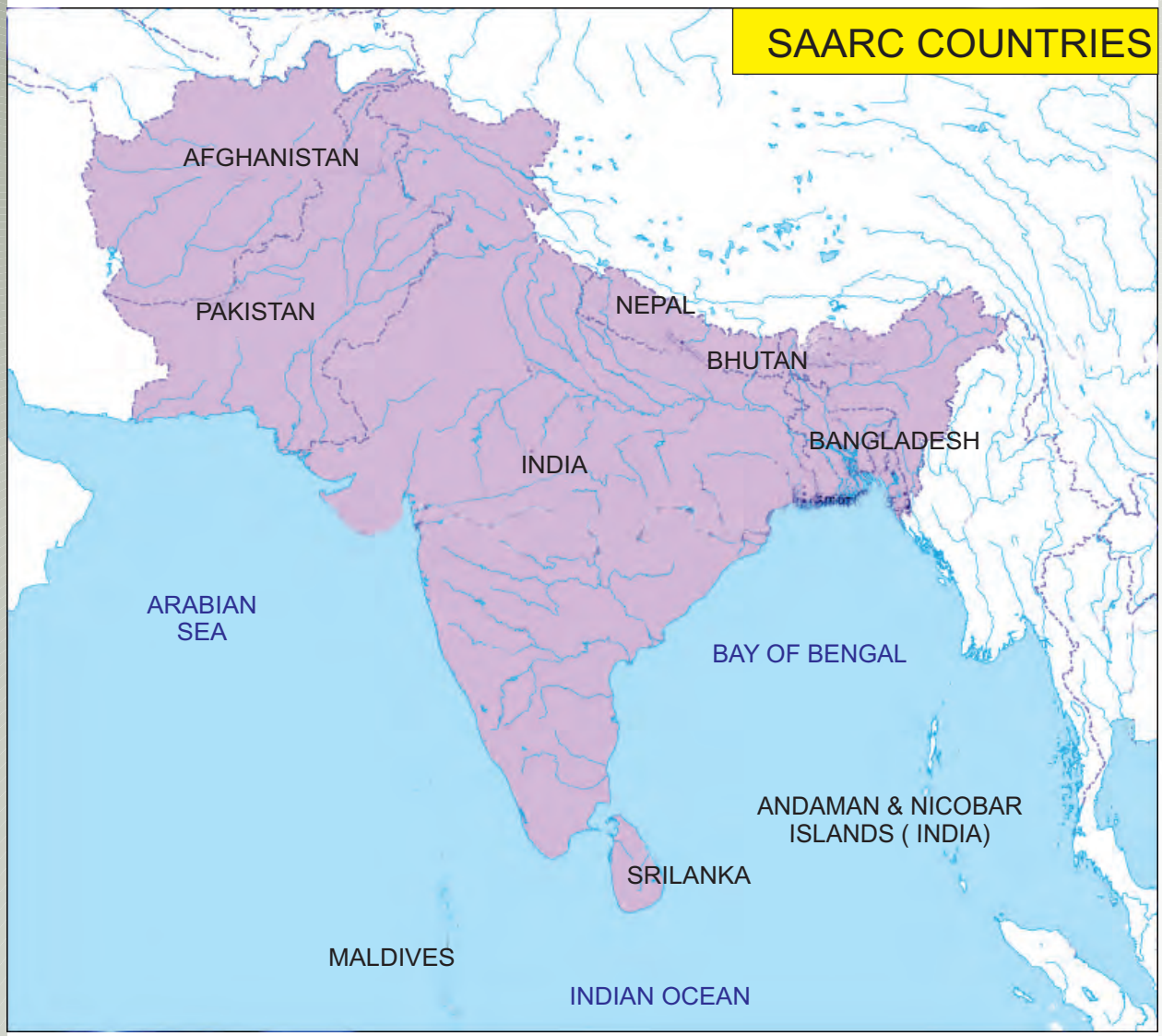
The name of the present Chief Justice of India.

INDIA AND HER NEIGHBOURING COUNTRIES

India as a sub-continent is surrounded by some countries which are known as neighbouring countries. Indian neighbouring countries are as colourful as India herself. India's neighbours are Pakistan, Bhutan, Nepal, Sri Lanka, China, Bangladesh and Afghanistan.

The SAARC

The South Asian Association for Regional Co-operation is an economic and political organization of eight countries in Southern Asia. They are India, Nepal, Bhutan, Bangladesh, Sri Lanka (formerly known as Ceylon), Maldives, Pakistan and Afghanistan. SAARC was established and its charter was adopted on December 8th 1985. It also encourages co-operation in agriculture, health, population control, rural development and science and technology.



MYANMAR

Myanmar, formerly known as Burma, is taking some constructive steps towards becoming a member of the SAARC family.

Add to your memory

Majority party-The political party that gets the maximum number of votes in the election.

Points to remember

- India follows a democratic form of governance, where any citizen who is 18 years of age and above can cast his/her vote.
- The Parliament is the law making body. It consists of the President and the Two Houses- Lok Sabha and Rajya Sabha.
- The President is the first citizen of our country.
- Members of the two houses are the Members of Parliament.
- The Prime Minister chooses various ministers in the cabinet for different portfolios.
- The Governor is the head of the state and he appoints the Chief Minister of the state.
- The Supreme Court in New Delhi is the highest judicial body in the country.

Interesting Facts

- The national emblem of India is an adaptation from the Sarnath lion.
- The design of the Indian National Flag was adopted by the constituent assembly of India on 22nd July 1947.
- The new rupee symbol is ₹. It was created by Udaya Kumar.
- Satyameva Jayathe means “Truth Alone Triumphs”.
- Our National Anthem “Jana Gana Mana” should be sung within 52 seconds.
- Sri Aurobindo translated “Vande Mataram”, our National song into English.
- Populationwise India stands second in the world.

Exercise

I. Answer in two or three sentences.

1. How is the President of India elected?
2. How are the members of the Lok Sabha elected?

II. Answer briefly.

1. Write in brief about SAARC.
2. Write about the relationship of India with her neighbouring countries.

III. Which is the odd one out?

1. a) Supreme Court	b) High Court	c) Legislative Assembly
2. a) Puducherry	b) Goa	c) Uttar Pradesh
3. a) Union Government	b) State Government	c) Chief Justice
4. a) Nepal	b) Bhutan	c) Canada
5. a) Floods	b) power cut	c) earthquake

IV. Complete the pairs.

1. Lok Sabha	=	Lower House	Rajya Sabha	=	_____
2. President	=	Central Government	Governor	=	_____
3. Lakshadweep	=	Kavaratti	Andaman	=	_____
4. Myanmar	=	Burma	Sri Lanka	=	_____

5. Member of Legislative Assembly = MLA

   Member of Parliament = _____

V. Match the following.

1. Mrs. Pratibha Patil	-	Highest Judicial Body
2. Mrs. Meira Kumar	-	Permanent House
3. Rajya Sabha	-	First Woman President of India
4. Lok Sabha	-	First Woman Speaker of Lok Sabha
5. Supreme Court	-	House of the People

VI. Guess who I am.

I am one of the beautiful buildings of INDIA

I am in NEW DELHI, where leaders meet to discuss the matters related to the development of our country.

VII. Among the Presidents of India who has inspired you and why?

Fun to do

Find out the hidden words related to government in the word grid given below.

Grid

C	Q	P	C	H	I	E	F	M	I	N	I	S	T	E	R
O	I	S	U	P	R	E	M	E	C	O	U	R	T	E	A
U	R	P	R	E	S	I	D	E	N	T	V	E	N	R	J
N	S	T	U	H	I	G	H	C	O	U	R	T	O	S	Y
C	P	A	R	L	I	A	M	E	N	T	R	I	A	P	A
I	V	X	E	L	E	C	T	I	O	N	M	O	N	E	S
L	T	R	G	O	V	E	R	N	O	R	T	H	M	A	A
P	R	I	M	E	M	I	N	I	S	T	E	R	M	K	B
Q	S	O	V	L	O	K	S	A	B	H	A	R	Q	E	H
A	S	S	E	M	B	L	Y	B	V	O	T	E	P	R	A

Project

Conduct an election in your class for Class Leader and 2 Assistant Leaders.

Hints:-

1. Symbol
2. Candidates
3. Campaign
4. Booth
5. Ballot paper
6. Marker
7. Election Officers
8. Booth agents
9. Counting
10. Announcing results.

‘I can, I did’

Student’s Activity Record

Subject :

S.No	Date	Lesson No.	Topic of the Lesson	Activities	Remarks