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VOLUME 2

MATHEMATICS
SCIENCE
SOCIAL SCIENCE

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Department Of School Education

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XTHMZ

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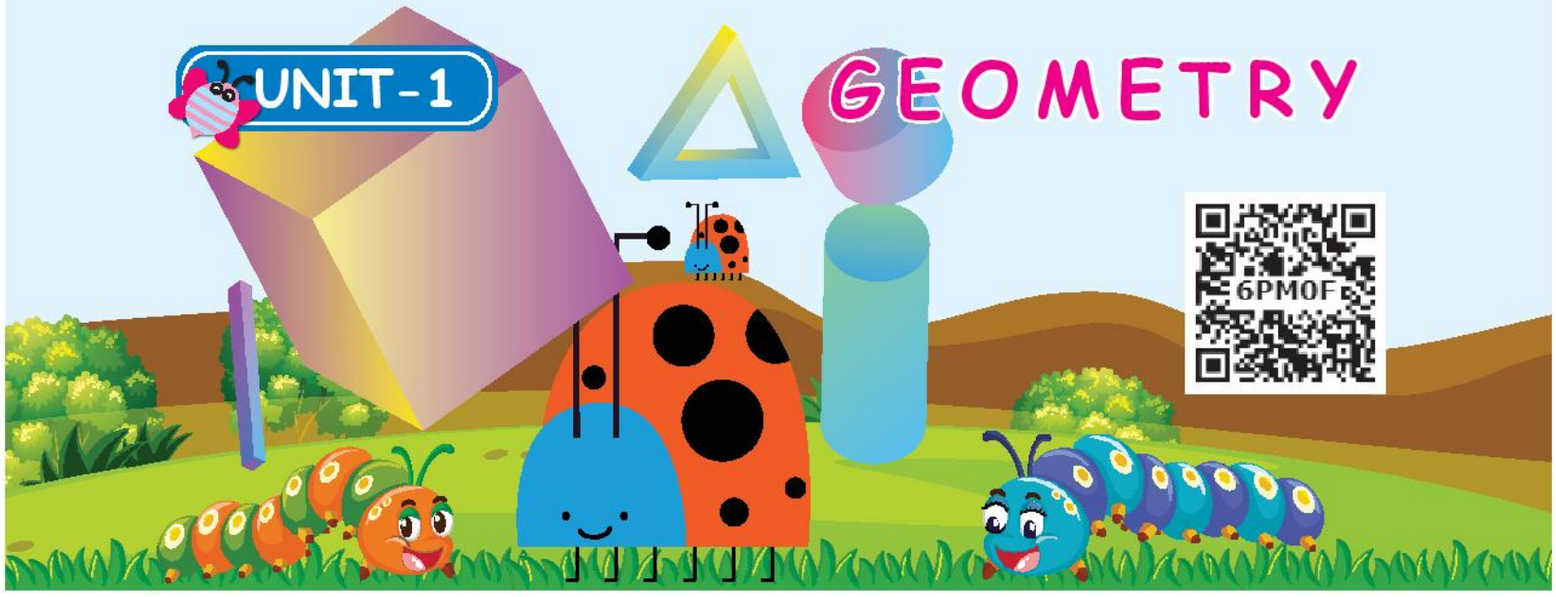
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Assessment



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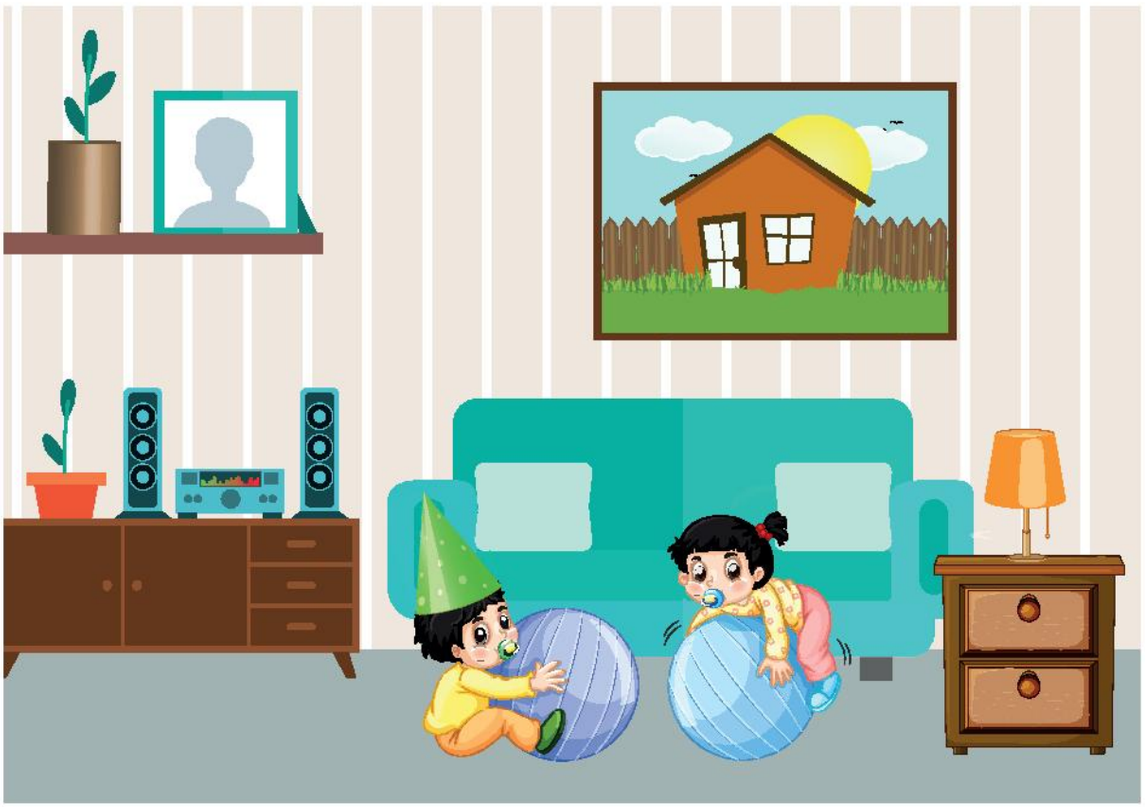
MATHEMATICS



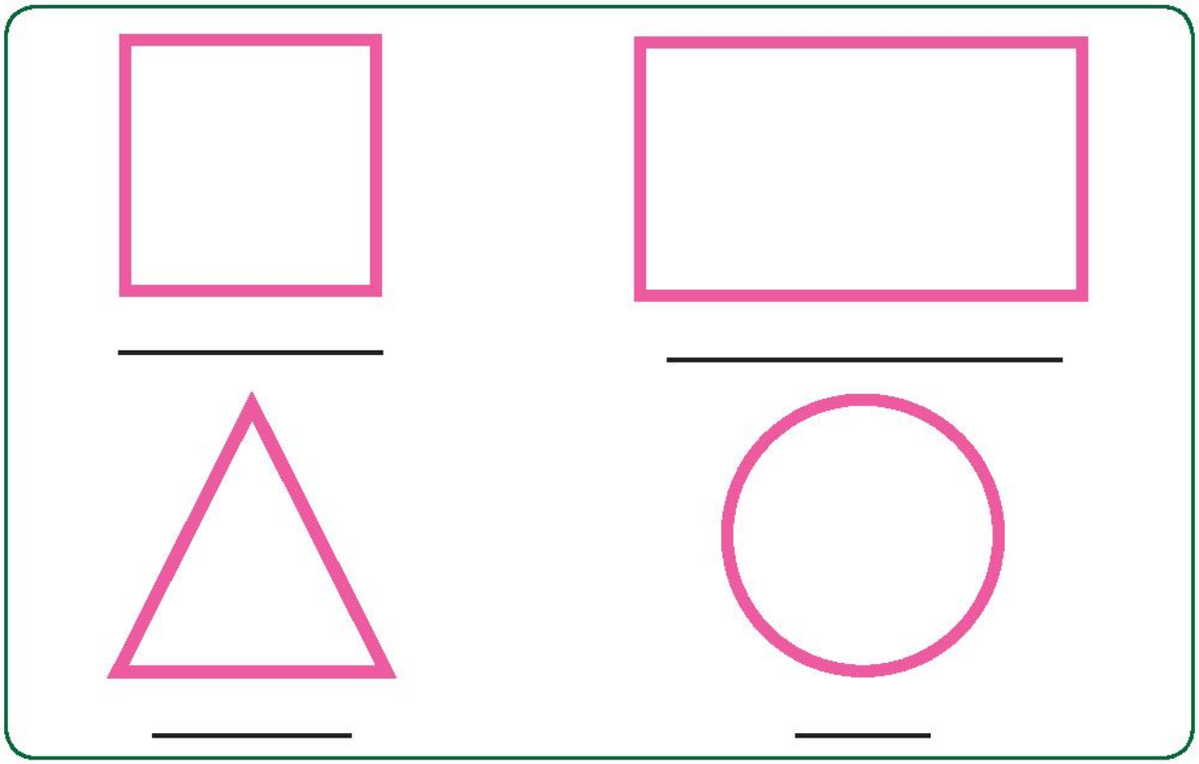
1.1 Properties of 2D Shapes

Let us recall the names of 2D shapes.

Look at the picture and identify the shapes.



Name the following shapes





Group Activity 1

Draw different shapes on the ground and make the students to run around the shapes in a circle. Then all the students has to stand in the shape said by the teacher. Continue the activity until the students are familiar with all the shapes.



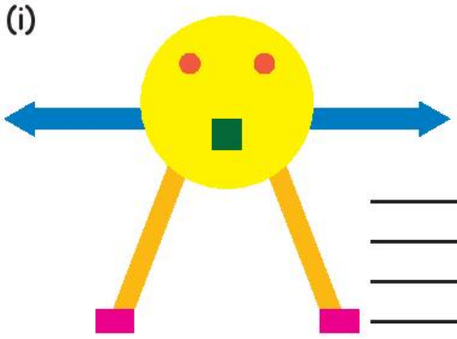
Group Activity 2

Make the children into groups of 3 or 4 and ask them to form the shapes said by the teacher.

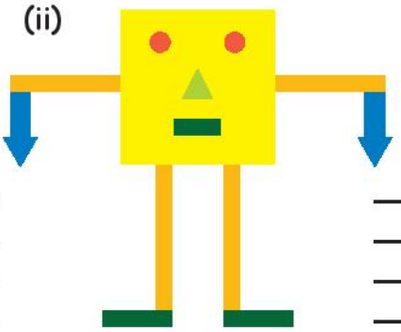
Exercise 1.1

1. Write the names of the shapes in the following pictures.

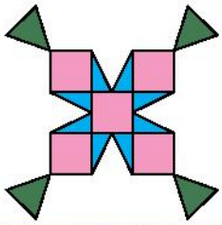
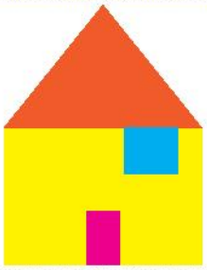
(i)



(ii)



2.

i	Write the number of squares and triangles in the given picture.
	 Square ( ) Triangle ( )
ii	Write the number of rectangles and triangles in the given picture.
	 Rectangle ( ) Triangle ( )
iii	Identify the shapes and write the names in the boxes given below.
	 _____ _____
	 _____ _____

1.1.1 Properties of circles

Drawing circles using circular objects.





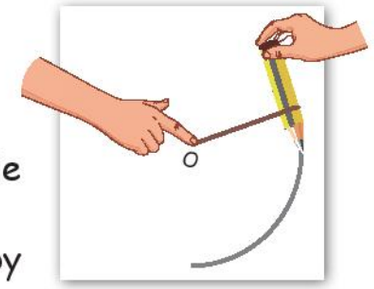


Place a bangle or a coin on a paper. Trace its boundary. The picture you get is a circle.



Activity

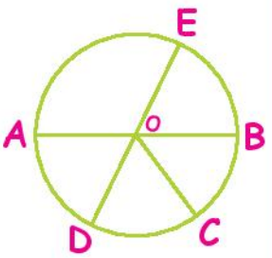
Drawing a Circle



Materials Required: Pencil, Thread.

1. Mark a point on a sheet and name it as O.
2. Fix one end of the thread at the point O and tie the pencil on the other end of the thread.
3. Move the pencil to trace one complete round by keeping the thread at O as center.
4. The path traced by the pencil is a circle. Point O is called the center of the circle.

1.1.2 Radius and diameter of a circle



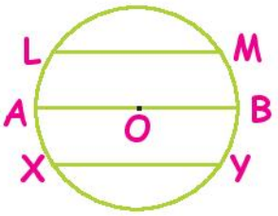
Circle is perfectly round in shape. It has no **sides** and no **diagonals**. '**O**' is the center of the circle. A is a point on the circle. The distance from the center O to the point A is the **radius** of the circle.

The distance between the centre and a point on the circle is called the radius of the circle.

A, B, C, D,E are points on the circle. OA, OB, OC, OD, OE are the **radius** of the circle. Radius of a circle is equal in length. (OA=OB=OC=OD=OE).

All the radii are equal in length in a circle.

The line segment which joins any two points on the circle is called a chord. L, M, A, B, X and Y are the points on the circle. The line segments LM, AB and XY are the **chords**.



The chord AB which passes through the center O of the circle is the diameter of the circle. Half of the **diameter** is always the radius.

Diameter is the longest chord.

Examples

1. The radius of a circle is 5cm. Find the diameter.

Diameter = 2 x radius

= 2 x 5

Diameter = 10 cm

Diameter = 2 × radius

Radius = $\frac{\text{Diameter}}{2}$

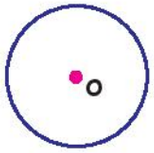
2. The diameter of a circle is 18cm. Find the radius

Radius = $\frac{\text{diameter}}{2}$ = $\frac{18}{2}$

Radius = 9 cm.

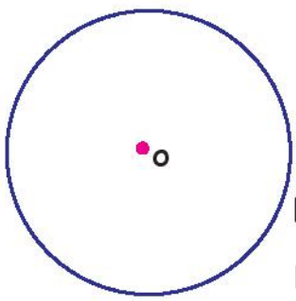
Activity

Measure and write the radius and diameter of the following circles.



Radius = _____

Diameter = _____



Radius = _____

Diameter = _____

Activity

Draw a circle and mark few points on it. Draw line segment to join each of these points with the centre. Then, measure the length of the line segments to verify whether they are equal.

Exercise 1.2

1. Fill in the blanks.

i. All the radii of a circle are _____.

ii. The _____ is the longest chord of a circle.

iii. The distance between the center and any point on the circle to its center is called the _____ of the circle.

iv. A line segment joining any two points on the circle is called a _____.

v. _____ is two times the radius.

vi. A _____ has no sides.

2. Find the diameter of the circle with the given radius.

i. Radius = 10cm ii. Radius = 8cm iii. Radius = 6cm

3. Find the radius of the circle with the given diameter.

i. Diameter = 14cm ii. Diameter =20cm iii. Diameter = 6cm

1.1.3 Drawing a circle using compass

A compass is a geometrical instrument which has two arms, one is a needle and the other one is a pencil holder.



Example

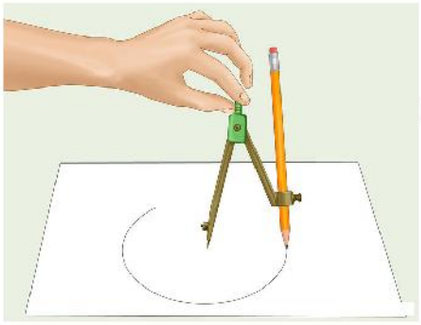
Draw a circle of radius 5cm using a compass.

Step 1 Take a compass and fix the pencil in it.

Step 2 Set the distance between two arms of the compass as 5cm using a scale.

Step 3 Fix firmly the needle of the compass on a point which is marked on the paper.

Step 4 Move the pencil around it in any direction till you reach the starting point.



Exercise 1.3

Draw circles for the following measurements.

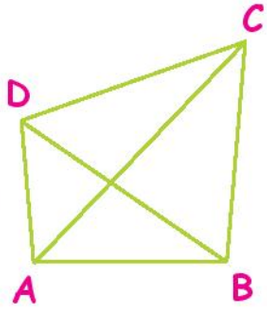
i. 6 cm ii. 4cm iii. 8cm iv. 7cm v. 5cm

Let us remember

- ✓ The distance between the center and any point on the circle is called the **radius** of the circle .
- ✓ A line segment joining any two points on the circle is called a **chord**.
- ✓ A chord passing through the center of the circle is called the **diameter**.
- ✓ The diameter is the longest chord.

1.1.4 Properties of 2D Shapes.

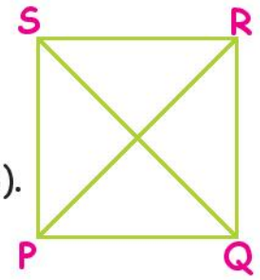
Quadrilateral



1. All closed four sided figures are called **quadrilaterals**
2. It has four sides (AB,BC,CD,DA), four vertices (A,B,C,D) and two diagonals (AC,BD)

The shapes square, rectangle, rhombus, parallelogram and trapezium belong to quadrilateral family.

Square



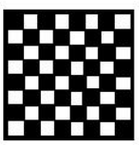
1. A square has four equal sides (PQ=QR=RS=SP),
2. It has four vertices (P, Q, R, S)
3. It has two diagonals which are equal in length (PR = QS).

Examples

Carom board



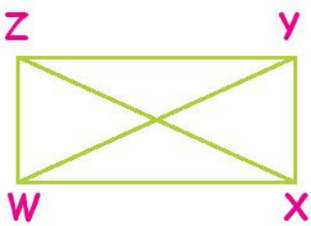
Chess board



Picture



Rectangle



1. A rectangle has four sides (WX, XY, YZ, ZW)
2. It has four vertices (W, X, Y, Z).
3. It has two diagonals which are equal in length (WY = XZ)
4. Its opposite sides are equal (WX = YZ ; XY = ZW).

Examples

Mat



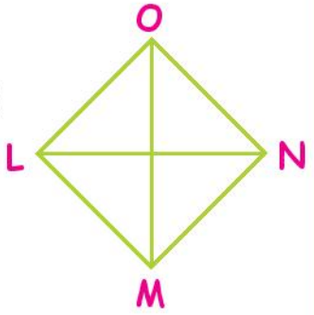
Black Board



Post Card



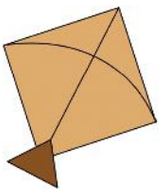
Rhombus



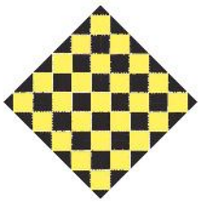
1. A rhombus has four equal sides (LM = MN = NO = OL)
2. It has four vertices (L, M, N, O)
3. It has two diagonals (LN, MO).
4. The diagonals are not equal in length.

Examples

Kite



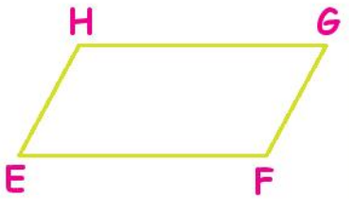
Tile



Sign Board



Parallelogram

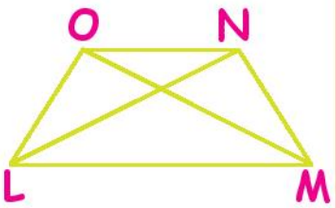


1. A Parallelogram has four sides (EF, FG, GH, HE)
2. It has four vertices (E,F, G, H).
3. Opposite sides are parallel and equal in length (EF=GH; FG=HE)

Examples



Trapezium



1. A Trapezium has four sides (LM, MN, NO, OL).
2. One pair of opposite sides are parallel (LM, LO).
3. It has four corners (L, M, N, O).
4. It has two diagonals (LN, MO).

Examples



Table



Hand bag

Activity Discuss the properties of 2D shapes

Exercise 1.4

1. Fill in the blanks.

i. All closed four sided figures are called _____.

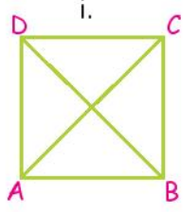
ii. A _____ has four equal sides and equal diagonals.

iii. The opposite sides of a _____ are equal.

iv. Diagonals are equal in _____ and _____.

2. Write the name of the sides and diagonals.

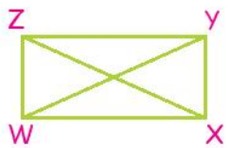
i.



_____

_____

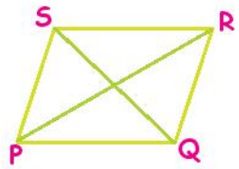
ii.



_____

_____

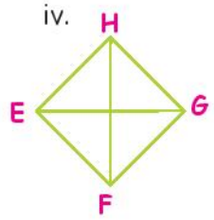
iii.



_____

_____

iv.



_____

_____

Activity

Measure the sides and identify the names of different objects and find the differences among them and fill the table given below.

(a) Chessboard (b) Postcard (c) Window (d) Eraser

(e) Newspaper (f) Maths Kit box. (g) Kite

Shapes	Object in the shape	Sides	Vertices	Diagonals
Square	Chess board	Four equal sides	4	Two diagonals are equal
Rectangle				
Parallelogram				
Rhombus				

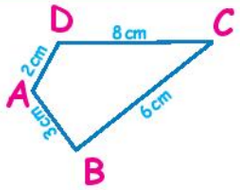
1.1.5 Identify the sides and find perimeter of a quadrilateral

Perimeter

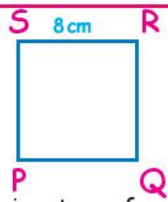
The perimeter of a closed figure is the sum of the lengths of its sides.

Example

Find the sides and perimeter of the following figures.



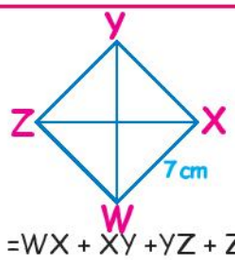
Sides = AB, BC, CD, DA
Perimeter = AB + BC + CD + DA
= 3 + 6 + 8 + 2 = 19
Perimeter = 19 cm



Therefore, Perimeter of a square
= PQ + QR + RS + SP
In a square all the sides are equal.
= 8 + 8 + 8 + 8 = 32
Perimeter of a square = 32 cm



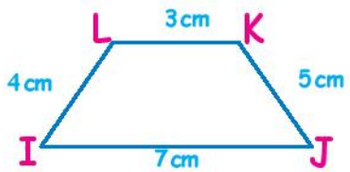
Perimeter = LM +MN + NO + OL
In a rectangle opposite sides are equal.
= 9 + 3 + 9 + 3 = 24
Perimeter = 24 cm



Perimeter =WX + XY +YZ + ZW
In a rhombus all sides are equal.
=7+ 7 + 7 + 7 = 28
Perimeter = 28 cm



Perimeter of a parallelogram = EF + FG + GH + HE
In a Parallelogram, opposite sides are equal
= 8 + 5 + 8 + 5 = 26
Perimeter of a parallelogram = 26 cm



Perimeter of a trapezium = IJ + JK + KL + LI
Perimeter of a trapezium = 7 + 5 + 3 + 4 = 20
Perimeter of a trapezium = 20 cm

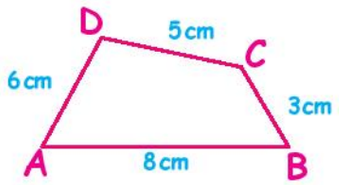
Activity

Find the perimeter of the table, blackboard and door in your classroom.

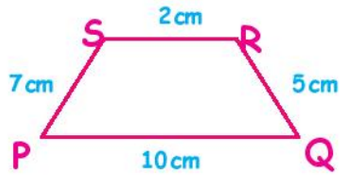
Exercise 1.5

1. Find the perimeter of the following figures.

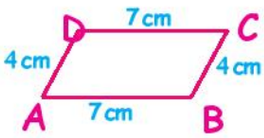
i.



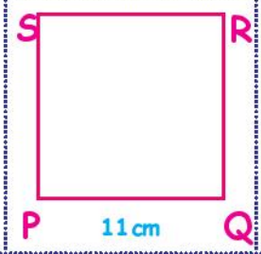
ii.



iii.



iv.



v.



2. Solve the following.

i. A side of a square-shaped tile in a park measures 30 cm. Find the perimeter of the tile.

ii. Find the perimeter of a rectangle whose adjacent asides are 12 cm and 8 cm.

iii. Find the perimeter of the rhombus whose sides are 13 cm each.

iv. The adjacent sides of a parallelogram are 6 cm and 7 cm. What is the perimeter of that parallelogram?

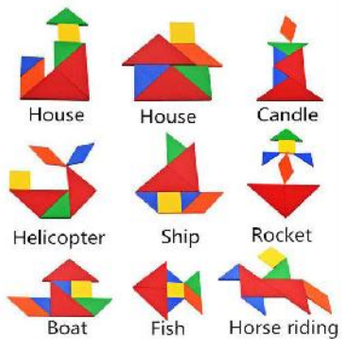
v. The sides of a trapezium measures 8 cm, 7 cm, 4 cm and 5 cm respectively. What is the perimeter of the trapezium?

1.2 Creating different 2D shapes

1.2.1 Uses of tangram in combining different 2D shapes.

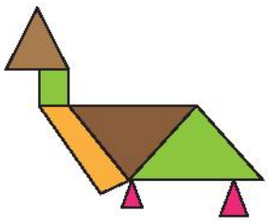
Tangram is a thousand years old Chinese puzzle consisting of five or seven geometrical pieces called **tans** put together to form different pictures.

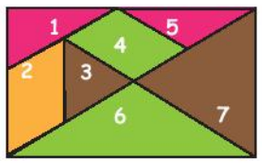
Playing with tangrams develop skills such as problem-solving, logical thinking, perceptual reasoning, visual spatial awareness and creativity.



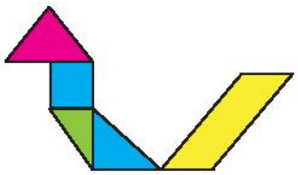
Examples

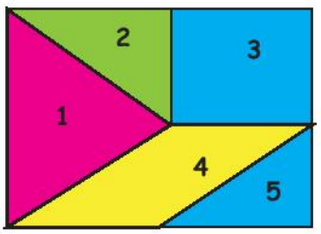
1. Join the seven pieces of tangram to form the following picture.





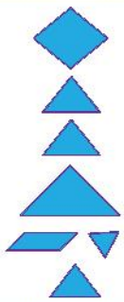
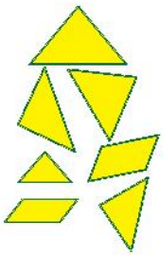
2. Join the five pieces of tangram to form the following picture.





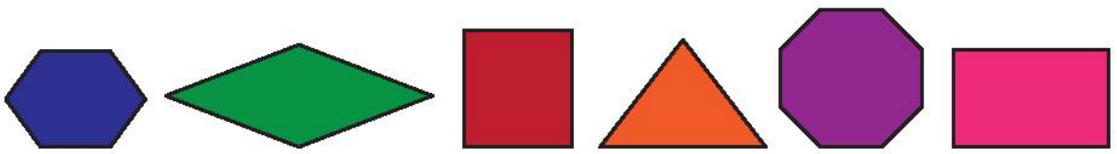
Activity

Use the tangram pieces to form pictures of your choice.

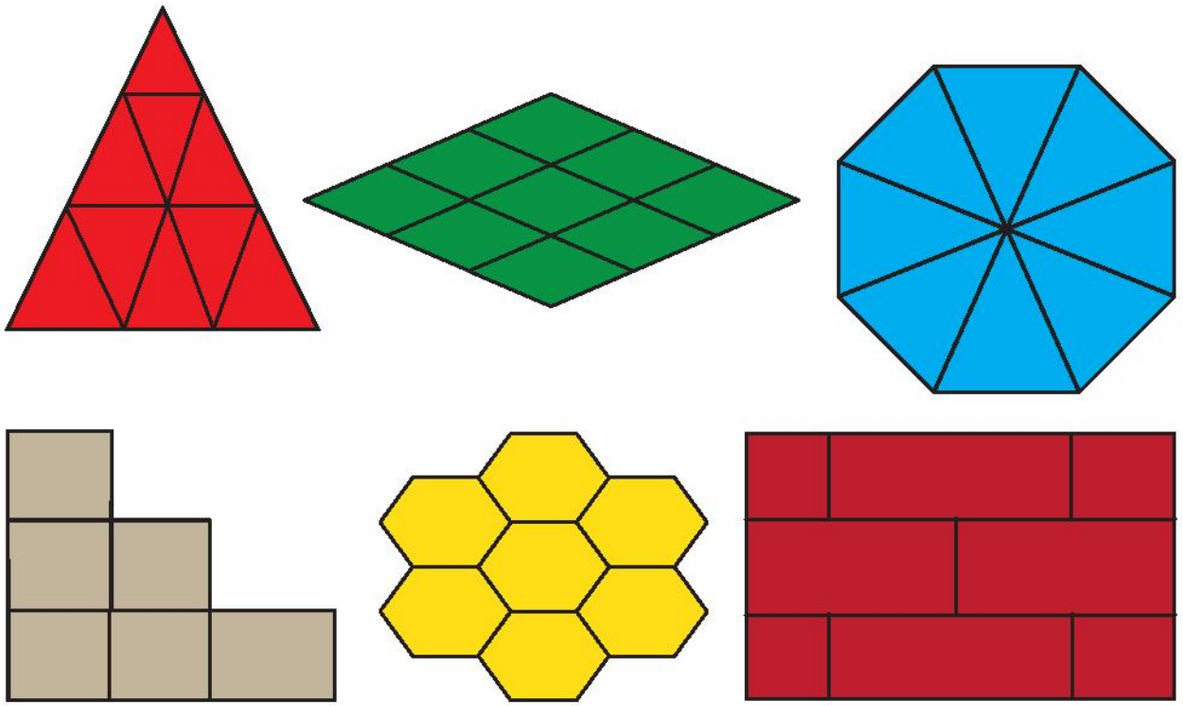
1.		
2.		

1.2.2 Tessellations.

We fill the space with tiles of different shapes and sizes.

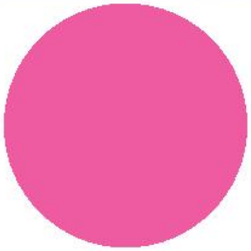


Examples



Try This

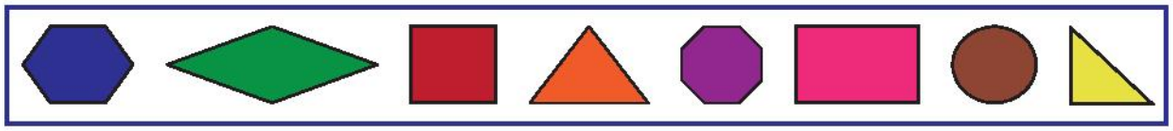
Can we fill a circle with square tiles?

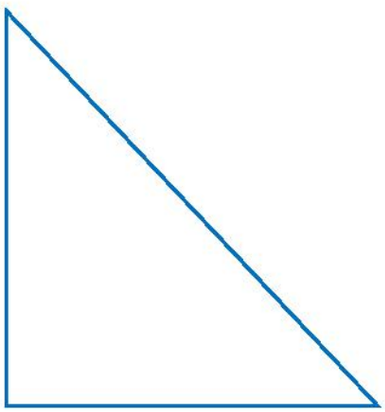


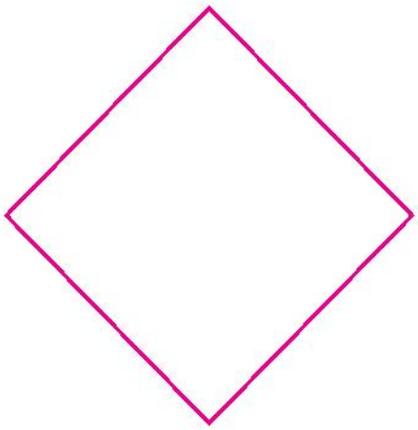
No. we can't fill a circle with square tiles because circle is a curved figure and square is a shape with straight lines.

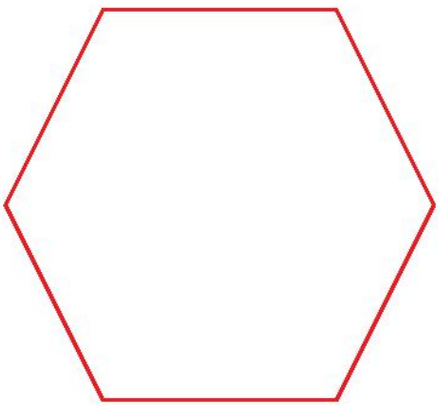
Exercise 1.6

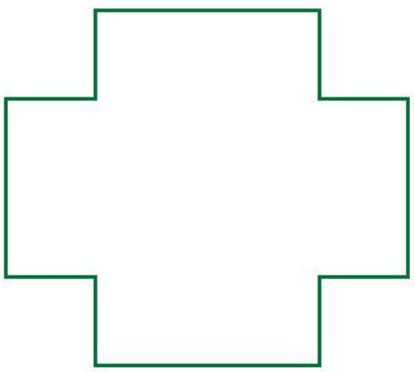
1. Fill the following shapes with appropriate tiles.











2. Fill the given shapes with the tiles of your choice.

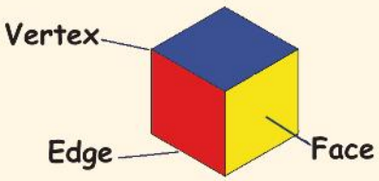




1.3 Properties of 3D objects

Cube

- A cube has 6 faces.
- It has 12 edges.
- It has 8 vertices.
- All the six faces are equal.

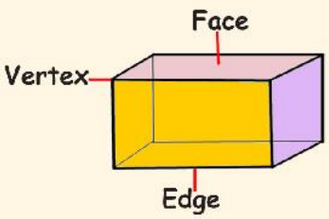


Examples

Dice, ice cubes, building blocks, rubik's cube.

Cuboid

- A cuboid has 6 faces.
- It has 12 edges.
- It has 8 vertices.
- Its opposite faces are equal.

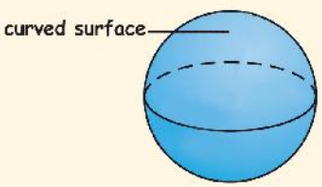


Examples

Match box, bricks, eraser, book, toothpaste box.

Sphere

- A sphere has only one curved surface.
- It has no vertices and edges.

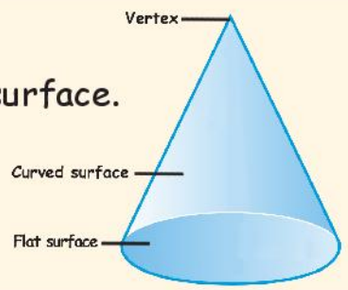


Examples

ball, globe, laddu.

Cone

- A cone has one flat surface and one curved surface.
- It has one vertex.

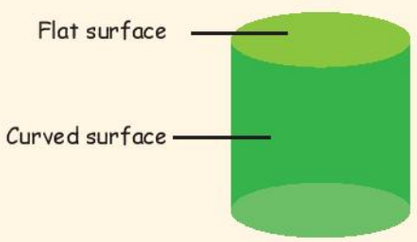


Examples

Cone ice cream, party cap

Cylinder

- A cylinder has 2 flat surface and 1 curved surface.
- It has no edges and vertices.



Examples

straw, gas cylinder, pipe.

Create 3D objects using clay and paper folding.

A figure that you can cut and fold to make a model of a solid shape is called a net. Nets are used to make floor maps of houses, layout plans of buildings, bridges and many others.



Try This

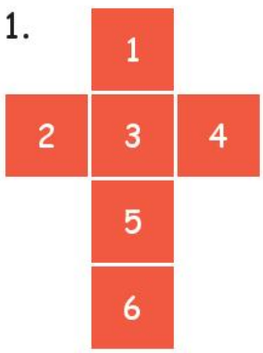
Make 3D shapes using clay



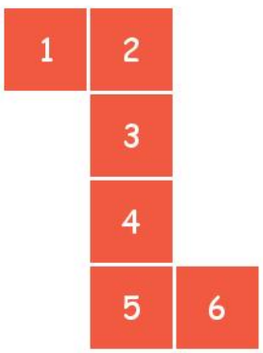
Activities

a. **Form the cube by folding the nets given below.**

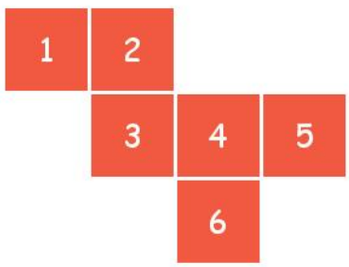
1.



2.

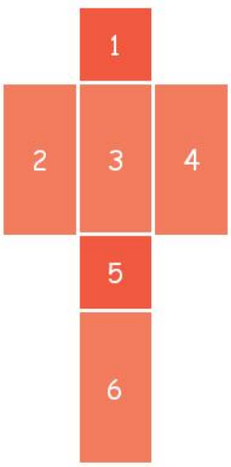


3.

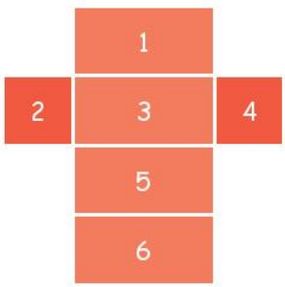


b. Use these nets to form cuboids.

1.



2.



c. Make a cone with semicircle.



d. Make a cylinder with rectangle.



Exercise 1.7

1. Choose the correct answer.

i. A cuboid has _____ edges.

a) 6 b) 8 c) 12

ii. The shape of a dice is _____ .

a) cuboid b) cube c) sphere

iii. A _____ has a curved surface and two flat surfaces.

a) cylinder b) cone c) sphere

iv. I have one vertex and one flat surface. I am a _____ .

a) cone b) cylinder c) sphere

v. A cube has _____ vertices.

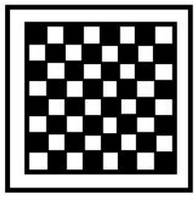
a) 8 b) 12 c) 6

Comparison of 2D and 3D objects.

Concept	2D	3D
Expansion	Two dimension	Three dimension
Dimensions	Length and breadth	Length, breadth and height.
Examples	Square, rectangle, circle, triangle, rhombus, parallelograms, trapezium and quadrilateral	Cube, cuboid, cone, cylinder and sphere.

Activity

Observe the given pictures and write 2D for two dimension and 3D for three dimension.











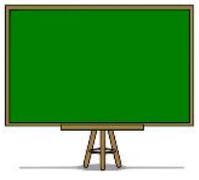














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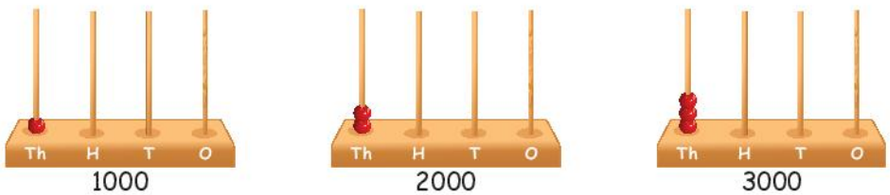
2.1 Number Sequence upto 10,000

The transport department announced that about 10, 000 special bus services will be operated from November 3 to 5 to accommodate the passengers during the Diwali season. Of 9,967 special services, 6,367 buses will run from Chennai to other districts and 3,600 will run within the districts.

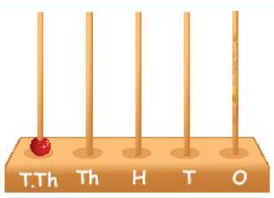
Let us discuss with the following questions.

- What does this text talk about?
- How many of you will go to your relatives home during festivals?
- How many of you would travel to other places during festivals?
- What do these numbers convey us?

We know that we get 1000 by adding 1 with 999. In continuation with this,We shall now know the numbers 2000, 3000,... 9000.

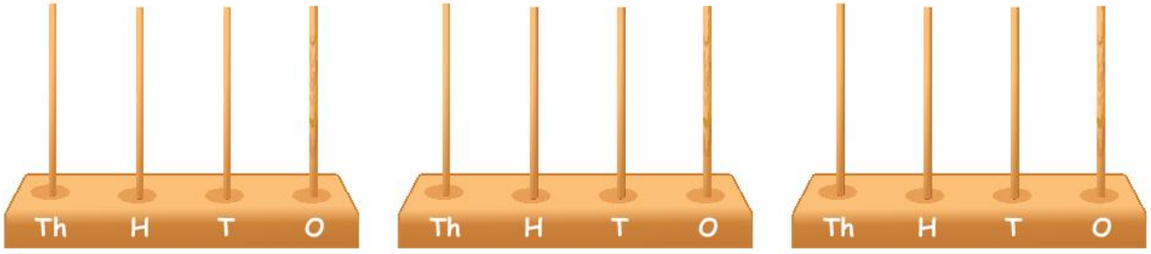


We will get 10000 by adding 1 with 9999. It's number name is Ten thousand.



Activity

Draw beads in the abacus according to the given numbers.



4000 5483 9020

Example

Write the number name of 1283.

Solution

First write the given number in expanded form and write the name of each number below it and then combine that name.

1283 = 1000 + 200 + 80 + 3

= One Thousand + Two hundred + Eighty + Three

So the number name of 1283 is one thousand two hundred and eighty three.

Exercise 2.1

1. Write the number name of the following numbers.

i. 1006 - _____

ii. 6327 - _____

iii. 9097 - _____

iv. 10,000 - _____

v. 8906 - _____

2. **Write the numeral for each of the following.**

i. Seven thousand and sixty four - _____

ii. Nine thousand three hundred and forty - _____

iii. Five thousand six hundred and seventy three - _____

iv. Ten thousand - _____

v. Four thousand three hundred and six - _____

3. **Answer the following questions.**

i. Ramu went to a bank to deposit Rs. 7500. In the deposit challan, he has to fill up the amount in words. Could you please help him?

₹ 7500 = _____

ii. Find the sum of the greatest three digit and the greatest two digit numbers. Write the number name of that sum.

Greatest three digit number =

Greatest two digit number = +

Total =

Number name = _____

2.1.1 Odd numbers and even numbers

Odd numbers.

We know that the numbers ending with 1, 3, 5, 7 and 9 in one's place are **odd numbers.**

Example

1001, 1003, 1005, 1007, 1009

Even numbers

We know that the numbers ending with 0, 2, 4, 6, and 8 in one's place are **even numbers.**

Example

2002, 2004, 2006, 2008, 9960



Activity

Circle the odd numbers and write their names in the table given below.

4132	8841	7483
2973	1045	
8123	5667	4646
6566	3990	3132

S.No.	Number	Number Name
1.	8123	Eight thousand one hundred and twenty three.

Exercise 2.2

1. Circle the odd numbers in the following.

9001, 8002, 7603, 6542, 4875, 3882, 3217.

2. Circle the even numbers in the following.

6231, 5920, 4812, 2121, 1234, 9528, 3946.

3. **Choose the even numbers from the following and write the number and number names.**

i. 6501 ii. 4706 iii. 3998 iv. 4001 v. 3848

Number	Number Name

4. **Pick out the odd numbers and write their name in the table given below.**

4703, 3206, 2005, 4018, 2001

Number	Number Name

2.1.1 Expanded form, place value and face value of a number.

The expanded form of 534 is 500 + 30 + 4

We read this as five hundred thirty four.

Similarly,

2936 = 2000 + 900 + 30 + 6 = Two thousand nine hundred thirty six.

The digits in the expanded form of a number express the place values of the digit.

In the number 5269

The place value of 5 is thousand. So, its value is 5000 (five thousand).

The place value of 2 is hundred. So, its value is 200 (two hundred).

The place value of 6 is ten. So, its value is 60 (sixty).

The place value of 9 is one So, its value is 9 (nine).

Thus, the place value of a digit in a number depends uponthe place where it is present in the number. If 5 is at Thousandth place in a number, its value will be 5000, if it is at Hundredth place, its value will be 500, etc.

The face value of a digit is the digit itself, at whatever place it may be. It is unchangeable and definite. But place value changes according to the digit's place.

Value of a digit in a number= Face value of that digit × place value of that digit

Example

Find the face value and place value of the digits of 2745.

Value of 5 in 2745 = 5 × 1 = 5, face value of 5 is 5 and place value of 5 is ones.

Value of 4 in 2745 = 4 × 10 = 40 = 4, face value of 4 is 4 and place value of 4 is tens

Value of 7 in 2745 = 7 × 100 = 700 = 7, face value of 7 is 7 and place value of 7 is hundreds.

Value of 2 in 2745 = 2 × 1000 = 2000 = 2, face value of 2 is and place value of 2 is hundreds.

Exercise 2.3

1. Find the face value and place value of the digits coloured in the given numbers.

   i. 1 3 7 9 ii. 9 8 7 6 iii. 5 1 3 6 iv. 8 9 6 5

   iv. 2 0 1 0 v. 4 0 3 8

2. Complete the given table.

	Number	Expanded Form
i	6785	
ii		4000 + 200 + 90 + 6
iii		3000 + 300 + 20 + 7
iv	9999	
v		5000 + 70 + 1
vi	2934	

3. Circle the correct one.

i	5 thousands + 3hundreds + 2 ones	5320, 5302
ii	The place value of 5 in 3758	50, 500
iii	Three thousand six hundred and sixty	3060, 3660
iv	4000 + 600 + 90	4690, 4609



Try This

Who am I?

Tens place is 7.

Thousandth place is 1 less than 4.

Hundredth place is between 3 and 5.

One's place is 2 more than 6.



Activity

1. Divide the class into the groups of 5.
2. Form a 4 digit number using number cards from 1 to 9.
3. Write its number name.
4. Write its expanded form.
5. Write the place value of each digit.

2.2 Comparison and ordering of Numbers

2.2.1 Forming the smallest and the largest numbers using given digits.

1. To write the smallest number using the given digits only once.

   a) When none of the digits is zero, we arrange the digits in ascending order and form the number.

Example

The smallest 4 digit number using the digits 4, 2, 9 and 7 is **2479**

   b) When one of the digits is zero, we arrange the digits in ascending order and put zero at second place from extreme left while forming the number.

Example

The smallest 4 digit number using the digits 1, 7, 5, 0 is **1057**.

2. To write the greatest number using the given digits only once, we arrange the digits in descending order and form the number.

Example

The greatest 4 digit number using the digits 5, 1, 7 and 9 is **9751**.

Exercise 2.4

1. Form the greatest and smallest numbers using the given digits only once.

	Digits	Greatest number	Smallest number
i	1, 4, 3, 7		
ii	5, 0, 9, 3		
iii	6, 7, 1, 5		
iv	3, 2, 0, 9		
v	7, 3, 2, 8		
vi	4, 6, 0, 2		
vii	9, 1, 4, 0		

2. Circle the smallest number and tick (✓) the greatest number:

i. 2715, 2175, 2517, 2157, 2275

ii. 6238, 2386, 3862, 8623, 9378

iii. 9345, 9646, 3408, 1425, 2000

iv. 5931, 1370, 4000, 2000, 3000

v. 6000, 7000, 5000, 4000, 9000

vi. 2468, 4279, 5090, 7906, 6270

vii. 7692, 8296, 3241, 9276, 4291

2.2.2 Arranging numbers in ascending and descending order.

Ascending order

Ascending order is arranging numbers from smallest to biggest.

Example

4278 4875 4923 4717

Since the digits at the thousandth place are same in all the numbers, we compare the digits at the hundredth place.

Thus, the numbers in **ascending order** is,

$4278 < 4717 < 4875 < 4923$.

4278, 4717, 4875, 4923.

Descending order

Descending order means arranging numbers from biggest to smallest.

Example

5234, 6271, 4234, 3172, 7871

Thus, the number in descending order is,

$7871 > 6271 > 5234 > 4234 > 3172$

7871, 6271, 5234, 4234, 3172.

Do You Know?

The reverse of ascending order is descending order.

Exercise 2.5

1. Write the following numbers in ascending order.
   i. 7631, 9987, 7634, 5436, 8918
   ii. 4096, 3096, 3099, 2473, 3172
   iii. 5201, 5627, 4325, 9999, 9801

2. Write the following numbers in descending order.

   i. 3435, 3670, 139, 3267, 6544.

   ii. 2785, 3605, 2782, 236, 9801.

   iii. 6998, 6987, 6898, 7801, 8979.

3. Arrange the milestones given below in both the orders.



(a) 495 KM (b) 10 KM (c) 2650 KM (d) 1680 KM (e) 1420 KM



Activity

1. Write the strength of each class in your school. Arrange them in ascending and descending orders.

2. Observe the table and answer the following.

Starting point	Destination	Approximate Distance in km
Chennai	Pondicherry	132
Chennai	Hyderabad	511
Chennai	Kolkata	1363
Chennai	Delhi	1757
Chennai	Mumbai	1025
Chennai	Guwahati	1891

i. Arrange the places in ascending order according to the distance.

ii. Arrange the places in descending order according to the distance.

iii. Choose the place which is shorter in distance from Chennai.

(i) Mumbai (ii) Guwahati (iii) Hyderabad

iv. Choose the place longer in distance from Chennai.

(i) Kolkata (ii) Mumbai (iii) Pondicherry

v. The place in the longest distance from Chennai is _____.

2.3 Addition and subtraction

2.3.1 Addition of four digit numbers without regrouping

Example







In a school, 1232 students travel by cycle, 2430 students travel by school bus, and 1235 walk on foot to the school. How many students are there in the school?

In a school

No. of students travel by cycle	=	1 2 3 2
No. of students travel by school bus	=	2 4 3 0 (+)
No. of students coming to school on foot	=	1 2 3 5
Total no. of students	=	4 8 9 7

Exercise 2.6

1. Fill in the boxes.

i. $5349 + 0 =$ ☐

ii. $2134 + 1 =$ ☐

iii. $4634 +$ ☐ $= 4634$

iv. $3457 +$ ☐ $= 3458$

2. Add

i.

	Th	H	T	O
	3	2	5	4
+	1	4	2	4

ii.

	Th	H	T	O
	2	1	3	5
+	3	3	4	2

iii.

	Th	H	T	O
	3	7	6	2
+	3	1	3	7

iv.

	Th	H	T	O
	1	4	3	3
+	4	5	5	2

3. **Add:** i. $2713 + 104 + 1172 + 4010$ ii. $4715 + 20 + 326 + 12$

4. A man visited a furniture shop. He bought a bed for ₹ 2100, a dining table for ₹ 3500, and six chairs for ₹ 3200. How much money did he pay to the shop keeper?

5. Create life oriented problem for the addition facts given below.

i. $3054 + 4923 = 7,977$ ii. $8309 = 2309 +$ ☐

6. Create addition stories using the pictures and numbers given below.

i.

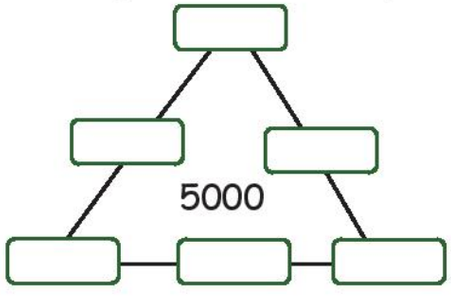


ii.

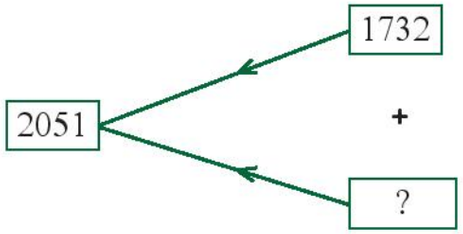
Child birth in the year 2018 is given below		
District		Number of children
Trichy	Urban	1032
	Rural	2030
Ariyalur	Urban	1205
	Rural	4097
kanchipuram	Urban	2104
	Rural	4034
Chennai	Urban	1430
	Rural	1023

7. Fill in the circles using 1400, 1500, 1600,1700,1800 and 1900 so that the three numbers along each line add up to 5000.

5JAB6



8. Fill in the box with appropriate number



2.3.2 Addition of four digit numbers with regrouping

Example

1. **Add:** Find the sum of 1957, 2376 and 4697

	Th	H	T	O
	2	2	2	
+	1	9	5	7
	2	3	7	6
Sum =	4	6	9	7
	9	**0**	**3**	**0**

Exercise 2.7

1. Add the following numbers.

i. 216, 3422, 4019, 497

ii. 1002, 2347, 1976, 2005, 2007

iii. 1978, 1965, 2704, 473

2. Find the total amount of the following 4 piggy banks.



₹978 ₹3796 ₹2374 ₹1957

3. The sum of 1215 + 2367 + 1673 + 3120 = _____

   a) 8585 **b)** 8225 **c)** 8375 **d)** 8285

4. Find the sum 2076 + 276 + 2974 + 1751 =

   a) 9561 **b)** 7077 **c)** 7377 **d)** 7707

5. What is the sum of five hundreds and five tens?

   a) 650 **b)** 550 **c)** 5150 **d)** 6150

6. The sum of the greatest 3 digit number and the smallest 4 digit number is

   a) 1999 **b)** 1099 **c)** 1990 **d)** 9999

7. 9999 + 1 = _____

   a) 10,000 **b)** 1000 **c)** 1001 **d)** 9990

8. In a village the number of male is 4154 and the number of female is 4221. Find the total population of that village?

9. A refrigerator costs ₹6543 and a electric stove costs ₹3412. What is the total cost?

10. Write the missing numbers

i.

	Th	H	T	O
	2	1	7	3
	□	2	3	□
(+)	1	9	□	7
	8	3	7	4

ii.

	Th	H	T	O
	3	9	7	□
	2	□	4	4
(+)	□	7	□	1
	9	2	7	6

2.3.3 Subtraction without Regrouping.

Example

1) 9865 - 2334 = ?

	Th	H	T	O
	9	8	6	5
−	2	3	3	4
	7	5	3	1

Subtraction without regrouping
Step1: Subtract the ones
Stet 2: Subtract the tens
Step3 : Subtract the hundreds
Step4: Subtract the thousands

2) Roja's monthly income is ₹8950. She spends ₹6750 and saves the rest. How much does she save?

Solution:

		Th	H	T	O
Monthly income	=	8	9	5	0
Amount spent	= −	6	7	5	0
Amount saved	=	2	2	0	0

Roja saved ₹2200.

Let us Know

- ✓ When 0 is subtracted from a number, the difference is the number itself.
- ✓ When a number is subtracted from itself, the difference is 0.

Exercise 2.8

Subtract the following.

i. 9764 − 3423 =

ii. 7986 − 4524 =

iii. 4785 − 2462 =

2.3.4 Subtraction with Regrouping.

Example

1. Subtract 3285 from 5657

Step: 1

Arrange the numbers in columns as shown below.

	TH	H	T	O
	5	6	5	7
−	3	2	8	5

Step: 2

Subtract column wise.

	TH	H	T	O
		5	15	
	5	~~6~~	~~5~~	7
−	3	2	8	5
	2	3	7	2

5657 − 3285 = 2372

Step 1 : When 5 ones are subtracted from 7 ones, we get 2 ones.

Step 2: It is not possible to subtract 8 tens from 5 tens. So, borrow 1 hundred from the hundreds column.

Step 3: 6 hundreds = 5 hundreds + 1 hundred. Transfer 1 hundred to the tens place. 1 hundred = 10 tens. So, 10 tens + 5 tens = 15 tens.

Step 4: Now subtract 2 hundreds from 5 hundreds.

Step 5: Then 3 thousand from 5 thousand.

2. The sum of two numbers is 4204,one number is 1207. Find the other number.

Solution:

Sum of two number = 4204

One number = 1207

Other number =

	Th	H	T	O
	3	11	^{9}~~10~~	14
	~~4~~	^{1}~~2~~	~~0~~	4
−	1	2	0	7
	2	9	9	7

Exercise 2.9

1. Subtract

i.

	TH	H	T	O
	3	4	4	5
–	1	3	4	8

ii.

	TH	H	T	O
	4	9	6	5
–	2	4	4	6

iii.

	TH	H	T	O
	6	5	7	0
–	3	3	9	7

iv.

	TH	H	T	O
	8	9	5	3
–	5	9	6	4

2. Find the difference between given numbers.

i. 4352 and 5020

ii. 1438 and 3370

iii. 2526 and 8431

iv. 3361 and 9000

3. Answer the following questions.

i. The sum of two numbers is 7036, one number is 3168. Find the other number.

ii. A man had Rs 9200 in the bank. He withdrew Rs 2750. How much money does he have in the bank now?

4. Create the life oriented problems for the details given below.

i. 1997 – 1968

ii.



iii.



5. Answer the following.

i.

	TH	H	T	O
	2	3	5	3
–	1	9	0	1

ii.

	TH	H	T	O
	1	2	2	8
–		2	8	6

iii.

	TH	H	T	O
	9	6	3	0
–	1	5	9	0

iv.

	TH	H	T	O
	4	8	0	0
–	3	1	6	2
	1	6	3	8

v.

	TH	H	T	O
	6	5	8	9
–	5	8	0	6

vi.

	TH	H	T	O
	9	8	5	4
–	3	6	4	4

vii.

	TH	H	T	O
	1	8	6	9
–	1	3	7	9

viii.

	TH	H	T	O
	5	4	5	6
–	1	3	2	5

ix.

	TH	H	T	O
	9	2	2	3
–	3	8	9	9

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3.1 Patterns in shapes

Observing sequence of shapes from Kaleidoscope.

Kaleidoscope

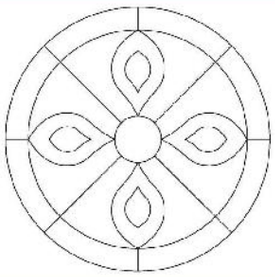
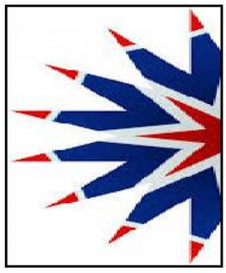


A Kaleidoscope consists of a tube containing pieces of coloured glass or paper. When the tube is rotated changing patterns are formed through reflection.






Activity

Colour the given picture	Complete the picture
	

Identifying the patterns in a sequence of shapes.

Examples

1. 

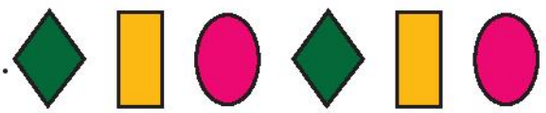
2. 

3. 

Exercise 3.1

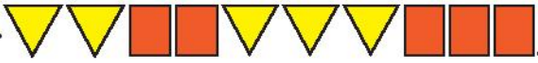
1. Observe and complete the pattern.

i.  _____

ii.  _____

iii.  _____

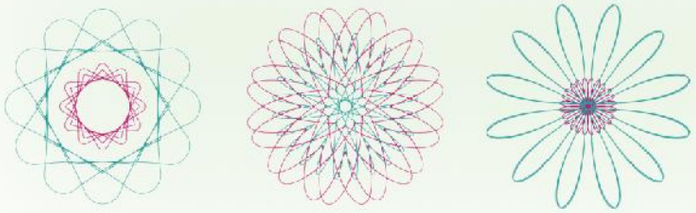
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iv. 

v. 

Do you know?

Spirograph is a mathematical toy which can be used for drawing patterns





3.2 Patterns in numbers

3.2.1 Identify the patterns in multiples of numbers.



Activity

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

The multiples of 6 are represented in ☐ for you.

Similarly, represent the multiples of 5 in △, Multiples of 9 in ▭, Multiples of 10 in ◯, observe the pattern in numbers and discuss.

Multiply any number by 9, the sum of all the digits of the product is 9.

Example

84 x 9 = 756 7 + 5 + 6 = 18 = 1 + 8 = 9	43 x 9 = 387 3 + 8 + 7 = 18 = 1 + 8 = 9	123 x 9 = 1107 1 +1 + 0 + 7 = 9



Activity

Make patterns based on the multiples of 9.

multiple of 9	Product	Sum of all the digits
9 x 9	81	8 + 1 = 9
81 x 9	729	7 + 2 + 9 = 18 = 1 + 8 = 9
__ x 9		
__ x 9		
__ x 9		
__ x 9		

If the sum of all digits of a number is 9 then the number will be a multiple of 9.

Do you know?

When the number 1 2 3 4 5 6 7 9 is multiplied with 9 or multiples of 9 we get the following number pattern.

1 2 3 4 5 6 7 9 x 9 = 1 1 1 1 1 1 1 1 1
1 2 3 4 5 6 7 9 x 18 = 2 2 2 2 2 2 2 2 2
1 2 3 4 5 6 7 9 x 27 = 3 3 3 3 3 3 3 3 3
1 2 3 4 5 6 7 9 x 36 = 4 4 4 4 4 4 4 4 4
1 2 3 4 5 6 7 9 x 45 = 5 5 5 5 5 5 5 5 5

3.2.2 Verifying problems by casting out 9

Any number or combination of digits in that number which add to 9 can be cast out from the given number. Then the sum of remaining digits of the number is divisible by 9 or multiple of 9.

Example 1

Is 46908 multiple of 9?

$46\cancel{9}08 = 4+6+0+8$

$= 18$

$= 1 + 8$

$= 9$

46908 is a multiple of 9 or divisible by nine.

Example 2

Check the following numbers whether it is a multiple of 9 or not

$24689 = 2 + 4 + 6 + 8 = 20$ (It is not a multiple of 9.)

$\cancel{9}10\cancel{8} = 0$ (It is a multiple of 9.)

$\cancel{3}1\cancel{6}5 = 1 + 5 = 6$ (It is not a multiple of 9.)

Addition

In addition problem, we can check the sum by casting out nines.

Example 3

Check the addition fact

$3356 + 4729 = 8085$

$\cancel{3}35\cancel{6} + 47\cancel{29} = 8085$

$8 + 4 = 21$

$12 = 21$

$1 + 2 = 2 + 1$

$3 = 3$

Subtraction

In subtraction problem, we can check the difference by the method of casting out nine.
Remember that subtraction is reverse of addition.

Example

Check the Subtraction fact

$4897 - 2186 = 2711$

$4897 - 2186 = 2711$

$19 - 8 = 2$

$10 - 8 = 2$

$2 = 2$

When the digits of a two digit number is reversed and subtracted from the number the difference will be in multiples of 9.

For example consider 52,

When the digits of 52 is reversed we get 25.

Difference = 52 – 25 = 27

27 is a multiple of 9.

Activity

Number	Reverse Number	Difference	Sum of the digits
92	29	92 - 29 = 63	6 + 3 = 9
14		= 27	
	38		
17			5 + 4 = 9
62		= 36	

Exercise 3.2

1. **Circle the multiples of 9 (by using casting out nine).**

   i. 9443 ii. 1008 iii. 24689 iv. 23769 v. 13476

2. **Circle the correct addition fact (by using casting out nine).**

   i. 4355 + 5369 = 9724

   ii. 7632 + 2213 = 9845

   iii. 6023 + 3203 = 9220

   iv. 2436 + 5315 = 7701

3. **Circle the correct subtraction fact (by using casting out nine).**

   i. 7420 – 3625 = 3795

   ii. 6732 – 4361 = 2371

   iii. 2362 – 632 = 1720

   iv. 3264 – 1063 = 2200

Multiplication

Example

Verify the Multiplication fact
327 X 42 = 13734

Multiplicand Multiplier Product

Casting out 9 and combination of 9

3 ~~2~~ ~~7~~	X	4 2	=	1 3 7 3 4
3		4 + 2	=	1 + 3 + 7 + 3 + 4
3	X	6	=	18
	18		=	18
	1 + 8		=	1 + 8
	9		=	9

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Exercise 3.3

1. Circle the correct multipliction fact (by using method of casting out nine).

   i. $312 \times 36 = 11232$

   ii. $723 \times 24 = 17508$

   iii. $132 \times 43 = 5676$

3.2.3 Identifying patterns created by multiplying with 10 and 100.

Examples

57 × 10 = 570

57 × 100 = 5700

9 × 400 = 3600

8 × 700 = 5600

Activity 1

x 200	
3 →	
2 →	
4 →	
5 →	

x 3	
60 →	
200 →	
30 →	
500 →	

x 10	
7 →	
60 →	
6 →	
100 →	

x 9	
20 →	
400 →	
30 →	
500 →	

Magic square :

Magic square is a square filled with numbers such that the sum remains same when we add from top to bottom left to right or diagonally as shown below.

2	9	4	
7	5	3	15
6	1	8	
	15		

13	6	11	
8	10	12	30
9	14	7	
	30		



Activity 2

Create a magic square by using 10, 20, 30, 40, 50, 60, 70, 80 and 90.



Try This

1. Create magic squares using multiples of nine

2. Create magic squares using multiples of hundred

Exercise 3.4

1. **Fill in the blanks.**

i. 90, 180, 270, ____, ____, ____.

ii. A9, B18, C27, D36, ____, ____, ____.

2. **Circle the multiples of 9**

25, 27, 35, 36, 45, 46, 54, 55

3. **Complete the following number sequence.**

i. 125, 150, 175, ____, ____, ____.

ii. 100, 400, 700, ____, ____, ____.

iii.

A100	C300	E500				

iv.

200	400	600			

4. **Complete the following sequence.**

i. $9 \times 6 = 54$ $\quad$ $9 \times 66 = 594$

$9 \times 666 = 5994$ $\quad$ $9 \times 6666 = 5$ _____ 4

$9 \times 666666 =$ _____

ii. $9 \times 111 = 999$ $\quad$ $9 \times 222 = 1998$

$9 \times 333 = 2997$ $\quad$ $9 \times 444 =$ _____

$9 \times 555 =$ _____ $\quad$ $9 \times 666 =$ _____

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4.1 Relationship between metre and centimetre.

Activity

Children can measure

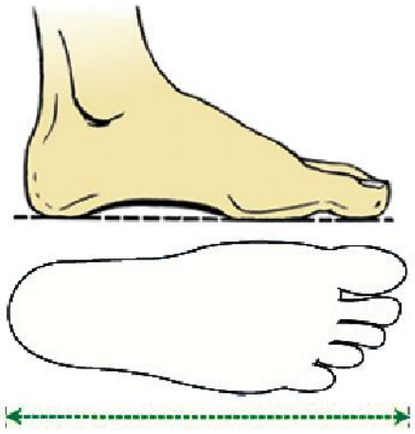
i. the size of their foot and find out the slipper size.

ii. sleeve size of their shirt

iii. width of their shirt



sleeve size of their shirt



size of their foot



width of their shirt

Kavitha and her friends went to the festival. All of them bought lot of things in the shops. They came back home and discussed about their purchase.

Kavitha : I bought a flute. Mala what did you buy?

Mala : I bought a cricket bat. Mary, please show your toy.

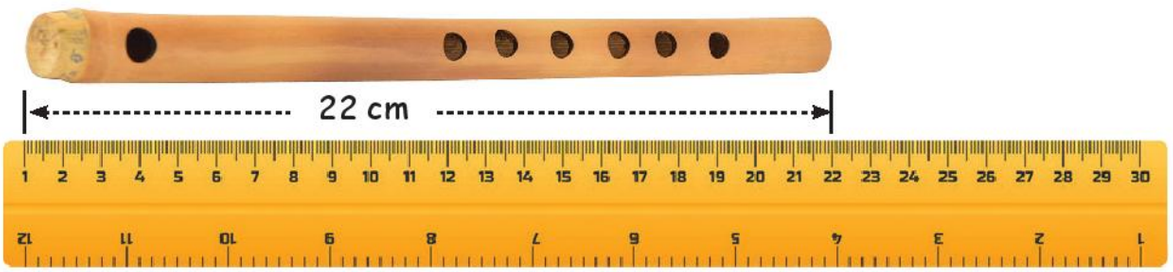
Mary : I bought a toy train.

Sharmila : See friends. I have a beautiful toy car

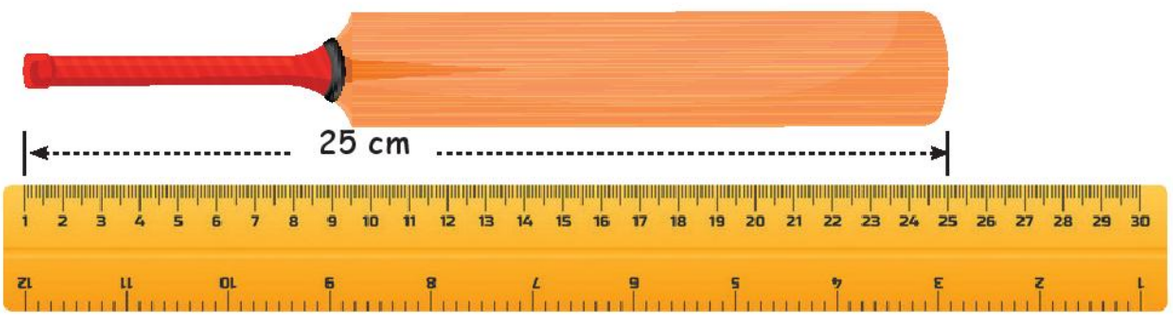
Banu : My favourite toy lorry is very attractive

Kavitha : All the toys are very nice. Let us measure our toys. Which is the longest among them?

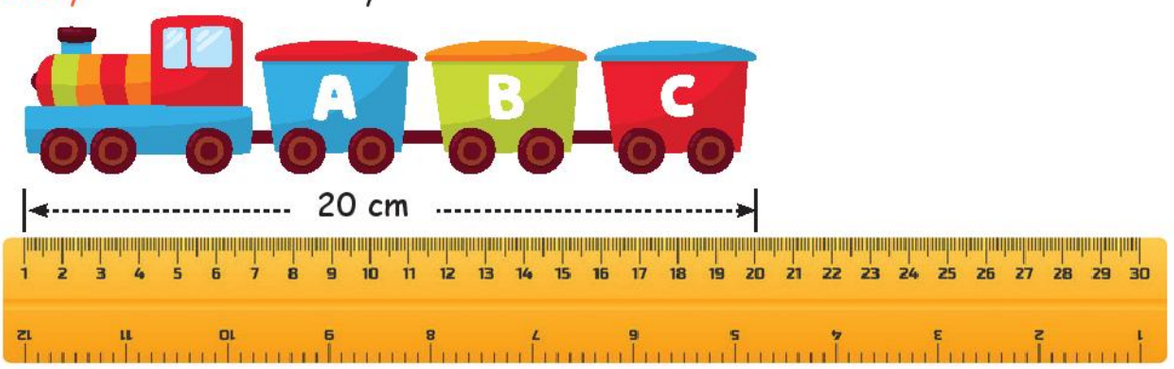
Kavitha measures her flute.



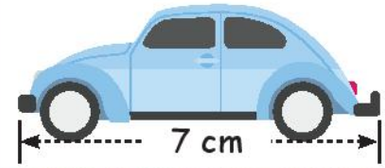
Mala measures her toy bat..

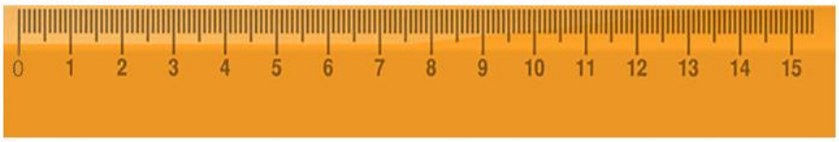


Mary measures her toy train.



Sharmila measures her toy car..



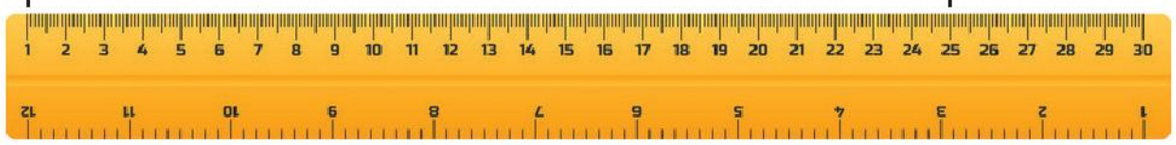


Centimetre can be written as "cm"

We use scale to measure small length. Play ground, Classroom height are measured by tape.

Banu measures her Toy lorry.





Can you measure the tip of the following things using a ruler?





10 millimetre	= 1 centimetre
100 centimetre	= 1 metre
1000 meter	= 1 Kilometre
1 mile	= 1 kilometre 600 metre

Think

How will you measure the distance between Villupuram and Cuddalore?





Group Activity

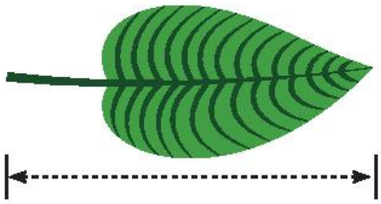
Ask the children to measure the length of the following things.

a. Black board **b.** Cupboard **c.** Table **d.** Dictionary **e.** World Map

Teacher can help the students to use the ruler properly.

Activity

Measure the following things and complete the table given below.

S. No	Things	Estimated length	Actual length
1			
2			
3			
4			
5			
6			

4.2 Conversion of Metre into Centimetre.

Examples

1. Convert 5 m into cm

   1 m = 100 cm

   5 m = 5 x 100 cm

   5 m = 500 cm

2. Convert 13 m into cm

   1 m = 100 cm

   13 m = 13 x 100 cm

   13 m = 1300 cm

3. Convert 4 m 35 cm into cm

Step: 1	Step: 2	Another Method
4 m = 4 x 100 cm	400 cm	4m 35cm = 4 x 100 + 35 cm
	+ 35 cm	= 400 + 35
	435 cm	4 m 35 cm = 435 cm

4 m 35cm = 435 cm

1m = 100 cm

Note:

To convert metre into centimetres multiply the given number by 100

4.3 Conversion of Centimetre into Metre.

Examples

1. Convert 700 cm into metre

   100cm = 1m

   700 ÷ 100 = 7 m

   700 cm = 7 m

2. Convert 536 cm into metre

   100cm = 1m

   536 cm = 500 cm + 36 cm

   = (500 ÷ 100) + 36 cm

   = 5 m + 36 cm

   = 5 m 36 cm

100cm = 1m



Activity

1. Complete the table.

Metre	1	2	3	4	5	6	7	8	9
Centimetre	100	200	300						

2. Using the metre scale, find the length of the classroom door and convert the measurement from metre into centimetre.

Exercise 4.1

1. Convert into centimetre

i. 3 m = _____ cm

ii. 37 m = _____ cm

iii. 5 m 9 cm = _____ cm

iv. 7 m 35 cm = _____ cm

2. Convert into metre

i. 600 cm = _____ m

ii. 3600 cm = _____ m

iii. 647 cm = _____ m _____ cm

iv. 304 cm = _____ m _____ cm

4.4 Addition and subtraction of standard measurements

Addition

Examples

Add 21 m 45 cm and 68 m 23 cm.

m	cm
21	45
+ 68	23
89	68

21 m 45 cm + 68 m 23 cm = 89 m 68 cm

Examples

Add 34 m 91 cm + 25 m 42 cm

	m	cm
	① ①	
	34	91
+	25	42
	60	33

34 m 91 cm + 25 m 42 cm = 60 m 33 cm

Exercise 4.2

Add the following.

1.

	m	cm
	41	29
+	26	75

2.

	m	cm
	70	23
+	31	45

3.

	m	cm
	35	08
+	29	26

4.

	m	cm
	53	45
+	34	68

5.

	m	cm
	51	30
+	21	12

6.

	m	cm
	60	45
+	24	75

Subtraction

Examples

Subtract 18 m 24 cm from 48 m 36 cm

	m	cm
	48	36
-	18	24
	30	12

48 m 36 cm - 18 m 24 cm = 30 m 12 cm

Examples

Subtract 73 m 44 cm - 54 m 75 cm

	m	cm
	⑥ ⑫	⑬ ⑭
	~~7~~8	~~4~~4
-	54	75
	18	69

73 m 44 cm - 54 m 75 cm = 18 m 69 cm

Exercise 4.3

Subtract the following

i.

	m	cm
	93	25
-	20	12

ii.

	m	cm
	38	90
-	26	60

iii.

	m	cm
	75	22
-	56	35

iv.

	m	cm
	27	81
-	16	94

v.

	m	cm
	95	80
-	46	60

vi.

	m	cm
	95	42
-	37	85

Life Oriented Problems

Examples

Mala bought Green ribbon of length 18 m 73 cm and red ribbon of length 27 m 65 cm to decorate the hall. What is the total length of the ribbon?

		m	cm
		① ①	
Length of the Green ribbon	=	18	73
Length of the red ribbon	= +	27	65
Total length of the ribbon	=	**46**	**38**

Total length of the ribbon is **46 m 38 cm**.

Examples

Latha purchased a rope of length 42 m 52 cm and she used 17 m 15 cm of the rope to tie a ponny. Find the remaining length of the rope she had.

		m	cm
		(3) (12)	(4) (12)
Length of the rope purchased	=	~~4~~ 2	~~5~~ 2
Length of the rope used to tie ponny	=	- 17	15
Length of the remaining rope	=	25	37

Remaining length of the rope is 25m 37cm.

Exercise 4.4

i. Deenu bought 15m 43cm of shirt material and 23m 94cm of trouser material. Find the total length of the material bought by him.

ii. A fisherman bought 2 nets. The length of first and second nets are 23m 43cm and 25m 63cm respectively. What is the total length of nets?

iii. Agathiya bought a wire of length 70m 42cm to fence his garden and he used only 43m 51cm of wire. Find the length of the remaining wire.

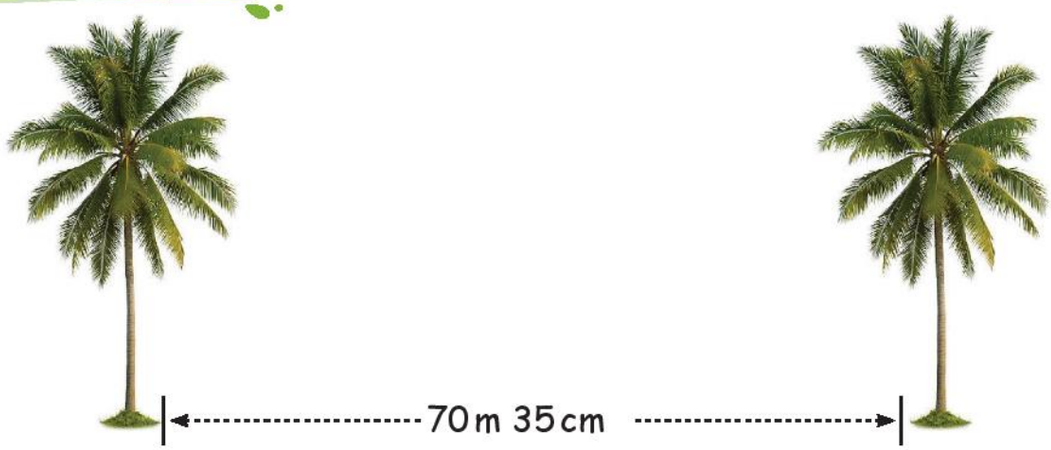
iv. A shopkeeper sold 37m 75cm cloth out of 93m 50cm in stock. How much stock is left with him?

v. I bought 125 metres of orange fabric and 50 metres of yellow fabric in a fabric shop. I have used 13 metres of the orange fabric and 12 metres of yellow fabric. How many metres of fabric is remaining with me?

vi. Velu is 1 m 15 cm tall. Her friend Babu is 1 m 30 cm tall. Who is taller and by how much?

4.5 Problem involving length and distances.

Examples



The distance between two coconut trees is 70 m 35 cm.
Suthan walked from first tree to second tree.
Then he returned to first tree. How much distance did he cover?

		m	cm
			(1)
Suthan went to 2nd tree	=	70	35
Suthan returned to 1st tree	=	+ 70	35
Total distance = 140 m 70 cm		140	70

Activity

Measure the height of any ten of your classmates and write in centimetre.

S. No	Name of the classmate	Hieght
1		
2		
3		
4		
5		
6		
7		
8		
9		
10		

4.6 Estimation

Estimating and measuring length and distance

We can estimate some lengths and distances using approximate values for measurements.

For example, one metre is the length between your shoulder and foot when you stand straight.

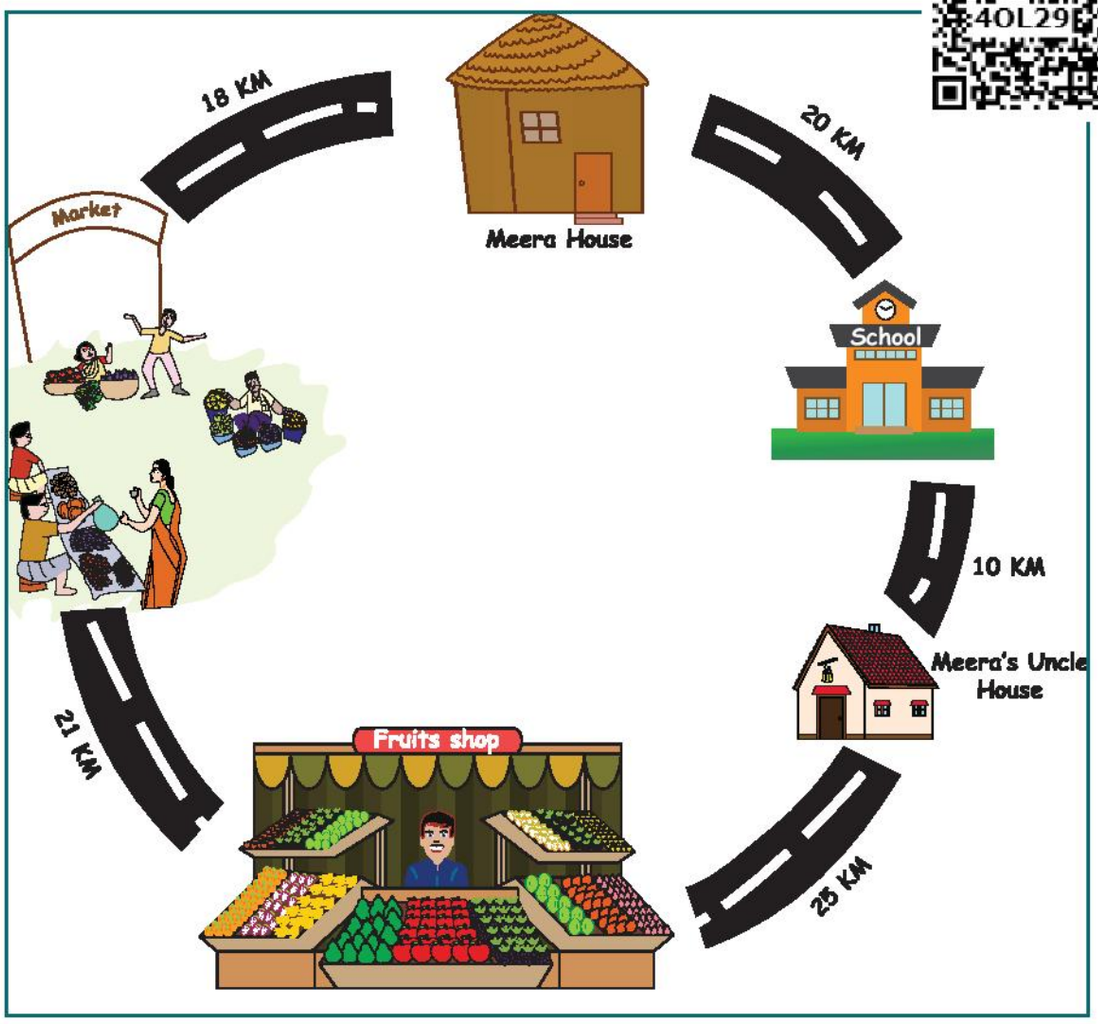
Complete the table (Length).

S. No	Objects to be measured	Estimated length	Actual length
1	Table		
2	Blackboard		
3	Window		
4	Computer		
5	Door		

Complete the table (Distance).

S. No	Distance to be measured	Estimated length	Actual length
1	Distance between headmaster room and your classroom		
2	Distance between table and cupboard.		
3	Distance between your place and black board.		
4	Distance between headmaster room and playground		
5	Distance between your classroom and the flag post		

Look at the map and complete the following.



i. The longest distance between Meera's house and the fruit shop is _____.

ii. The shortest distance between Meera's house and Meera's uncle house _____.

iii. The longest distance between Meera's uncle house and market _____.

iv. The shortest distance between school and fruit shop _____.

v. The longest place from Meera's house is _____.

vi. The shortest place from Meera's house is _____.

vii. Distance between Meera's house and the School _____.

Exercise 4.5

1. **Convert into cm.**

i. 5 m ii. 7 m iii. 9 m iv. 16 m

2. **Convert into m.**

i. 6000 cm ii. 4000 cm iii. 1300 cm iv. 1700 cm

3. **Add.**

i.

	m	cm
	4	75
+	3	18

ii.

	m	cm
	25	53
+	18	24

iii.

	m	cm
	48	72
+	14	34

4. **Subtract.**

i.

	m	cm
	9	28
-	3	14

ii.

	m	cm
	63	47
-	36	24

iii.

	m	cm
	96	32
-	20	48

5. Raju had a ribbon of length 20m. Of which he had used 13 m 25 cm for making his project. How much ribbon is left with him?

6. The distance between bus stand and school is 81 m 40 cm and the distance between school and temple is 20 m 10 cm. What is the total distance from bus stand to temple ?

7. Arul has a 4 metre long piece of wood. He made it into 2 pieces. Length of one piece is 1 m 50 cm then find the length of the other piece.

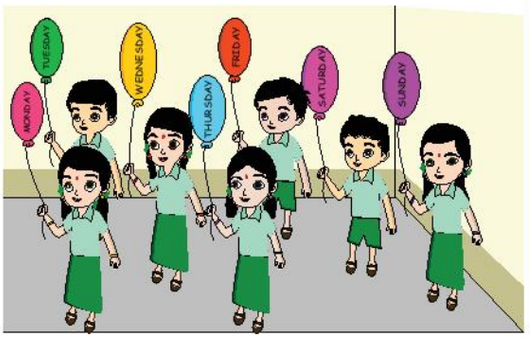
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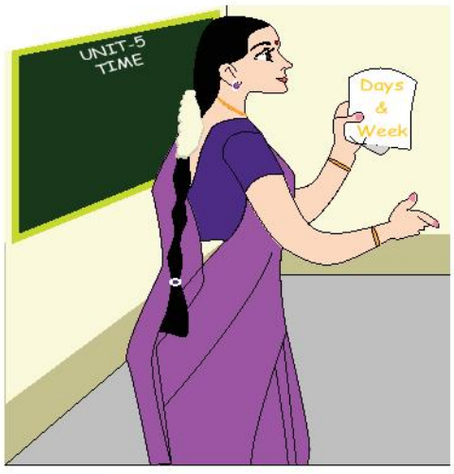
5.1 Understand days and weeks

Recall

Teacher writes the days of a week in the Balloons and ask students to hold the Balloons. Also ask the students to stand in order and join their hands. Now let us sing the following song.



"Sunday Sunday, let's have fun
Monday Monday, morning is so cool,
Tuesday Tuesday, tickle your friend,
Wednesday Wednesday, jump up high
Thursday Thursday, reach the sky



Friday Friday, eat healthy to be strong.
Saturday Saturday, all sit down.
Let's get up, it's a new day
The earth goes round
Round and round
Around the sun
That is why all new days"!

Exercise 5.1

1. **Answer the following questions.**

   i Which is the first day of the week ?

   ii How many days do you come to school in a week? Name them?

   iii How many days are holidays in a week? Name them?

   iv Which is the third day of the week?

2. **Unscramble the letters given below and write the days of the week in order.**

Days (Jumbled)	Days
TRUSDAHAY	
DYARFI	
DSANUY	
NODMYA	
SDEUYAT	
NDWADSEYE	
YDASTAUR	

Order of the days



Activity

1. Mark the ground with the names of days of a week. Students should run in a circle. When the teacher says 'FRIDAY', every student must go and stand in the space provided for Friday.
2. Divide the students into two groups. Shuffle the cards with the names of months and ask the children to arrange them in order.

5.2 Marking the dates

2023 AUGUST

Sun	Mon	Tue	Wed	Thu	Fri	Sat
		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		

Answer the following questions using the calendar given above.

1. What is the date of the third Wednesday of the month? _____
2. What is the date of the day after the second Sunday? _____
3. What is the date of the day before the fourth Tuesday? _____
4. What is the date of the day after the third Friday? _____
5. How many days are there in the month of August? _____
6. What is the last day in the month of July? _____.
7. what will be the day?
   i) 4 days after 11th August – _____
   ii) 7 days before 19th August – _____



Activity **Birthday Calendar**

Write the birthday of all your family members in the given table.

Members	Day	Month	Year
Father	10	1	1986

1. Who is the eldest member of your family?
2. Who is the youngest?
3. What is the difference in their age?
4. When will you celebrate your 12th birthday?

5.3 Months of a year and days of a week

2023 Calendar

January

Su	Mo	Tu	We	Th	Fr	Sa
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				

February

Su	Mo	Tu	We	Th	Fr	Sa
			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				

March

Su	Mo	Tu	We	Th	Fr	Sa
			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	

April

Su	Mo	Tu	We	Th	Fr	Sa
						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						

May

Su	Mo	Tu	We	Th	Fr	Sa
	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			

June

Su	Mo	Tu	We	Th	Fr	Sa
				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	

July

Su	Mo	Tu	We	Th	Fr	Sa
						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					

August

Su	Mo	Tu	We	Th	Fr	Sa
		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		

September

Su	Mo	Tu	We	Th	Fr	Sa
					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

October

Su	Mo	Tu	We	Th	Fr	Sa
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				

November

Su	Mo	Tu	We	Th	Fr	Sa
			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		

December

Su	Mo	Tu	We	Th	Fr	Sa
					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						

The calendar shows days of a week and month of a year. We can find the date of a particular day and a particular month from it.



Activity 1

Look at the calendar of the present year and fill the table.		
Festival	Month	Day
Pongal		
Teacher's day		
Children's day		
Independence day		
Republic day		

1. What is today's date?
2. Which festival comes sooner from today?
3. How many days are more from today to celebrate that festival?
4. Which festival comes last?
5. How many months are there in between first and last festival of the year?



Activity 2 Let us find how many weeks are there in a year.

Fill the boxes using the Calender 2023.

S.No	Name of the month	Numbers of days in the month	Numbers of weeks and days
1	January	31	4 weeks 3 days
2	February	28	4 weeks 0 days
3	March	31	4 weeks 3 days
4	April	30	☐ weeks ☐ days
5	May	31	☐ weeks ☐ days
6	June	30	☐ weeks ☐ days
7	July	31	☐ weeks ☐ days
8	August	31	☐ weeks ☐ days
9	September	30	☐ weeks ☐ days
10	October	31	☐ weeks ☐ days
11	November	30	☐ weeks ☐ days
12	December	31	☐ weeks ☐ days
	Total	**365**	☐ **weeks** ☐ **days**

Do you Know?

i. 1 year = 12 months

ii. 1 year = 52 weeks

iii. 1 week = 7 days

iv. 1 year = 365 days

Let us Know

Leap year occurs once in 4 years.
There are **366 days** in a Leap year.
There are **52 weeks and 2 days** in a Leap year.
February has **29 days** in a Leap year.



Activity

Calculate the total number of term holidays.

Occasion	Dates		Number of days
	From	to	
Holidays in term 1			
Holidays in term 2			
Holidays in term 3			

5.4 Relation between the number of days in a year and the number of days in each month.



Activity

Complete the table.

Months with 31 days	Months with 30 days



Try This

2020 is a leap year. Find the next two leap years.

Exercise 5.2

1. State True / False
   - i. January is the first month of the year.
   - ii. March is in between September and November.
   - iii. The last month of the year is July.
   - iv. February has 30 days.
   - v. May is the successive month of April.
2. Write the missing month
   - i. June, _____, August, September.
   - ii. March, April, _____, _____.
   - iii. _____, October, November.

5.5. Reading time in a clock to the nearest hours and minutes.

Introduction

The teacher has to discuss with the students by asking the following questions.

Teacher: When will you wake up in the morning?

Student: _____

Teacher: When will you start to the school?

Student: _____

Teacher: At what time will you eat lunch?

Student: _____

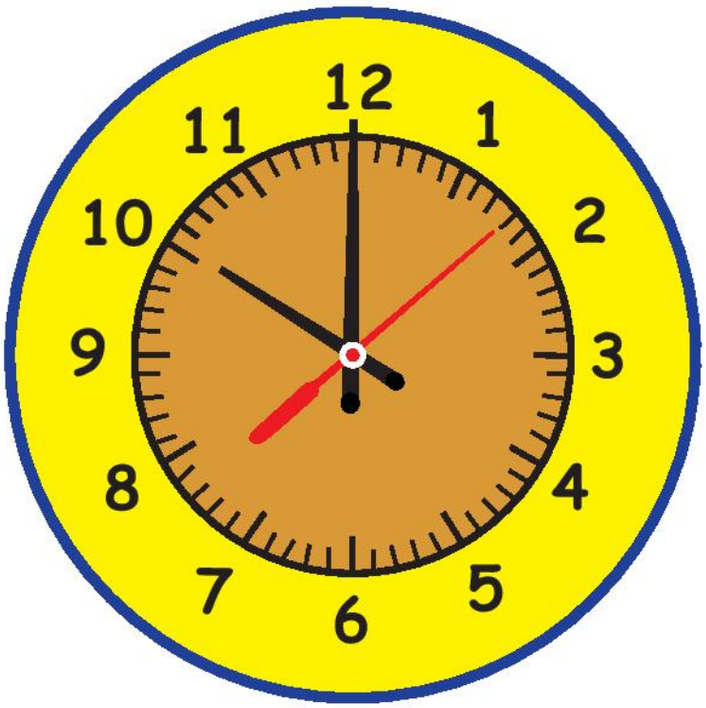
Teacher: At what time will you play in the evening?

Student: _____

Teacher: At what time will you go to bed at night?

Student: _____

Time



The clock has numbers from 1 to 12 and three hands.

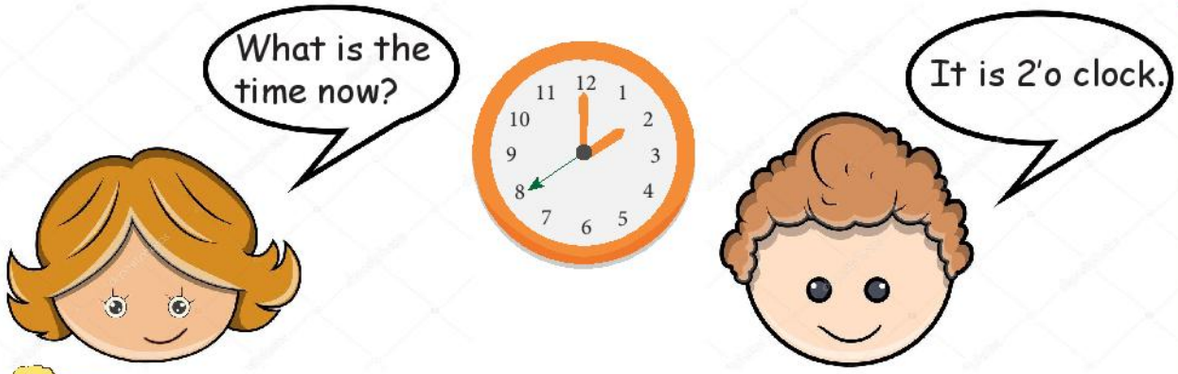
The shorter hand is Hour hand.
The longer hand is Minutes hand.
Red color hand is Seconds hand.





Activity

Make the students stand in a circle. Give a model clock to one of them. When the teacher signals they have to pass the clock among them. When the teacher signals again they have to stop passing the clock. The student who has the clock should position the minute and hour hand to show the time said by the teacher. Appreciate the student who has done correctly and continue the game.



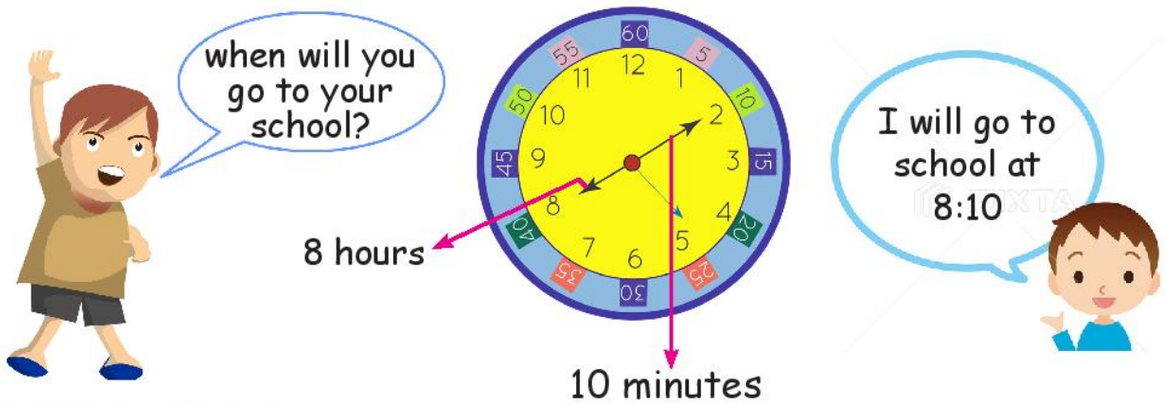
Activity

How many minutes will you take to do these activities in your home.

1. Brushing your teeth
2. Filling a tumbler
3. Cleaning your bed room

Teacher's note: Introuduce the minute hand using a model clock (1 hour = 60 minutes).

Reading the minutes



Let us Know



Quarter past 12 — 12:15

Half past 12 — 12:30

Quarter to 1 — 12:45

Exercise 5.3

1. Answer the following.

i. When will you start from home to school?

ii. When will you reach your school?

iii. How much time will it take for you to reach the school?

iv. When will you reach the school if you delay by 10 minutes?

v. When would you reach the school if you start early by 5 minutes?

vi. Ravi reaches school by 8:30 am and Prabu reaches school after 30 minutes, Find the time when prabu reach the school?

2. How long will it take the hour hand to move from the positions given in the clocks.

i

From  To  _____ hour

ii

From  To  _____ minute

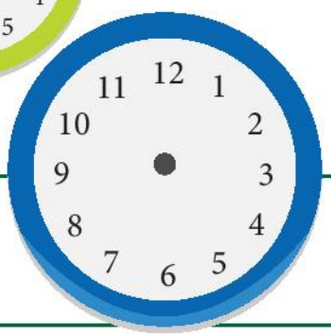
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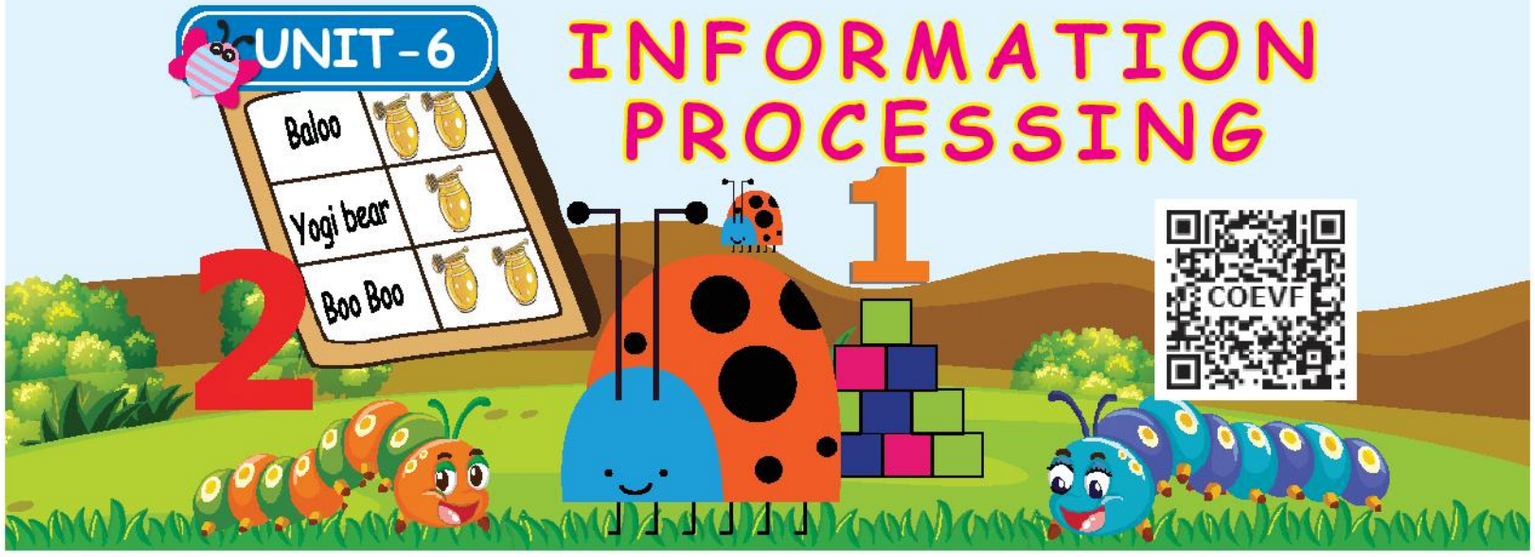
From  To  _____ minute

9SEMU

Try This

Mark the time of your birth in the clock.





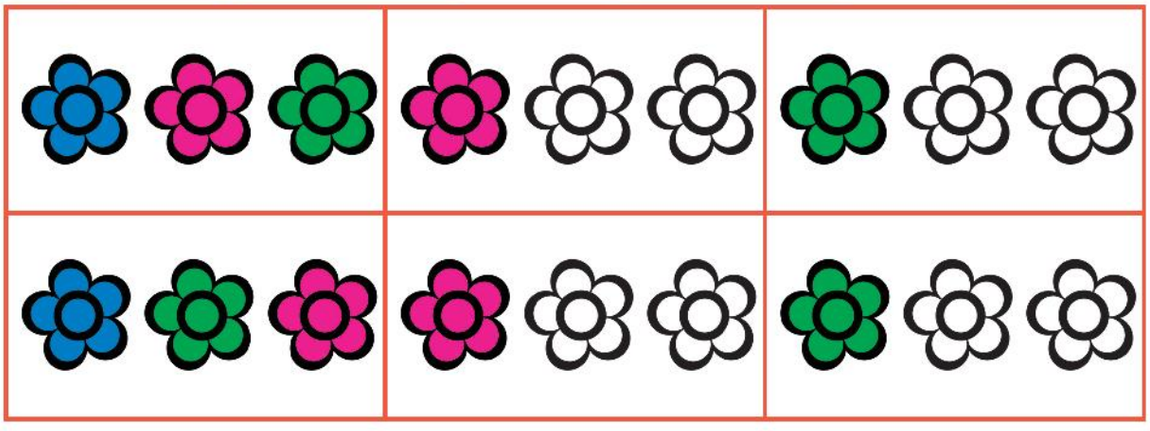
6.1 Systematic Listing

List down all possible things for a given category with multiple conditions.

Example

Complete the table by colouring with the three given colours in all possible ways.





List down the order of colours in the flowers in each box.

Activity

Find out all the possible ways of dressing using 2 pants and 4 shirts.


Red colour shirt


Pink colour shirt


Green colour shirt


Blue colour shirt

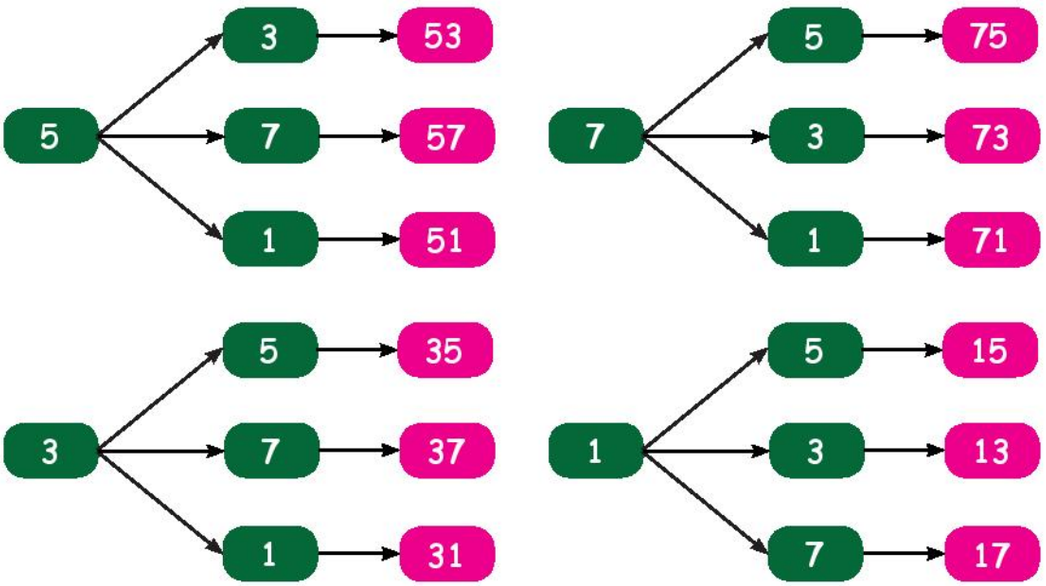

Grey colour pant


Blue colour pant

Example

5	3	7	1

How many two digit numbers can be created using the above number without repeating them?



12 two digit numbers can be created using the given numbers.



Try This

1. Create 3 letter words using the word 'TEACHER' without 't' at the end.

Tea	Car			

2. Create 5 letter words using the given letters only once.

A	D	E	G	L	M	N	R	T

ANGER	MEDAL			

3. List out 10 three letter words ending with 't'.

Exercise 6.1

1. | 9 | 7 | 2 | Write all possible three digit numbers that can be formed without repeating these numbers? how many numbers can be formed?

2. You have to choose a tiffin and a drink from the given menu of a hotel. List the possible combinations. How many combinations are possible?

Tiffin	Drink
Idly	Tea
Poori	Coffee
Dosai	Milk
Pongal	

3. Kavin has four cards 9 7 4 6

i. List down all possible 3 digit numbers with these cards without repetition.

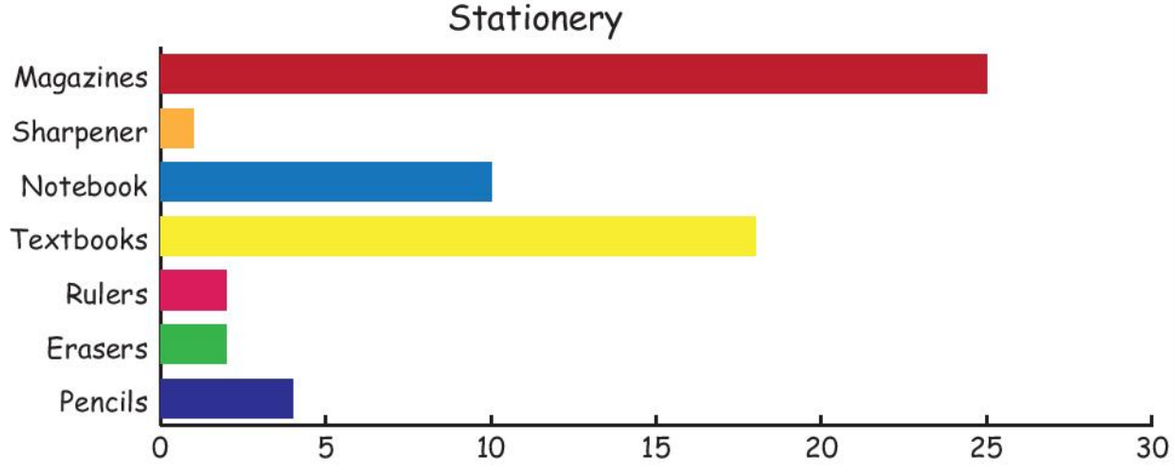
ii. What is the largest 4 digit odd number that can be made without repeating the numbers?

4. There are 3 sprinters A_1, A_2, A_3 (an athlete who runs fast in short race). List out the possible combinations that they win the 3 medals gold, silver and bronze.

6.2 Representation of data in bar graphs.

Amirtha was given a task of maintaining record for stationery items in her home. She started counting one by one but after a while she lost her counting and worried. Then her friend Vani came to help her. First she grouped these items as pencils, erasers, rulers, text books, notebooks, magazines, sharpener. Then Amirtha counted and wrote them easily as follows.

Stationery Items	Numbers	Stationery Items	Numbers
Pencils	4	Notebooks	10
Erasers	2	Sharpener	1
Rulers	2	Magazines	25
Text books	18		



Example

Kalavathi collected information about the favourite drinks of her schoolmates and represented the data as given below.

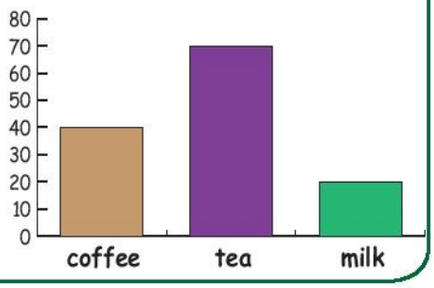
i. The number of people who drink coffee _____

ii. Which drink is liked by least number of people?

(a) Coffee (b) Tea (c) Milk

iii. Which drink is liked by most number of people?

(a) Coffee (b) Tea (c) Milk

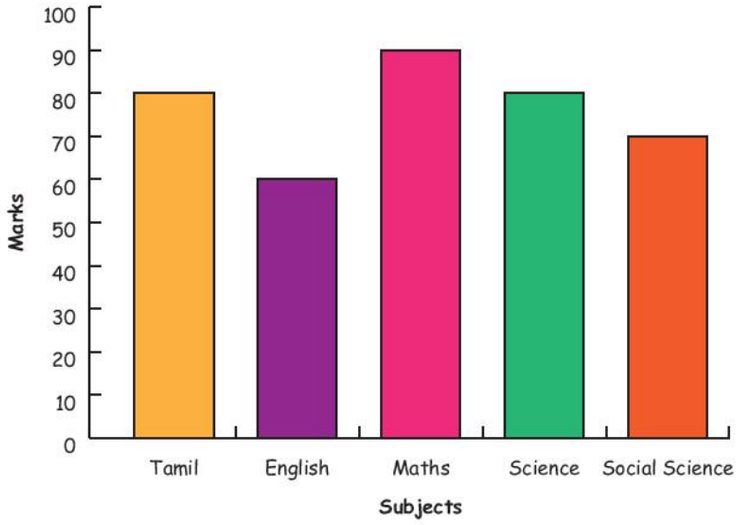


Try This

Draw a bar diagram for the favourite games of your classmates.

Exercise 6.2

1. Bar diagram of test scores of a student are given. Answer the following questions from the bar diagram.



i. The highest score is in _____.

ii. The lowest score is in _____.

iii. The same scores are in _____ and _____.

2. The score card of the players in a cricket match is given.

Player Name	Score
Kannan	60
Rohit	40
Babu	50
Ramu	10

Draw a Bar diagram.

6.3 Representation of data in Pie-Chart

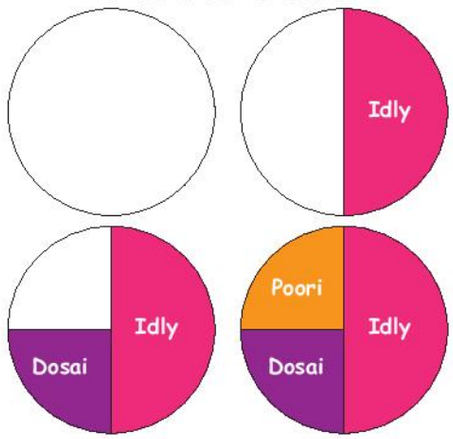
A Special chart that uses "Pie Slices" to show relative sizes of

Example

There are 60 students in a class. Students take breakfast in the restaurant. The half of the students eat idly. Of the remaining, half of the students eat poori and half of the students eat Dosai.

The method of drawing pie chart is given here.

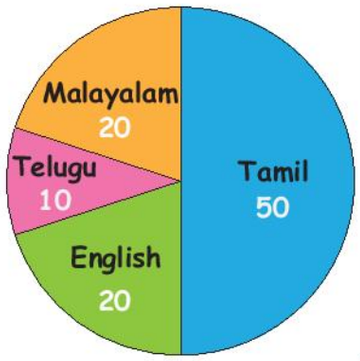
The Pie-Chart



Try This

Answer the following questions by using given data.

1. Number of people who speak Tamil _____.
2. Number of people who speak English _____.
3. Number of people who speak Malayalam ____.
4. Number of people who speak Telugu _____.

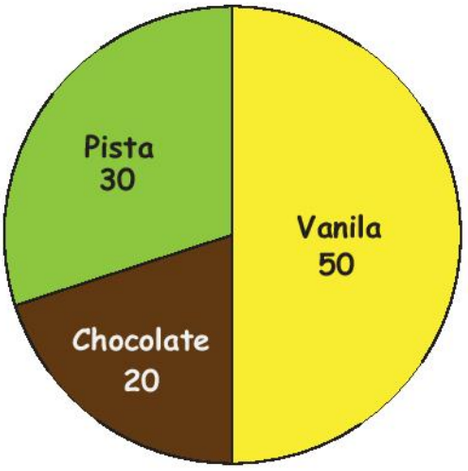


Activity

Draw a pie-chart for favourite fruits of your friends.

Exercise 6.3

1. The number of varieties of ice creams in an ice cream parlour is given below as a pie-chart. Answer the following questions.



FOKE6

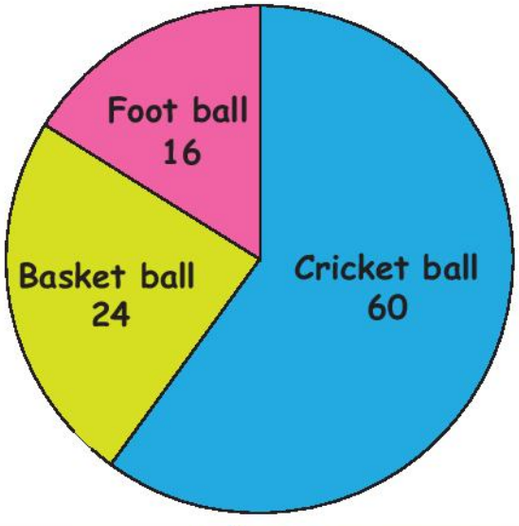
i. How many varieties of ice creams are there?

ii. Find the number of vanila ice creams _____.

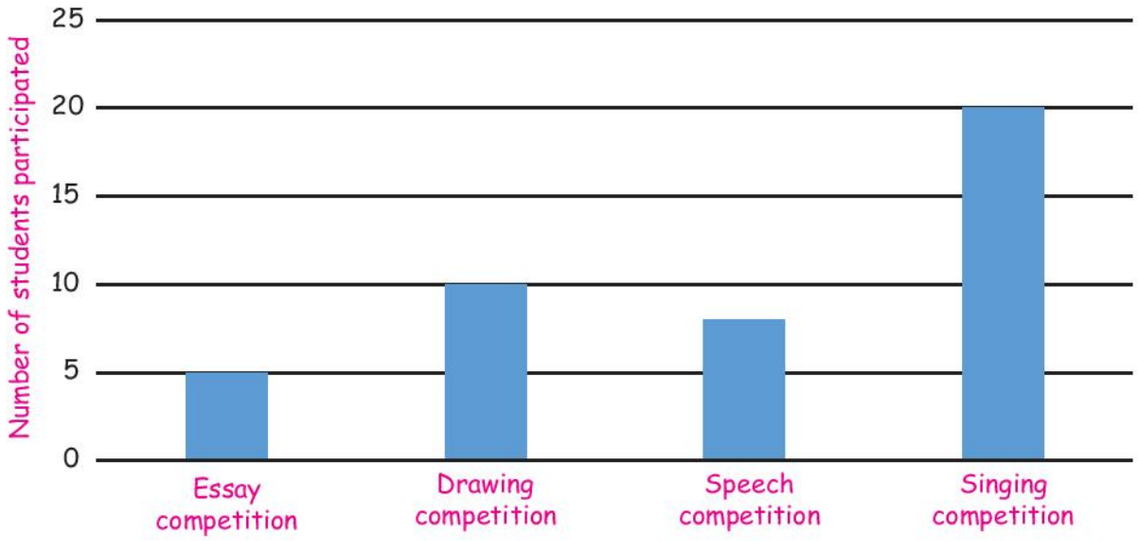
iii. Find the total number of chocolate and pista ice cream _____.

iv. Find the total number of ice creams _____.

2. Tabulate the data of the balls in the given pie-chart.



3. The number of students participated in various competitions in a class of 30 students is given in a graph.



i. In which competition more number of students participated?

ii. In which competition less number of students participated?

4. Draw a bar graph and a pie-chart for the favourite sweets of your family members.

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Z7GJ9

E-Book

QLFCY

Evaluation

My Body



Unit 1



Learning Objectives

After learning this lesson, students will be able to

- identify and describe the internal organs of humans.
- list out the main functions of the internal organs.
- differentiate the types of teeth.
- appreciate the importance of oral health.
- become aware of good touch and bad touch.

QDYUS

Let us Recall

There are some body parts hidden in the table given below. Can you find them?

Y	A	M	Y	E	R	D
H	C	L	Q	A	I	L
A	P	K	S	R	P	E
N	O	S	E	S	H	G
D	O	H	E	A	D	H

I. Internal Organs

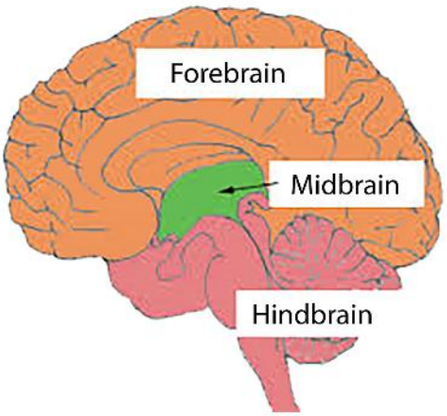
There are some body parts such as eyes, nose, ears, hands and legs that we can see. Such parts are called **external organs.**

There are some body parts such as stomach,lungs and heart that are inside our body. We are unable to see them. These body parts are called **internal organs.**

Let us learn more about these parts now.

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1. Brain



Brain is an important organ of our body and it is protected by the **skull**. It has three main parts namely:

1. Forebrain
2. Midbrain
3. Hindbrain

Brain is the commanding centre of our body and it helps us to think and perform various actions. Every action that we do like moving our hands, sitting or walking is possible only because of our brain.

Do you know?

The human brain weighs approximately about 1.36 kg.

Try to Answer

1. _____ (Nose / Brain) is an internal organ.

2. We can see the internal body parts. (True / False)

Let us Play

Memory Chain - A Brain Game (Teacher led activity)

How to play?

1. Make students to sit in a circle.
2. Place a tray with picture cards of different body parts and an empty tray.
3. Now ask a student to pick a card and name the body part and put the card in the other tray.



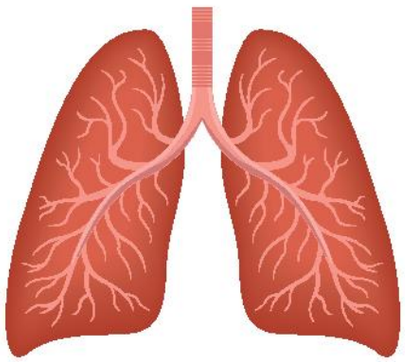
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4. Call the next student. Ask him to pick another card and name the first and the second card.

5. Then ask the next student to pick a card and tell the name of the first two cards and the new card.

6. In the same way, ask all the students to take the cards one by one and tell the names in the previous cards and the name of the new card also.

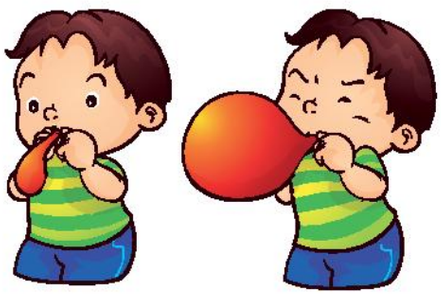
2. Lungs



Lungs are a pair of spongy, sac-like organs located in the chest. They help us to breathe.

- When we breathe in, we take in oxygen from air through the nose and pass it to the lungs. So, the lungs expands (becomes large).
- When we breathe out, we give out carbon dioxide from the lungs through the nose into the air. So, the lungs contract (becomes small).

Let us Play



Bigger and Smaller

(Teacher gives balloons to all the children)

Teacher : Blow the balloon... What do you see?

Students : It becomes bigger.

Teacher : Like this, when we breathe in, the lungs become bigger. If you let the air out from the balloon, what will happen?

Students : The balloon becomes small.

Teacher : Yes, like this, when we breathe out air, the lungs become smaller.

The lungs act like two balloons inside our chest. As we draw air into the breathing system, the lungs get bigger as they are filled with air. When you breathe out, air is pushed out of the lungs and they get smaller.

3. Stomach



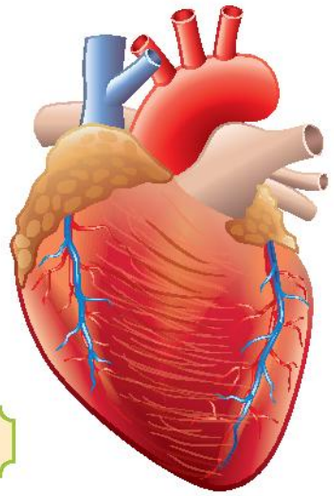
Stomach is a 'J' shaped bag found below the lungs. It breaks down food items and gives us energy. It contains special juice to digest food.

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4. Heart

BTD6I

Our heart is the pumping organ. It pumps blood to all parts of the body. It lies in between the lungs almost in the centre of the chest. It is made up of **muscles**.





More to Know

The heart beats about 72 times in a minute.

Let us Make

Stethoscope

Things we need: Flexible tube, Two small funnel, Duct tape, Medium-size balloon and Scissor



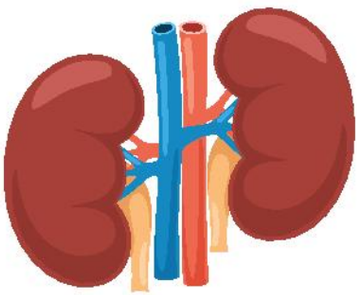
Steps to construct:

1. Put the small end of the funnel at both ends of the flexible tube tightly.
2. Tape the funnel and the tube using duct tape.
3. Inflate the balloon to stretch it out.
4. Let the air out and then cut the neck of the balloon.
5. Stretch the remaining part of the balloon tightly over the open end of the funnel, tape it in place.



6. Place one funnel end of the stethoscope on the heart and the other funnel end near your ear.
7. Can you listen to the sound of the heart?

5. Kidneys



We have two kidneys. They are bean shaped organs.

The kidneys purify blood by filtering excess water and toxins.

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Try to Answer

Match the following.

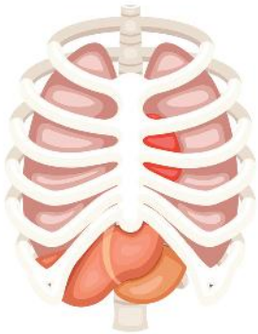
1. Pair of spongy sac	-	Stomach
2. 'J' shaped bag	-	Kidney
3. Filters excess water	-	Brain
4. Command centre	-	Heart
5. Pumps blood	-	Lungs



More to Know

Exactly half of a single kidney is capable of doing the job that is performed by two kidneys together.

6. Bones and Muscles





Our body is made up of bones and muscles. Press your upper arms. The portion that is hard to touch is the bone. The portion that is soft to touch is the muscle.

The bones give us shape. They are the frame for our body and allow us to jump, run or just lie down. Bones also protect the internal parts of the body.

Muscles are the soft parts that cover our bones. They help us to move different parts of our body by contracting or relaxing, like a rubber band.

In order to maintain healthy bones we need to have healthy food, such as milk, cheese and eggs. For strong muscles, we need to exercise and stay active.



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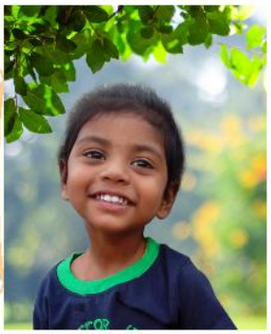
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Babies are born with 300 bones but by adulthood the number is reduced to 206.

Amazing Fact

17 muscles are functioning while smiling and 43 while frowning.

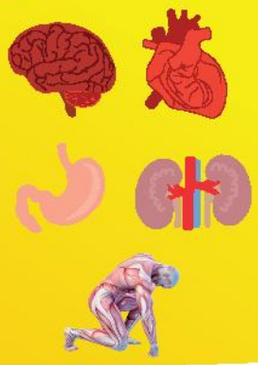
So **smile and save your energy!**



Let us Take care

If you care for your,

Brain	- Sleep for eight hours
Heart	- Avoid fatty food
Stomach	- Eat healthy food on time
Kidney	- Drink more water
Bone and Muscles	- Exercise regularly



The human body has more than 600 muscles.
The longest bone is thigh bone.
The smallest bone is stapes in ear.
The longest muscle is in the thigh.

Let us Do

Muscle Activity: To know that our muscles send information to our brain.

Things we need: Two large plastic cups, Large bag of rice or beans.

Activity



- Blindfold your partner.
- Have your partner hold one cup in each hand.
- Take the cups back and add a small amount of beans or rice to one cup.
- Return the cups to your partner. Ask him whether they weigh more.
- If your partner says one is heavier, ask him which one?
- Here we understand that weight difference felt by the muscles was sent to the brain as message.

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II. Teeth

1. Teeth and its types

The teeth are the hardest parts in our body. They are helpful for cutting and chewing the food. The teeth are found inside our mouth.



We develop two sets of teeth in our lifetime.

1. Milk teeth: The first set of teeth starts to develop from the age of six months. They are called milk teeth and they are 20 in number. At the age of 6 or 7 the second set of teeth grow after milk teeth fall.



2. Permanent Teeth: Second set of teeth are called permanent teeth. There are four types of teeth: incisors, canines, premolars and molars. If permanent teeth fall, we cannot grow one more set of teeth. So, it is important to take care of our teeth. There are 32 permanent teeth.

2. Importance of Oral Health

As we learnt, it is important to take care of our teeth and also our mouth. If you do not care your mouth and teeth, you will have problems with eating and speaking.

3. Healthy Mouth

It is important to take care of our teeth and mouth. Brushing teeth, eating healthy food and regular dental checkup keep us healthy. We should brush our teeth twice a day.

4. Foods for Healthy Mouth and Teeth



- Take plenty of fruits, vegetables and dairy products.
- Drink water or milk instead of sugary juices.
- Eat candy, cake and ice cream as less as possible.



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5. Taking Care of Mouth and Teeth

- Change toothbrush once in every three months.
- Avoid sticky food.
- Brush twice a day (After getting up and before going to bed).
- Rinse your mouth with water after you eat.

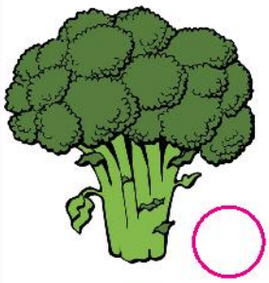
6. Neem Toothbrush



Researchers believe that use of neem toothbrushes is the reason behind the bright smiles and healthy teeth of Indian villagers. Indians traditionally chew neem twigs to keep their gums and teeth healthy.

Try to Answer

Tick (✓) the food items that are good for your teeth and cross (X) the food items that are bad for your teeth.














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III. Good Touch, Bad Touch and Don't Touch

Try to Answer Is it Good touch or Bad touch? Why?

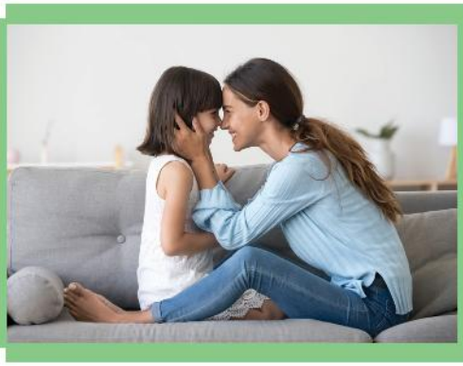


A



B

"Good touch" and "Bad touch" are the words most commonly used to explain what touch is okay and what is not okay. This helps us to understand when to tell a trustworthy person about bad touch and ask for help. "Good touch" is a touch that cares for us or makes us feel safe. "Bad touch" is any touch that we don't want or makes us feel scare. Let us learn how to keep ourself safe.



Activities related to Good Touch

- Parents' hug and kisses.
- Father pats you on the head.
- Friendly hugs by family members.
- Shaking hands.

Activities related to bad touch

- Touching the buttocks and other private parts.
- Hitting, slapping, pushing, pinching or kissing.
- Activities that make you feel scared or nervous or ashamed.
- Dirty talk and dirty pictures.





MY BODY IS MY OWN. I never allow others to misuse it.

Never be afraid to shout and say "Don't touch me".

It is never your fault.



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If you feel that you get a bad touch, you must



Say "Don't touch" in a loud voice.



Leave the spot quickly.



Tell elders (like parents or teacher) till you get help.

Students must be taught that offenders might approach with the following **"Dirty Tricks"**

- Your mother is admitted in the hospital. So, I have come to take you there.
- Could you please accompany me and guide me to reach this address?
- Tempting you with gifts or money.
- Distracting you with the promise of sweets or food.
- Offering to play 'doctor game' and 'hide and seek' game trying to touch you under that pretext.
- Pretending to show great concern for you.



Safety tips every child should know:

- Tell everything to your parents especially to mother.
- Don't share address and phone numbers with strangers.
- Don't answer the phone or open the door without an adult's presence.
- Never eat anything you get from strangers.
- Have emergency telephone number.

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For teacher / parents:

How to prevent sexual abuse and what are the signs of sexual abuse?

- Behaviour changes of the child to be watched.
- Depressed and withdrawn from their peer group.
- Moving away from a particular individual, excessive dependence, decline in learning and dominant behaviour.
- Internet can cause adverse impact.



Try to Answer

Look at the pictures and write 'Good Touch' or 'Bad Touch'.

















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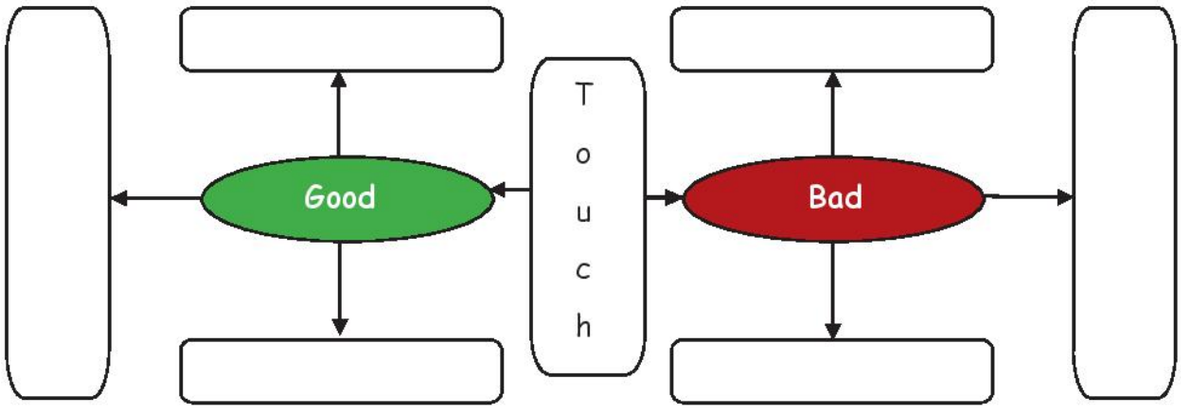
Evaluation

I Pick out the odd one.

1. Heart, Legs, Brain, Kidney
2. Eyes, Ears, Fingers, Lungs
3. Forebrain, Midbrain, Hindbrain, Nerves

II Complete the figure with words given in the bracket.

(Kissing on the mouth, Grand parents' love, Hitting the buttocks, Pat of dad on head, Parent's hug and kisses, Showing awkward pictures)



III Find the answers from the following clues and circle the words. (First one is done for you)

i. An internal organ.
ii. Organ that helps us to breath.
iii. An organ removing wastes from our body.
iv. Unfair and unhealthy touch.
v. Everyday we should drink more _____.

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

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IV Say true or false.

1. Head, hands and legs are internal organs.
2. Heart is made up of muscles.
3. Muscles are the soft parts that cover our bones.
4. Brush your teeth once a day.
5. Father patting you on your head is a good touch.

V Choose the correct answer.

1. _____ is the commanding centre of our body.

   a) Heart b) Lungs c) Kidney d) Brain

2. Food is converted to energy in the _____.

   a) neck b) heart c) stomach d) nose

3. Every day we should brush our teeth _____ times.

   a) one b) two c) three d) four

4. Good touch is a fair and _____ touch.

   a) unhealthy b) bad c) unsafe d) healthy

5. Drink a lot of _____ every day.

   a) oil b) water c) packed juice d) salt water

VI Answer the following questions in one or two sentences.

1. Name the internal organs.
2. What are the functions of brain?
3. List out the food items for healthy mouth and teeth.
4. How will you take care of your heart and kidney?
5. What do you do when some one touches you and you feel uncomfortable?

VII Think and answer.

1. When an unknown person disturbs you, how do you behave? Write in your own words.
2. Which organ controls thinking, speaking and learning. Write its three important parts.

VIII Project

1. Make a model of lungs with the help of locally available materials.
2. Make an album with the pictures of internal organs.

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Matter and Materials

Unit 2





Learning Objectives

After learning this lesson, students will be able to

- classify the materials based on their properties.
- conduct simple investigations related to materials.
- realize the importance of matter and materials in daily life.
- differentiate transparent,translucent and opaque objects.

I. Materials

K3SUD

Everything in the universe is a matter. We need to explore many different materials to make sense of our world.

The matter from which a thing is made of is called material.
For **example:** Chair is made of wood, Eraser is made of rubber, Candle is made of wax.

Try to Answer

Look at the pictures and identify the materials by which they are made of.
(Paper, Clay, Glass, Wood, Plastic, Metal, Rubber, Wax)





















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Try to Answer

Match the objects that are made of same material.

A	B	C
		
		
		

II. Properties of Materials

We can measure, see or feel the materials. Different types of materials have different properties that make them useful for various purposes. Most materials have more than one property. They can be hard or soft, shiny or dull, smooth or rough and flexible or rigid.

1. Hard and Soft Materials



Materials which cannot be easily compressed, cut, bent or scratched are called **hard materials**.
Example: Brick, bone and steel.



Materials which can be easily compressed, cut, bent or scratched are called **soft materials**.
Example: Foam, clay and skin.

Try to Answer

Write whether the given materials are hard or soft.

Wood	Eraser	Cotton

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2. Shiny and Dull Materials



Materials which reflect the light well are called **shiny materials**. Example: Stainless steel, gold and diamond.

Materials which do not reflect the light well are called **dull materials**. Example : Candle, paper and jute bag.



Try to Answer

Collect some objects from your house and classify them as shiny or dull materials.

3. Rough and Smooth Materials



Materials which have ups and downs on their surface are called **rough materials**. **Example:** Brick, rock and tyre.

Materials which do not have ups and downs on their surface are called **smooth materials**. **Example:** Mirror, silk cloth and tiles.



Try to Answer

Sort the given objects as rough or smooth.

Wet soap	Coir	Feather	Stone

Glass ball	Paperboard	Sand paper	Plastic spoon

4. Flexible and Rigid Materials



Materials which can be bent or stretched easily are known as **flexible materials**. **Example:** Rubber band, electric wire and cycle tube.

Materials which cannot be bent or stretched easily are known as **rigid materials**. **Example:** A stick, wooden scale and stone.



Activity

Test the flexibility.

Give a plastic scale and a wooden scale to the students. Ask them to bend. Tabulate their observation (bends, does not bend).

Plastic Scale	Wooden Scale

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5. Waterproof Materials



Materials that do not allow water to pass through them are called **waterproof materials**.

Example : Raincoat and aluminium foil of tablet strip.

Think and Answer

Do you have a raincoat? What is its use?

Activity

Take a glass bowl. Fill three fourth of it with water. Put an orange fruit with peel and an orange fruit without peel. Observe which orange floats? Why?

III. Transparent, Translucent and Opaque objects

Have you ever seen through the bus window?



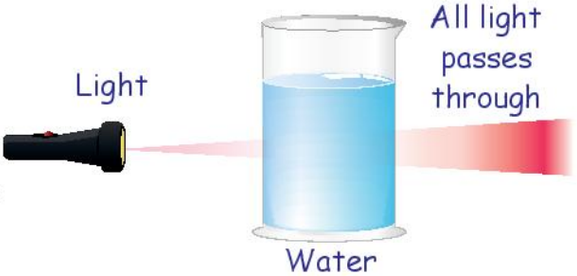
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Some objects allow light to pass through them. This helps us to see through them as the window of a bus. Let us see how different objects behave with light.

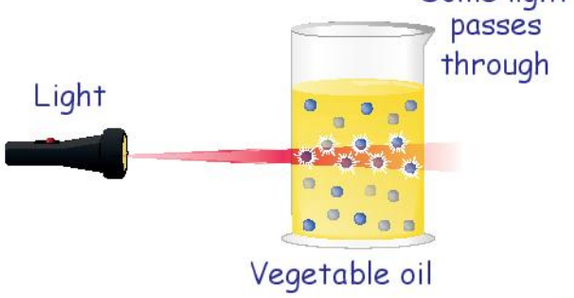
1. Transparent Objects

Transparent objects allow the light to pass through them. So, we can see other objects clearly through **transparent objects**.

Examples: Air, glass and pure water.



2. Translucent Objects



Translucent objects allow some light to pass through them. So, we cannot see objects clearly, but we see them as blurred images through them.

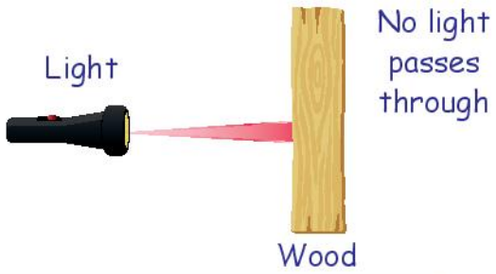
Examples: Paper soaked in oil, snow and vegetable oil.

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3. Opaque objects

Opaque objects do not allow light to pass through them. So, we cannot see through these objects.

Examples : Wood, stone and metals.



Think and Answer

Why should we build the walls of the house with bricks (opaque material) instead of glass (transparent material)?

Activity

Complete the Worksheet

Name : Class :

Date : Unit : 2. Matter and Materials

Complete the sentence in you own words.

1. Transparent objects allow _____
2. Translucent objects allow _____
3. Opaque objects allow _____

Try to Answer

Write whether the objects are transparent, translucent or opaque.



_____



_____



_____



_____



_____



_____

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IV. Reflection of Light





We see the world around us with the help of **light**. Where do we get the light from? Light may come either from the Sun or from other sources like an electric lamp or a bulb. The objects that give off light are called **light sources.**

When light falls on a transparent material it passes through it. However when light falls on a polished surface of an opaque material, it does not pass through it. It bounces back. The bouncing of light by any smooth or polished surface is called reflection.





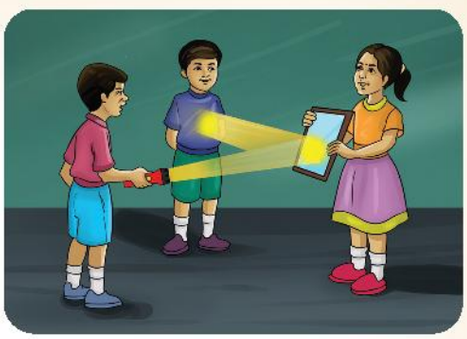
When you look into the mirror, you can see your own face on the mirror. What you see is a reflection of your face in the mirror. We also see reflections of other objects that are in front of the mirror. These reflections are formed by light and they are called **images.**

Try to Answer

Try to see your face on some materials like mirror, exam pad, new stainless steel plate, table top and water in a plate. What are the materials that show your face clearly? Do you know why?

Activity

Reflection of Light



Material Required/Needed

A plane mirror and a torch light

How to do?

1. Make your room dark by closing the door and windows.
2. Ask your friend to hold a mirror in his/her hand at one corner of the room.
3. Stand at another corner with a torch in your hand.
4. Switch it on.
5. Direct the light from the torch onto the mirror.
6. **Answer the following from your observation.**

   a) When you change the angle of the mirror, what happens to the light?

   b) Are you able to direct the reflected light using the mirror?



More to Know

Mirrors can reflect sound waves too. So they were used in the **Second World War** to detect sounds coming from enemy aircraft.

Evaluation

KG3F5

I Find the odd one.

1. Brick, Coir, Silk cloth, Pine apple
2. Stone, Rubber band, Cycle tube, Electric wire
3. Sun, Candle, Torch, Pen
4. Umbrella, Sponge, Rain coat, Jerkin
5. Glass bottle, Exam pad, Paper plate, Wooden board

II Fill in the blanks.

1. Materials which can be compressed or cut easily are called _____.
2. Gold and diamond are the examples of _____ materials.
3. Materials which can be bent or stretched easily are called _____.
4. _____ objects allow all the light to pass through them.
5. _____ is the natural source that stimulates sight and makes things visible.

III Match the following.

1. Light source	-	Glass
2. Waterproof	-	Vegetable oil
3. Transparent	-	Sun
4. Translucent	-	Metal
5. Opaque	-	Rain coat

IV Say True or False.

1. We cannot compress, cut or bend the rough materials easily.
2. Dull materials reflect light.
3. Sand paper is a good example for smooth materials.
4. Opaque objects do not allow light to pass through them.
5. Mirrors change the direction of light that fall on them.

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V Answer the following.

1. When can you say a material is waterproof material?
2. What is a light source?
3. What is the difference between transparent and opaque materials?
4. Define reflection.
5. Classify the objects given below as transparent, translucent or opaque materials.

(Air, Rock, Water, Aluminium foil, Mirror, Snow, Wooden board, Polythene bag, CD, Oil soaked paper, Glass tumbler and Coloured glass)

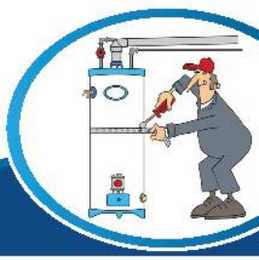
Transparent Materials	Translucent Materials	Opaque Materials

VI Project

Collect some rough and smooth materials from your surrounding.

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Work and Energy



Unit 3



Learning Objectives

After learning this lesson students will be able to

- define work.
- understand work and energy.
- know simple machines.
- classify types of machine.
- know about three types of lever.

IMKWX

Let us Recall

Teacher : Students, you have studied about force in your lower class. What is force?

Students : A force is a push or pull that moves an object at rest or stops an object in motion.

Teacher : There are different kinds of force. What are they?

Students : Frictional force, Gravitational force, Muscular force and Magnetic force.

A force can cause an object to change its shape, speed or direction.

I. Work

An action in which one exerts a force to move an object is known as **work**. What do you understand from the pictures given below?







From these pictures, we understand that a force is applied to do some work.

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Think and Say

Teacher: Yesterday I was walking back from the school. I found some people working to lay the road. I found some items in that place. Can you say something about that place and the machines that were used there?

When can we say that work is done or not?

Two main conditions are needed for work to be done.

- A force should act on an object.
- Object should move from one place to another.

When the force acting on the object makes it move, **work** is said to be done.

Try to Answer

Observe the picture and put a tick (✓) if work is done and put a cross (x) if work is not done.








Let us Do

Mention whether work is done or not in the following activity.

S. No	Activity	Work done or not done
1.	Pushing the door	
2.	Holding a doll	
3.	Sitting in a bus	
4.	Pushing a wall	
5.	Digging soil	

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II. Energy



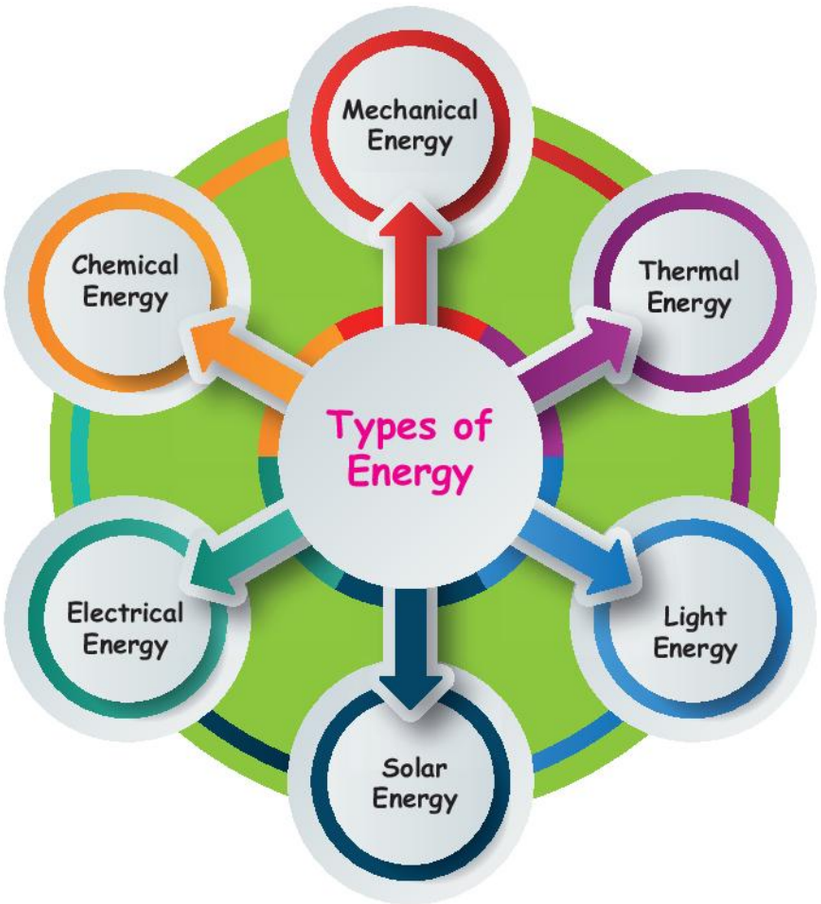


In the above pictures:

- ★ A man pulls a luggage. To do so he needs some energy. What is the source? Food gives energy to humans.
- ★ The car moves by the energy obtained from the burning of fuel.
- ★ The escalator moves by using electricity as energy.

Energy is defined as capacity of doing work.

Energy must be **transferred** to an **object** in order to do **work.**



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1. Renewable Resources

Renewable sources of energy are replaced naturally over a period of time. We can keep using these sources for a long period of time. Since the beginning of human life, we have been using these resources. We use these resources for lighting, transport, cooking, heating. Eg: Sun, Wind and Water.





2. Non-renewable Resources

The resources which are not easily replaced once used are called the non-renewable resources. Eg: Petrol, Coal and Natural gas







More to Know

The law of conservation of energy states that energy can neither be created nor destroyed. It can be converted from one form to another.



The SI unit of energy is joule.

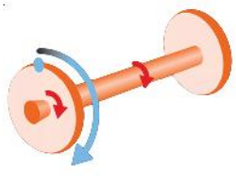
It is named after James Joule who explained about energy.

III. Simple Machine








Observe the above pictures.
What are they used for?

In our daily life our effort is saved with the help of some simple machines.

We draw water from the well with the help of a wheel and a rope.

Simple machines are tools which are used to make our work easier. Some examples for simple machines are pulley, wedge, inclined plane, screw, lever, wheel and axle.

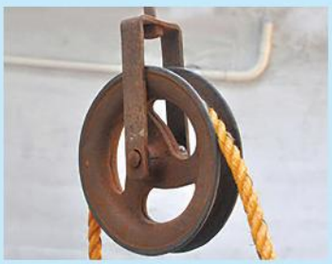
1. Pulley



Observe the picture. Which is easier? Lifting the load with the help of a pulley or without a pulley?



A pulley is a machine made up of a wheel with a cut around it. A rope or chain passes around the pulley. It rotates in the direction with more force. Eg: Crane





2. Inclined Plane



Observe the picture and discuss. Is lifting a box is easier than rolling it on a ramp?



An inclined plane is a flat sloping surface with one end higher than another.

Eg: Ramp, slide and slope for wheel chair.





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3. Wedge

A wedge is a tool with a sharp edge which can be used to split materials. It is used to break wooden logs into two pieces.
Eg: Knife, scissors and axe.



4. Screw

The screw is used to raise weights and to hold objects together.
Eg: Pencil sharpener, screw-jack, bottle cap and windmill.






The screw in the bottle cap holds the cap and the bottle together.
The blade and sharpener are held together by screw.

5. Wheel and Axle

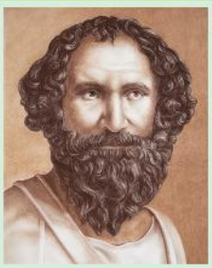
Wheel and axle consist of a wheel attached to a small rod so that these two parts rotate together.
Eg: Bicycle wheel, door knob, grinder, axle wheel.






More to Know

Simple machines usually exchange a smaller force to move a heavy object. The work required is the same, but the force required is less. The idea of a simple machine originated with the Greek philosopher Archimedes around the 3rd century BC.



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6. Lever

A lever is used to multiply the force we give on an object.
Eg: See saw, nut cracker and plier.





Try to Answer

Identify and mention the types of simple machines.





_____ _____ _____





_____ _____ _____

Let us Do

Complete the table.

S. No	Types of Simple Machine	Example
1.	Pulley	
2.	Wheel and axle	
3.	Wedge	
4.	Inclined plan	
5.	Lever	
6.	Screw	

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IV. Types of Lever

To understand the lever, we must know the following terms.

Load is the object on which the force is applied.

Effort is the force we apply on the lever.

Fulcrum is the point on which the lever rotates.

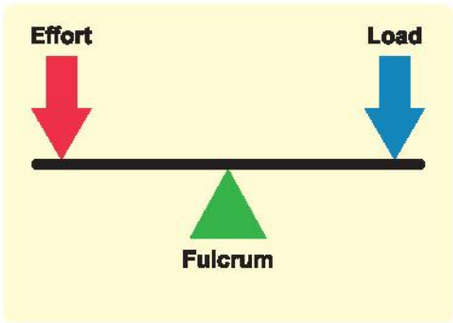
Lever is classified into three types according to where the load and effort are located with respect to fulcrum.

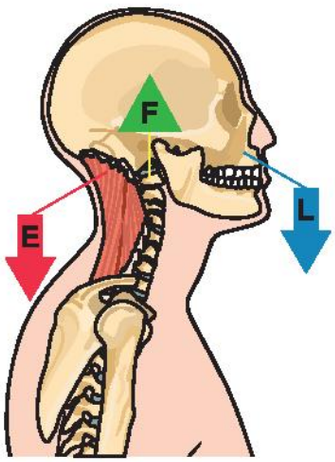
The three types of lever

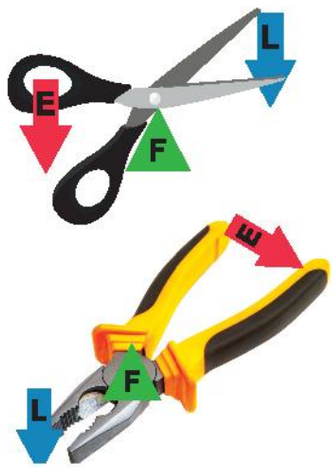
Class I lever
Class II lever
Class III lever

1. Class I Lever

When the fulcrum is between the effort and the load, it is known as Class I lever.
Eg: Scissors, pliers, seesaw.

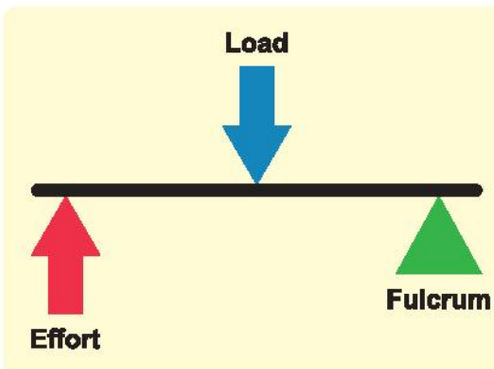


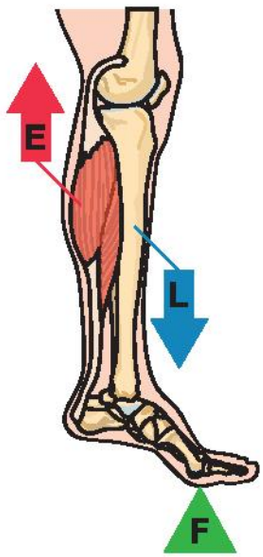


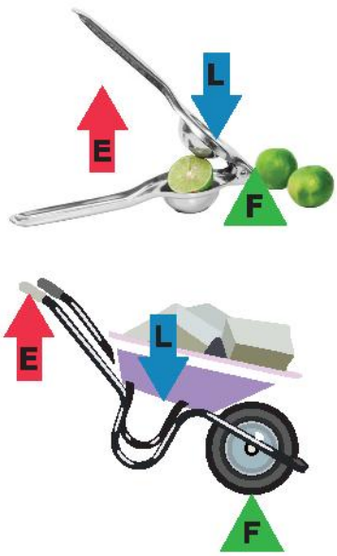


2. Class II Lever

When the load is between the effort and the fulcrum, it is known as Class II lever.
Eg: Wheel barrow, lemon squeezer, nut cracker.

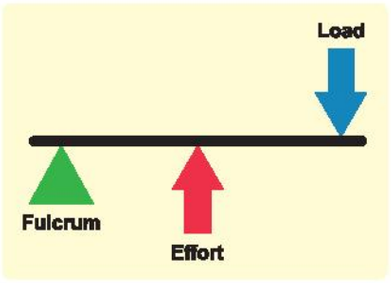


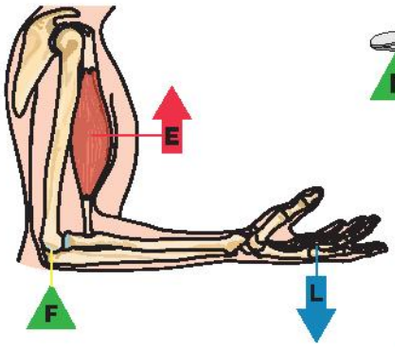


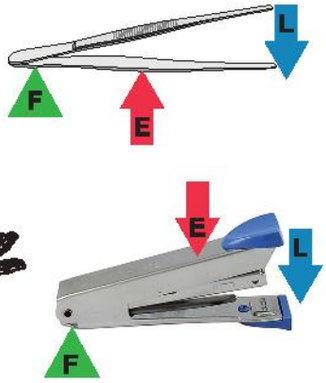


3. Class III Lever

In this lever, the effort is between the load and the fulcrum.
Eg: Stapler, tongs, broom stick, hockey stick.

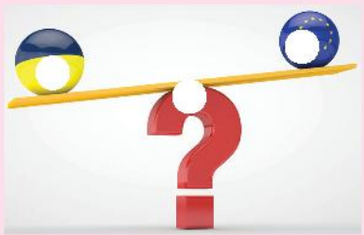






Try to Answer

Name the load, effort and fulcrum.



1. _____
2. _____
3. _____



1. _____
2. _____
3. _____



1. _____
2. _____
3. _____

Evaluation

I. Use the correct word to fill the blanks.

(ramp, Simple machines, Work, energy, Pulley)

1. _____is said to be done when a force is acting on it.
2. The ability to do work is_____.
3. _____ is a machine made up of wheel and rope.
4. _____ help us to make work easier.
5. An example for inclined plane is_____.

4th Science Unit 3 Work and energy.indd 111 08/02/2023 11:19:47

II. Rearrange the letters and find out the names of the tools.



E D G E W



R L E V E



E W C R S

III. Match.

1. Class II lever	-	Drawing water
2. Pulley	-	Bicycle
3. Class I lever	-	Nut cracker
4. Wheel and axle	-	Wind
5. Renewable resource	-	Seesaw

IV. Classify the things below.

Sl. No	Examples	Class of Lever
1.	Spade	
2.	Seesaw	
3.	Wheel barrow	
4.	Plier	
5.	Nail cutter	

V. Answer the following.

1. What is the unit of energy?
2. Name some simple machines.
3. What is a class I lever?
4. Lemon juicer belongs to which type of lever? Why?
5. Define work.
6. Write any three types of energy.

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Science in Everyday Life



Unit 4



Learning Objectives

After learning this lesson, students will be able to

- know the nutritional value of milk.
- explore the benefits of cooking.
- learn about baking of bread, biscuit and cake.
- know about gadgets used in daily life.

06AH5

Let us Recall

Teacher : What do you drink in the morning?

Students : Tea, coffee and milk .

Teacher : Good. What do they contain?

Ram : Milk, tea dust, coffee powder, sugar and water.

Teacher : Very good. Do you know why we drink milk?

Ram : It is good for our health.

Teacher : Correct, let us learn more about milk in this lesson.

I. Milk



Milk is produced by mammals for nourishing their young ones. Milk from many animals is used by humans. Cow's milk is used commonly.

4th Science Unit 4 Science in Everyday Life.indd 113 08/02/2023 11:25:24

1. Sources of Milk



Milk is primarily obtained from mammals. It is also obtained from other sources. Examples: Soya milk, nut and seed based milk.

2. Nutritional value of Milk

Milk contains water, sugar, protein, fat, vitamins and minerals.

Based on the amount of fat present in the milk, it can be classified as whole milk, low fat milk and fat free milk.



Sugar : Milk has sweet taste because it has a special sugar called lactose.

Protein : It helps to build muscles.

Fat : Fat present in the milk is called butter. Butter is more delicious than any other fat.

Vitamins : Vitamin-D in milk helps to maintain the bones.

Minerals : Calcium is a mineral. It helps to build healthy bones and teeth.



People all over the world get their milk from mammals like sheep, goat, camel, donkey, horse, yak, water buffalo, reindeer and even moose.

4th Science Unit 4 Science in Everyday Life.indd 114 08/02/2023 11:25:28



- Primary food for babies.
- Gives curd, butter, butter milk and ghee.
- Health drink for adults and sick people.
- Used for making cheese, paneer and milk sweets.
- Used in ice cream and chocolates.
- Used during festivals and ceremonies.

3. Health Benefits of Milk

1. It strengthens bones and teeth.
2. It maintains blood pressure.
3. It reduces the risk of heart disease.
4. It is a source of energy.

Try to Answer

1. Milk is a rich source of _____ (Calcium / Iron).
2. Milk contains _____, _____ and _____.

4th Science Unit 4 Science in Everyday Life.indd 115 08/02/2023 11:25:37

II. Food materials

What is food? Food is one of the basic needs of our life. Food provides energy. It is usually made by cooking plants or animals. It contains essential nutrients to keep our body healthy.



Needs of food

- Gives energy
- Promotes growth
- Improves immunity
- Helps our body repair itself



Food can be classified into two types.

1. Raw Food - Raw food is the food that does not need to be cooked to eat.
Examples: Fruits, carrot, ground nut seeds.



NIKQA



2. Cooked food - Cooked food is the food, that has been cooked to eat.
Examples: Rice, vegetable curry, bread.



Let us Do

Simple tasks such as pouring liquid into the bowl, sprinkling pepper on the omelet or dosa, peeling off onions, powdering coriander seeds can be done by you. Always help the elders in the kitchen.



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1. Cooking



Do you know how many food items are there that you will not be able to eat without cooking? Cooking is important. It makes food suitable for consumption.

Methods of Cooking



Boiling



Steaming



Frying



Deep frying



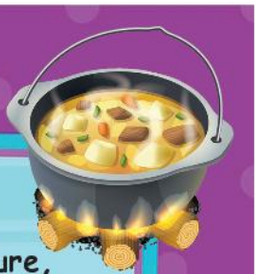
Roasting



Grilling

Benefits of Cooking





Cooking causes many useful changes in food.

1. It makes nutrients ready for digestion.
2. It helps to make food in the desired texture, flavour and taste.
3 It destroys harmful microbes.

Try to Answer

1. _____, _____ are examples of raw food.
2. _____, _____ are examples of cooked food.

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Let us Discuss

Look at the things shown in the picture and discuss their uses with your friends.



III. Baking of Bread, Biscuit and Cake

Baking is a method of cooking. We use heat to bake. Bread, biscuit and cake are some examples of baked food items.

1. Bread

Bread is a common food item prepared by baking the dough. It is an important source of energy for sick people. It is also one of the ancient foods made by humans. Bread is a low fat food.





Bread has the nutrients required for normal development and good health.

To make bread we need wheat flour, yeast, water, sugar and salt.



Bread gets spoiled six times faster when kept in fridge than at room temperature.

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2 Biscuit

Biscuit is a small, flour - based baked food. It is generally made of wheat flour or oats sweetened with sugar.

The main ingredients of biscuit are flour, sugar, butter, water, milk, baking powder and flavours.

Biscuits are salty or sweet. Some biscuits have cream in between.



Do You Know?

Biscuits are made with baking powder to make it airy.

3 Cake

Cake is a baked dessert. It is like a sweet bread. There are many varieties of cake with specific ingredients.



We use cake during celebrations. The common ingredients of cake are flour, sugar, eggs, oil, baking powder and flavouring agent.



Try to Answer

1. Bread is _____ (low / high) fat food.
2. Biscuits are made from _____ (wheat flour / rice flour).
3. _____ is associated with birthday celebrations (cake / biscuit).

Activity

Visit a bakery near you and learn about baking of bread, biscuit and cakes.

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IV. Gadgets



Think of the electronic devices we use everyday.

The phone that we use, the camera that comes with us on every vacation, the TV that we watch for fun, all these devices are called gadgets.

A gadget is a small electronic machine or device which does something useful. Number of gadgets have changed our lives. They make our life enjoyable.

Examples: Laptop

Phone

Camera

Pen drive

Speaker



Smart Phones

Apart from communication, smart phones have the ability to access the internet and store files, take photos, track location and much more.





Portable Music Player

It stores and plays thousands of songs.
We can listen to songs anywhere, anytime.

Tablets

People use tablets to read books, play games and watch videos.



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Pen Drive

It is a small gadget used for storing and transferring any type of file in / from a computer.



Electric Torch

It is a portable hand-held electric light. It is used to provide light in the dark places when it is switched on.

Try to Answer

Write the names of the given gadgets.
(Web cam, Remote, Speaker, Camera, Headphone)



_____ _____ _____ _____ _____

Evaluation

I Choose the correct answer.

1. Primary source of energy for the young ones of some animals is
   a) water b) fruits c) milk
2. Vitamin present in milk that helps us to maintain our bones is
   a) Vitamin-E b) Vitamin-C c) Vitamin-D
3. One of the ancient food items made by human is
   a) noodles b) cake c) bread
4. _____ is a raw food.
   a) Cucumber b) Chappatti c) Bread
5. A gadget that plays songs is called
   a) pen drive b) camera c) music player

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II Fill in the blanks.

1. Cheese and paneer are made from _____ .
2. Nutrients are made ready for digestion by _____ .

III Match the following.

1. Music player	-	Communicates with the world
2. Smart phone	-	Stores data
3. Electric torch	-	Plays games
4. Pen drive	-	Provides light
5. Tablet	-	Plays music

IV Answer in a sentence or two.

1. Name the food products derived from milk.
2. Write the names of any three baked foods.
3. In what ways a smart phone will help you?
4. What is food?

V Answer in detail.

1. Cooking removes harmful microbes. Write down other benefits of cooking.
2. Why should we drink milk?

VI Projects.

1. List the gadgets you have used.
2. Tabulate different kinds of milk products.

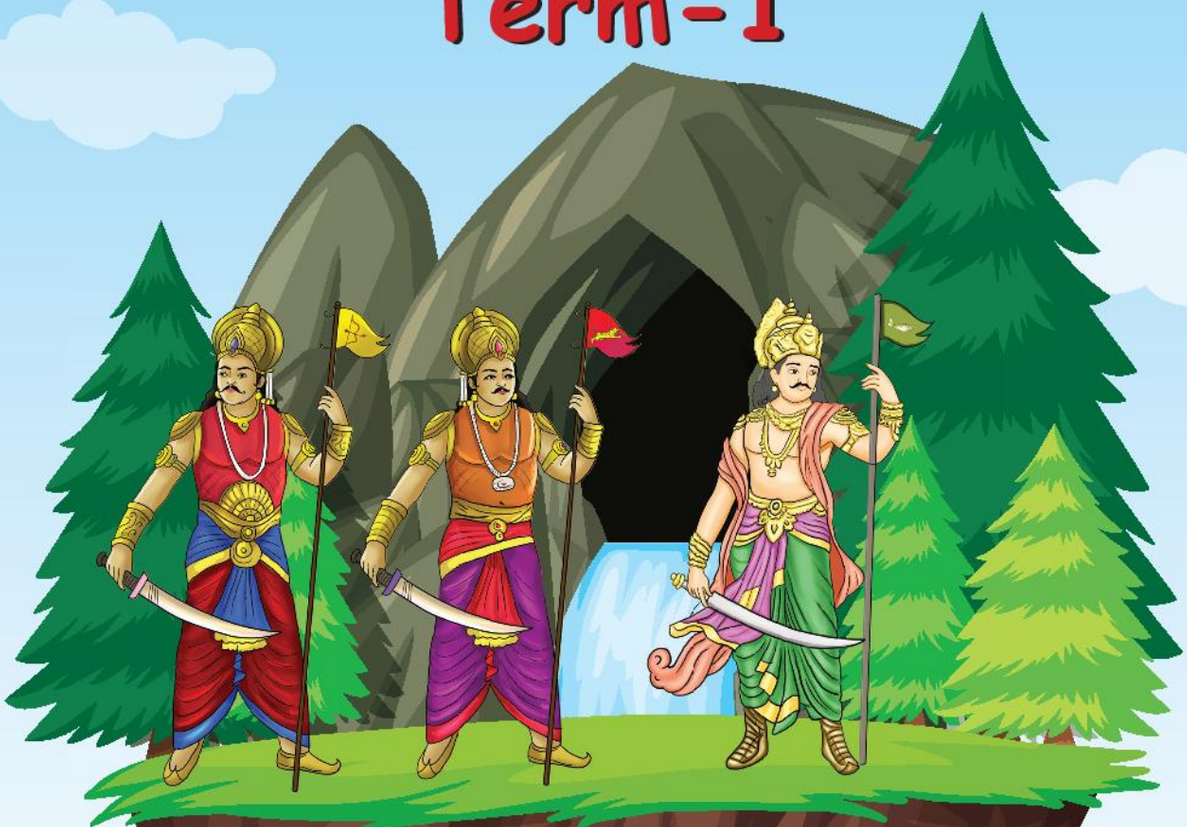
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4

Social Science

Term-1



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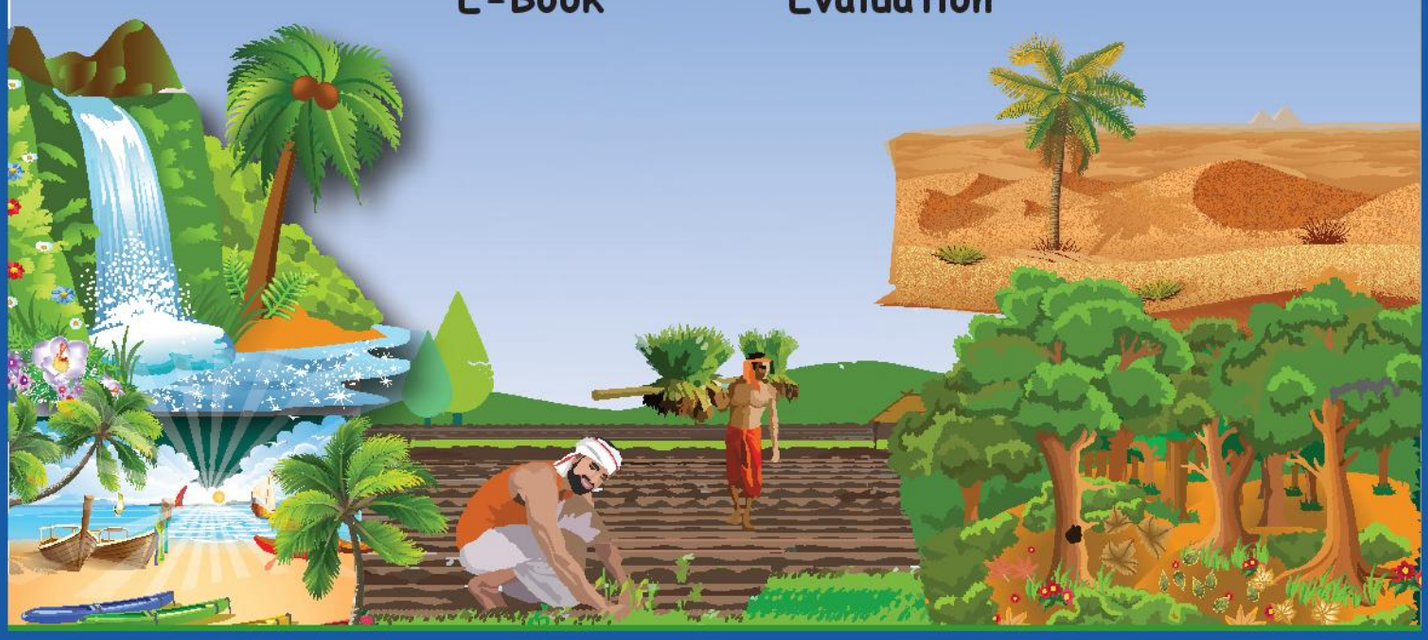
UNIT	TOPIC	PAGE NO	MONTH
1	Kingdoms of Rivers	125	June
2	Five Landforms	135	July
3	Municipality and Corporation	147	August

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Evaluation



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Unit 1 Kingdoms of Rivers





Learning Objectives

SNV23

- To know about Tamil Kingdoms of Sangam Age.
- To know about Chera, Chola and Pandyas.
- To understand the administrative, economic and social conditions during Sangam period.
- To know about Kurunila Mannargal.

"The owner of a Scepter without bent is the Chera king!
The wealth of Rice bowl of Thanjavur is the Chola King!
The Pearl of breath taking Muthamizh is the Pandya King!
The Chariot of cave temples is the Pallava King!
You are the gold of Tamil Nadu and Lions of Tamil Soil."

Introduction

In the ancient period, people settled and started living along the river banks.

They produced agricultural crops. They reared cattle in the pasture lands. In this way the kingdoms of early Chera, Chola, Pandya and other kingdoms emerged along the rivers.

Kingdoms		River Banks
Cheras	-	Poigai
Cholas	-	Cauvery
Pandyas	-	Vaigai
Pallavas	-	Palar

DUABP

Cheras

Cheras were the forerunners of the 'Moovendhargal' who ruled on the banks of river Poigai and their capital city was Vanji.

The Chera country comprised of the present western districts of Erode, Karur, Tirupur, Coimbatore and Nilgiris. Kerala was also a part of it. The Chera country was called Cheranadu.

The major part of the Cheranadu was surrounded by high mountains. The greatest rulers among the kings of Cheranadu were Imayavaramban Neduncheralathan and his son Senguttuvan.

The Chera King, Neduncheralathan conquered upto the Himalayas and hoisted the flag with the symbol of Bow and Arrow. Therefore he was hailed with the title "Imayavaramban Neduncheralathan".

The able ruler Cheran Senguttuvan, the son of Neduncheralathan erected the statue of Kannagi. This temple of Kannagi was built by the stones brought from the Himalayas after defeating king Kanaka Vijaya. It is also said that these stones were brought to Cheranadu on the heads of the captive soldiers.



Himalayas



Cheran Senguttuvan

This can be understood from the epic Silappathikaram written by Senguttuvan's brother Ilangovadigal. "Pathitrupathu" helps to know about the Chera kings during Sangam period.

Cheras :

1. River	-	Poigai	2. Capital	-	Vanji
3. Port	-	Thondi, Musiri	4. Symbol	-	Bow and Arrow

Try to answer

- Who were the greatest kings of early Cheras?
- Name the epic written by Ilangovadigal.

Cholas

The early Cholas kept Uraiyur as their capital located along the river Cauvery and ruled it. Uruthirangkannanar of Kadiyalur in his Pattinappalai describes that Cholanadu is famous for rice (Cholanadu Sorudaithu).

The Chola kingdom comprised the districts of Trichirapalli, Tanjavur, Pudukkottai, Nagapattinam, Tiruvarur, Mayiladuthurai, Perambalur, Ariyalur and Cuddalore.

The land of Cholas was fertile due to the river Cauvery. The kings ruled by providing justice to their subjects. The greatest ruler among the Cholas was Karikala Cholan who was also called 'Karikala Peruvalathan'.

Karikala Cholan took the responsibility of kingship at a very early age and ruled efficiently. It is said that, when he was very young, he was captured by his enemies and imprisoned. The room in which he was arrested was set on fire. In this fire accident, his feet burnt. Due to his charred leg, he was called as 'Karikalan'.

At a very young age he disguised as an old man and tactfully justified a case.

The Cheras and Pandyas together attacked Karikalan at Venni, Vahaipparanthalai. Finally Karikala Cholan defeated the two rulers there and was victorious. He built the dam Kallanai across the river Cauvery. The dam still stands strong, even after 2000 years of its construction.



Karikala Cholan

Cholas :

1. River - Cauvery
2. Capital - Uraiyur
3. Port - Kaveri poompattinam
4. Symbol - Tiger



Kallanai (Grand Anicut)



Let us Know

- Kallanai was constructed by the Chola king, Karikalan in the 2nd century B.C.(B.C.E.).This is said to be the world's oldest dam still in use. Stones and Lime mortar were used to construct it.



Try to answer

- Who was the greatest Chola king of the ancient period?
- Name the capital and port of the Cholas.

Pandyas

Pandyas established their rule on the bank of Vaigai with Madurai as their capital. The ancient Pandya country comprised of Madurai, Theni, Dindigul, Virudunagar, Tirunelveli, Tenkasi, Tuticorin, Sivagangai and Ramanathapuram districts.

Madurai remained as the most popular city of Sangam period. Pandya country was famous for pearls. Muthamizh sangams were held in madurai under the patronage of pandyas. The third Tamil Sangam was held in Madurai. Muthamizh flourished during

the reign of Pandyas. The most famous kings were Thalaiyalanganathu Seruvendra Pandya Nedunchezhian and Pandya Nedunchezhian of Silapathikaram.

When Pandya Nedunchezhian was a young boy, he fought a battle at Thalaiyalanganam against Chera, Chola and feudal lords (Kurunila Mannargal). He defeated the combined force. Therefore he got the title "Thalaiyalanganathu Seruvendra Pandya Nedunchezhian".



Madurai Meenakshi Amman Temple

Silappathikaram:

During the rule of Pandya Nedunchezhian, he happened to prosecute Kovalan for theft and gave death sentence. Kovalan's wife Kannagi advocated to prove her husband's innocence.

When the king realized the truth, he said "Yano Arasan, Yanae kalvan"... "Kedugaven ayul" and died by falling down from his throne. Immediately his wife Kopperundevi also sacrificed her life out of shock. The administrative system of the Pandyas was depicted by Mangudi Maruthanar of 'Madurai Kanchi'.



Silappathikaram

Pandyas:

1. River	-	Vaigai	2. Capital	-	Madurai
3. Port	-	Korkai	4. Symbol	-	Two fish

Try to answer

- Which Pandya mannan was mentioned in Silappathikaram?
- Who wrote 'Madurai Kanchi'?
- What is inscribed on the flag of Pandyas?

Let us Know

In ancient Madurai, there existed day time shops called Naalangadi and night time shops called Allangadi.



Ancient Tamil Kingdoms (Moovendhargal)

Fill in the blanks.

Kingdom	Capital	Port	Symbol	Famous King
Cheras	Vanji		Bow and Arrow	
Cholas		Kaveripoompattinam		Karikala Cholan
Pandyas	Madurai		Two fish	



List out the territories of the Moovendhargal in the present districts of Tamil Nadu.

Cheras : _____

Cholas : _____

Pandyas : _____

Pallavas

The early Pallavas ruled on the banks of river Palar with Kancheepuram as their capital. The regions ruled by them was called Thondaimandalam. It is located in the North Eastern part of Tamil Nadu.

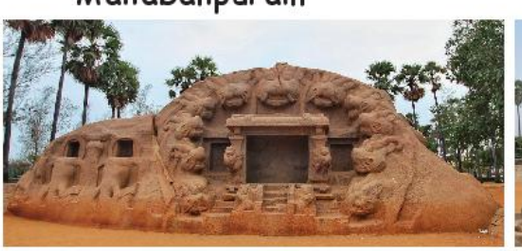
The kingdom of early Pallavas was founded by Sivaskanthavarma Pallavan. He integrated Thondaimandalam and ruled over there. The greatest kings among the early Pallavas were Sivaskanthavarman and Vishnugopan.

The later Pallava period was started from the reign of Simhavishnu. The greatest kings of this period were Mahendravarman and Narasimhavarman. The greatest achievements of the Pallavas were Cave temples and Monolithic rathas.

Mahabalipuram



Varaha cave temple



Tiger cave



Pancha rathas (Monolithic)

Pallavas:

1. River - Palar
2. Capital - Kancheepuram
3. Port - Mahabalipuram
4. Symbol - Nandi



Narasimhavarman, son of Mahendravarman was one of the greatest Pallava kings. He was popularly known as "Mamallan". In order to commemorate his courage, a historic harbour city, "Mamallapuram", otherwise known as Mahabalipuram was founded

Try to answer

- Which was the capital of Pallavas?
- Where is Thondaimandalam in Tamil Nadu?

Feudal Lords (Kurunila Mannargal)

Apart from the Mooventhargal several Feudal lords or Kurunila mannargal also ruled over smaller lands. The most important among them were Pehan, Pari, Nedumudi kari, Aai, Athiyaman, Nalli and Valvil Ori.



Pehan



Pari



Nedumudi kari



Athiyaman



Valvil Ori

These kings were known for their generosity. Therefore they were popularly called as "Kadai ezhu vallalgal".

Try to answer

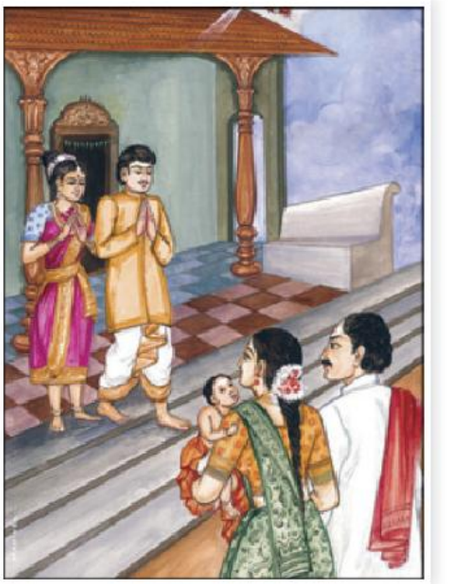
- Who offered gooseberry to the poet Avvai?
- Who put his shawl around the peacock?

Administrative System of Sangam Age

Arasan was specially called as Ko, Kon, Venthan, Kotravan, Irai by his people. Each dynasty had their own flag, symbol, scepter, sword, drum and venkotrakudai.

The kings were not only efficient warriors but they were scholars too. Kingship became hereditary. The first son became the ruler. The kings greatly cared for the people of their country.

Hospitality (Virunthombal)



Hospitality occupied a significant place in Sangam period. Even though it is Amritam (Nectar) it was considered to be a sin, if the guest is kept outside home.

Kakkai Padiniyar, a poet got the name for praising a crow for informing the arrival of a guest. Purananuru describes hospitality as one of the important duties of the Tamils.

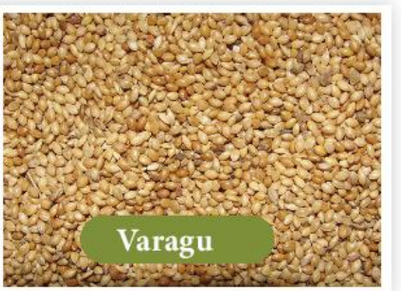
Economic Conditions



Various arts and crafts flourished during the Sangam Age. People lived happily due to the development in economy.











Paddy and Sugarcane were the most important crops cultivated. Besides these Varagu (Millets), Thinai (Millets) and Samai were also cultivated.

From the below, poet Avvai tries to convey that the prosperity of the king lies in the development of agriculture.

"Varappu uyara neer uyarum,
Neer uyara nel uyarum,
Nel uyara kudi uyarum,
Kudi uyara kol uyarum,
Kol uyara kon uyarvan"

"வரப்புயர நீர் உயரும்,
நீர் உயர நெல் உயரும்,
நெல் உயர குடி உயரும்,
குடி உயர கோல் உயரும்,
கோல் உயர கோன் உயர்வான்"

- Avvaiyar



Let us Know

Poet Avvaiyar always blessed by saying "Varappuyara"...
This signifies the importance of agriculture in the Sangam period.

Conditions of Women

Women were respected in the society. Monogamy was prevalent. Women were equal to men in bravery. It is said in 'Puranaanuru' that in the first day of battle a woman lost her father, the second day she lost her husband. In spite of these heavy loses, the third day she prepared and sent her son to the battle-field.

It is also said, a woman in the Sangam Age drove away a ferocious tiger with Muram (Winnow) in her hand.

Festivals

People of Sangam Age celebrated various festivals. Karthikai, Thiruvathirai and Harvest festivals were the most celebrated ones.

Uruthirankannanar of 'Pattinappalai' said that the most popular festival of Indira Vizha was celebrated in Puhar.



Harvest festival



Try to answer

List out the festivals of Tamil people at present.

Glossary		
Sangam Age	-	the period of history of ancient Tamil Nadu.
Disguised	-	to change the appearance.
Tactful	-	careful not to say or do anything that could upset someone.
Prosecute	-	to charge someone with a crime and try to show that they are guilty of it in a court of law.

Depict	-	to represent or show something in a picture or story.
Reign	-	the period of rule of king or queen of a country.



Evaluation

I. Choose the correct answer.

1. Cheras, Cholas and Pandyas were called _____.
   a. Nayanmars b. Moovendhargal c. Kuru nila mannargal
2. The efficient king among the Cheras was _____.
   a. Karikalan b. Valvil Ori c. Cheran Senguttuvan
3. Port of Cholas was _____.
   a. Kaveri poompattinam b. Chennai c. Thondi
4. The flag of Pandyas was _____.
   a. Peacock b. Fish c. Tiger
5. The Vallal (Feudal lord) who gave his chariot to Mullai was _____.
   a. Pari b. Pehan c. Adhiyaman

II. Match the following.

1. Cheras - Vaigai
2. Cholas - Palar
3. Pandyas - Poigai
4. Pallavas - Cauvery

III. Answer in short.

1. Who were the greatest kings among the Cheras?
2. Who were Kadai ezhu vallalgal?
3. Tell about the achievements of Karikalan.
4. Which was the capital and coastal town of Pallavas?

IV. Who Said?

1. 'Yano Arasan, Yanae kalvan'.

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Unit 2 Five Landforms



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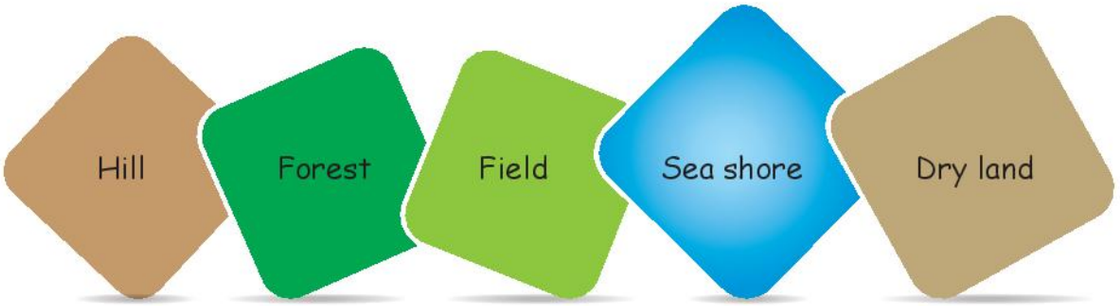
- To know about different types of landforms in ancient Tamil Nadu.
- To know about the themes of classification of landforms.
- To understand the life style of people in different landforms of Tamil Nadu.

Introduction

- What is the name of your native place?
- In which district is your native place situated?
- What do you see around your house?

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We see fields, houses, trees, stones and dry lands around our house. We see more features like these on our Earth.



1. Where would you see more hills on the Earth? Mountains
2. Where would you see wild animals with more trees? Forest
3. Where does the paddy grow? Agricultural land
4. Where would you see the Sea shore? Sea, Beach
5. What is the name of useless lands? Fallow land

The places we see on the surface of the Earth is called landforms.

Now let us see how the land was divided into different types in ancient Tamil Nadu according to its fertility and people's activities.

Physical Features & Landforms of Tamil Nadu

In the Solar family, Earth is the third planet. It has oxygen and temperature to live. Therefore we call the Earth as Biosphere.

The Earth is surrounded by three spheres such as land, water and air.



Earth



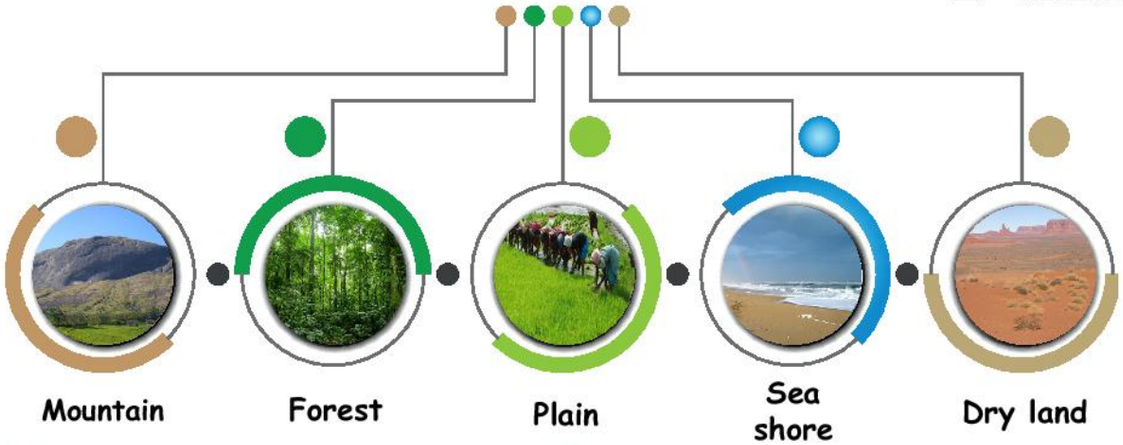
Five elements of Nature

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Land

Physical Features of Landforms

K18RA



Landforms of Tamil Nadu

- The five types of landforms in Sangam Age were divided on the basis of the work done by the people.
- Out of the five thinais, only four types were permanent. They were Kurinji, Mullai, Marutham and Neithal. The fifth land Palai was formed when Kurinji and Mullai dried up.

I. Mountains (Kurinji Land)

A mountain is a large geographical area that rises above the surrounding land with peaks.

The mountain and its surroundings are known as Kurinji land.



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1. The Theme

The Theme (Karupporul) deals with the god, people, occupation, plant, flower, animal, bird and musical instrument.

God	Murugan
People	Kuravar, Kurathiyar
Occupation	Hunting, Gathering Roots and Honey
Plant /Flower	Bamboo, Vengai/ Kurinji flower
Animal/Bird	Monkey, Deer/ Peacock, Parrot
Musical Instrument	Kurinji yazh

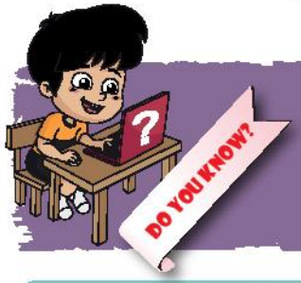


2. The People and their Occupations

- ❖ Poruppan – Soldier
- ❖ Verpan – Leader of the tribe, Weaponists
- ❖ Silamban – Master of martial arts (The arts of fighting) .
- ❖ Kuravar – Hunter and the Gatherer.
- ❖ Kanavar – People of the mountainous forest.

3. The Soil of Kurinji Land

- ❖ The land of Kurinji was composed of red and black soils with stones and pebbles.



Some important hills of Tamil Nadu

Kolli hills, Shervarayan hills, Kalrayan hills, Nilgiris hills, Javad hills, Yelagiri malai

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Miraculous Flower-Kurinji

The miraculous Kurinji plant grows well in the Western Ghats and the flower blooms once in twelve years between the months of July and September. This flower has medicinal value.



II. Forest (Mullai Land)

A large area covered by trees is called forest.

The forest region is referred as Mullai land. This region is also called 'Sembulam' due to the presence of red soil.



1. The Theme

God	Thirumal
People	Idaiyar, Idaichiyar, Aayar, Aaichiyar
Occupation	Cattle rearing, Gathering fruits, Sowing Millets
Plant / Flower	Guava/ Mullai flower
Animal/Bird	Bear, Rabbit/ Parrot
Musical Instrument	Mullai yazh

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2. The People and their Occupations

- ❖ Idaiyar - Milk seller
- ❖ Aayar - Cattle rearer

3. The Soil of Mullai land

- ❖ The land of Mullai has red soil with stones and pebbles.

Forests in Tamil Nadu

1. Mangrove forests	-	Pichavaram in Cuddalore district
2. Mountain forests	-	Nilgiris district
3. Reserve forests	-	Kanyakumari district
4. Shola forests	-	Coimbatore and Nilgiris districts



Let us Know

Manufactured Products	Trees used to Produce
Paper	Bamboo, Thaila, Kudaivel
Safety match sticks	Ayilai, Mul Ilavu
Fragrance oil	Sandal tree
Balm, Soap	Illupai, Neem, Pungam,

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Pichavaram Forest

Pichavaram is a village near Chidambaram in Cuddalore district of Tamil Nadu, which is the second biggest mangrove forest (Tidal forest) in India. It comprises of small vegetation, aquatic animals etc. with moist temperature.



III. Field (Marutham Land)

The vast flat land on the Earth is called plain. The crop fields and their surroundings were known as Marutham. (The agricultural land and the area around it).



1. The Theme

God	Indiran
People	Uzhavar, Uzaththiyar
Occupation	Farming
Plant/Flower	Kanchi, Marutham / Lotus, Kuvalai
Animal/Bird	Buffalo / Crane
Musical Instrument	Marutha yazh

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2. The People and their Occupations

- Uran - Small Landlord
- Uzhavan - Farm worker
- Kadaiyar - Merchant

3. The Soil of Marutham land

- The land of Marutham is formed of alluvial soil and red soil.

Amazing fact.

Kallanai is an ancient dam which is built across the Cauvery river in Thanjavur district in Tamil Nadu. Its length is 1,080 ft, width 66 ft and height 18 ft. It is the fourth oldest water diversion system for irrigation in the world.



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IV. Sea / Sea shore (Neithal Land)

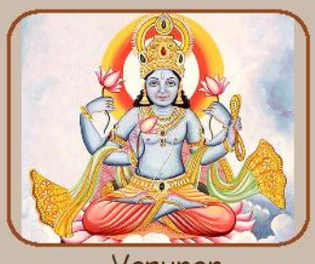
The salty water body that covers a large part of the surface of the Earth is called sea.

The Sea and the area around the sea is called 'Neithal'.



1. The Theme

God	Varunan (Rain god)
People	Parathavar (Fisher man)
Occupation	Fishing
Plant / Flower	Punnai/ Senganthal
Animal/Bird	Fish/ Sea gull
Musical Instrument	Vilari yazh


Varunan


Fishing


Senganthal


Punnai


Fish


Sea gull

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2. The People and their Occupations

- ❖ Serppan - Seafood vendor and trader.
- ❖ Pulamban - Who thrive on coconut.
- ❖ Parathavar - Sea warrior, Merchant.
- ❖ Nulaiyar - People who thrived on fish culture.
- ❖ Alavar - Salt cultivator.

3. The Soil of Neithal land

- ❖ The land of Neithal is made of saline soil.

Known Place, Unknown Fact

Marina beach is a natural urban beach in Chennai, Tamil Nadu . It is the second longest beach in the world. The beach is situated in the eastern side of India along Bay of Bengal. The beach runs from Fort St. George in the north to Foreshore Estate in the south, The total distance of beach is 13 km. (The first longest beach is Miyami beach, which is situated at Florida, America.)



V. Dry Land (Palai Land)

A dry region with less or without rainfall is called a dry land.

The sandy land, which under-goes drought is called Palai. When Kurinji and Mullai dries up, it is called Palai.



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1. The Theme

God	Kottravai (Mother Goddess)
People	Eyinar, Eyitriar
Occupation	Cattle lifting
Plant / Flower	Uzhinghai, Palai/ Cactus, Iluppai
Animal/Bird	Tiger, Elephant/Eagle
Musical Instrument	Palai yazh

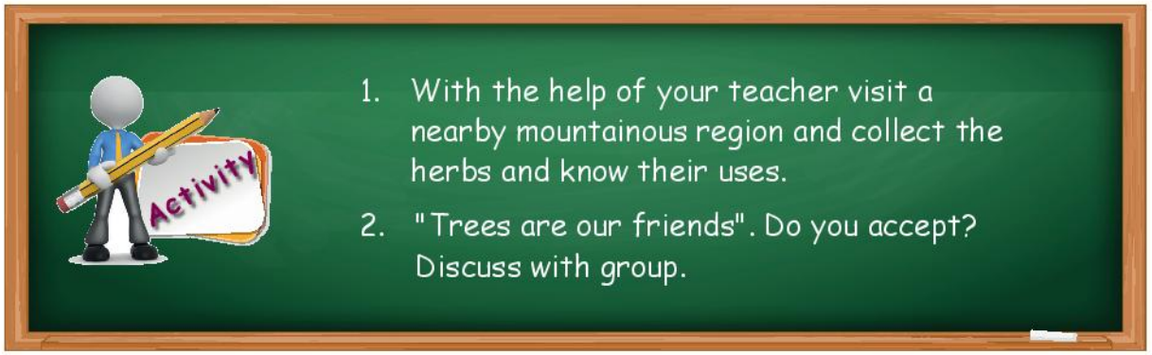


2. The People and their Occupations

- Maravar - Noble warrior, Hunter.
- Eyinar - Warrior.

3. The Soil of Palai land

- The land of Palai is sandy and saline.



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Glossary		
Planet	-	large natural objects that orbit, or travel around, the Sun.
Occupation	-	a person's job.
Reserved forest	-	forests that have been accorded a certain degree of protection.
Fragrance	-	a pleasant smell.



Evaluation

H09UV

I. List out.

1. Write the names of the mountains and the places, where they are located in your district.

S. No.	Mountains	Places
1.		
2.		

2. Write the name of the trees around your school.

S. No.	Name of the trees
1.	
2.	

II. Fill in the blanks.

1. The vast flat land on the Earth is called _____.
2. _____ is the fourth oldest water diversion system for irrigation in the world.
3. _____ forest is located in Kanyakumari district.
4. The agricultural land and the area around is called _____.
5. _____ is the biggest mangrove forest in India.
6. Marina beach is located in _____.

III. Match the following.

a)

1. Murugan - Mullai
2. Thirumal - Palai
3. Indiran - Kurinji
4. Varunan - Marutham
5. Kottravai - Neithal

b)

1. God - Root gathering
2. Flower - Kuravar, Kurathiyar
3. People - Kurinji flower
4. Occupation - Murugan

IV. Answer in short.

1. Name the people of five thinais.
2. List four themes of Mullai land.
3. What do you know about Sembulam?
4. How the Palai (dry land) region is formed?
5. What are the themes of Palai?

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Unit 3 Municipality and Corporation



U0BDC

Learning Objectives

- To know about Municipalities and their duties.
- To understand the structure of local bodies.
- To know about the functions of Corporation and Town panchayat.
- To know about the sources of income for Municipality and Corporation.

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Mugilan went to his uncle's house during summer vacation. One day he was playing in a park. At that time he heard the Municipality employees announcing that the people to pay taxes for house and others. Mugilan ran to his uncle.



Uncle

Why are you running? What happened?





Mugilan

Uncle! What is Municipality? Why should we pay taxes?

Uncle

Mugila! Municipality is a form of local government in a small town where 50,000 to 1,00,000 people live. This is divided into several wards. Our house is in the tenth ward. In our locality there are totally 30 wards.





Mugilan

Who is the head of the Municipality?



Employees of Municipalities.



Municipal Office

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Uncle



The head of the municipality is called the Chairman. The head and the members of the Municipalities are elected by the people directly. The tenure of the members is five years. One of the members of the municipality is selected as Vice-Chairman.



Mugilan

Uncle! What are the duties of Municipality?

Uncle





- Providing street lamps.
- Constructing library and its maintenance.
- Maintaining local market (Santhai).
- Providing drinking water facilities.
- Constructing roads.
- Removing garbage dumps.





Mugilan

What is the source of income for the work done by Municipality?

Uncle



Central government and State government provide the money. People also pay in the form of house tax, professional tax, drinking water tax, shop tax, road tax and drainage tax. It also forms the income of Municipality.

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Let us Know



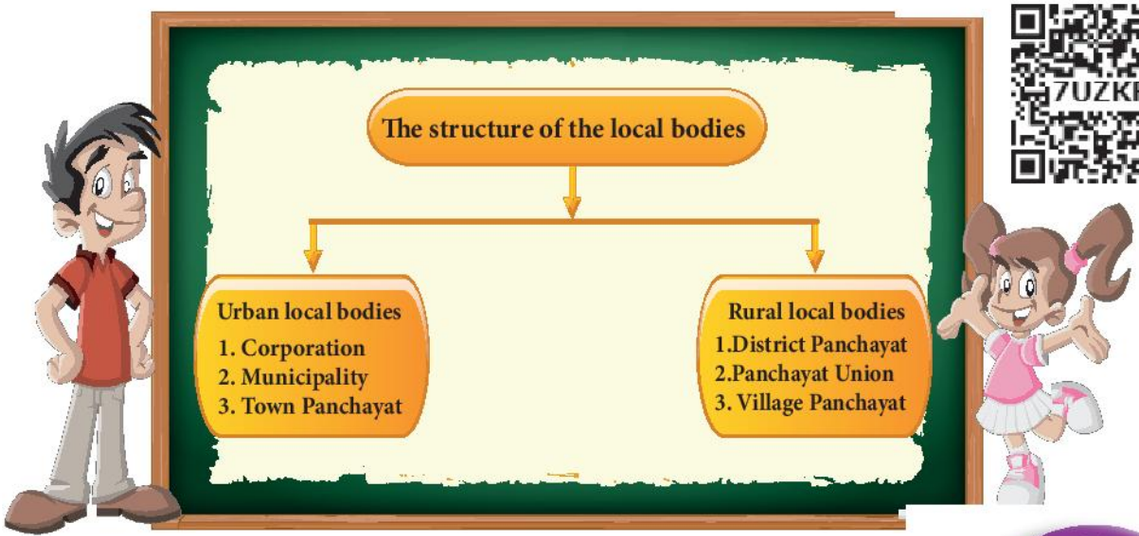
The father of local bodies – Lord Rippon

Uncle



The following also comes under Municipalities.

- Townships – e.g. Neyveli
- Cantonment Boards - e.g. parangimalai, Cunnur.
- Notified area committee.



Uncle



For example, we call Chennai, Trichy, Kovai, Madurai and Salem as Corporations.

Let us Know

- The 'Balwant Rai Mehta Committee' recommended a three tier Panchayat Raj system in 1957.
- The 'Ashok Mehta Committee' recommended a two tier Panchayat Raj system in 1978.

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Mugilan

What is Corporation?

Uncle

Certain Municipalities will be declared by the Government of Tamil Nadu as Corporation based on high population and high revenue.





Mugilan

Uncle! How many Corporations are there in Tamil Nadu?

Uncle

In Tamil Nadu, 21 Corporations have been established. The oldest Corporation is Chennai.





Nature of work in Corporation



Chennai Corporation (Rippon Building)



Mugilan

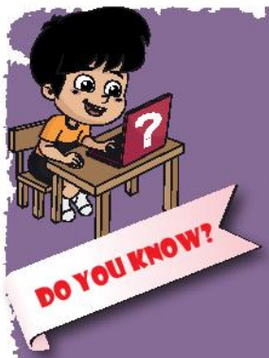
Uncle! How are the head and the members of corporation elected?

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Uncle

The head and the members of Corporation are elected by the people directly. The chairperson of the corporation is called 'Mayor'. He is also called as 'the father of the Corporation'. The Tenure of the members of the Corporation is 5 years. The Indian administrative service officers and similar rank holders are appointed by the government to the Corporation. Most of the Urban areas have Corporation.



Municipal Corporations

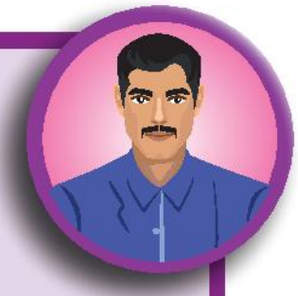
1. Chennai
2. Madurai
3. Coimbatore
4. Trichirappalli
5. Salem
6. Tirunelveli
7. Tiruppur
8. Erode
9. Vellore
10. Tuticorin
11. Tanjore
12. Dindigul
13. Hosur
14. Nagercoil
15. Avadi
16. Tambaram
17. Kanchipuram
18. Karur
19. Kumbakonam
20. Cuddalore
21. Sivakasi



Mugilan

What are the duties of Corporation?





Uncle

- Constructing and maintaining the city roads.
- Providing drinking water facilities.
- Disposing garbage.
- Constructing libraries and maintaining them.
- Creating parks and maintaining them.
- Maintaining of birth and death records.

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Mugilan

What is the source of income to the Corporation?

Uncle



The amount collected from Professional tax, Wealth tax, Entertainment tax, Custom duties and Road tax are the sources of income to the Corporation.



Mugilan

What else are there besides Municipality and Corporation?

Uncle



Apart from the Corporation and the Municipality Town Panchayat also exist. The head and the ward members are elected by the people directly. The tenure of the President and other members is 5 years. Panchayat is governed by the executive officer. Town panchayat functions in places where the population exceeds 5000 people.

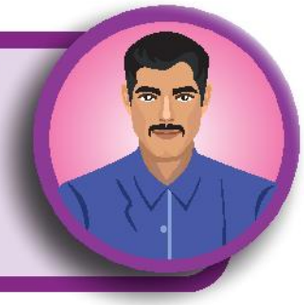


Mugilan Uncle, I came to know the administration of Municipality and Corporation very well.

Thank you very much.

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Uncle



Good !

Come, let us wash our hands and have lunch.



1. Find out the activities held in the parks and libraries of your ward and share the information in your class.
2. Visit your nearby Corporation with the help of your teacher and examine the Council Assembly.
3. What are the taxes paid by your parents?

Glossary		
Government	-	the political system by which a country or a community is administered and regulated.
Tax	-	to pay a part of their income or profits to the government.
Revenue	-	fees earned from providing services.
Population	-	all the people who live in a area.
Administration	-	the arrangements and tasks needed to control the operation of a plan or an organization.
Professional tax	-	a tax that is levied by a state government on all individuals who earn a living through any medium.

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AR9WK



Evaluation

I.Fill in the blanks.

1. The oldest Corporation of Tamil Nadu is _____.
2. The father of local self government is _____.
3. The 'Balwant Rai Mehta Committee' recommended a three tier Panchayat Raj system in the year _____.
4. The Tenure of Municipality is _____ years.

II. Match the following.

1. Rural local body	-	Population exceeds 5000 people.
2. Rippon building	-	Township
3. Neyveli	-	Grama panchayat
4. Town panchayat	-	Corporation
5. Mayor	-	Lord Rippon

III. Fill in the box.

S. No.		Municipality	Corporation
1	Head	Chairman	
2	Number		21
3	Tenure		
4	Officer	Commissioner	
5	Revenue		Professional tax

IV. Answer in brief.

1. What are the duties of Corporation ?
2. Write the structure of the local bodies ?
3. How is the Chairman of Municipality elected ?
4. What is the total number of Corporations in Tamil Nadu ?
5. What are the sources of income of Municipality ?

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Class IV - Mathematics, Science and Social Science (Term I, Volume 2)
List of Authors and Reviewers

Academic Advisor
Dr. P. Kumar
Joint Director (Syllabus),
SCERT, Chennai.

Academic Co-ordinator
Dr. K.S. Mozhiyarasi
Principal, DIET,
Keelapalur, Ariyalur

Subject Co-ordinator
Maths
K.Revathi
Lecturer, DIET Perambalur
Science
T. Ashok
PG Asst., G.B.H.S.School,
Ponneri, Thiruvallur.
Social Science
S. Vijayalakshmi
B.T. Asst., G.H.S.School,
Kuvathur, Kancheepuram.

Layout Design and Illustration Team
Rajesh Thangappan
John Smith
Santhiyavu Stephen,Yogesh,
C. Prasanth,
Pakkirisamy Annadurai

Udhaya Info
Chromepet, Chennai

In-House QC
Kamatchi Balan Arumugam
Arun Kamaraj Palanisamy
Jerald Wilson

Wrapper Design
Kathir Arumugam

Coordination
Ramesh Munisamy

Mathematics
Reviewers
Dr. Ramanujam
Professor,
Institute of Mathematical Science, Tharamani,
Chennai.

R. Krithika,
Research Centre,
Azim Premji University,
Bangalore
Authors
Kalpana
B.T. Assistant, PUMS,
Alambakkam,
Pullambadi Union,
Tiruchirappalli.

S .Ravi
B.T. Assistant, PUMS,
Azhagiyamanavalam
Mannachanallur
Tiruchirappalli.

M. Sankar Ganesh
Secondary Grade Teacher,
PUMS, Aloor, Tirukkoilur Block, Villupuram.

I. Mahalakshmi
Headmistress, PUPS
Sembiyakudi, Thirumanur Block, Ariyalur.

P. Malarvizhi
BT Asst., P.U.M.School,
Padiyanallur Thiruvallur.

Science
Reviewers
Angeline Ruby
Asst. Professor, SCERT,
Chennai.

Dr. K. Chinthanaiyalan
B.T. Asst., GHS,
Periyar nager,
Nandambakkam,
Kanchipuram.
Authors
Srivathsan Ramasamy
Madhi Foundation,
Chennai.

J. Parthiban
Lecturer, DIET,
Keelapazhuvur, Ariyalur.

N. Gopi
BRTE, Nemili Block,
Vellore.

P. Vasanthakumar,
BT Asst, G.H.School,
Othaipulikudiyiruppu,
Pudukottai.

K. Selvamanigandan,
SGT, PUMS, Karukkai,
Cuddalore.

N. Akila
BT Asst., PUMS,
Adikudikadu, Ariyalur.

S. Indira
BT Asst., PUMS,
Munion Kurichi, Ariyalur.

K. Anandhan
BT Asst., PUMS,
Chozhamadevi, Ariyalur.

M. Mariyanesan
SGT, PUPS,
Thennavarayanpattu,
Villupuram.

V. Kamatchi
Head Master, PUPS,
Kandamangalam,
Villupuram.

Social Science
Reviewers
K.Velu
BT Asst, G. G. H.S.School
Thalaivasal, Salem.

S. Gomathi Manickam
BT Asst, GHSSchool,
Old Perungalathur,
Kancheepuram.

Srivathsan Ramasamy
Madhi Foundation,
Chennai.
Authors
A. Chinnappan
BT Asst, GHS, Peelvaadi,
Perambalur.

M. Varathan
BT Asst, GHS, Nannai,
Perambalur.

K. Selvakumar
BRTE, Sendurai,
Ariyalur.

S. Abirami, SGT,
P.U.M.School,
T palur, Ariyalur.

EMIS Technology Team
R.M. Satheesh
State Coordinator Technical,
TN EMIS, Samagra Shiksha.

K.P. Sathya Narayana
IT Consultant,
TN EMIS, Samagra Shikaha

R. Arun Maruthi Selvan
Technical Project Consultant,
TN EMIS, Samagra Shiksha

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