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LESSON PLAN

**Teaching of
Mathematics**



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LESSON PLAN : 1
Subject : Mathematics
Topic : Square Root

Date :

Class : 7C
 Period : Seventh
 Time : 30 min

13.	Solving Questions Pertaining to Simultaneous Equation	7D	37
14.	Work and Time	9A	40
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Teaching Point	Teaching Aim	Teacher's Actions	Students' Activity	Methods, Sub-methods and Aids	Evaluation
		Introduction : Q1 : What is the meaning of 5^2 ? Q2 : What is that number which is 4, multiplied by itself will give the product 16? Q3 : What is the meaning of 4×4 ? Q4 : What is the relation of 16 and 4? Q5 : What is the meaning of 4, 16? Q6 : How is it known?	Ans : The meaning of 5^2 is 5×5 . Ans : That number which is 4, multiplied by itself will $4 \times 4 = 16$ Ans : It is called 4^2 or square of 4. Ans : 16 is the square of 4. Ans : 4 is the square root of 16. Ans : The students remain answerless.	Q-ans Q-ans Q-ans Q-ans Q-ans	
		Statement of Aim : Today we shall solve the questions of square root.			
		Presentation : Q1 : Which symbol is used to show square root?	Ans : The students remain answerless.		
To analyse the question. To square calculate.	The students recognise square root.	Clarification : Square root is shown by the symbol $\sqrt{\quad}$. Its meaning is multiple $\frac{1}{2}$ of a number. Q1 : Tell the factors of 81.	Ans : $3 \times 3 \times 3 \times 3 = 3^4$	Q-ans 1. 2 2. 3	Q : The square root of 16 will be

2		Q2 : Tell 3^2 in the form of 2 powers? Q3 : Tell the square root of 81?	Ans : $3^2 \times 3^2$ Ans : The students remain answerless.	Q-ans 3, 4, 6	
		Clarification : Out of $3^2 \times 3^2$, only 3^2 is called the square root of 81. It means that to get square root, the number of powers are reduced to half. This square root has been got by the method of factors.			
		Q1 : How much will be the square root of 81 by division method? Q2 : How was it arrived at by division method?	Ans : 9. Ans : The students remain answerless.	Q-ans	
		Clarification : Q1 : How many pairs can be formed in 81 starting from the unit side? Q2 : Which two numbers are equal to find the product 81?	Ans : There will be one pair. Ans : That number is 9.	Q-ans	
		9 $\begin{array}{r} 9 \\ 9 \end{array} \overline{) 81}$ x			
To calculate square root.	The students calculate square root.	Q3 : Calculate the square root of 2025.	Ans : The students remain answerless.	Q-ans	
		Clarification : $\begin{array}{r} 45 \\ 4 \end{array} \overline{) 2025}$ 16 $\begin{array}{r} 85 \\ 85 \end{array} \overline{) 425}$ 425			

		The square root of 2025 is 45.		
		Synthesis Solution :		
		$\begin{array}{r} 45 \\ 4 \end{array} \overline{) 2025}$ 16 $\begin{array}{r} 85 \\ 85 \end{array} \overline{) 425}$ 425		
		The square root of 2025 is 45.		
	Blackboard Summary :	Homework :		
	Q1 : Tell the value of $\sqrt{2025}$.	Q1 : The number of rows in a field are equal to the number of cauliflower plant in each row. If there are a total of 9025 cauliflower plants in the field, tell the number of rows.		
	$\begin{array}{r} 45 \\ 4 \end{array} \overline{) 2025}$ 16 $\begin{array}{r} 85 \\ 85 \end{array} \overline{) 425}$ 425			
	The square root of 2025 is 45.			

LESSON PLAN : 2

Subject : Mathematics

Topic : Area

Date :

Class : 7A

Period : Seventh

Time : 30 min.

Teaching Point	Teaching Aim	Teacher's Activity	Students' Activity	Methods, Sub-methods, Aids	Evaluation
		Introduction :			
		Q1 : What shape is it?	Ans : Rectangle.		
		Q2 : What shape is it?	Ans : Square.		

4		Q3 : Which will be the length of the rectangle? Q4 : Which is the breadth of the rectangle? Q5 : What is a square? Q6 : The length of a field is 50 m and breadth 25 m. What is its perimeter and area? Q7 : What is the length of the field? Q8 : What is the breadth of the field? Q9 : How much distance will one have to cover to go round the field? Q10 : How was it arrived at? Q11 : Tell the formula of perimeter. Q12 : What is the land of the field called?	Ans : The longer side will be the length. Ans : The shorter side will be the width. Ans : The four sides of a square are equal. Ans : The length is 50 m. Ans : The breadth is 25 m. Ans : $50 + 25 + 50 + 25 = 150$ m Ans : By adding upon the four sides. Ans : Perimeter = $2 \times (\text{length} + \text{breadth})$ Ans : Area	Pointing to the figure 	
		Statement of Aim : Today we shall solve the question of area.			
		Presentation : Q1 : What is the formula of area?	Ans : The students remain answerless.	Q-ans	
		Clarification : Area of a rectangle = length $\times$ breadth square unit Area of a square = (side) ² square unit Q1 : The length of a road is 15 km and its width is 45 m. If the cost of its earth-filling is Rs. 1.50 per square			
	Formula of area of a rectangle Analyse the question.	The students calculate the formula of area.			

	The students find out length, breadth and area of the rectangle.	metre, what will be the total cost of the earth-filling? Q2 : What is the length of the road? Q3 : 15 km is equal to how many meters? Q4 : What is the breadth of the road? Q5 : Will be the area of the road? Q6 : What is the cost of earth-filling for one square metre? Q7 : What will be the cost of earth-filling 67500 square metres.	Ans : The length of the road = 15 km. Ans : 15000 m Ans : The width of the road is 4.5 m Ans : Area = length $\times$ breadth = $15000 \times 4.5 = 67500$ sq m. Ans : Rs. 1.50 Ans : Cost = $67500 \times 1.50 = \text{Rs. } 101250.00$	Q-ans Q-ans Q-ans Q-ans Q-ans Q-ans	Q : The length of a field is 25 m and breadth 20 m. What is its area?
		Synthesis Solution : Length of the road = 15 km 1 km = 1000 m Length of the road = $15 \times 1000 = 15,000$ m Breadth of the road = 4.5 m Area of the road = length $\times$ breadth = $15000 \times 4.5 = 67500$ sq m. = $67500 \times 1.5 = \text{Rs. } 1012050.00$		Synthesis Solution	Q : How many rows 5 m long and 4 m wide can be made in the field?
		Blackboard Summary : Length of the road = 15 km = 15000 m. Breadth of the road = 4.5 m Area of the road = length $\times$ breadth = $15000 \times 4.5 = 67500$ sq m. The cost of earth-filling on the road = $67500 \times 1.50 = \text{Rs. } 1012050.00$	Homework : The length of a room is 6.5 m and breadth 4.2 m. There is needed to spread a mat 1.3 m wide in the room. What will be the cost of the mat if it is Rs. 1.50 per m?		

LESSON PLAN : 3
Subject : Mathematics
Topic : Area of a Circle

Date :

Class : 7A
Period : 7
Time : 30 min.

Teaching Point	Teaching Aim	Teacher's Activity	Students' Activity	Methods, Sub-methods, Aids	Evaluation
		Introduction :			
		Q1 : (Pointing toward the figure) What is this?	Ans : Figure of a circle.		
		Q2 : If a cow is tied to a peg with a rope, in what form will it graze grass?	Ans : In circular form.		
		Q3 : What will be the centre of a circle?	Ans : Peg.		
		Q4 : How long will the radius be?	Ans : Equal to the rope.	Q-ans	
		Q5 : What is the part grazed by the cow called?	Ans : Area.	Q-ans	
		Q6 : How is area found out?	Ans : The students remain answerless.	Q-ans	
		Statement of Aim :			
		Today we shall solve the questions of area of a circle.			
		Presentation :			
Analysis of the question	Calculation of formula of area of a circle. The students recognise radius of the circle and find out its area.	Q1 : What is area of a circle?	Ans : The students remain answerless.		

Lesson Plan

		Clarification :			
		Area of a circle = π (radius) ² sq unit Radius = $\frac{\text{diameter}}{2}$			
		Q1 : The diameter of a well is 14 cm. There is a 7 cm wide edge round it. Find out the area of the edge.			
		Q2 : What is the diameter of the well?	Ans : 14 cm.		
		Q3 : What will be the radius of the well?	Ans : $\frac{14}{2} = 7$ cm.		
		Q4 : What is the width of the edge?	Ans : 7 cm.		
		Q5 : What is the diameter including the edge of the well?	Ans : The students remain answerless.		
		Clarification :			
		Diameter including the edge = 14 cm + 7 cm + 7 cm = 14 + 14 = 28 cm			
		Q1 : What will be the radius of the well including the edge?	Ans : 14 cm.	Q-ans	
		Q2 : What will be the area of the edge?	Ans : The students remain answerless.	Q-ans	
		Clarification :			
		Area of the edge = $\pi \times (\text{radius of the well including the edge})^2 - (\text{Radius of the well})^2$ = $\pi (14^2 - 7^2)$ = $\pi (196 - 49)$ = $\frac{22}{7} \times 147$ = 22×21 = 462 sq m.	The students understand attentively.		
					Q : The diameter of a circle is 30 cm. Its radius will be 1. 20 2. 30 3. 15 4. 40
					Q : The radius of a circle is 14 cm. What will be its area?



Synthesis Solution :				
Diameter of the well =	14 cm			
Radius of the well $r_1 =$	7 cm			
Diameter of the well including the edge =	14 + 7 + 7 = 28 cm			
Radius of the well including the edge =				
$r_2 = \frac{28}{2} = 14$ cm				
Area of the edge = $\pi (r_2^2 - r_1^2)$				
$= \frac{22}{7} (196 - 49)$				
$= \frac{22}{7} \times 147$				
$= 22 \times 21$				
$= 462$ sq m.				
Blackboard Summary :	Homework :			
Diameter of the well = 14 cm	Find the area of a circle whose diameter is 28 cm.			
Radius of the well = $\frac{14}{2}$				
$= 7$ cm.				
Width of the edge = 7 cm				
Diameter of the well including the edge =				
Diameter of well + Width of the edge = 14 + 7 + 7 = 28 cm.				
Radius of the well including the edge =				

$\frac{28}{2} = 14$ cm			
Area of the edge = $\pi \times$ (Radius of the well including the edge) ² - (Radius of the well) ²			
$= \pi (14^2 - 7^2)$			
$= \frac{22}{7} (196 - 49)$			
$= \frac{22}{7} \times 147$			
$= 22 \times 21$			
$= 462$ sq m.			

LESSON PLAN : 4

Subject : Mathematics

Topic : Simultaneous Equation

Date :

Class : 8B

Period : Fifth

Time : 30 min.

Teaching Point	Teaching Aim	Teacher's Activity	Students' Activity	Methods, Sub-methods, Aids	Evaluation
		Introduction : Q1 : Deducing 6 from a number there remains a balance of 17. What can any number be considered for writing this number? Q2 : How can we write showing 6 deducted from A? Q3 : What is given equal to A - 6? Q4 : What will be called A - 6 = 17 in algebra?	Ans : We can consider any of A, B, C, etc. Ans : A - 6 Ans : A - 6 = 17 is given. Ans : Equation.	Q-ans Q-ans Q-ans	

		Q5 : The age of Ram is more than the age of Ramesh by 8 years. 5 years ago, his age was thrice the age of Ramesh. Tell their ages Ans : The students remain answerless		
		Statement of Aim :		
Simultaneous Equation	To solve the questions pertaining to age on the basis of simultaneous equation. Presentation : The age of Ram is more than the age of Ramesh by 8 years. His age was thrice the age of Ramesh 5 years ago. Tell the age of the two	Today we shall study textual equation based simultaneous		
	Clarification : Suppose the age of Ram at this time is = A years And the age of Ramesh = B years As per the first condition— $A = B + 8$ Or, $A - B = 8$... (1) Again, because the age of Ram 5 years ago was = (A - 5) years And the age of Ramesh 5 years ago was = (B - 5) years According to the second condition— $A - 5 = 3(B - 5)$ $A - 5 = 3B - 15$ $A - 3B = -15 + 5$ $A - 3B = -10$... (2)	The students listen carefully. The students watch and understand		
	Q : Presently the Shyam's age is A years. What was his age 8 years ago? 1. $A + 8$ 2. $A - 8$ 3. $A : 9$ 4. $A \times 9$			

Lesson Plan	
Deducting equation (2) from equation (1) $\begin{array}{r} A - B = 8 \\ A - 3B = -10 \\ \hline + \quad + \quad + \\ 2B = 18 \end{array}$ $B = \frac{18}{2} = 9 \text{ years}$ $B = 9$ years Applying the value of B in the equation (1) $A - B = 8$ $A - 9 = 8$ $A = 8 + 9$ $A = 17 \text{ years}$ Ram's age = 17 years Ramesh's age = 9 years	The students watch and understand carefully
Q : The Prabha's age is less than Radha's age by 2 years. The total of their ages after 4 years will be 36 years. What are their present ages?	Ans : The students remain answerless. Q-ans
Clarification : Q1 : How much less is Prabha's age than that of Radha at present? Q2 : What will be the total of their ages after 4 years? Q3 : What have we to find out? Suppose, the present age of Prabha is = A years The present age of Radha = B years	Ans : Is less by 2 years. Ans : 36 years Ans : The present age of Prabha and Radha Q-ans
The students calculate the question pertaining to age	

	According to the first condition— $B = A + 2$ $B - A = 2 \quad \dots(1)$ Again, 4 years from now the Prabha's age will be $= (A + 4)$ And Radha's age will be $= (B + 4)$ According to the second condition— $A + 4 + B + 4 = 36$ $A + 8 + B = 36$ $A + B = 36 - 8$ $A + B = 28 \quad \dots(2)$ Adding equation (1) to equation (2)— $-A + B = 2$ $A + B = 28$ $2B = 30$ $B = \frac{30}{2} = 15$ years Applying the value of B in the equation (2)— $A + B = 28$ $A + 15 = 28$ $A = 28 - 15$ $A = 13$ Prabha's age = 13 years Radha's age = 15 years	The students watch and understand carefully	Q : The present age of Devendra is A years. What will be his age 9 years from now? 1. $A + 9$ 2. $A - 9$ 3. $A \div 9$ 4. $A \times 9$
	Homework : The age of Radha's father is six times of hers. A year ago, his age was 9 times of her. What is their present age?		

LESSON PLAN : 5

Subject : Mathematics

Topic : Age Related Questions

Date :

Class : %B

Period : Eighth

Time : 30 min.

Teaching Point	Teaching Aim	Teacher's Activity	Students' Activity	Methods, Sub-methods, Aid	Evaluation
		Introduction :			
		Q1 : The balance on deducting 4 from a number is 11. What number can we assume for this purpose? Q2 : How shall we write showing the balance of 11 on deducting 4 from A? Q3 : What do we call $A - 4 = 11$ in algebra? Q4 : What is the equation with one condition called? Q5 : What is the equation with two conditions called? Q6 : 6 years from now, Hamid's age will be less than Rajia's age by 4 years. 6 years ago, Hamid's age was half of Rajia's age. What is the present age of Hamid?	Ans : Can keep any of A, B, C, etc. Ans : $A - 4 = 11$ Ans : It is called an equation. Ans : Simple equation. Ans : Simultaneous equation. Ans : The students remain answerless.	Q-ans Q-ans Q-ans Q-ans Q-ans Q-ans	
		Statement of Aim :			
Simultaneous equation	To solve the question of simultaneous equation.	Today we shall study the method of solving age related questions based on simultaneous equation.			

Presentation :		The students listen carefully.	
6 years from now Hamid's age will be less than Raja's age by 4 years. 6 years ago, Hamid's age was half of Raja's age. Tell the present age of Hamid.			
Clarification :			
Q1 : How much will Hamid's age be less than Raja's age 6 years from now?	Ans : Less by 4 years.	Analysis method	
Q2 : What is the meaning of 6 years from now?	Ans : Adding 6 years in the present age.	Q-ans	
Q3 : How was Hamid's age in comparison to Raja's age 6 years ago?	Ans : It was half age.	Q-ans	
Q4 : What is the meaning of 6 years ago?	Ans : Deducting 6 years from the present age.	Q-ans	
Q5 : What have we to find out?	Ans : Hamid's present age.	Q-ans	
Suppose, the present age of Raja = A years			
The present age of Hamid = B years			
According to the first condition—	The students watch and understand carefully.	Clarification	
Raja's age 6 years from now = (A + 6) years			
Hamid's age 6 years from now = (B + 6) years			
The students calculate the question			
$(A + 6) - 4 = B + 6$ $A + 6 - B - 6$ $A - B = 6 - 2$ $A - B = 4$... (1)			
According to the second condition—			

LESSON PLAN

	Rajia's age 6 years ago $= (A - 6)$ years Hamid's age 6 years ago $= (B - 6)$ years $\frac{1}{2} (A - 6) = B - 6$ $A - 6 = 2B - 12$ $A - 2B = -12 + 6$ $A - 2B = -6 \quad \dots (2)$ Deducting equation (2) from equation (1) — $\begin{array}{r} A - B = 4 \\ A - 2B = -6 \\ \hline + \quad + \\ B = 10 \end{array}$ The present age of Hamid = 10 years Q6 : There are 50 and 25 paise coins in the purse of Sheela. If their total number is 42 and their value is Rs. 12, then tell the number of the coins of each kind.			
	Clarification : Q1 : How many 50 paise coins are there? Q2 : How many 25 paise coins are there? Q3 : What is the total number? Q4 : What is the total amount? Q5 : What part is 25 paise of a rupee? Q6 : What part is 50 paise of a rupee? Suppose, the number of 50 paise coins = A The number of 25 paise coins = B	The students watch and understand carefully.		
			Q : The present age of Gangaprasad is 40 years. What will be his age 8 years from now? 1. 32 years 2. 48 years 3. 40 years 4. 36 years Choose the right alternative	

The students analyse the question.	Clarification :			
	Q1 : What is the cost of 15 kg. of wheat and 5 kg. of sugar?	Ans : Rs. 24.75	Q-ans	
	Q2 : What is the cost of 10 kg. of wheat and 5 kg. of sugar?	Ans : Rs. 20.25	Q-ans	
The students calculate 1 kg of wheat and 1 kg of sugar.	Q3 : What have we to find out? Suppose, The cost of 1 kg. of wheat = Rs. A And, the cost of 1 kg. of sugar = Rs. B According to the first condition— $15A + 5B = 24.75$... (1) According to the second condition— $10A + 5B = 20.25$... (2) Deducting equation (2) from equation (1)— $15A + 5B = 24.75$ $10A + 5B = 20.25$ — — — $5A = 4.50$ $A = \frac{4.5}{5} = 0.9$ $A = 0.90$ Applying the value of A in the equation (1)— $15A + 5B = 24.75$ $15 \times 0.9 + 5B = 24.75$ $13.5 + 5B = 24.75$ $5B = 24.75 - 13.5$ $5B = 11.25$ $B = \frac{11.25}{5} = 2.25$ $B = 2.25$ So, the cost of 1 kg wheat is Rs. 0.90 and the cost of 1 kg of	Ans : The cost of 1 kg of wheat and 1 kg of sugar.	Q-ans	
		The students watch and understand carefully.	Clarification:	Q : Choose the right answer : If the cost of 1 kg of wheat is Rs. A and the cost of 1 kg of sugar is Rs. B, then what will be the cost of 8 kg of wheat and 6 kg of sugar? 1. $8A + 6B$ 2. $8A \times 6B$ 3. $\frac{8A}{6B}$ 4. None of the above.

		sugar is Rs. 2.25 Q1 : The length of a farm is double its breadth. If the length of the farm is increased by 20 m, and breadth is decreased by 10 m, its length will become thrice that of its breadth. Find out length and breadth of the farm.	The students listen carefully		
		Clarification :			
The students analyse the question.	Q1 : How many times is the length of the width?	Ans : Two times of width.	Q-ans		
	Q2 : How much length has been increased?	Ans : Length has been increased by 20 m.	Q-ans		
	Q3 : How much width has been decreased?	Ans : Breadth has been decreased by 10 m.	Q-ans		
	Q4 : How many times becomes the length of the breadth on increasing the length by 20 m and decreasing the breadth by 10 m?	Ans : It becomes three times.	Q-ans		
	Q5 : What have we to find out?	Ans : Length and breadth of the farm.	Q-ans		
The students calculate the length and breadth of the farm.	Suppose, The breadth of the rectangle = A m. So, the length of the rectangle = breadth $\times 2$ = 2A m. According to the first condition— Length = $2A + 20$ breadth = $A - 10$ Length = (breadth) ³ $2A + 20 = (A - 10) \times 3$	The students watch and understand carefully.	Q-ans		A side of a square is A m. Its perimeter will be : 1. A m. 2. $A + 4$ m. 3. $4A$ m. 4. $A - 4$ m. Choose the right alternative

		$2A^2 + 20 = 3A - 30$ $2A - 3A = -30 - 20$ $-A = -50$ $A = 50$ Thus, the breadth of the farm = 50 m. And the length of the farm = $2A$ $= 2 \times 50 = 100$ m.		
		Homework : Q : A boatman covers a journey of 54 kg along the current of the river in 4.5 hours. He takes 6.75 hours to complete this journey against the current. Find out the speed of the current.		

LESSON PLAN : 7

Subject : Mathematics

Topic : Compound Interest

Date :

Class : 8

Period : First

Time : 30 min.

Teaching Point	Teaching Aim	Teacher's Activity	Students' Activity	Methods, Sub-methods, Aids	Evaluation
		Introduction : Q1 : Tell the interest of Rs. 500 for 2 years at the rate of 5% pa. Q2 : What is principal? Q3 : What is rate? Q4 : What is time?	Ans : Rs. 500 Ans : 5% pa. Ans : Time is 2 years.	Q-ans Q-ans Q-ans	

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		Q5 : What is interest? Ans : Formula $\text{Interest} = \frac{\text{Principal} \times \text{Rate} \times \text{Time}}{100}$ $= \frac{500 \times 5 \times 2}{100}$ $= \text{Rs. 50}$ Q6 : How much will be the amount? Ans : Amount = principal + interest $= 500 + 50$ $= \text{Rs. 550}$ Q7 : If interest is added on the interest even, what will it be called? Ans : Compound interest	Q-ans	
		Statement of Aim : Today we shall solve the questions pertaining to compound interest.		
		Presentation : Q1 : What is the meaning of compound interest? The students are answerless.		
		Clarification : Compound interest is added in the principal and it acts as the principal for the next year. So, amount = principal + interest. Compound interest is calculated by deducting principal from the amount of the last year.		
		Example : Principal Rate Time Rs. 400 at 10% pa for 2 years. Q1 : Find out compound interest for the first year? Ans : Rs. 400. Q2 : What is the rate Ans : 10%	Q-ans	Q-ans

	of interest for the first year? Q4 : What is time for the first year? Q5 : What is simple interest for the first year? Q6 : What is amount for the first year? Q7 : What is principal for the second year?	Ans : 1 year. Ans : $\frac{400 \times 10 \times 1}{100}$ = Rs. 40 Ans : $400 + 40 =$ Rs. 440 Ans : The students are answerless.		
	Clarification : The principal for the second year is Rs. 440. Q1 : What is interest for the second year? Q2 : What is amount for the second year? Q3 : How much will be the compound interest?	Ans : $\frac{400 \times 10 \times 1}{100}$ = Rs. 44 Ans : $440 + 44 =$ Rs. 484 Ans : The students are answerless.		
	Clarification : Compound interest = amount at the end of second year - principal = $484 - 400 =$ Rs. 84			
	Synthesis Solution : Principal for the first year = Rs. 400 Rate of interest = 10% Time = 1 year Interest for the first year $= \frac{400 \times 10 \times 1}{100}$ = Rs. 40 Amount for the first year = $400 + 40 =$ Rs. 440 Principal for the second year = Rs. 440 Interest for the second			

	year $= \frac{400 \times 10 \times 1}{100}$ = Rs. 44 Amount for the second year = $440 + 44 =$ Rs. 484 Compound interest = $484 - 400 =$ Rs. 84			
	Blackboard Summary : Principal for the first year = Rs. 400 Rate of interest = 10% pa. Time = 1 year Interest for the first year $= \frac{400 \times 10 \times 1}{100}$ = Rs. 40 Amount for the first year = $400 + 40 =$ Rs. 440 Interest for the second year $= \frac{440 \times 10 \times 1}{100}$ = Rs. 44 Amount at the end of the second year = $440 + 44 =$ Rs. 484 Compound interest = $484 - 400 =$ Rs. 84	Homework : Q1 : Find out compound interest of Rs. 700 at 6% interest pa for three years.		

LESSON PLAN : 8

Subject : Mathematics

Topic : Unitary Principal

Date :

Class : 8

Period : Eight

Time : 30 min

Teaching Point	Teaching Aim	Teacher's Activity	Students' Activity	Methods, Sub-methods, Aids	Evaluation
		Introduction :			
		Q1 : If a pen costs 5 paise, how much will 20 pens cost?	Ans : 5 paise	Q-ans	
		Q2 : What is the cost of 1 pen?	Ans : Of 20 pens.	Q-ans	
		Q3 : The cost of how many pens is to be found out?	Ans : 100 paise	Q-ans	
		Q4 : What will be the cost of 20 pens?	Ans : 100 paise	Q-ans	
		Q5 : How many paise are there in a rupee?	Ans : Re. 1	Q-ans	
		Q6 : What is the cost of 20 pens in rupees?	Ans : The students are answerless.		
		Q7 : How will it be solved?			
		Statement of Aim :			
		Today we shall solve the questions of this kind.			
		Presentation :			
		The cost of 1 chair is Rs. 63. If the cost of 4 chairs is equal to the cost of 3 tables, tell the cost of 2 tables.	Ans : Rs. 63	Q-ans	
		Q1 : What is the cost of 1 chair?			
		Analysis of the question			
		The students find out the cost of 1 chair.			

Lesson Plan	Calculation	The students find out the cost of 4 chairs	Q2 : What is the cost of 4 chairs?	Ans : Rs. 63 x 4 = Rs. 252	Q-ans
		The students find out the cost of 4 chairs	Q3 : The cost of 3 tables is equal to the cost of 4 chairs. How many chairs?	Ans : It is equal to the cost of 4 chairs	Q-ans
		The students find out the cost of 3 tables	Q4 : What will be the cost of 3 tables?	Ans : Rs. 252	Q-ans
		The students find out the cost of 1 table	Q5 : What will be the cost of 1 table?	Ans : $\frac{252}{3} = \text{Rs. } 84$	Q-ans
		The students find out the cost of 2 tables	Q6 : What will be the cost of 2 tables?	Ans : $84 \times 2 = \text{Rs. } 168$	Q-ans
		Synthesis Solution :			
		The cost of 1 chair = Rs. 63			
		The cost of 4 chairs = Rs. 63 x 4			
		The cost of 3 tables = the cost of 4 chairs = Rs. 63 x 4			
		The cost of 1 table = $\frac{63 \times 4}{3}$			
		The cost of 2 tables = $21 \times 4 \times 2 = \text{Rs. } 168$			
		Q1 : The cost of 2 litre milk is Rs. 11 find out the cost of 5 litre milk	Ans : The cost of 2 litre milk = Rs. 11 The cost of 5 litre milk = $\frac{63}{2}$		
		The cost of 5 litre milk = $\frac{11 \times 5}{2} = \text{Rs. } 27.50$			
		Blackboard Summary :			
		The cost of 1 chair = Rs. 63			
		The cost of 4 chairs = Rs. 63 x 4			
		The cost of 3 tables = the cost of 4 chairs = Rs. 63 x 4			
		Homework :			
		Q1 : If the cost of 10 kg of wheat is Rs. 22.50, find out the cost of 25 kg wheat			

		The cost of 1 table = $\frac{63 \times 4}{3}$			
		The cost of 2 tables = $21 \times 4 \times 2 = \text{Rs. } 168$			

LESSON PLAN : 9

Subject : Mathematics

Topic : Inverse Proportion

Date :

Class : 8
Period : Eighth
Time : 30 min.

Teaching Point	Teaching Aim	Teacher's Activity	Students' Activity	Methods, Sub-methods, Aids	Evaluation
		Introduction :			
		Q1 : The cost of 2 rubbers is 10 paise. Tell the cost of 6 rubbers.	Ans : 10 paise	Q-ans	
		Q2 : What is the cost of 2 rubbers?	Ans : 5 paise	Q-ans	
		Q3 : What is the cost of 1 rubber?	Ans : 30 paise	Q-ans	
		Q4 : What is the cost of 6 rubbers?			
		Q5 : 5 persons perform a certain work in 6 days. 10 persons will take how many days to do it?	Ans : 6 days	Q-ans	
		Q6 : How many days are taken by 5 persons to do a certain job?	Ans : $6 \times 5 = 30$ days	Q-ans	
		Q7 : How many days will be taken by a person to do this job?	Ans : $\frac{6 \times 5}{10}$	Q-ans	
		Q8 : How many days will be needed for 10 persons to this job?	= 3 days		

		Q9 : How was it found out?	Ans : The students remain answerless	Q-ans	
		Statement of Aim :			
		Today we shall solve the questions of this kind			
		Presentation :			
Analysis of the question.	The students find out the quantity of wheat.	Q1 : 14 quintal wheat was produced in 35 part of a field. How much wheat will be produced in $\frac{1}{2}$ part?	Ans : The students remain answerless	Q-ans	Q1 : 10 men do a job in 2 days. 1 man will do it in how many days?
Calculation	The students exemplify.	Clarification : Suppose, A quintals wheat was produced. Farm Wheat (Part) (quintals) .35 ↓ 14 ↓ .50 ↓ A ↓ There is a descending relation between farm and wheat. $A = \frac{.50}{14} \times .35$ $A = \frac{14 \times .50}{35}$ $= 20$ quintals 20 quintal wheat was produced in the farm.			1 5 days 2 20 days 3 4 days 4 8 days
Calculation	The students find out the number of soldiers.	Q1 : There are provisions for 16 days for 250 soldiers in a cantonment. How many soldiers can be fed this provisions for 20 days? Q2 : Provisions exist for how many days for 250 soldiers? Q3 : Provisions exist for 20 days for how many soldiers?	Ans : For 16 days Ans : Suppose, the required number of soldiers is A	Q-ans	Q2 : 12 cows are equal 8 buffaloes. 1 cow will be equal to how many buffaloes?

Least common multiple (LCM)	The students solve the questions of LCM	Presentation : Q1 : What will be the small factors of number 6? Q2 : What will be the small factors of number 8? Q3 : What will be the smallest factors of 48?	Ans : 2 and 3, that is, 2, 3 Ans : $2 \times 2 \times 2$ that is 2, 2, 2 Ans : The students remain answerless.	Q-ans Q-ans Q-ans	
		Clarification : The small factors of 48 will be $2 \times 2 \times 2 \times 2 \times 3$. Simultaneously, the multiple of small factors of 8 and 6 are called least common multiple. For example : Factors of 8 and 6 are $8 = 2 \times 2 \times 2$ $6 = 2 \times 3$ That is, the LCM of 8 and 6 $= 2 \times 2 \times 2 \times 3 = 24$ Ans. In the same way, LCM of 16 and 12 $16 = 2 \times 2 \times 2 \times 2$ $12 = 2 \times 2 \times 3$ $\therefore$ LCM $= 2 \times 2 \times 2 \times 2 \times 3 = 48$ Ans.	The students listen carefully.		Q1 : The LCM of 4, 6 and 8 will be : 1. 10 2. 48 3. 24 4. 12 Q2 : LCM of 36 and 48 will be : 1. 144 2. 245 3. 120 4. None of the above
Highest common factor	The students solve the questions of HCF	Presentation : Q1 : Tell the factors that are present in both 6 and 8. Q2 : Tell the factors which are present in both 20 and 25. Q3 : Tell the factors of 10, 20 and 30 which are present in all the three. Q4 : What are such factors called?	Ans : The factor in 2×3 and $2 \times 2 \times 2$ that are common to both is 2. Ans : 5 Ans : The factors existing in the three are 2 and 5. Ans : The students remain answerless.	Q-ans Q-ans Q-ans Q-ans	

		Clarification : The factors existing in both numbers is called the common and its multiple are called HCF; for example : In 12, 18 and 24 $12 = 2 \times 2 \times 3$ $18 = 2 \times 3 \times 3$ $24 = 2 \times 2 \times 2 \times 3$ Thus, 2 and 3 are common and their product 2×3 that is 6 is its HCF. In the same way, $10 = 2 \times 5$ $15 = 3 \times 5$ $25 = 5 \times 5$ Thus, the HCF of 10, 15 and 25 = 5 Ans.	The students listen carefully		Q3 : HCF of 4, 6, & 8 will be : 1. 4 2. 2 3. 6 4. None Q4 : HCF of 18, 36 and 48 will be : 1. 6 2. 12 3. 18 4. None
		Blackboard Summary : 1. Solution of the questions of LCM. 2. Solution of the questions of HCF.	Find out LCM of 12, 18, 32 and 48. Find out HCF of 12, 32 and 48.		

LESSON PLAN : 11

Subject : Mathematics

Topic : Solving the questions of Simple Fractions

Date :

 Class : 7D
 Period : 8th
 Time : 30 min.

General objective :

- To grow in the students ability to work with concentration.
- To develop practical proficiency in the students by the use of arithmetic knowledge.
- To arouse research tendency in the students.
- To develop the powers of thinking, creativity and reasoning in the students.
- To arouse interest toward arithmetic study.

Specific objective or Practical objective :
To develop reasoning and thinking power in the students.

To acquaint the students with simple fraction.

To enable the students such that they are able to solve one problem analogous to another.

Previous Introduction :
The students possess previous knowledge of arithmetic.

Aids :

Aids related with arithmetic

Teaching Point	Teaching Aim	Teacher's Activity	Students' Activity	Methods, Sub-methods, Aids	Evaluation
		Introduction : Q1 : A thing divided into two, what is one part called? Q2 : What will be the length of each part of a rod divided into three parts? Q3 : How do we write one-third part in arithmetic language? Statement of Aim : Today we shall tell you how to solve simple fractions.	Ans : Half of the part called? Ans : One-third part of the rod. Ans : The students remain answerless.	Q-ans Q-ans	
		Presentation : Q1 : What is one-tenth part of a rupee? Q2 : What part is 1 kg of 1 quintal? Q3 : How is 25 paise written as rupee? Clarification : In arithmetic language, 25 paise is written as fraction as $\frac{1}{4}$ rupee. In the same manner, 10 paise is written as $\frac{1}{10}$. In the same way, 35	Ans : 10 paise Ans : One-hundredth part. Ans : The students remain answerless.	Q-ans Q-ans Q-ans	Q1 : 100 grams in 1 kg. is equal to : (i) 100/1000 kg. (ii) 1/10 kg.

Addition of simple fraction	The students add simple fraction.	paise is written as Rs. $\frac{35}{100}$ Q1 : What will the total of two halves added together? Q2 : What will be the total of one-third and two-third? Q3 : What will be $\frac{1}{4} + \frac{1}{3}$?	Ans : Adding of two halves will amount to one. Ans : One. Ans : The students remain answerless.	Q-ans Q-ans Q-ans	(iii) 2/10 kg. (iv) None Q2 : Adding $\frac{1}{2} + \frac{1}{3}$ will bring : (i) 5/6 (ii) 2/6 (iii) 1/3 (iv) None
Deduction of simple fraction	The students deduct simple fraction.	So, if denominator is unequal, their LCM is taken for addition. Q1 : What will be the balance if a half is deducted from one? Q2 : What is the balance if one is deducted from two? Q3 : What will be the balance on deducting $\frac{1}{4}$ from $\frac{1}{2}$?	Ans : There remains a balance of half. Ans : One Ans : The students remain answerless.	Q-ans Q-ans Q-ans	
		Clarification : $\frac{1}{2} - \frac{1}{4} = \frac{2-1}{4} = \frac{1}{4}$ Here the denominator is not equal. So, it is solved by LCM. In the same manner, deduct $\frac{1}{5} - \frac{1}{6}$ $\frac{6-5}{30} = \frac{1}{30}$ Ans	The students understand carefully.		

Blackboard Summary :		Homework :
1. To express simple fraction.	Q1 : (a) Add the simple fraction : $\frac{1}{5} + \frac{2}{5} + \frac{3}{5}$	
2. To add simple fraction.	(b) $\frac{1}{3} + \frac{2}{3} + \frac{2}{3}$	
3. To deduct simple fraction.	Q2 : Deduction of simple fraction : (a) $\frac{3}{7} - \frac{1}{7}$ (b) $\frac{4}{7} - \frac{2}{7} - \frac{1}{7}$ (a) $\frac{3}{7} - \frac{2}{14}$	

LESSON PLAN : 12

Sub : Mathematics

Topic : Solving the Questions of Square Root

Date :

Class : 7B
Period : Eighth
Time : 30 min

General objective :

- To develop in the students ability to work with concentration.
- To arouse in the students tendency to discipline.
- To develop practical proficiency.
- To develop original thinking power in the students.
- To arouse interest toward arithmetic study.

Specific objective or Practical objective :

- To develop reasoning and thinking power in the students.
- To inspire the students to solve and determine the questions of square root.
- To enable the students such that they are able to solve a problem basing on another.

Previous knowledge :

The students possess knowledge of arithmetic.

Aids :

Aids pertaining to arithmetic

Lesson Plan

Lesson Plan

Teaching Point	Teaching Aim	Teacher's Activity	Students' Activity	Methods, Sub-methods, Aids	Evaluation
		Introduction :			
		Q1 : What is the value of 5×5 ?	Ans : $5 \times 5 = 25$	Q-ans	
		Q2 : What is the value of 2^2 ?	Ans : $2^2 = 2 \times 2$, that is 4	Q-ans	
		Q3 : How can $(7)^2$ be written in other forms?	Ans : $(7)^2$ is written as 7×7	Q-ans	
		Q4 : In which form do we know $(7)^2 = 7 \times 7$, and how is square root of 81 found out?	Ans : The students remain answerless	Q-ans	
		Statement of Aim :			
		Today we shall study the questions pertaining to square root.			
		Presentation :			
Square root	The students solve questions pertaining to square root.	Q1 : What is the square of 1?	Ans : $(1)^2 = 1 \times 1 = 1$	Q-ans	Q1 : The square of 3 will be 1. 6 2. 9 3. 12 4. None Q2 : Two equal parts of 16 will be 1. 2×8 2. 4×4 3. $2 \times 2 \times 2$ 4. None
		Q2 : What will be the square of 2?	Ans : $(2)^2 = 2 \times 2 = 4$	Q-ans	
		Q3 : What will be the square of 5?	Ans : $(5)^2 = 5 \times 5$, that is 25	Q-ans	
		Q4 : What will be the factors of 36?	Ans : $36 = 6 \times 6$	Q-ans	
		Q5 : Tell the factors of 144 which are equal to each other?	Ans : $144 = 12 \times 12$	Q-ans	
		Q6 : Find out two equal fractions of 625.	Ans : $625 = 25 \times 25$	Q-ans	
		Q7 : What is 25 to 625?	Ans : The students remain answerless.	Q-ans	
	Clarification :				
	25 is the square root of 625. It is found out by two methods— division method and factor method.				

$\begin{array}{r} 5 \overline{) 51625} \\ \underline{5} \\ 125 \\ \underline{125} \\ 0 \\ 25 \\ \underline{25} \\ 0 \end{array}$	The students listen carefully.	that is, $625 = 5 \times 5 \times 5 \times 5$ $\therefore$ Square root $= 5 \times 5$ $= 25$ Ans. or, $\frac{25}{2\sqrt{625}} = \frac{25}{4}$ $\frac{45\sqrt{225}}{225} = \frac{45 \times 15}{225} = \frac{675}{225} = 3$ $\sqrt{\frac{9}{16}} = \sqrt{\frac{3}{4} \times \frac{3}{4}} = \frac{3}{4}$ $= \frac{3}{4} \text{ Ans.}$
Blackboard : Summary : 1. To make square of various numbers. 2. To solve the questions of square root.	Homework : Q1 : Find out square roots of : (a) $\sqrt{625}$ (b) $\sqrt{169}$ (c) $\sqrt{10000}$ Q2 : Find out square of the following numbers : 1. 4 2. 12 3. 10	Q3 : The value of $\sqrt{25}$ will be : 1. 5 2. 4 3. 10 4. None Q4 : Find out the square root of 169 and choose the right alternative : 1. 12 2. 11 3. 13 4. 14

Lesson Plan

LESSON PLAN : 13

Subject : Mathematics

Topic : Solving Questions Pertaining to Simultaneous Equation

Class : 7D

Date :

Period : Eighth
Time : 30 min.

General objective :

To develop in the students ability to work with concentration.

To develop tendency to discipline in the students.

To develop practical proficiency.

To develop in the students original thinking power.

To develop interest toward arithmetic study.

Specific objective or Practical Statement of Aim :

To develop reasoning and thinking power in the students.

To solve the questions of simultaneous equation.

To enable the students such that they are able to solve a problem by the use of arithmetic knowledge in another problem.

Previous knowledge :

The students possess arithmetic knowledge.

Aids :

Aids pertaining to arithmetic.

Teaching Point	Teaching Aim	Teacher's Activity	Student's Activity	Methods, Sub-methods, Aids	Evaluation
		Introduction :			
		Q1 : If $x + 2 = 4$, then tell the value of x .	Ans : $x = 4 - 2$ $= 2$	Q-ans	Q1 : Find out the value of x if $x + 2 = 4$
		Q2 : In the equation $2x + 2 = 6$, tell the value of x .	Ans : $2x = 4$ $\therefore x = 2$	Q-ans	1. 2 2. 3 3. 4
		Q3 : $x + 2y = 5$	Ans : The students remain answerless.	Q-ans	Q2 : Find the value of y if $x = 2$, if $x = \frac{y}{10}$
		$x - 3y = 4$... (1) $\therefore$ (2) What are these equations called?			1. 10 2. 20 3. 30

		Statement of Aim : Today we shall study the questions of simultaneous equation.		
		Presentation : Q1 : Solve : $x + y = 4$... (1) $x - y = 2$... (2) Q2 : $3x + 2y = 5$... (1) $x - y = 3$... (2) Solve the above equation.	Q-ans Ans : $2x = 6$ $\therefore x = 3$ and $y = 1$ Ans : The students remain answerless.	
Simultaneous equation	The students solve the questions of simultaneous equation	Clarification : $3x + 2y = 5$... (1) $x - y = 3$... (2) Multiplying the equation (2) by 2 and on solving the two equations : $3x + 2y = 5$... (1) $2x - 2y = 6$... (3) On adding $5x = 11$ $\therefore x = 11/5$ Ans. On placing the value of x in the equation (2) $x - y = 3$ $11/5 - y = 3$ $-y = 3 - \frac{11}{5}$ $-y = \frac{15-11}{5}$ $\therefore y = -\frac{4}{5}$ Ans. Q1 : Solve : $\frac{2x}{3} + \frac{y}{3} = 1$... (1) $\frac{2x}{3} + \frac{3y}{2} = 5$... (2)	Q-ans The students listen carefully.	
			Q3 : Tell the values on solving the following equations : $2x + y = 1$ $2x + 2y = 3$ 1. $y = 2$ $x = 1$ 2. $y = 1$ $x = -1/2$ 3. $y = 2$ $x = -1/2$ 4. None Q4 : If $y = 100/2$, tell the value of y : 1. $y = 5$ 2. $y = 10$ 3. $y = 12$ 4. None of the above	

Lesson Plan					
		Q2 : The cost of 3 chairs and 4 tables is Rs. 90, and the cost of 2 chairs and 3 tables is Rs. 65. Find out the cost of 1 chair and 1 table.	Placing the value of $y = 24/7$ in equation (3) $4x + 2 \times 24/7 = 6$ $x = -6/38$ Ans : The students remain answerless.	Q-ans	
		Clarification : Suppose, the cost of 1 chair is Rs. x and the cost of 1 table is Rs. y , then $3x + 4y = 90$... (1) $2x + 3y = 65$... (2) $6x + 8y = 180$... (3) $6x + 9y = 195$... (4) $-y = -15$ $y = 15$ Placing the value of y in equation (1) $\therefore x = 10$			
		Blackboard Summary : To solve the questions of simultaneous equation.	Homework : Q1 : Solve the following equations 1. $2x + y = 0$... (1) $3x - y = 5$... (2) 2. $3x = y + 5$... (1) $2x - y = 0$... (2) 3. $y = x + 20$... (1) $x + y = 11$... (2)		

LESSON PLAN : 14

Subject : Mathematics
Topic : Work and Time

Date :

Class : 9A
Period : Third
Time : 30 min.

Teaching Point	Teaching Aim	Teacher's Activity	Students' Activity	Methods, Sub-methods, Aids	Evaluation
		Introduction :			
		Q1 : If a farmer can reap the whole crop in 8 days, how much crop can he reap in one day?	Ans : $\frac{1}{8}$ part	Q-ans	
		Q2 : If $\frac{1}{10}$ part of a tank takes 1 hour to fill, how much time will the whole tank take?	Ans : In 10 hours	Q-ans	
		Q3 : 10 boys perform a job in 2 days. How many days will 2 boys need to do it?	Ans : The students remain answerless.	Q-ans	
		Statement of Aim :			
		Today we shall study the questions of time and work.			
		Presentation :			
		Q1 : If $\frac{1}{2}$ part of a wall can be completed in 1 day, how much time will be needed to complete the whole wall?	Ans : 2 days.	Q-ans	Q1 : If Mohan can perform a job in 5 days, how much work will he do in 1 day?
		Q2 : 5 boys perform a job in 2 days. How much work will they do in 1 day?	Ans : $\frac{1}{2}$ part	Q-ans	(a) $\frac{1}{5}$ part
		Q3 : 10 boys do a certain work in 2 days. How many days will 2 boys require to do it?	Ans : The students remain answerless.	Q-ans	(b) $\frac{1}{2}$ part
Work-time	The students solve the questions of-work and time.				

Lesson Plan

Clarification :	The students watch and understand carefully.	Performance method	Q2 : Meera takes 1 day to complete $\frac{1}{10}$ work. how many days will she need to complete the job?
Boys 10 2 $\downarrow$ $\frac{10}{2} = \frac{x}{2}$ $\therefore 2 \times x = 10 \times 2$ $\therefore x = 10$ days	Days 2 $\downarrow$ x		1. 5 days 2. 10 days 3. 15 days Choose the right alternative
Example : Ashok does a work in 12 days and Vijay can do it in 15 days. How much time will they together need to do it?			
Synthesis Solution :			
Q1 : How much is Ashok's 1 day's work? How much is Vijay's 1 day's work? So, 1 day's work of both of them $= \left(\frac{1}{12} + \frac{1}{15}\right)$ part $= \frac{9}{60}$ part $= \frac{3}{20}$ part $\therefore \frac{3}{20}$ part is completed in = 1 day $\therefore$ Time to complete the whole work $= \left(1 \div \frac{3}{20}\right)$ $= \left(1 \times \frac{20}{3}\right)$ or, $\frac{20}{3} = 6\frac{2}{3}$ days Ans.	Ans : $\frac{1}{12}$ part Ans : $\frac{1}{15}$ part $= \left(\frac{1}{12} + \frac{1}{15}\right)$ part	Q-ans Q-ans Synthesis Solution	

Teaching of Maths			
42	Blackboard Summary :	Homework :	
	Solving the questions of work and time.	Q1 : 2 labourers make a wall in 10 days. How much wall can they make in 4 days? Q2 : If Meera performs 1/20 work in 1 day, how many days will she need to complete the work?	

LESSON PLAN : 15

Sub : Mathematics

Topic : Natural Numbers and Whole Numbers

Date :

Class : 6A
Period : Fifth
Time : 30 min.

Teaching Point	Teaching Aim	Teacher's Activity	Students' Activity	Methods, Sub-methods, Aids	Evaluation
		Q1 : How many blackboards are there in the classroom? Q2 : With whose help does a teacher write on the blackboard? Q3 : How many rows are there in the class? Q4 : Then what are the numbers 1, 2, 3 called?	Ans : There is a blackboard in the classroom. Ans : 2 chalks and a duster. Ans : Three. Ans : The students remain answerless.	Q-ans Q-ans Q-ans	
		Statement of Aim :			
		Today we shall study the natural numbers and whole numbers.			

Lesson Plan			
Natural numbers	The students tell the natural numbers	Presentation :	Q1 : The smallest natural number is
		The initial numbers 1, 2, 3, 4, 5 are the numerical form of one, two, three, four, five. We call them counting numbers. They tell about a group. They begin from 1 and increase continuously. There is no limit to them. These numbers are called natural numbers. That is, 1, 2, 3, 4, 5, 6, 7, 8, 9, 10 are natural numbers. Q1 : Which is the smallest natural number? Q2 : Which natural number follows 3? Q3 : How many natural numbers exist between 1 and 10? Q4 : What is the difference between two natural numbers? Q5 : Which is the largest natural number?	Q1 : The smallest natural number is 1. Q2 : Natural numbers occurring between 12 and 21 are 13, 14, 15, 16, 17, 18, 19, 20.
		Q6 : What is a succeeding number?	Q-ans : 1 (one) Q-ans : 4 Q-ans : 8 Q-ans : 1 Q-ans : None, because there is no limit to natural numbers. Ans : The students remain answerless.
		Clarification :	Q3 : What follows the number of 5?
Succeeding and preceding numbers	The students tell the following and preceding numbers.	By the following number is meant the number occurring just after a number. For example, 3 follows 2. In the same manner, a number occurring just before a number is its preceding number. For example, 9 precedes 10.	Q3 : What follows the number of 5? 1. 6 2. 7 3. 4 4. None

		Succeeding number $4 + 1 = 5$ Preceding number $4 - 1 = 3$ Q1 : What is the succeeding number of 14? Q2 : What succeeds the succeeding number of 19? Q3 : What is the preceding number of 18? Q4 : What is the preceding number of 80? Q5 : 1 is the preceding number of which number? Q6 : 1 is the succeeding number of which number? Q7 : How do we find out larger and smaller numbers out of any two numbers?	Ans : 15 Ans : 21 Ans : 17 Ans : 79 Ans : Of 2 Ans : Of none. Ans : The students remain answerless.	Q-ans Q-ans Q-ans Q-ans Q-ans Q-ans Q-ans	Q4 : The preceding number of 18 is : 1. 19 2. 17 3. 16 4. None
Smaller and bigger number in two natural numbers	The students differentiate small and big natural numbers.	Clarification : The smaller of the two natural numbers is the number in which we add a number to get another number. For example, of 4 and 9, 4 is smaller because $4 + 5 = 9$ that is, $4 < 9$ or $9 > 4$ Q1 : Which is the smaller number of 11 and 19? Q2 : Why is 11 smaller? Q3 : What are even and odd numbers?	Ans : 11 Ans : Adding 8 to 11 begets 19. Ans : The students remain answerless.	Q-ans Q-ans Q-ans	

		Clarification :			
Even and odd numbers	The students clarify even and odd numbers.	The numbers that can be divided by 2 are called even numbers. For example, 2, 4, 6, 8, 10... are even numbers. And the numbers which cannot be divided by 2 are called odd numbers. For example, 1, 3, 5, 7, 9, 11... Q1 : What is an even number? Q2 : Tell any two even numbers. Q3 : What kind of number is 26? Q4 : What is an odd number? Q5 : What kind of number is 19? Q6 : What kind of numbers are 3 and 5? Q7 : What is their total? Q8 : What kind of number is 8? Q9 : What kind of number is the total of two odd numbers? Q10 : What kind of number is the total of two even numbers? Q11 : What is a whole number?	Ans : The number which can be divided by 2. Ans : 4, 6. Ans : Even number Ans : The number which cannot be divided by 2. Ans : Odd. Ans : Odd. Ans : 8 Ans : Even. Ans : Even. Ans : 10, even. Ans : If 0 is added to the natural numbers, they become whole numbers.	Q-ans Q-ans Q-ans Q-ans Q-ans Q-ans Q-ans Q-ans Q-ans Q-ans	Q5 : 18 is an 1. Even number 2. Odd number 3. None Q6 : 21 is an 1. Even number 2. Odd number 3. None

Blackboard Summary :		Homework :
Natural numbers : 1, 2, 3, 4, 5, 6, 7, 8, 9, 10,		Q1 : How many natural numbers are there between 11 and 28?
Whole numbers : 0, 1, 2, 3, 4, 5, 6, 7, 8, 9, 10,		Q2 : What is the succeeding number of 78?
Preceding and Succeeding numbers		Q3 : What precedes the preceding number of 91?
Following number $= 2 + 2 + 1 = 3$		Q4 : What are even and odd numbers? Write with examples.
Preceding number $= 2 - 2 - 1 = 1$		
Even Numbers : are those numbers which can be divided by 2. For example 2, 4, 6, 8, 10, ...		
Odd Numbers : are those numbers which cannot be divided by 2. for example, 1, 3, 5, 7, 9, 11, 13, ...		

LESSON PLAN : 16

Subject : Mathematics

Topic : Factors and Multiples

Date :

Class : 6A

Period : Sixth

Time : 30 min

Teaching Point	Teaching Aim	Teacher's Activity	Students' Activity	Methods, Sub-methods, Aids	Evaluation
		Introduction :			
		Q1 : Find out parts of 6, the product of which is 6	Ans : 2 and 3 are parts of 6.	Q-ans	
		Q2 : What are the parts of 10?	Ans : 2 and 5	Q-ans	

		Q3 : What are these parts called?	Ans : These parts of a number are called factors	Q-ans	
		Statement of Aim :			
		Today we shall study about factors and multiples	The students listen carefully		
		Presentation :			
Factors	The students find out factors.	If a number is such divided into two or more parts that their multiplication amounts to the number, such parts are called its factors. Dividing the number by its factors brings out the remainder 0. For example, $= 1 \times 6$ $= 2 \times 3$			Q1 : Factors of 5 is 1 10 2 18 3 17 4 None
		Q1 : How many are the possible parts of 6 in toto?	Ans : 1, 2, 3, 6	Q-ans	
		Q2 : What are these parts called?	Ans : These are called factors of 6	Q-ans	
		Q3 : What will be the factors of 12?	Ans : 1, 2, 3, 4, 6, 12	Q-ans	
		Q4 : Tell the factors of 18	Ans : 1, 2, 3, 6, 9, 18	Q-ans	
		Q5 : Is 25 a factor of 375?	Ans : The students divide 375 by 25. 25 is a factor of 375, because the remainder is 0	Q-ans	Q2 : The numbers 4, 8, 12, 16 are multiples of 1 3 2 4 3 5 4 None
		Q6 : What are multiples of a number?	Ans : The students remain answerless	Q-ans	
		Clarification :			
Multiples	The students find out multiples of numbers	Number 3, 6, 9, 12, 15, all of these are divisible by 3. So these are multiples of 3. The multiples of a number are those numbers which are completely divisible by the number	The students listen carefully		

Class : 6A

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Teaching Point	Teaching Aim	Teacher's Activity	Students' Activity	Methods, Sub-methods, Aids	Evaluation
		Introduction : Q1 : What are the factors of 67? Q2 : What kind of numbers are 2 and 37? Q3 : What is the meaning of indivisible numbers?	Ans : 1 and 1 Ans : These are indivisible numbers. Ans : A number that is divisible by 1 or by itself, and not by other numbers, is called an indivisible number.	Q-ans Q-ans Q-ans	
Divisibility test by certain numbers	The students test divisibility by numbers	Statement of Aim : Today we shall test divisibility of numbers by certain numbers. Presentation : Q1 : Are numbers 4, 8, 24, 32 divisible by 2? Q2 : Are numbers 12, 15, 18 divisible by 3? Q3 : Are 17 and 22 divisible by 3? Q4 : Are numbers 144 and 7281 divisible by 9? Answer without actually dividing them.	Ans : They are divisible by 2. Ans : They are divisible by 3. Ans : No. Ans : The students remain answerless.	Q-ans Q-ans Q-ans Q-ans	Q1 : The numbers 24, 12, 36 and 138 are divisible by 1, 3, 2, 2, 4, 4. Hence of the above,

Clarification :				
Divisibility of numbers by 2	The students test divisibility of numbers by 2.	Testing divisibility of numbers by 2 : Numbers 4, 6, 8, 12, 24, 32, 36, 48, 50 all are divisible by 2. It means, the numbers with 0, 2, 4, 6, 8 at the units place are divisible by 2. Q1 : Are numbers 72 and 84 divisible by 2? Q2 : Which numbers out of 56, 88, 89, 179, 190 are divisible by 2?	The students watch at the blackboard and listen carefully. Ans : It is divisible. Ans : 56, 88 and 190.	Q-ans Q-ans
Divisibility of numbers by 3	The students test divisibility of numbers by 3.	Testing divisibility of numbers by 3 : Numbers 12, 15, 18, 21, 27, all are divisible by 3. The total of their digits is 3, 6, 9, 3, 9 respectively which is divisible by 3. It means, if the total of the digits of a number is divisible by 3, it is also divisible by 3. Q1 : Is the number 723 divisible by 3? Q2 : Which of the numbers in 62, 522, 873 are divisible by 3?	 Ans : It is divisible. Ans : 522 and 873.	Q2 : 7296 is by 3. 1. divisible 2. indivisible Q-ans Q-ans
Divisibility of numbers by 5 and 10	The students test divisibility of numbers by 5 and 10.	Testing of divisibility of numbers by 5 and 10 : The numbers with 5 or 0 at the units place are divisible by 5; for example, 10, 15, 55, 155, etc. And the numbers with 0 at the units place are divisible by 10.	The students listen carefully.	Q3 : The number divisible by 5 is : 1. 14 2. 19 3. 39 4. 945

		Q1 : Which numbers out of 75, 95, 130, 185, 194 are divisible by 5? Q2 : Tell any two numbers divisible by 10.	Ans : 75, 95, 130, 185 are divisible by 5. Ans : 100, 1000	Q-ans Q-ans	Q4 : The number 8795 is by 9. 1. divisible 2. indivisible 3. None of the above.
Clarification :					
Divisibility of numbers by 9	The students test divisibility of numbers by 9.	Testing of divisibility of numbers by 9 : The total of the digits of the numbers divisible by 9 are divisible by 9. For example, 18, 27, 36, 54, 7281. Q1 : Tell the smallest number of three digits divisible by 9. Q2 : Tell the largest number of four digits divisible by 9.	The students listen carefully. Ans : 108. Ans : 9999.	Q-ans Q-ans	
		Blackboard Summary :	Homework :		
		Testing of divisibility of numbers by 2, 3, 5, 9 and 10 : 1. The numbers with 0, 2, 4, 6, 8 at the units place are divisible by 2; for example, 10, 12, 24, 36, 48 2. The numbers whose total of the digits is divisible by 3 or 9 are divisible by 3 and 9 respectively; for example, 12, 15, 18, 27 are divisible by 3; and 18, 27, 46, 54, 72, 9 are divisible by 9. 3. The numbers with 0 or 5 at the units place are divisible by 5; for example, 15, 20, 50, 65. 4. The numbers with 0 at the units place are divisible by 10; for example, 100, 60, 90.	Q1 : Write any 10 numbers that are divisible 2. Q2 : Write separately the numbers from the following that are divisible by 3, 5 and 9 respectively : 12, 15, 21, 27, 45, 54, 72, 96, 108, 144		

LESSON PLAN : 18

Subject : Mathematics

Topic : Indivisible Factors

Date :

Class : 6A
Period : Sixth
Time : 30 min.

Teaching Point	Teaching Aim	Teacher's Activity	Students' Activity	Methods, Sub-methods, Aids	Evaluation
		Introduction :			
		Q1 : What is the value of 5×7 ?	Ans : 35	Q-ans	
		Q2 : What are 5 and 7 to 35?	Ans : 5 and 7 are called factors of 35.	Q-ans	
		Q3 : Find out the factors of 14.	Ans : 2 and 7.	Q-ans	
		Q4 : What is a divisible number?	Ans : Such as 4, 6, 8, etc are divisible numbers.	Q-ans	
		Q4 : Tell the factors of 6.	Ans : 2 and 3.	Q-ans	
		Q6 : What kind of numbers are 2 and 3?	Ans : 2 and 3 are indivisible numbers.	Q-ans	
		Statement of Aim :			
		Today we shall study indivisible factors.			
		Presentation :			
Indivisible factors	The students tell about indivisible factors.	Q1 : What is a indivisible number.	Ans : The number which is divisible by 1 or by itself, and it cannot be divided by any other number is called an indivisible number.	Q-ans	Q1 : Indivisible factors of 10 are : 1. $1 \times 2 \times 5$ 2. 1×10 3. None
		Q2 : Tell any indivisible numbers.	Ans : 1, 2, 3, 5, etc.	Q-ans	
		Q3 : Tell the smallest factors of 30.	Ans : $1 \times 2 \times 3 \times 5$	Q-ans	
		Q4 : What kind of numbers are these?	Ans : Indivisible numbers.	Q-ans	

Lesson Plan

	Clarification :			
	To get indivisible factors of a number, the smallest factors are made of it which are indivisible. For example, $48 = 24 \times 2$ $= 12 \times 2 \times 2$ $= 2 \times 6 \times 2 \times 2$ or, $= 2 \times 2 \times 3 \times 2 \times 2$ Q1 : Tell the big factors of 48. Q2 : What are the indivisible factors of 48. Q3 : What is another method to get indivisible factors?	The students listen carefully.	Q-ans Q-ans Q-ans	Q2 : 7 is an indivisible factor of : 1. 25 2. 21 3. 32 4. 30
Division method of indivisible factors	Clarification : There also exists another method to get indivisible factors. Suppose, indivisible factors of 42 are to be found out. This number is first divided by 2 over and again until it can no more be divided by it. Then it is divided by 3 and the other indivisible numbers. $\begin{array}{r} 2 \overline{) 42} \\ \underline{3 } \\ 21 \\ \underline{7 } \\ 1 \end{array}$ $42 = 1 \times 2 \times 3 \times 7$ Q1 : Tell the indivisible factors of 42 here. Q2 : Find out indivisible factors of 112. Q3 : Tell the indivisible factors of 2230.	The students listen carefully. Ans : 1 $\times$ 2 $\times$ 3 $\times$ 7 Ans : 2 $\times$ 2 $\times$ 2 $\times$ 7 Ans : 2 $\times$ 5 $\times$ 223	Q-ans Q-ans Q-ans	Q3 : 1 is an indivisible factor of all numbers. 1. True 2. False

		Q4 : Tell the smallest number of 4 digits and find out its factors	Ans : 10000 $10000 = 1 \times 2 \times 2 \times 2 \times 2 \times 5 \times 5 \times 5 \times 5$		
	Blackboard Summary :	Indivisible factors $5 \times 7 = 35$ 5 and 7 are indivisible factors of 35 $30 = 15 \times 2$ $= 3 \times 5 \times 2$ $= 1 \times 2 \times 3 \times 4$ $48 = 24 \times 2$ $= 12 \times 2 \times 2 \times 1$ $= 2 \times 6 \times 2 \times 2$ $= 2 \times 2 \times 3 \times 2 \times 2$ $= 1 \times 2 \times 2 \times 2 \times 2 \times 3$ Its method : $\begin{array}{r rr} 2 & 42 & 2 & 2230 \\ 3 & 21 & 5 & 1115 \\ 7 & 7 & 223 & 223 \\ & 1 & 1 & 1 \end{array}$ $42 = 1 \times 2 \times 3 \times 7$ $2230 = 2 \times 5 \times 223$	Q1 : Tell the largest number of 4 digits and write its factors	Q2 : Write smallest number of 6 digits and write its factors	Q3 : Write the indivisible factors of 3260

Lesson Plan

LESSON PLAN : 19
Subject : Mathematics
Topic : HCF

Date :

Class : 6A
 Period : Sixth
 Time : 30 min

Teaching Point	Teaching Aim	Teacher's Activity	Students' Activity	Methods, Sub-methods, Aids	Evaluation
		Introduction : Q1 : By which measures can we measure 10 l milk? Q2 : By which pots can we measure 16 l? Q3 : What are these numbers called? Q4 : What else are these numbers called?	Ans : We can measure 10 l milk with the pots of 1 l, 2 l and 5 l. Ans : 1 l, 2 l, 4 l, 8 l. Ans : These numbers are called factors. Ans : The students remain answerless.	Q-ans Q-ans Q-ans Q-ans	
Highest common factor	The students tell HCF of the numbers.	Presentation : The factors of 16 are 1, 2, 4, 8 and 16. These are also called common divisors. In the same manner, 1, 2, 3, 4, 6, 8, 12, 24 are divisors of 24. The divisors of 40 are 1, 2, 4, 5, 8, 10, 20, 40. Q1 : What are divisors? Q2 : What are the divisors of 16, 24 and	Ans : The factors of a number are called its divisors. Ans : 1, 2, 4, 8.	Q-ans Q-ans Q-ans Q-ans	Q1 : The common divisor of 10 and 15 is : 1. 3 2. 5 3. 4 4. 10

Divisors		40 that are common to all the three numbers? Q3 : What are these divisors called?	Ans : The students remain answerless.	Q-ans	
The students tell divisors of the number	Clarification : When a divisor is common to two or more numbers, it is called common factor. For example, the factors existing in 16, 24 and 40 are 1, 2, 4, 8. So they are called common factors of 16, 24 and 40. Q1 : Find out divisors of 6. Q2 : Find out divisors of 15. Q3 : Find out divisors of 24. Q4 : Which are the common divisors of these three? Q5 : What are these divisors to 6, 15, 24? Q6 : What is highest common factor?	The students listen carefully. Ans : 1, 2, 3, 6. Ans : 1, 3, 5, 15. Ans : 1, 2, 3, 4, 6, 8, 12, 24. Ans : 1 and 3. Ans : These are common factors to 6, 15, 24. Ans : It is such common factor of the two or more numbers which is the highest of all common factors. For example, 3 is the HCF of 6, 15 and 24. Ans : 1, 2, 4, 5, 10 and 12. Ans : 5. Ans : 52 Ans : The students remain answerless.			Q2 : The HCF of 36 and 72 is 1. 12 2. 9 3. 72 4. 36

		Clarification :			
HCF by factor method	The students listen carefully	HCF is also found out by factor method. For example $8 = 1 \times 1 \times 2$ $12 = 2 \times 2 \times 3$ $\text{HCF } 2 \times 2 = 4$ That is, the numbers are first written in the form of smallest factors. Then we write the factors which are common to all numbers. The so begot numbers are multiplied to arrive at HCF. Q1 : Tell the factors of 18. Q2 : Tell the factors of 24. Q3 : Which are the common factors out of these? Q4 : What is HCF of 18 and 24?	Ans : 18 = $2 \times 3 \times 3$ Ans : 24 = $2 \times 2 \times 2 \times 3$ Ans : 2 and 3 Ans : 6	Q-ans Q-ans Q-ans Q-ans	Q3 : HCF of 32 and 36 are 1. 2×2 2. $2 \times 2 \times 2$ 3. 3×3 4. $2 \times 2 \times 3 \times 3$
HCF by Factor method	The students tell HCF by factor method				
		Blackboard Summary : HCF— Divisors of 16 = 1, 2, 4, 8, 16 Divisors of 24 = 1, 2, 4, 6, 8, 12, 24 Divisors of 40 = 1, 2, 4, 5, 8, 10, 20, 40 Divisors common to the three numbers = 1, 2, 4, 8. 1, 2, 4, 8 are common divisors to 16, 24, 40. The highest common divisor 8 is the HCF of the three numbers.	Homework : Q1 : Write the divisors of the following numbers 28, 60, 121, 625 Q2 : Tell the common divisors of 33 and 121.		

Factor Method—	
$6 = 2 \times 3$	
$15 = 3 \times 5$	
$24 = 2 \times 2 \times 2 \times 3$	
HCF = 3	
$8 = 2 \times 2 \times 2$	
$12 = 2 \times 2 \times 3$	
HCF = $2 \times 2 = 4$	

Date :

LESSON PLAN : 20
Subject : Mathematics
Topic : Profit and Loss

Class : 7B
Period : Second
Time : 30 min

Teaching Point	Teaching Aim	Teacher's Activity	Students' Activity	Methods, Sub-methods, Aids	Evaluation
		Introduction :			
		Q1 : A man buys a bicycle for Rs 100 and sells it for Rs 245. Tell whether he has earned profit or suffered loss.			Q : A cow was bought for Rs 900 and sold for Rs 950. Tell whether profit or loss occurred on this deal. How will you solve this question?
		Q2 : What is the cost price of the thing?	Ans : Rs 100	Q-ans	
		Q3 : What is the sale price of the thing?	Ans : Rs 245	Q-ans	
		Q4 : What did occur—profit or loss?	Ans : Profit	Q-ans	
		Q4 : How much was the profit?	Ans : Rs 45	Q-ans	
		Q6 : How was it found out?	Ans : Sale price - cost price = profit	Q-ans	
		Q7 : How is percent profit is found out?	Ans : The students remain answerless	Q-ans	
		Q8 : If pens were bought for Rs 10 and			

Lesson Plan					
		10 pens were sold for Rs 11. Find out percent profit.			
		Statement of Aim :			
		Today we shall solve the questions of this kind.			
		Presentation :			
Analysis of the question	The students find cost price of a pen	11 pens were bought for Rs 10 and 10 pens were sold for Rs 11. Find out percent profit.			
Calculation	Q1 : What is the cost price of 11 pens?	Ans : Rs 10			
	Q2 : What is the cost price of 1 pen?	Ans : Rs $\frac{10}{11}$			
	Q3 : What is the sale price of 10 pens?	Ans : Rs 11			
To find out profit in the question	The students find out sale price of a pen.	Ans : The sale price of a pen = Rs $\frac{11}{10}$			
	Q5 : What is the profit on 1 pen?	Ans : The profit on a pen = $\frac{11}{10} - \frac{10}{11} = \frac{121 - 100}{110} = \frac{21}{110}$			
	Q6 : On which price is this profit got?	Ans : Profit on Rs $\frac{10}{11}$			
	Q7 : How much is the profit on $\frac{10}{11}$?	Ans : $\frac{21}{110} \times \frac{11}{10}$			
	Q8 : How much is the profit on Re. 1?	Ans : $\frac{21}{110} \times \frac{11}{10}$			
Percent profit	The students find out percent profit.	Ans : $\frac{21}{110} \times \frac{11}{10} = 21\%$			

		Synthesis Solution : The cost price of a pen $= \text{Rs. } \frac{10}{11}$ The sale price of a pen $= \text{Rs. } \frac{11}{10}$ Profit = Sale price - Cost price $\text{Price} = \frac{11}{10} - \frac{10}{11}$ $= \frac{121 - 100}{110} = \frac{21}{110}$ Formula— Percent profit $= \frac{\text{Profit} \times 100}{\text{Cost Price}}$ $= \frac{21}{110} \times \frac{100 \times 11}{110}$ $= 21\%$	The students listen carefully		
		Blackboard Summary : The cost price of a pen $= \text{Rs. } \frac{10}{11}$ The sale price of a pen $= \text{Rs. } \frac{11}{10}$ Profit of a pen = Sale price - Cost price $\text{Price} = \frac{11}{10} - \frac{10}{11}$ $= \frac{121 - 100}{110} = \frac{21}{110}$ Formula— Percent profit = $= \frac{\text{Profit} \times 100}{\text{Cost Price}}$ $= \frac{21}{110} \times \frac{100 \times 11}{110}$ $= 21\%$	Homework : A man bought a bicycle for Rs. 660. He spent Rs. 40 on its repairs. He sold it for Rs. 840. Find out percent profit on the bicycle.		