Mathematics Lesson Planning based on 5E model

Out of Many Models of teaching under Constructivist approach, *5E model* is one of the most popular and recognized Models throughout the world (*NASA, 2013*). Steps followed are:

1.Engage – Students are engaged in the lesson by asking questions on demonstrations/observations/making predictions etc.

2.Explore – Students discuss with peers on demonstrations/observations/making predictions etc.

3.Explain – Students explain on the concept based on the teachers quarry.

4.Elaborate – Student justifies their views with further explanation and teachers bridges the gap between old and new concept of the students.

5.Evaluate – The teacher informally assess students by asking questions and checking their work.

LESSON PLAN FORMAT

TIME	STEPS	TEACHERS ACTIVITIES	STUDENTS ACTIVITIES	TLM
	Engage	Keeping in mind of Content Mapping students are asked to identify and keep note of what they find/see/observe/ in the video clip/pictures /chart/ demonstration		
	Explore		Students notes down their findings/observations	
	Explain	Enquires of students findings/observations	Discusses with the peers/teacher Explains of their findings/observations	
	Elaborate[#]	Interaction with students justifying/correcting the findings/observations and relates to the content of the day, further adds more related information	Justifies/argues to accept the new concept of the day	
	Evaluate [#]	Students response/solution/work evaluated	Solves problems	

 # Elaborate and Evaluate *steps may continue until completion of exercise problems to be solved under the same concept for more than one period.*
TIME: *Maximum time been indicated and may vary depending on requirement.*

Home Assignment: (Some exercise problems based on the concept been discussed may be given)

Closure/Reflection: (Describe how you will bring your lesson to a meaningful closure that summarizes the lesson and provides with information on what students have learned and need to learn in the future, Also may mention necessary changes required for prevailing better class on the concept)

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MODEL LESSON PLAN

Name of the School : ABC
Class : VII
Average : 13 + yrs
No. of students :
Duration : 45 mins
Date :
     Name of the author : SCERT,
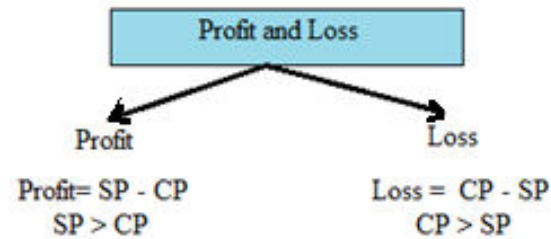
Name of the teacher : M
Subject : Mathematics
Unit : III
Topic : Profit and Loss
Name of the book : Mathematics

Kohima.

Concept Mapping:

 General Objective: Student will:

1. Know the terms Profit, Loss, Cost Price and Selling Price

2. Understands relationship of CP and SP with Profit and Loss.

3. Applies concept of Profit and Loss to solve problems.

4. Analysis between Profit and Loss.

5. Evaluate Profit or Loss in a deal.

Approach: Constructivist (5E Model)

Method: Demonstration cum Explanation, Problem Solving

TLM: Items with price tag

TIME	STEPS	TEACHERS ACTIVITIES	STUDENTS ACTIVITIES	TLM
2 min	**Engage**	Student 'A' and 'B' are engaged to demonstrate in selling an item with price tag of Rs 10. Where, Student 'A' as seller and Student 'B' as buyer. Other students are asked to observe. How much 'A' paid for the item? How much 'B' may have paid for the item? (more than Rs 10 or less)		
5 min	**Explore**	Also, students in the class are provided with some more items with price tag in it and asked to anticipate their selling price and work on their price at which the item may have brought by the seller(shop keeper)	Notes down their observation in the demonstration	
10 min	**Explain**	Students explain about price tag indicated in the items and assume some price at which the shop keeper may have bought the items.	Discusses with peer to get the answer to the leading questions	
20 min	**Elaborate**#	Students are asked to elaborate on: 1. Why the seller sells items at higher price than the price he may have paid for? 2. What will happen if the seller sells a item at lower price than he may have purchased it? 3. How to calculate the extra money the seller has earned after selling the item? Based on the students answer, teacher elaborates on the concepts, defines the terms, gives the working formula and solves problems on it.	Justifies their observation, learns new concepts, definition of terms, formula and solves problems.	
5 min	**Evaluate** #	Students' responses and answers are checked.		

**Home Assignment:** 1. If SP=Rs. 200 and CP=Rs.250, Find Loss or Profit Made?

2. If CP of a Book is Rs. 400 and Profit need to make of Rs.15 than, what will be SP of the Book?

Closure/Reflection:

MODEL LESSON PLAN

Name of the School: *ABC*   Name of teacher: Sandip
Class: VII   Subject: Mathematics
Average age: 13+ yrs   Unit : 18
No. of students: 30   Topic : Area of Rectangle and Square
Duration: 40 mins   Name of the book : Mathematics
Date: 22/8/2016   Publisher : SCERT, Kohima.
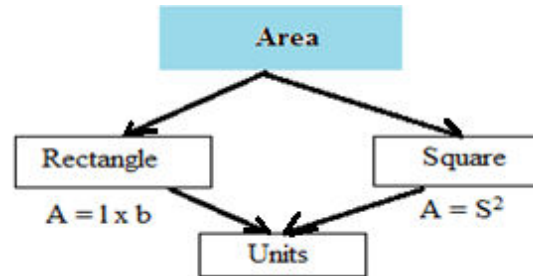
Concept Mapping:

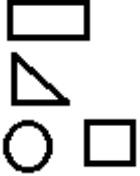
General Objective: Student will:

1. Know the term Area.

2. Understand relationship of Area, Length and Breadth of a Rectangle and Square.

3. Apply concept of Area to solve problems.

4. Analyze word problems to find Area, Length or Breadth from a given conditions.

5. Evaluate among different types of Rectangle and square.

Approach: Constructivist (*5E Model*)

Method: Demonstration cum Explanation, Problem Solving

Technique: Activity based

TLM: Models of Rectangle, Square, Triangle, Circle and Graph Paper.

TIME	STEPS	TEACHERS ACTIVITIES	STUDENTS ACTIVITIES	TLM
2 min	**Engage**	Shows Models of one Rectangle, Square, Triangle and Circle to identify them. Students groups are asked draw Rectangle or Square on the graph paper of any shape and look for the answer of the following: 1. Shade the region covered by the quadrilateral, □ABCD. 2. Count **total number of square boxes** in the shaded region, □ABCD. **Ans:....................** 3. Count number of square boxes on the, Side **AB = ...** ; Side **BC =...............** 4. Find Relationship in the **total number of square boxes** and **number of square boxes on the, Side AB ; Side BC.**	Identifies the different shapes. Completes the work with peer help.	Following Models are shown students to identify
5 min	**Explore**	Helps student to complete the task *(if necessary)*	Findings: 2. 56 boxes 3. AB= 8 boxes; BC=7 boxes 4. 56= 8 X 7	
8 min	**Explain**	Listens students Explanation w.r.t. answers from each group and ask students to justify where ever necessary. Also, provides explanation and justification where ever needed. Compares result of each group to arrive **Total No. of Boxes=(No. of Box in Length) X (No. of Box in breadth)**	Each representative of the Students group explains of their findings *(for each question)* to teacher and justifies where ever necessary	

20 min	**Elaborate**[#]	Relates shaded region to 'Area'. Introduces the Formula, A= l X b , *for Rectangle* A=S^2 , *for Square*; its Units and solves problems 1. If l=15 cm, b=10 cm, than A= lxb=15x10=150 sq.cm 2. (Student groups are given a model of quadrilateral indicating its side's measure and asked to find Area.)	1. Here, l=10cm, b= 5cm; A =lxb=10x5=50 sq cm 2. Here, S=10 cm, A= S^2 = 10 x10 = 100 sq.cm.	1. ▭ With measures 2. ◻ With measures
5 min	**Evaluate** [#]	Students work evaluated.	Solves more problems on it	

Home Assignment: 1. Draw a Rectangle of Length= 15 cm. Breadth= 12 cm, and find its Area.
          2. Draw a Square of Side= 10 cm. and find its Area.
          3. Measure length and breadth of the surface of your reading table than find its Area.

Closure/Reflection: