



BON SECOURS COLLEGE OF EDUCATION

NAAC with 'B' Grade

Affiliated by Tamil Nadu Teachers Education University, Chennai
Vilar Bypass Road, Thanjavur – 613 006

Lesson Plan model

Name of the student teacher : XXX **Subject:** Mathematics
Class/section and session : IX **Unit** : Mensuration
Name of the school : XXX **Topic** : Surface area and Volume of the cube

Instructional objectives: The students will be able

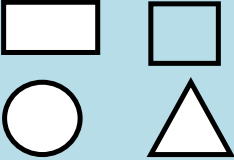
1. to identify the different mathematical shapes.
2. to recall the formulae on area and volume of the cube
3. to explain the relationship between the area and the volume of the cube.
4. to compute the problems with speed and accuracy.
5. to formulate the problems on their own.

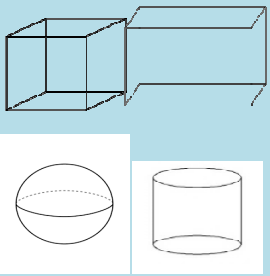
Instructional resources:

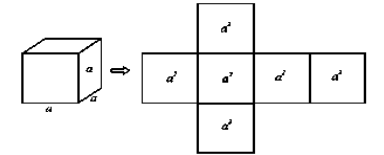
1. Model of a cube
2. Solid objects
3. Pictures depicting cube

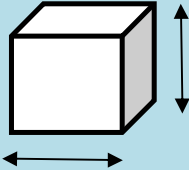
Previous knowledge of learners

List down the mathematical shapes you come across in our daily life.

Concept/Content	Specification of behavioural objectives	Learning Experiences(Teacher/Learner activities)	Evaluation
Two dimension figures 	Identifies	The teacher shows some of the geometrical shape pictures such as rectangle, square, circle and triangle.	How many dimensions are there in these pictures?

Concept/Content	Specification of behavioural objectives	Learning Experiences(Teacher/Learner activities)	Evaluation
<p>Three dimension figures</p> 	Recognises	The teacher shows solid objects and models that we see in our daily life.	Which is cube in shape?
<p>Lateral Surface Area of the cube</p> <p>The lateral surface of an object is the area of all the sides of an object excluding area of its base and top</p>	Explains	The teacher explains the surfaces that constitute the lateral surface area of the cube by showing the model	How do you find the lateral surface area of the cube?
<p>The LSA of the cube is = $4x$ area of each sides</p> <p>= $4a^2$square units</p> <p>Where 'a' is the side of the cube and a^2 is the area of each side of a cube.</p>	Generalises infers	The teacher elicits the steps involved in the derivation of the formula.	What is the formula for LSA of the cube? What do 'a' represents?
<p>Find the LSA of the cube if the side is 5 cm?</p> <p>Given $a=5$ cm</p> <p>The LSA of the cube = $4a^2$</p> <p>= 4×5^2 = 4×25 = 100 cm^2</p>	Analyses Recalls Substitutes and Computes	<p>The teacher asks one of the student to read the problem</p> <p>The teacher calls one of the students to say the formula for LSA of the cube.</p> <p>The teacher ask the value of 'a' and substitutes in the formula to find the LSA of the cube.</p>	<p>What is given in the problem?</p> <p>What is the LSA of the Cube if the side is 6 cm?</p>

Concept/Content	Specification of behavioural objectives	Learning Experiences(Teacher/Learner activities)	Evaluation
<p>Total Surface Area of the cube</p> <p>TSA of the cube= The sum of the areas of all the six equal faces of the cube.</p> $= 6xa^2$ $=6a^2\text{sq. units}$	Differentiates	<p>The teacher differentiates between the LSA and TSA of the cube by unfolding the cube shape box.</p> 	What is the difference between LSA and TSA of the cube?
<p>Find the TSA of the cube if the side of the cube is 7 cm?</p> <p>Given:</p> $a=7,$ The TSA of the Cube= $6a^2$ $=6 \times 7^2$ $=6 \times 49$ $=294 \text{ cm}^2$	Simplifies with speed and accuracy Summarises	<p>The teacher asks one of the students to do the simplification on the black board.</p> <p>The teacher summarises the steps involved in the derivation.</p>	How do you simplify?
<p>Volume of the cube:</p> <p>Volume is defined as the number of unit cubes required to fill the entire cube.</p> <p>The volume of the cube is a^3 if the side of the cube is 'a' units.</p>	Defines Compares and demonstrates	<p>The teacher writes the definition of the volume of the cube on the black board.</p> <p>The teacher makes the students to compare the area and volume of the cube by giving small demonstration.</p>	What is the volume of the cube?
<p>Find the volume of the cube if the side of the cube is 6 cm?</p> <p>Given: $a=6,$ The volume of the cube is a^3</p> $= axaxa$ $=6 \times 6 \times 6$ $=216 \text{ cm}^3$	Select appropriate formula	The teacher computes the problem by eliciting the steps from the students.	<p>What is the value of 'a'?</p> <p>What is the basic unit of volume?</p>
Concept/Content	Specification of behavioural	Learning Experiences(Teacher/Learner	Evaluation

	objectives	activities)	
<p>If the T.S.A of the cube is 384 sq.cm. Find its volume?</p> <p>Given:</p> <p>TSA of the cube =384 sq.cm</p> <p>i.e, $6a^2=384$</p>	<p>Discusses and Predicts</p>	<p>The teacher discuss with the students about the details given in the sum and how far it helps to find the solution of the problem</p>	<p>What is the formula for TSA of the cube?</p>
<p>To find the volume of the cube, 'a' is needed. The value of the 'a' is obtained from TSA of the cube.</p> <p>$6a^2 = 384$</p> <p>$a^2 = 384/6$</p> <p>$a^2 = 64$</p> <p>therefore, a = 8 cm</p>	<p>Draws neatly Indicates Calculates</p>	<p>The teacher draws the shape of the cube on the black board and marks it side 'a' which is needed.</p> <p>a =?</p>  <p>a =?</p> <p>The teacher help the students to find the value of 'a' from TSA of the cube.</p>	<p>Why we are finding the value of 'a' here?</p> <p>If $a^2 = 64$, what does 'a' represents.</p>
<p>Now by substituting the value of 'a'</p> <p>In the volume of the cube.</p> <p>We get, $V=axaxa$</p> <p>$V=8x8x8$</p> <p>$V=512 \text{ cm}^3$</p>	<p>Establishes the relationship Interprets</p>	<p>The teacher exhibits the relation between the TSA and volume of the cube.</p> <p>The teacher asks the students to make use of the obtained 'a' value in the TSA of the cube to find its volume.</p>	<p>What is the formula for volume of the cube?</p>

<p>Supervised study:</p>	<p>Examines and Clarifies</p>	<p>The teacher writes the problem on the blackboard to work out under the supervision. And also clarifies the doubts of the</p>	<p>Find the LSA,TSA and Volume of the cube if the</p>
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	<p>Checks sufficiency of data.</p> <p>Selects appropriate formula and substitutes.</p> <p>Computes with speed and accuracy.</p>	students.	side is 10 cm?
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Home work:

1. Find the Lateral Surface Area (LSA), Total Surface Area (TSA) and volume of the Cube having their sides as 8 cm.
2. If the Total Surface Area of a cube is 1014 cm^2 , find the length of its side.
3. A container is in the shape of a cube of side 20 cm. How much sugar can it hold?

Signature of the Pre service teacher

Signature of the supervisor