



# SENTHIL COLLEGE OF EDUCATION

Accredited with NAAC "B" Grade

Affiliated to Tamil Nadu Teachers Education University, Chennai  
PeriyavadaVadi, Vridhachalam-606104.  
Cuddalore District, Tamil Nadu, India

## MODEL LESSON PLAN - MATHEMATICS

Name of the School:

Name of the Student Teacher:

Standard: IX

Name of the Guide Teacher:

Subject: Mathematics

Date:

Topic: Surface area and Volume of the cube

Time: 45 Minutes

**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**

The Teacher asks the below questions to check the previous knowledge of the students.

1. How many sides are there in a cube?
2. Name some of the cube shape objects.
3. What is the area of the square?

<b>Concept/Content</b>	<b>Specification of behavioural objectives</b>	<b>Learning Experiences(Teacher/Learner activities)</b>	<b>Evaluation</b>
<p><b>Lateral Surface Area (LSA) of the cube.</b> The Lateral Surface Area of a cube is the area of all the sides of the cube excluding area of its base and top.</p>	Defines	The teacher defines the Lateral Surface Area of the cube.	Define LSA of the cube.
<p><b>Model of the cube.</b></p>	Recognises	The students handle the model of the cube and recognize its LSA.	
<p><b>Formula for LSA of the cube = <math>4a^2</math>sq. units</b></p>	Explains	<p>The teacher explains the steps involved in the deriving the formula.</p> <p style="padding-left: 40px;"><math>= 4 \times</math> area of each sides</p> <p style="padding-left: 40px;"><math>= 4a^2</math>square units</p> <p>Where 'a' is the side of the cube.</p>	What is the formula for LSA of the cube?
<p><b>Find the LSA of the cube if the side is 5 cm?</b> Given <math>a=5</math> cm</p> <p>The LSA of the cube <math>= 4a^2</math></p> <p><math>= 4 \times 5^2</math> <math>= 4 \times 25</math> <math>= 100 \text{ cm}^2</math></p>	<p>Analyses</p> <p>Identifies</p> <p>Recalls</p> <p>Substitutes</p>	<p>The teacher asks one of the students to read the problem.</p> <p>Students identify the value of 'a' in the given problem.</p> <p>The students recalls the formula for LSA of the cube.</p> <p>The teacher substitutes the value of the 'a' and calculates the LSA of the cube in the black board.</p>	<p>What is the value of a in the given problem?</p> <p>What is the LSA of the cube if the side is 6 cm?</p>
<p><b>Total Surface Area (TSA) of the cube.</b> The Total Surface Area of a cube is the area of all the sides of the cube including its base and top.</p>	Defines	The teacher defines the Total Surface Area of the cube.	Define TSA of the cube.



Concept/Content	Specification of behavioural objectives	Learning Experiences(Teacher/Learner activities)	Evaluation
<p><b>Volume of the cube:</b> The number of unit cubes required to fill the entire cube.</p> <p>Real cube shape objects</p>	<p>Defines</p> <p>infers</p> <p>demonstrates</p>	<p>The teacher defines the volume of the cube.</p> <p>The students infers the volume of the cube as <math>a^3</math> cubic units.</p> <p>The students involves in demonstrating the volume of the cube with the teacher.</p>	<p>Define the volume of the cube.</p> <p>What is the volume of the cube?</p>
<p><b>Find the volume of the cube if the side of the cube is 6 cm?</b> The volume of the cube is <math>a^3 = a \times a \times a</math> Given <math>a = 6</math></p> <p><math>= 6 \times 6 \times 6</math> <math>= 216 \text{ cm}^3</math></p>	<p>Selects appropriate formula.</p> <p>Computes</p>	<p>One of the students writes the appropriate formula in the blackboard.</p> <p>The teacher helps the students to compute the problem.</p>	<p>What is the basic unit of volume?</p>
<p><b>If the T.S.A of the cube is 384 sq.cm. Find its volume?</b></p> <p>TSA of the cube = 384 sq.cm</p> <p>TSA of the cube = <math>6a^2</math> <math>6a^2 = 384</math> <math>a^2 = 384/6</math> <math>a^2 = 64</math></p> <p>therefore, <math>a = 8 \text{ cm}</math></p> <p><math>V = axaxa</math> <math>V = 8 \times 8 \times 8</math> <math>V = 512 \text{ cm}^3</math></p>	<p>Establishes the relationship</p> <p>Discusses</p> <p>Draws neatly</p> <p>Indicates</p> <p>Substitutes</p>	<p>The teacher exhibits the relation between the TSA and volume of the cube</p> <p>The teacher discuss with the students about the details given in the problem.</p> <p>One of the students draws the shape of the cube on the black board and indicates it side as 'a'.</p> <div data-bbox="865 1482 1101 1707" style="text-align: center;"> </div> <p>The teacher substitutes the value of 'a' to find the volume of the cube.</p>	<p>Why we are finding the value of 'a' here?</p> <p>If <math>a^2 = 64</math>, then what is the value of 'a'?</p>

<b>Supervised study:</b>	Examines and Clarifies	The teacher writes the problem on the blackboard to work out under the supervision. And also clarifies the doubts of the students.	Find the LSA, TSA and Volume of the cube if the 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  $1014 \text{ cm}^2$ , 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**