

LESSON - 01

Name - Prachi S. Rehpade

Subject - Mathematics

Unit / Topic - Curved surface area of cone.

Practice Teaching School - St. Xavier's English High

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School, Dombivli (W)

* Cognitive Competencies :-

- ① To find the curved surface area of cone.
- ② To help the student to understand the process of drawing curved surface area of cone from area of rectangle.

* Psychomotor Competencies :-

- ① To develop a skill of finding formulas in creative way.
- ② To develop critical thinking in students.

* Affective Competencies :-

- ① To develop values such as discipline, neatness, accuracy.
- ② To develop dignity of labour.

* Tools :-

- ① Sheets of paper
- ② Scale & pencil
- ③ pair of scissors.
- ④ Sketch pens.

* Introduction:-

By previous knowledge about rectangle and cone, teacher asks some questions.

- Q.1 How many sides of rectangle? \rightarrow 4 sides.
- Q.2. what is the area of rectangle \rightarrow Base \times height
- Q.3. what is the slant height of the cone? \rightarrow length of the cone.
- Q.4 How many surfaces does the cone has?
 \rightarrow 2 surface
① circular base
② curved surface.

* Main Content:-

① Take a cone which is made up of paper in fig. 1.

② Cut the cone in this way which makes the net of curved surface from the centre of the cone in the fig. 2

③ Circumference of base of the circle = $2\pi r$

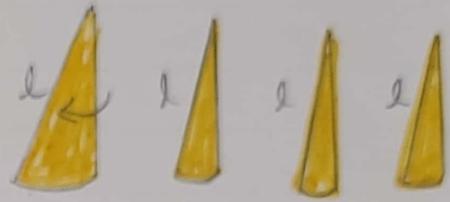


fig-1



fig-2

③ Make pieces of the net as small as possible as shown in the fig. 3 & join them in fig 4



④ By joining the small pieces of the net cone, we get a rectangle ABCD approximately as shown in the fig 4.

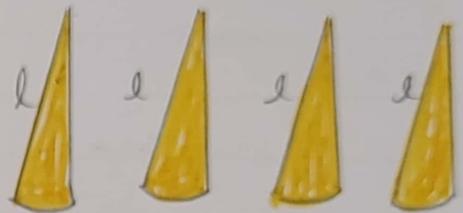


fig-3

⑤ Now shade the pieces with the colours.

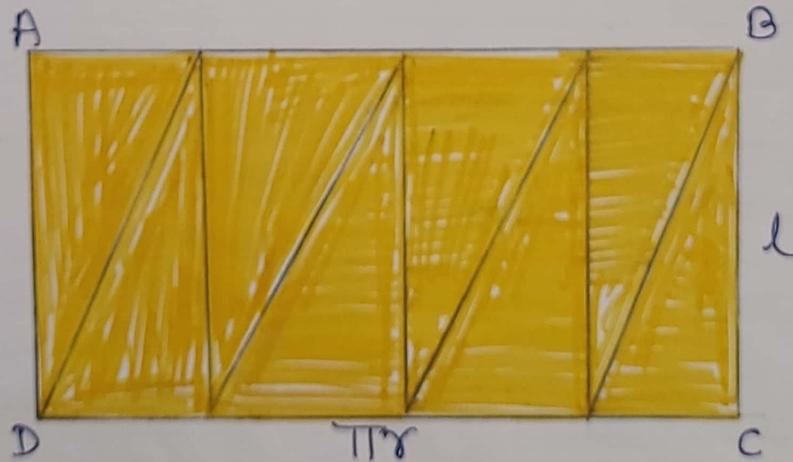


fig-4

Observation :-

① From the Cone, we observe that the pieces of the cone formed a rectangle.

② We get a rectangle approximately.

Total length of AB and CD = $2\pi r$

∴ length of side AB of rectangle ABCD is πr

& length of side CD is also πr

length of side BC of rectangle = slant height of cone = l

Curved surface area of cone is equal to the area of the rectangle.

$$\begin{aligned}\therefore \text{Curved surface area of cone} &= \text{Area of rectangle} \\ &= AB \times BC \\ &= \pi r \times l \\ &= \pi r l.\end{aligned}$$

$$\begin{aligned}\therefore \underline{\text{Curved surface area of cone}} &= \underline{\text{Area of rectangle}} \\ &= \underline{\pi r l}.\end{aligned}$$

* Conclusion :-

Curved surface area of cone =
Area of rectangle.

$$= AB \times BC$$

$$= \pi r \times l$$

$$= \pi r l$$

\therefore curved surface area of cone = $\pi r l$.

* Precautions :-

- ① To instruct the student to bring white paper and geometrical materials.
- ② Handle the sharp objects and scissors carefully.
- ③ After the activity clean up our sitting area.

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