



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

PHYSICAL SCIENCE

Name of the School :	Student Teacher Name :
Standard :	Guide Teacher Name :
Unit : Measurement of Length	Date :
Topic : Measurements	Duration : 45 Minutes

INSTRUCTIONAL OBJECTIVES : THE STUDENT

- Acquires the knowledge of the
 - fundamental quantities and S.I. Units.
 - description of vernier calipers.
 - least count (LC) and its determination.
 - zero error of vernier calipers.
- Understands the explanation about vernier calipers and reason for finding out the Least Count and zero error of vernier calipers.
- Applies the scientific knowledge to identify the type of zero error in the diagram.
- Develop skills to
 - observe the diagram of vernier calipers.
 - draw the diagram of vernier calipers.
 - label accurately the parts of the diagram of vernier calipers.
 - find out the LC of a given vernier calipers.
 - calculate accurately the length of an object for the given values.
- Develops attitude towards science in knowing more about the vernier calipers.

SPECIFICATIONS OF THE BEHAVIOURAL OBJECTIVES : THE STUDENT

- Recalls the fundamental quantities and S.I. units.
- Recognizes the
 - meter scale.
 - term least count of vernier calipers.
 - procedure to find out the length of cylinder by using vernier calipers.
 - zero error and its two types.

3. Gives explanation of vernier calipers.
4. Gives reason for finding out the Least Count and the zero error of a vernier caliper.
5. Identifies the type of zero error in the diagram.
6. Draws the diagram of the vernier calipers.
7. Labels accurately the parts of vernier calipers.
8. Find out the Least Count of a vernier caliper.
9. Calculates accurately the length of an object for the given values.
10. Shows curiosity to know more about vernier calipers.

INSTRUCTIONAL RESOURCES REQUIRED

1. Vernier calipers.
2. Charts containing of the diagram of a vernier calipers and the diagram of the types of zero error.

PREVIOUS KNOWLEDGE OF LEARNERS

To identify and name of the objects
Meter Scale and Measuring tape

What are the uses of meter scale?
To measure the length

Content	Specification of behavioral outcomes	Learning Experiences	Evaluation
Length, Mass and Time SI-System International (Universally accepted system) Meter(m), Kilogram(Kg), Second(s), Ampere(A), Kelvin(K) etc	Recalls	The teacher recalls some SI units. The students recall SI units and fundamental quantities.	What are the fundamental quantities? What is meant by SI?
We can measure the length of an object correct to one millimeter with this scale. Because centimeter, millimeter divisions are marked on a meter scale.	Recognizes	The teacher teaches about meter scale. The students gain knowledge about the meter scale.	What are the uses of meter scale?
The teacher displays a chart showing the diagram of a vernier calipers.	Observes, understands	The teacher displays a chart of vernier caliper and explains about the parts of a vernier caliper. The students understand the parts of the vernier caliper.	What are the parts of vernier caliper?

M- Main scale V- Vernier scale P- Ratchet	Draws	The teacher draws a diagram of vernier caliper. The students acquire skill to draw a diagram of vernier caliper.	Draw a diagram of vernier caliper
1. understand the parts of vernier vertical jaws and a movable vernier scale with a Pair of jaws parallel to the fixed jaws 2. Ratchet is used to move and fix the vernier scale at any point of the main scale 3. Downward jaws-measurement of outer dimension Upward jaws-measurement of inner dimensions Steel strip-measurement of depth of objects.	Recognizes, Labels	The teacher explains about the vertical jaws, uses of ratchet, downward jaws, upward jaws and steel strip. The students take notes about the vertical jaws,a movable vernier scale and steel strip.	What is the use of Ratchet?
LC = 1 M.S.D- 1V.S.D. = 1mm-0.9mm = 0.1mm = 0.01cm	Recognizes	The teacher explains the least count of a vernier caliper. The students gain knowledge to calculate least count.	Define Least count.
A cylinder is holded between the two jaws of the vernier calipers. The position of the zero of the vernier scale on the main scale noted as a main scale reading. The vernier scale division which coincides with any one of the main scale division gives the vernier scale reading. Length of the object= M.S.Reading+ (Vernier scale Reading* Least count).	Recognizes	The teacher demonstrates the experiments to find out the length of a cylinder by using vernier calipers. The students keenly observe the experiment and they do it themselves.	a. What is the formula used for calculating the length of an object? b. How do you find out main scale reading?
Length of the object = $3.5 + (4 \times 0.01)$ $= 3.5 + 0.04$ $= 3.54 \text{ cm}$	Calculates	The teacher explains to calculate the length of the object by using vernier caliper. The students calculate accurately the length of the object for the given values. M.S.R = 3.5cm	

		V.S.R = 4 L.C = 0.01cm	
When the jaws of vernier calipers are in contact, the zero of the vernier scale coincides with the zero of the main scale. If the zero error of the vernier scale is on the right or left of the main scale is known as positive and negative error respectively.	observes	The teacher explains about zero error and its two types. The students able to identify zero error.	Define Zero error? What is positive error? What is negative error?
(A) Positive error (B) Negative error	Identifies	The teacher explains the types of error by using diagrams. The students identify the positive and negative error by observing the diagram.	Label the error in the given diagram
LC is the smallest length measured by vernier calipers and used to find out the thickness.	Give reasons	The teacher gives reason for finding out LC of a vernier caliper. The students give reason for the following. (i) Why do you find out LC of a vernier calipers?	
It is used to find out the length and diameter of a cylinder and etc.	Shows curiosity	The teacher explains the other uses of vernier caliper. The students Show curiosity to know more about vernier calipers.	

FOLLOW UP ACTIVITIES

1. Draw a diagram of vernier caliper.
2. Find out diameter of a cylinder by using vernier caliper.

Signature of the Guide

Signature of the Student Teacher