

[PRACTICAL REPORT]

Topic: Measuring Heights Using a Clinometer

Class: X-B

Subject: Mathematics

Chapter: Some Applications of Trigonometry

- ***Objective of the Activity:***

This activity aimed to help students understand the real-life applications of trigonometry. Through hands-on practice, we explored how the tangent of an angle can be used to calculate the heights of tall objects by using a simple tool called a clinometer. The goals included:

- (i) Using trigonometric concepts practically.
- (ii) Learning to construct and use a clinometer.
- (iii) Strengthening teamwork and measurement skills.
- (iv) Understanding the importance of accurate observations.

- ***What We Did:***

As part of the class activity, we were divided into small groups. Each group was assigned to measure the height of a different object or structure within the school premises using a self-made clinometer and measuring tape.

We first constructed our own clinometers using basic classroom materials. Then, we chose a measurable distance from the object (called the baseline), used the clinometer to observe the top of the object, recorded the angle of elevation, and noted our eye-level height. With this data, we applied trigonometric methods to estimate the total height.

- ***Where We Performed It:***

The activity took place across different parts of the school campus. Some examples include:

- (i) Measuring the Junior School Building's height
- (ii) Measuring the Air Conditioner unit in the Senior School Auditorium
- (iii) Measuring tall trees, pillars, flagpoles, and even the bell tower.

- ***How the Experience Was:***

The activity was fun, engaging, and informative. We enjoyed moving around the campus, interacting with different groups, and performing actual field measurements. It felt like doing the job of a real surveyor or engineer. We also compared our answers with other groups to check for accuracy.

Our group worked well together — assigning roles for measurement, angle reading, and recording — and ensured everyone participated. We did multiple trials to ensure our readings were consistent and as close to accurate as possible.

- ***Learning Outcomes:***

- (i) We gained practical experience with angles of elevation and distance estimation.
- (ii) The activity helped us better understand the importance of trigonometric ratios in real-life applications.
- (iii) We learned how to take accurate readings and avoid common measurement errors.
- (iv) Teamwork, collaboration, and patience were essential to the process.

-We now have a clearer vision of how Mathematics connects with everyday observations and professional fields like architecture, construction, and land surveying.

- ***Conclusion:***

This activity was a refreshing break from textbook learning. It was an eye-opener that Mathematics is more than just solving equations on paper — it has real, practical uses all around us. The clinometer activity not only deepened our understanding of trigonometry but also sparked curiosity about how simple tools can be used to solve big problems.

-X-X-X-