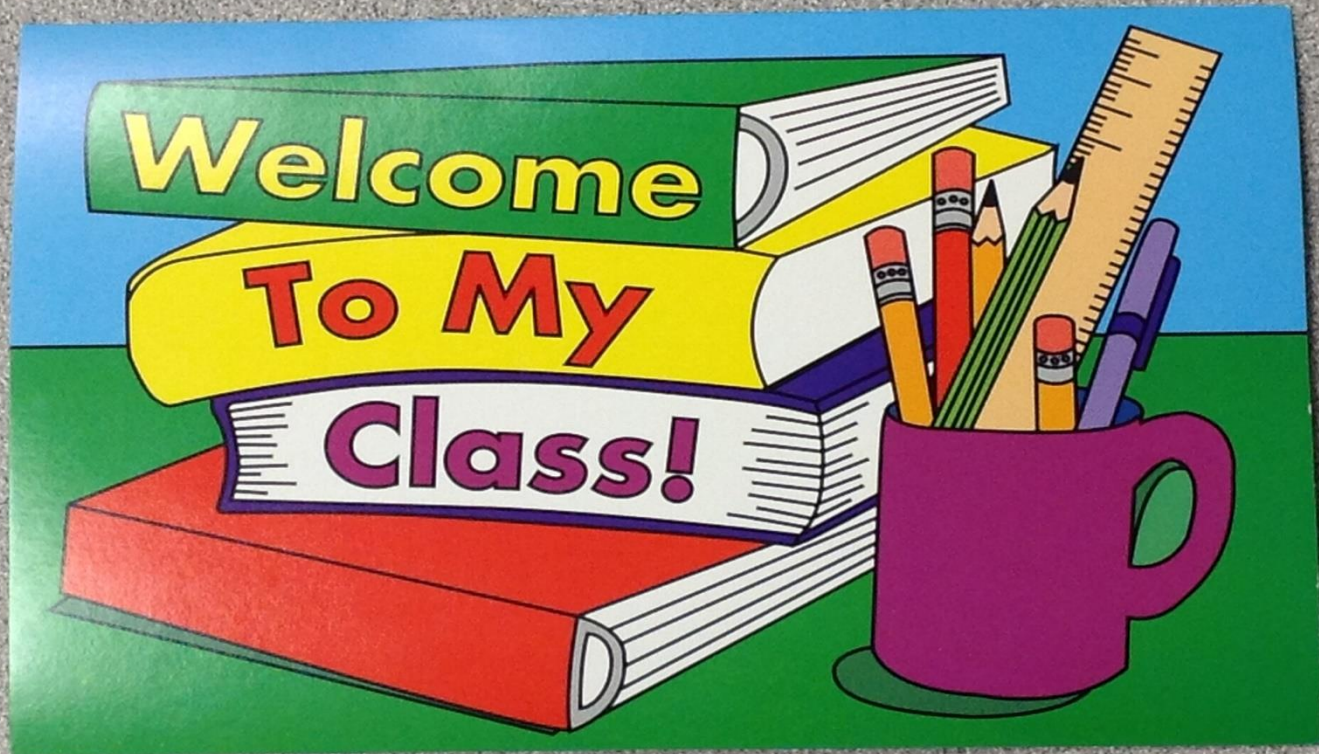




Pakistan School
Kingdom of Bahrain

بِسْمِ اللَّهِ الرَّحْمَنِ الرَّحِيمِ



ENGAGING STARTER

Which device is used to measure?

- ❖ height of a table
- ❖ thickness of a wire **up to 0.01cm**
- ❖ thickness of a wire **less than 0.01cm**

TOPIC

❖ Screw gauge



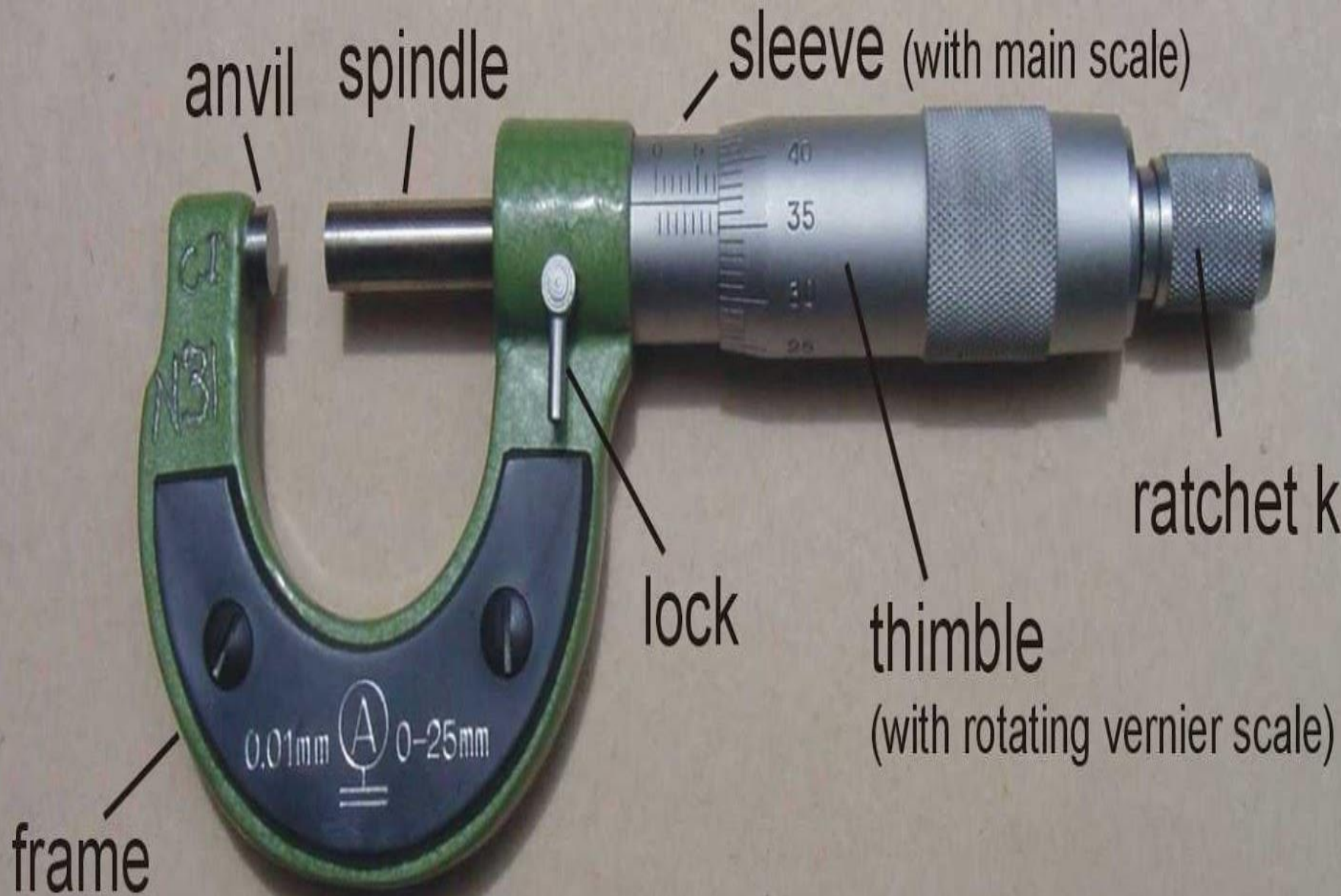
OBJECTIVE

- ❖ AT THE END OF THIS LESSON THE STUDENTS WILL BE ABLE TO
- ❖ DESCRIBE SCREW GAUGE
- ❖ CALCULATE LEAST COUNT AND FIND ZERO ERROR.

**Q. WHAT IS SCREW GAUGE? DESCRIBE
CONSTRUCTION, LEAST COUNT, ZERO ERROR AND
WORKING OF SCREW GAUGE?**

❖: SCREW GAUGE:

❖“A screw gauge is an instrument that is used to measure small lengths with accuracy greater than a vernier callipers. It is also called micro meter screw gauge”.



CONSTRUCTION

❖ A simple screw gauge consists of U shaped metal frame with a metal stud at its one end.

❖ Scales: It has 2 scales

❖ i. Main scale: A hollow cylinder has a millimeter scale over it along a line called index line.



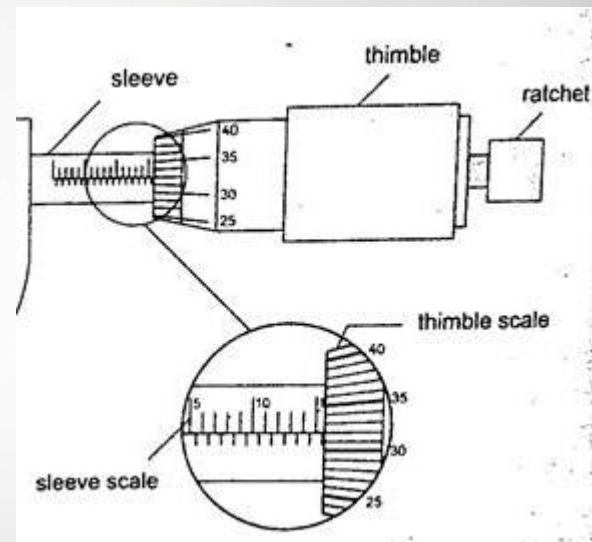
❖ii. Circular scale: The hollow Cylinder acts as a nut, it is fixed at one end of U shaped frame having division on it, called circular scale.

❖Thimble has a threaded spindle inside it



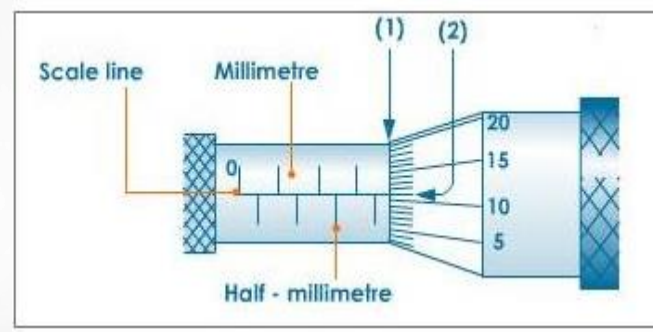
PITCH OF THE SCREW GAUGE

❖ As the thimble completes one rotation, the spindle moves 1 mm along the index line. It is because the distance between consecutive threads on the spindle is 1 mm. This distance is called the pitch of screw on the spindle.



LEAST COUNT OF SCREW GAUGE

❖ The thimble has 100 divisions around its one end. It is the circular scale of the screw gauge. As thimble completes one rotation, 100 divisions pass the index line and the thimble moves 1 mm along the main scale. Thus each division of circular scale crossing the index line moves the thimble through $1/100$ mm or 0.01 mm on the main scale



CALCULATION OF LEAST COUNT OF SCREW GAUGE

$$\begin{aligned} \diamond & \text{least count} = \frac{\text{Pitch of screw gauge}}{\text{No of division on circular scale}} \\ \diamond & \\ \diamond & \text{L.C} = \frac{1\text{mm}}{100} \\ \diamond & \\ \diamond & = 0.01\text{mm} \quad \text{or} \quad 0.001\text{cm} \end{aligned}$$

ZERO ERROR

❖ Zero Error of Screw Gauge:

❖ To find the zero error, close the gap between the spindle and the stud of the screw gauge by rotating the ratchet in the clockwise direction. If zero of circular scale coincides with the index line, then the zero error will be zero

PLENARY

- ❖ 1. Which device is used to measure thickness of a tissue paper?
- ❖ How many types of scales are there in screw gauge? Name them.
- ❖ T/F There are only 100 divisions on the circular scale.
- ❖ When thimble completes one rotation thimble moves 1mm along index line, this distance is also known as
- ❖ The value of least count of screw gauge is 0.01mm or 0.001mm.

PBBK
600

**STAY HOME!
STAY SAFE!**





❖ ALLAH

HAFIZ