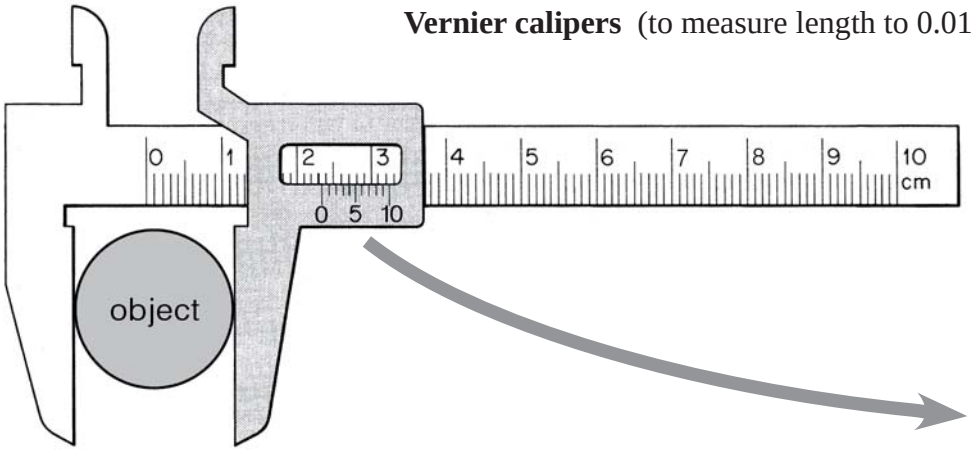
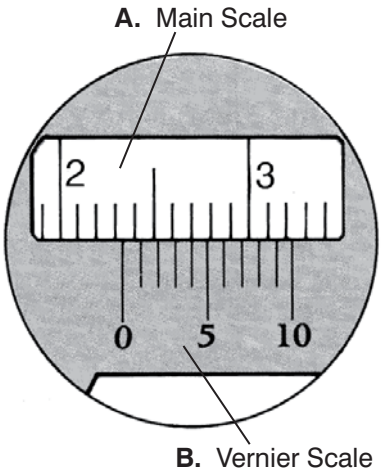
Vernier calipers, the Micrometer

Extension Sheet

Vernier calipers (to measure length to 0.01 cm)





Follow steps A and B to get a reading:

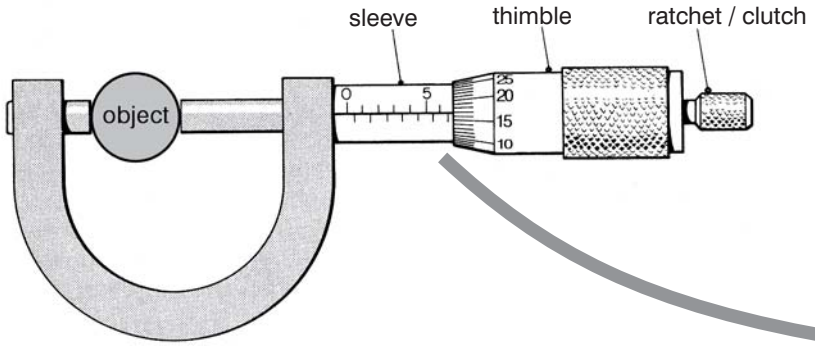
A. The Main Scale is marked in cm with mm divisions.
Use the zero on the Vernier Scale to find the number of cm and mm. In the diagram it is 2.3 cm.

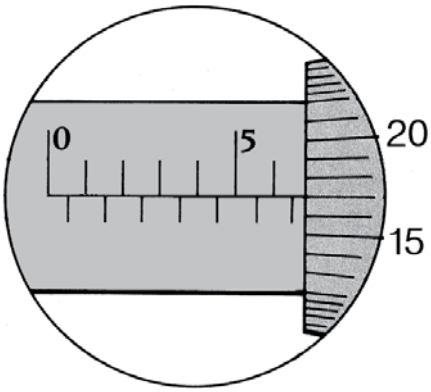
B. Look along the Vernier Scale to see which mark on it is directly opposite a mark on the Main Scale.
In the diagram it is the 4th mark on the Vernier Scale.
This tells you that the 2nd decimal place is 4.

So the size of the object is 2.34 cm.

A:	2.3	cm
B:	+ 0.04	cm
Total =	2.34	cm

Micrometer (to measure length to 0.001 cm)





Turn the thimble with the ratchet/clutch until the object is held gently in the jaws.
Then follow steps A and B to get a reading:

A. The Main Scale is on the sleeve. It is marked in mm, with ½ mm divisions underneath.
Take the reading at the edge of the thimble.
In the diagram it is 6.5 mm = 0.65 cm.

B. The thimble scale measures in $^{1}/_{100}$ mm = $^{1}/_{1000}$ cm.
In the diagram, it reads 17 divisions = $^{17}/_{1000}$ cm = 0.017 cm.

So the size of the object is 0.667 cm.

A:	0.65	cm
B:	+ 0.017	cm
Total =	0.667	cm

For both these instruments, before using them you should check that the reading is zero when the jaws are closed.

Oxford University Press, ISBN 978-0-19-837571-5 GCSE Physics for You, 5th edition