

What is a Periscope?

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About Periscope:

- It is an **optical instrument** used in land and sea warfare, submarine navigation, and elsewhere to **enable an observer to see his surroundings while remaining undercover, behind armor, or submerged.**
- **Submarines have periscopes** so that people inside **can see what is on the surface of the water.**

Construction and Working Principle:

- Periscopes can be **constructed using a pair of flat mirrors or prisms** and a **rectangular hollow tube that has a viewing window at the top and bottom of the tube.**

- The **mirrors** within this structure **are fixed at an angle of 45° at the two ends of the rectangular hollow.**
 - A periscope is a useful **example of the law of reflection at work.** It's important that your **mirrors are placed at a 45° angle, because light always reflects away from a mirror at the same angle that it hits it.**
 - **In a periscope, light from an object strikes the top mirror at 45° and bounces off at the same angle.**
 - **This sends light directly down the tube and onto the lower mirror.** This mirror, **also at a 45° angle, reflects light directly to your eye.**
 - A **simple periscope only requires mirrors**, whereas a **more complicated periscope utilizes prisms rather than mirrors.**
 - The **periscopes used in submarine applications are complex**, typically requiring the use of tubes that are at least 10 meters in length to achieve a greater range of scope.
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Q1) What is the Central Scientific Instruments Organisation (CSIO)?

CSIO Chandigarh, is a constituent laboratory of the Council of Scientific & Industrial Research (CSIR), a national laboratory dedicated to research, design and development of scientific and industrial instruments. It is a multi-disciplinary and multi-dimensional apex industrial research & development organization in the country to stimulate growth of the Instrument Industry in India covering a wide range of applications.

Source: [In a first, Navy submarine periscope refurbished at CSIO](#)

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