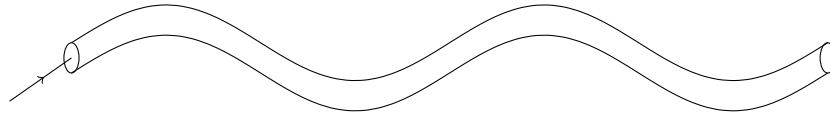


# Total Internal Reflexion II

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1. (a) The diagram below shows an optical fibre. The critical angle for this fibre is  $42^\circ$ . On the diagram, accurately mark the passage of the ray down the fibre.



- (b) Fibre optics are used in telecommunications. Suggest two advantages over electrical cables.
2. An endoscope is used to look into the body. The picture below shows an endoscope. Explain, in as much detail as possible, how this works.

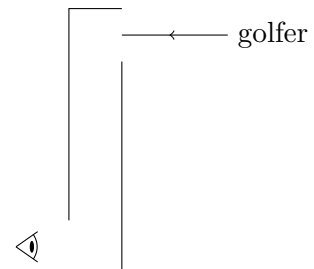


Image source: <http://www.ehow.co.uk/>

3. Total internal reflection prisms may be used in periscopes. They are often used at golf tournaments, so spectators can see over crowds.

(a) Copy the diagram, and show

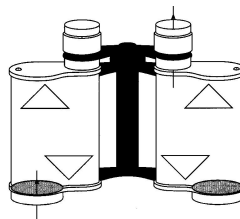
- the arrangement of the prisms,
- the path of the light from the golfer to the eye of the spectator.



(b) What is the advantage of using prisms over mirrors?

4. Prisms may also be used in binoculars.

(a) On the diagram, show the passage of the light through the binoculars.



(b) What advantage is there in having the prisms inside the binoculars?