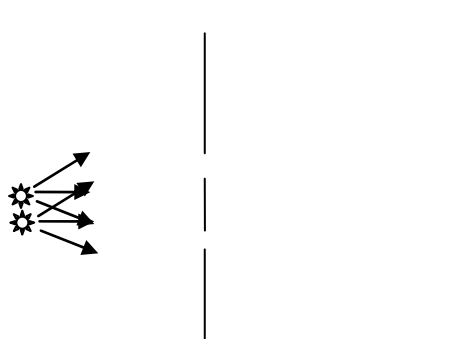


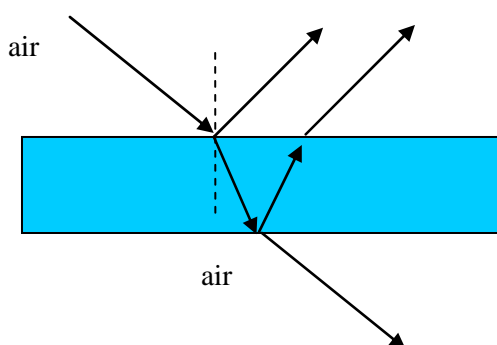
Support Worksheet – Option G, Worksheet 2

- 1 Light from two point sources is incident on two thin parallel slits as shown in the diagram.



A screen is placed far from the slits. State and explain whether an interference pattern will be observed on the screen when

- a the sources are filament lamps. [2]
 - b the sources are lasers. [2]
- 2 Laser light of wavelength 620 nm is incident normally on two parallel slits separated by a distance 0.24 mm. An interference pattern is observed on a screen placed at a distance of 1.8 m from the slits. Calculate the separation of two consecutive bright fringes. [2]
 - 3 Draw the intensity pattern of the light on the screen for the previous problem. [2]
 - 4 Describe how the pattern you drew for the previous problem changes when the number of slits increases with the slit separation and slit width remaining the same. [3]
 - 5 Describe the production of the continuous part of the X-ray spectrum in an X-ray tube. [3]
 - 6 Describe the production of the characteristic (discrete) part of the X-ray spectrum in an X-ray tube. [3]
 - 7 The diagram shows a ray of light incident on a thin film of soap water and the subsequent path of the ray.



Indicate on the diagram the points where the ray undergoes a phase change. [1]