

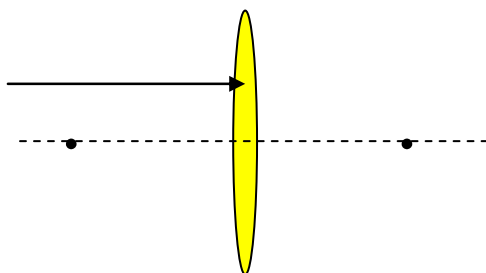
**Support Worksheet – Option G, Worksheet 1**

- 1 Describe what is meant by an **electromagnetic** wave. [2]
- 2 List the following electromagnetic waves in order of **increasing** wavelength: radio waves, infrared radiation, blue light, X-rays. [1]
- 3 State whether the following statement is true or false: all electromagnetic waves have the same speed in vacuum. [1]
- 4 State whether the following statement is true or false: all electromagnetic waves have the same speed in glass. [1]
- 5 State what is meant by **dispersion**. [1]
- 6 State one difference between laser light and light from a filament lamp. [1]
- 7 The diagram shows a converging lens.



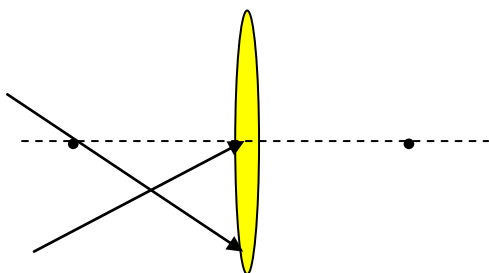
On the diagram draw a line to indicate the principal axis of the lens. [1]

- 8 The diagram shows a converging lens. The focal points of the lens have been marked.



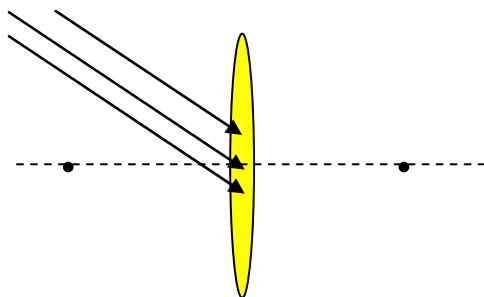
- a Define the focal points of a lens. [1]
- b On the diagram draw a line to show the refraction of the ray in the lens. [1]

- 9 The diagram shows a converging lens. The focal points of the lens have been marked.



On the diagram draw lines to show the refraction of the rays in the lens. [2]

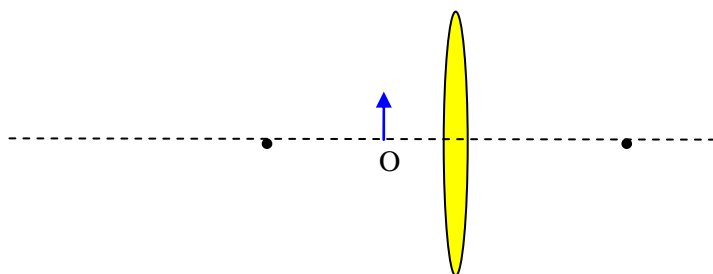
- 10 The diagram shows a converging lens. The focal points of the lens have been marked.



On the diagram draw lines to show the refraction of the rays in the lens. [2]

- 11 State the difference between a real and a virtual image. [2]

- 12 The diagram shows an object (O) in front of a converging lens. The focal points of the lens have been marked.



On the diagram draw lines to show the construction of the image in the lens. [3]

- 13 State what is meant by **chromatic aberration** and describe the appearance of an image in a lens that suffers from chromatic aberration. [3]

- 14 State what is meant by **spherical aberration** and describe the appearance of an image in a lens that suffers from spherical aberration. [2]