

Splitting light, coloured filters, lenses and the eye

Grade 8 science (Year 9 · Class 8) · Test

Name: _____ Date: _____ Class: _____ Mark: ____ / 20

This test checks dispersion, coloured filters, converging lenses and the eye. Answer every question, show your working in calculations, and write units. Use the marks shown to decide how much to write.

Level: Grade 8 science (Year 9 · Class 8) · **Curriculum:** MS-PS4-2

Time: 45 minutes · 8 questions · Total: 20 marks · Calculator allowed

Question 1 White light and a prism (2 marks)

A narrow beam of white light passes through a glass prism onto a screen.

- Describe what is seen on the screen. (1 mark)
- State which colour is bent the most. (1 mark)

Question 2 Magenta filter (2 marks)

A magenta filter is placed in a beam of white light.

- State the colours of light that the filter transmits. (1 mark)
- Green light alone is shone at the filter. State what emerges and why. (1 mark)

Question 3 Leaf in red light (3 marks)

A green leaf is viewed in white light and then in pure red light.

- Explain why the leaf looks green in white light. (1 mark)
- Explain why the leaf looks black in red light. (2 marks)

Question 4 Magnification (2 marks)

A student looks at a coin 2.4 cm wide through a lens.

- The image is 9.6 cm wide. Calculate the magnification. (1 mark)
- A different lens has a magnification of 0.60. Calculate the image height of a 5.0 cm object. (1 mark)

Question 5 Parts of the eye (3 marks)

Name the part of the eye that:

- changes the size of the pupil; (1 mark)
- contains the light-sensitive cells; (1 mark)
- carries signals to the brain. (1 mark)

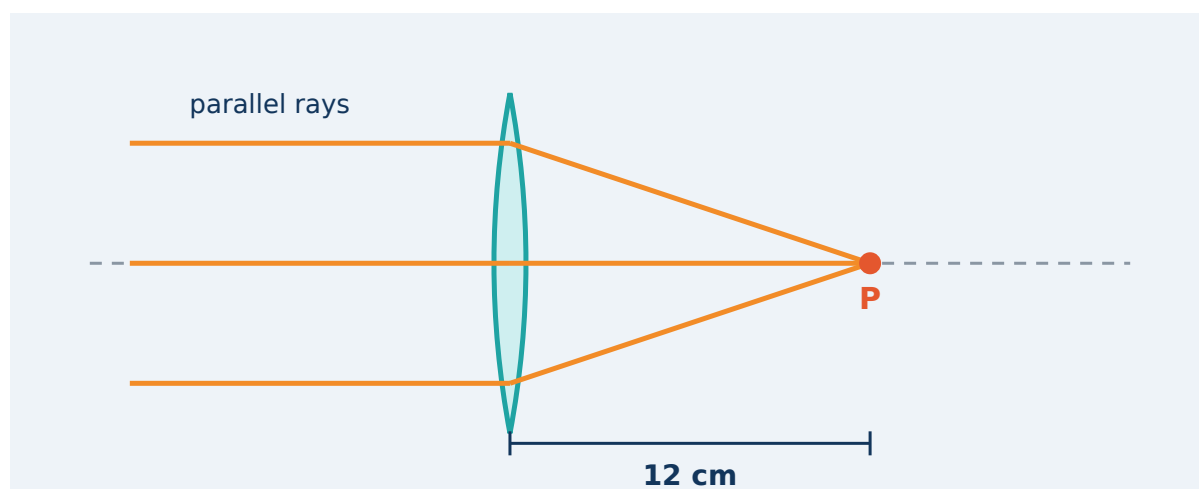
Question 6 Image on the retina (2 marks)

Describe the image formed on the retina of a person looking at a tree. Give two features. (2 marks)

Question 7 Reading a lens diagram (3 marks)

The diagram shows parallel rays passing through a lens.

- Name this type of lens. (1 mark)
- State the focal length of the lens. (1 mark)
- State where the image of a very distant tree would form. (1 mark)



Parallel rays are bent by the lens and meet at point P.

Question 8 Object close to a lens (3 marks)

A student holds a converging lens of focal length 10 cm and places a small object 4 cm from it.

- Describe the image. (1 mark)
- Explain why the image cannot be caught on a screen. (1 mark)
- State a use of a lens in this way. (1 mark)