GIS MYP Science Department
Grade 9 Unit 1 – Waves, Particles and Radiation

Name:_____

Key concept	Related concepts	Global context
Relationships	**Consequences Energy Evidence Form**	**Scientific and technical innovation**

Statement of inquiry:

Energy can move from place to place in a number of **forms**, **evidence** for which is all around us. The movement of energy often has **consequences** and the **relationship** between the movement of energy and its consequences must be understood if it is to be used for our benefit.

1. Describe one similarity between a camera and our eyes? (1)

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……

2. If an angle of incidence was 60^0 what would the reflected angle be? …… (1)
3. Would the angle of refraction be **bigger** or **smaller** than the angle of incidence going from air into glass? Explain your choice. (2)

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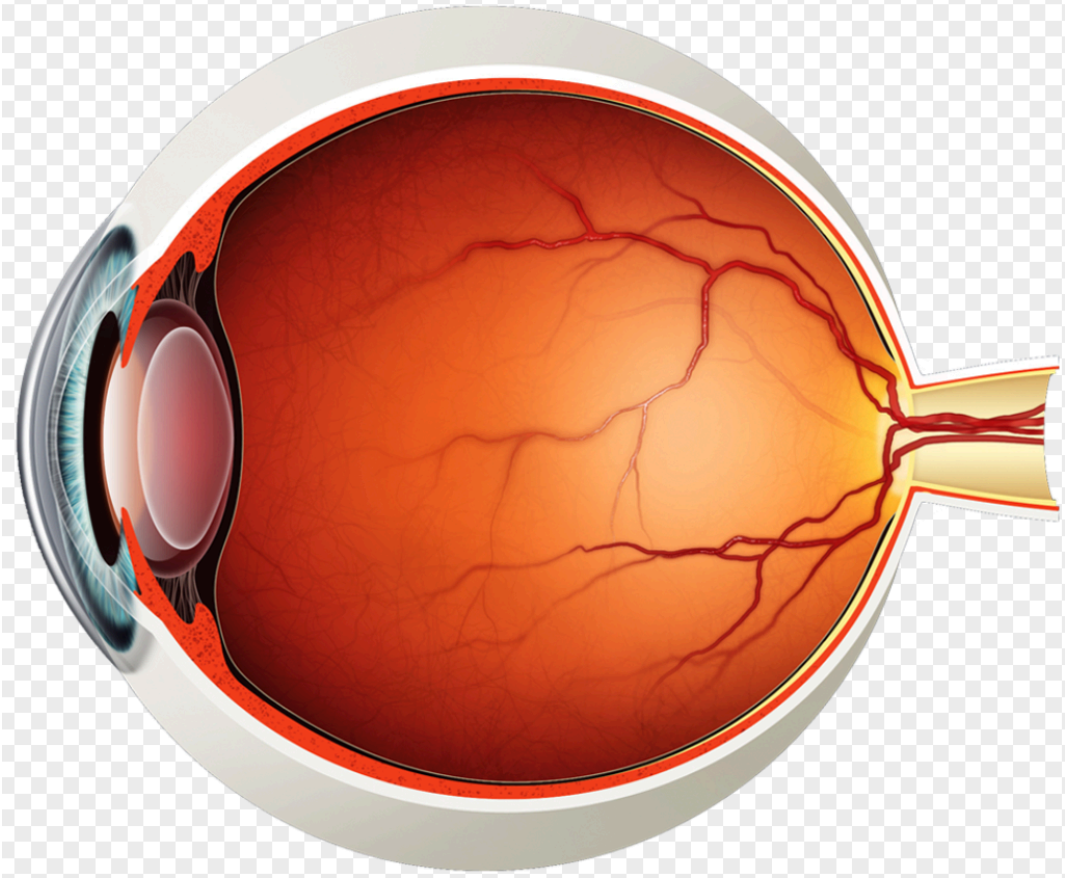
4. How many colours make up white light? …… (1)
5. On the diagram of the eye below, label the retina and cornea. (2)



6. Calculate the frequency of a wave travelling at 250m/s with a wavelength of 0.1 m. (wavelength = wave speed/frequency) SHOW ALL working including units. (4)

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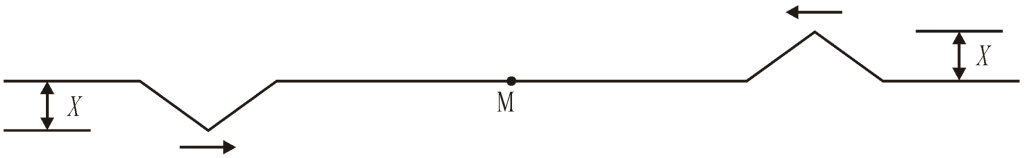
7. Two identical triangular pulses of amplitude X travel toward each other along a string. At the instant shown on the diagram below, point M is midway between the two pulses.



The amplitude of the disturbance in the string as the pulses move through M is:

A. 2X

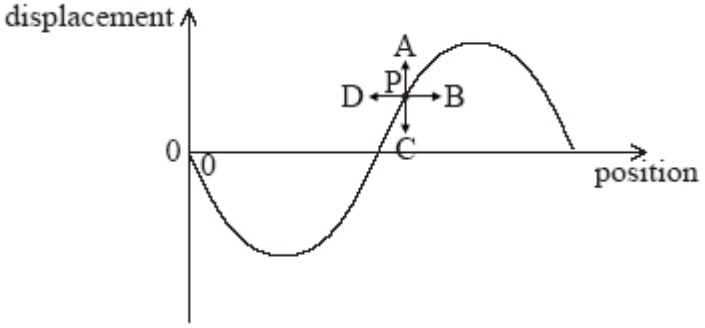
B. X

C. $\frac{X}{2}$.

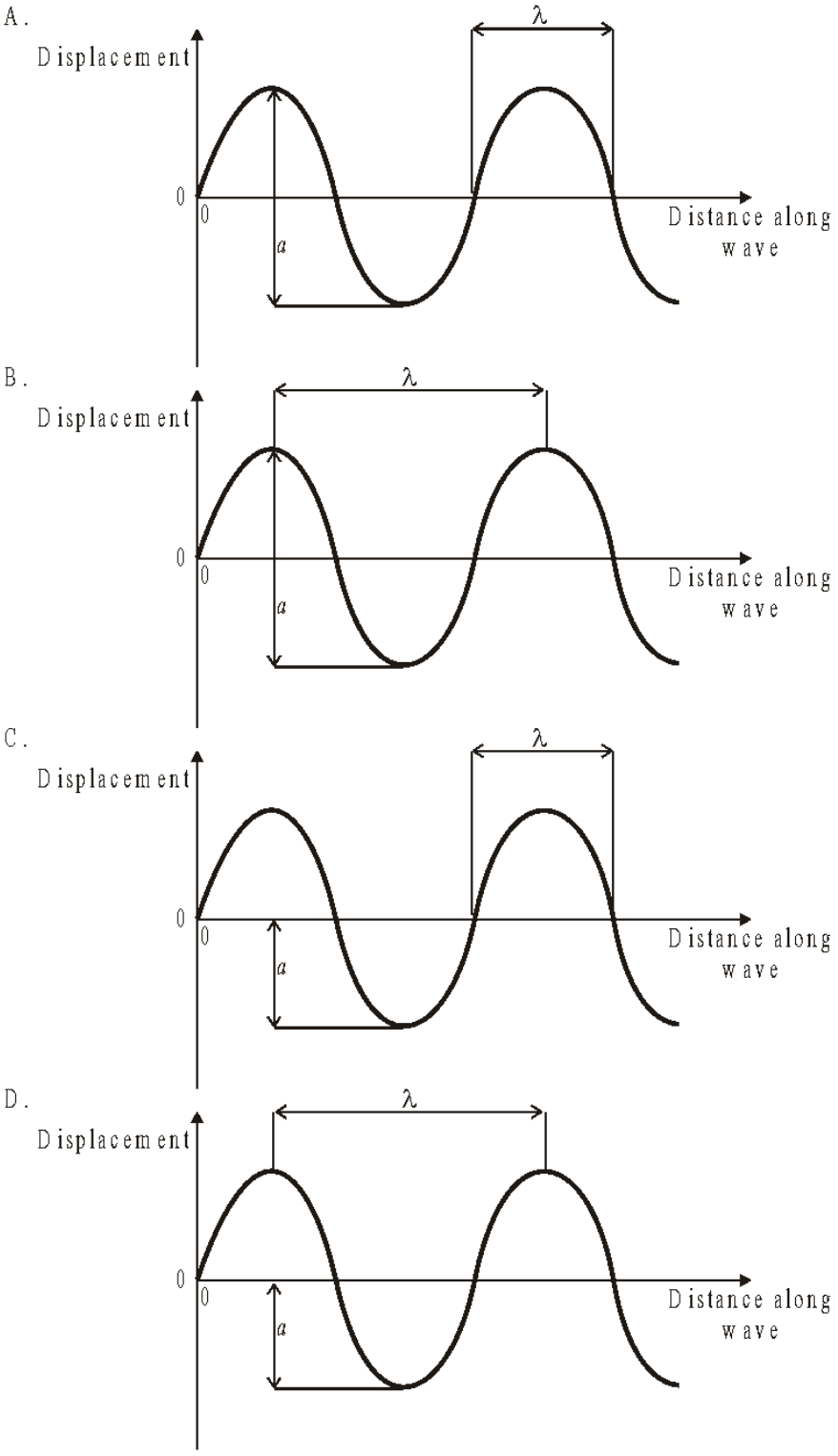
D. 0

(1)

8. A transverse wave travels from left to right. The diagram below shows how, at a particular instant of time, the displacement of particles in the medium varies with position. Which arrow represents the direction of the velocity of the particle marked P?

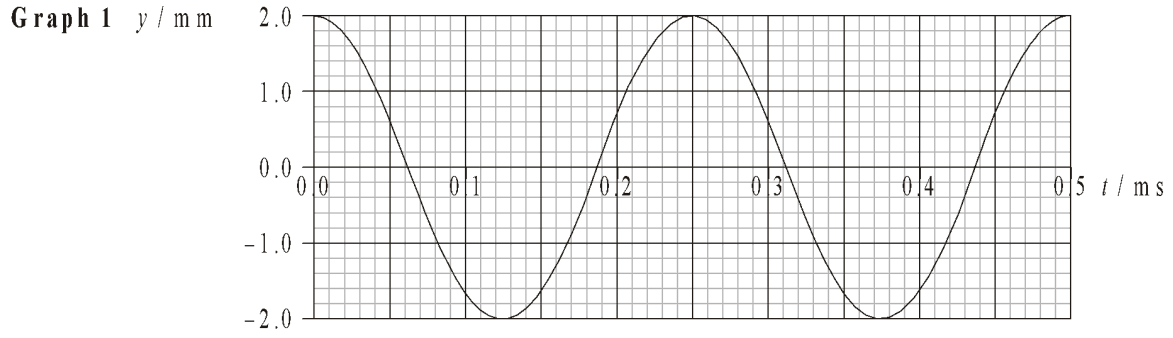


9. On which **one** of the following graphs is the wavelength λ and the amplitude *a* of a wave correctly represented? (1)

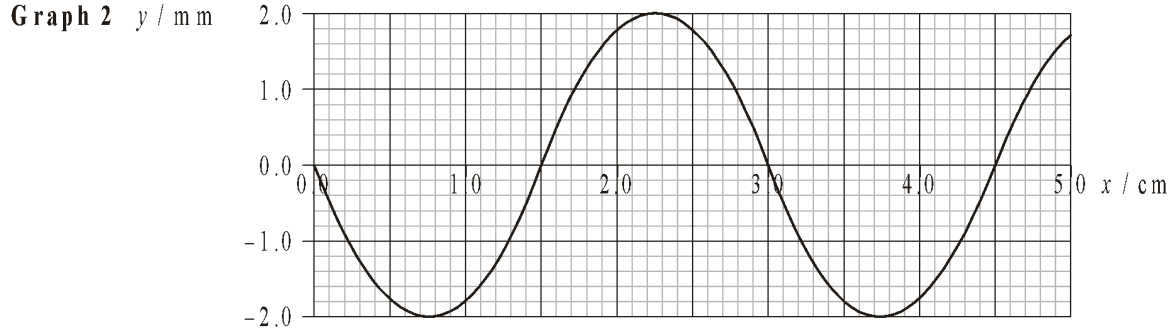


10. Waves on a string

A travelling wave is created on a string. The graph below shows the variation with time *t* of the displacement *y* of a particular point on the string.



The variation with distance *x* of the displacement *y* of the string at *t* = 0 is shown below.



(a) Use information from the graphs to **calculate**, for this wave:

(i) the wavelength;
(2)

.....

(ii) the frequency;
(2)

.....

(iii) the speed of the wave.
(2)

.....

11. Calculate the frequency of a wave travelling at 250m/s with a wavelength of 0.1 m. (wavelength = wave speed/frequency) SHOW ALL working including the word equation you will use and include units) (4)