

INTERNATIONAL INDIAN SCHOOL- RIYADH

X th std.SA-2 PHYSICS- -WORK SHEET: 2015-2016.

LIGHT- REFLECTION AND REFRACTION

1. When light undergoes refraction at the surface of separation of two media, what happens to its wavelength?
2. (a) Why the magnification produced by a concave lens is always less than one? (b) You are provided with two lenses of focal length 10cm and 20cm. Which of the two lenses would you suggest obtain greater convergence of refracted light? Justify your choice.
3. An image $\frac{2}{3}^{\text{rd}}$ the size of object is formed by a convex lens at a distance of 12cm from it. Find the focal length of the lens.
4. An object is placed at a distance of 12cm in front of a concave mirror. It forms a real image four times larger than the object. Calculate the distance of the image from the mirror.
5. (a) What is meant by power of a lens? (b) State and define the S.I unit of power of lens. (c) A convex lens of focal length 25cm and a concave lens of focal length 10cm are placed in close contact with each other. Calculate the lens power of this combination.
6. An object is placed between infinity and the pole of a convex mirror. Draw a ray diagram and also state the position, the relative size and nature of the image formed
7. Draw ray diagrams to show the formation of a three times magnified (i) real image (ii) virtual image of an object kept in front of a converging lens. Mark the positions of object, F, 2F, o and position of image clearly in the diagram.
8. An object of size 5cm is kept at a distance of 25cm from the optical centre of a converging lens of focal length 10cm. Calculate the distance of the image from the lens and size of the image.
9. An object is placed at a distance of 30cm from a convex mirror, the magnification produced is $\frac{1}{2}$. Where should the object be placed to get a magnification of $\frac{1}{3}$.
10. Name the type of mirror used in the following situations. (i) Head lights of a car (ii) Rear-view mirror of vehicles (iii) Solar furnace. Support your answer with ray diagram and reason.
11. What is understood by lateral displacement of light? Illustrate it with the help of a diagram. List any two factors on which the lateral displacement of a particular substance depends.

THE HUMAN EYE AND THE COLOURFUL WORLD.

1. State the difference in colours of the sun observed during sunrise/sunset and moon. Give explanation for each.
2. Draw a diagram show why distant objects cannot be seen distinctly by a myopic eye. List two reasons due to which this defect of vision may be caused.

3. A person with myopic eye cannot see objects clearly beyond a distance of 2m. Name the type of corrective lens that would be needed to correct the defect of vision and draw a ray diagram to show how the defect get corrected.
4. What is dispersion of white light? What is the cause of such dispersion? Draw a diagram to show how the defect gets corrected.
5. A glass prism is able to produce a spectrum when white light passes through it but a glass slab does not produce any spectrum. Explain why is it so?
6. Is the position of a star as seen by us its true position? Justify your answer. Why do stars twinkle but not the planets?
7. What is meant by the term 'power of accommodation' of human eye? How does it help a person to see nearby as well as distant object clearly?
8. When and where do we see a rainbow? How is a rainbow formed? Draw a labelled diagram to illustrate the formation of rainbow.
9. Explain the role played by (a) ciliary muscles (ii) retina (iii) pupil (iv) Rod cell.
10. Give reason for the following.
 1. Advanced sunrise
 2. Danger signals are red.
 3. Blue colour of sky.
 4. Random wavering or flicking of the objects near a fire or on a very hot day?
11. Draw a figure which shows the arrangement for observing the phenomenon of scattering of light in laboratory. What colours you observe in the experiment? Why?
12. Why is a normal eye not able to see clearly the objects placed closer than 25cm?
13. Name the three common defects of vision. What are their causes? Name the type of lens used to correct each of them.
14. The following figures show the path of light rays through three lenses marked L1, L2 and L3 and their focal points F1, F2 and F3 respectively. Identify the nature of lenses.

