

CLASS-10  
PHYSICAL SCIENCE  
LESSON PLAN  
**CHAPTER: 06 – REFRACTION OF LIGHT BY CURVED SURFACES**

PERIOD NUMBER	CONCEPTS / TEACHING POINTS	PAGES IN TEXT BOOK		TEACHING PROCEDURE	TEACHING LEARNING MATERIAL	EVALUATION
		FROM	TO			
1.	Refraction of light at a curved surface	112	115	Activity	Glass tumbler, Water, Paper, Sketch pen	Is Snell's law applicable for refraction at curved surfaces ?
	Refraction through convex, concave surfaces			Activity	Convex lens, Concave lens, Red laser pen, Green laser pen	What is focus of a curved surface ?
	Refraction through rarer and denser mediums			Activity	Red and green laser pens, Transparent tub with curved division in it, Dettol, Water	What is principal axis ?
2.	Refraction – image formation	115	117	Activity	Glass tumbler, Water, Lemon, Specimen potter, Watch glass, Egg, Chart	What is the formula for refraction at curved surfaces ?
	Refraction – image formation Formula Derivation			Conversation		What is the radius of curvature for plane surfaces ?
	Relation between the distances of object, image and radius of curvature			Conversation		What is the formula for refraction at plane surfaces ?
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3.	Refraction on curved surfaces - problems	117	119	Conversation	Chart	Is the flying bird appears nearer or distant for a man swimming in water ?
4.	Lenses – types – main terms and concepts	119	121	Activity	Bi convex lens, Bi concave lens, Plano convex lens, Plano concave lens, Convexo concave lens	Is bi convex lens a convergent lens ?
	Focal length of a lens			Activity	V-stand, Convex lens, Long scale or Tape, Screen	What is focal length of a lens ?
5.	Behaviour of light rays on lens	121	122	Conversation	Chart, Model of behavior of rays with broom sticks	If light ray incident parallel to the axis, what is the refracted ray path ?
						What is the difference between convex lens and concave lens ?
						Is $R = 2f$ true for lenses ?
6.	Ray diagram of forming image by lens	122	124	Conversation	Chart, Animated video for ray diagrams	If light ray incident through the focus, what is the refracted ray path ?
	Places of images by refraction through convex lens			Conversation		

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7.	Ray diagram of forming image by lens	124	125	Conversation	Chart, Animated video for ray diagrams	If light ray incident through the optic center, what is the refracted ray path ?
	Places of images by refraction with concave lens			Conversation		If light ray incident along the axis, what is the refracted ray path ?
8.	Experiment with convex lens	125	126	Lab experiment	V-stand, Convex lens, Candle, Match box, Long scale or Tape, Screen	How can you determine the focal length of a convex lens ?
	Determination of places of images for different distances of objects			Lab experiment		Can you determine the focal length of a concave lens ?
9.	Lens formula - Derivation	127	129	Conversation	Chart	What is Lens formula ?
10.	Affecting factors of focal length	129	131	Activity	Lens holder, Convex lens, Water, Stone, 50 cm height transparent tumbler	What happened to the focal length of a lens if we kept it in water ?
	Lens maker's formula Derivation			Conversation		What is Lens maker's formula ?
11.	Lens maker's formula - problems	131	131	Conversation	Chart	Find the refractive index of symmetric convex lens material if $f = R$ .