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F.4 Physics Teaching Schedule For 2019-2020

Cycle	Period	Topics(Contents)	Teaching Activities (Experiment, Exercise, Quiz)	Progress Evaluation
		Section1 Heat and Gases		
1-2	10	Most of the topics in this section have been taught in F.3. Teaching time would be much less than before. a. Temperature, heat and internal energy Temperature and thermometers Heat and internal Heat capacity and specific heat capacity b. Change of state Latent heat Evaporation c. Gases General gas law Kinetic theory	 Investigate the structure of a real thermometer Internal energy of the molecules would be described Only heat capacity would be discussed Exercises and quiz Relating the change in potential energy with latent heat Investigating the factors affecting the rate of evaporation. Exercises and quiz. Experiment : Relation between the pressure and volume of a gas Experiment : Relation between the pressure and temperature of a gas Experiment : Relation between the pressure and temperature of a gas Experiment : A three-dimensional kinetic theory model Exercises and quiz	

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		Section 2 Force and Motion		
3-4	10	a. Position and movement Position, distance and displacement. Scalars and vectors Speed and velocity Uniform motion Acceleration Equations of uniformly accelerated motion Vertical motion under gravity	Studying motion using a motion sensor Acceleration down a slope The 'coin and feather' experiment Study the equations of motion for uniformly accelerated motion Measuring acceleration of free fall Exercises and quiz	
Cycle	**Period**	**Topics(Contents)**	**Teaching Activities (Experiment, Exercise, Quiz)**	**Progress Evaluation**
5-9	25	b. Force and motion Newton's First Law of motion Additions of forces Resolution of forces Newton's Second Law of motion Newton's Third Law of motion Mass and weight Moment of a force	Galileo's thought experiment Inertia and mass Addition of forces using spring balance Acceleration and net force Acceleration and mass Frictionless motion Motion affected by fluid friction Paired forces Newton's third law of motion Turning effect of a force Locating the centre of gravity of a body Exercises and quiz	
10-11	10	c. Work, energy and power Mechanical work Gravitational potential energy	Energy changes in a simple pendulum.	

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		Kinetic energy Law of conservation of energy in a closed system Power	Exercises	
12-13	10	d. Momentum Linear momentum Change in momentum and net force Law of conservation of momentum	Studying the impact force by data-logging Experiment of Sticky crash Experiment of Hard crash Experiment of Bouncy crash Experiment of 'Explosion' of trolley Project :To make a "Newton's cradle" Exercises and test	
1st Examination would take place during the 12th cycle.				
Cycle	**Period**	**Topics(Contents)**	**Teaching Activities (Experiment, Exercise, Quiz)**	**Progress Evaluation**
14-15	10	e. Projectile motion	Monkey and hunter experiment A ball flying off a horizontal platform Exercises and test	
16-17	10	f. Uniform circular motion	Centripetal force in a conical pendulum Exercises and test	
		Section 3 Waves		
18-20	15	a. Nature and properties of waves Nature of waves Wave motion and propagation	Experiment of transverse pulses and waves Experiment of longitudinal pulses and waves Experiment of transverse wave model Experiment of longitudinal wave model Factors affecting the speed of a wave travelling along a stretched spring	

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		Reflection and refraction	The ripple tank Reflection of water wave Phase change in the reflection of a pulse Refraction of water waves	
		Diffraction and interference of waves Stationary wave (Transverse waves only)	Diffraction of water waves Superposition of pulses Interference of water waves Transverse stationary waves Motion of particles in a transverse stationary wave Exercises and test	
Cycle	**Period**	**Topics(Contents)**	**Teaching Activities (Experiment, Exercise, Quiz)**	**Progress Evaluation**
21-25	25	b. Light Reflection of light Refraction of light Total internal reflection Formations of images by lens Wave nature of light	 Laws of reflection Images formed by a plane mirror Laws of refraction Apparent depth Total internal reflection Total internal reflection in prisms Refraction in convex and concave lenses Formation of images by a convex lens Formation of image by a concave lens Measuring the focal length of a convex lens Plotting graphs to show the relation between the object distance and image distance Diffraction of light Young’s double slit experiment Plane transmission grating	

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			Visible spectrum by a grating Estimate the wavelength of a monochromatic light using a double-slit Estimating the wavelength of a monochromatic light using a grating Visible spectrum Reflection of microwaves Refraction of microwaves Diffraction of microwaves Interference of microwaves Exercises and test	
2nd Examination would take place after the 25th cycle				