

YEAR 9 (A- F) – PHYSICS

WEEK 24 (7th Feb - 11th Feb)

Work Sent to the students through Google classroom

Topic: SP4d Waves crossing boundaries and SP4e Ears and hearing

Resources: Student text book, Worksheet, GCSE science free lesson video, power point.

Date	Lesson	Topic	Mode of Teaching	
7 th Feb. Sunday (Girls)	4	<p>Learning objective:</p> <ul style="list-style-type: none"> • Describe the effects of reflection, refraction, transmission and absorption of waves at material interfaces. 	Zoom	Teacher uses power point presentation that contains interactive questions.
7 th Feb. Sunday (Boys)	8	<ul style="list-style-type: none"> • Explain how changes, if any, in velocity, frequency and wavelength, in the transmission of sound waves from one medium to another are inter-related. <p>Learning outcome:</p> <ul style="list-style-type: none"> • Recognize some effects of waves being reflected, refracted, transmitted and absorbed. • Describe how changes in velocity, frequency and wavelength are related when sound waves go from one medium to another. 		
9 th Feb. Tuesday (Girls)	3	<p>Learning Objective :</p> <ul style="list-style-type: none"> • Describe the processes which convert wave disturbances between sound waves and vibrations in solids, and: 	Zoom	Teacher uses power point presentation that contains interactive questions.
11 th Feb. Thursday (Boys)	5	<p style="margin-left: 20px;">a explain why such processes only work over a limited frequency range</p> <p style="margin-left: 20px;">b use this to explain the way the human ear works.</p> <p>Learning outcome :</p> <ul style="list-style-type: none"> • Describe the functions of the parts of the ear. • Explain why the human ear can only detect a certain range of frequencies. 		

9 th Feb. Tuesday (Girls)	4	Learning Objective : <ul style="list-style-type: none"> Complete the text book questions and worksheet questions. 	GC	Worksheet assigned through GC. Instruction will be given in GC to complete the worksheet.
11 th Feb. Thursday (Boys)	6	Learning outcome: <ul style="list-style-type: none"> Students will be able to reinforce the concepts learned in the previous lesson by completing the worksheet. 		

YEAR 10 A-F - Physics

WEEK 24 (7th Feb – 11th Feb)

Topic: Circular motion

Core Practical 1- Investigating the relationship between force, mass and acceleration

Lesson Objective: SP 2b Newtons first law(only circular motion)

Resources: Student text book, worksheet file, interactive power point from Board works and Online animations

Worksheets and Zoom link will be posted in google classroom

Date	Lesson	Lesson objectives & Learning outcome	Mode of Teaching	
7 th Feb Sunday (Boys)	1	L.O: Investigating the relationship between force, mass and acceleration	Zoom/ GM	Teacher uses a ppt to familiarize the students with light gates and air track. The teacher discusses the method to find the relation between force, mass and acceleration
7 th Feb Sunday (girls)	2	Learning outcome: The students will be able to recall the relation $F= ma$ and identify the use of light gates and air track to investigate the relation between force, mass and acceleration		
9 th Feb Tuesday (Boys)	5	L O. CP1 : To investigate the effect of mass on the acceleration of a trolley. Learning outcome: Students will be able to relate the effect of mass on the acceleration	Zoom/ GM	Teacher presents the video of the practical conducted and explains the various measuring techniques used and the steps taken to ensure accuracy of the measured quantities. Students will be able to do the calculation with the data given and evaluate the result
10 th Feb Wednesda y (girls)	5	<ul style="list-style-type: none"> by calculating acceleration for various values of masses by plotting a graph with the total mass on the horizontal axis and the acceleration on the vertical axis. 		

9th Feb Tuesday (Boys)	6	L.O: CP2 : To investigate the effect of mass on the acceleration of a trolley.		
10th Feb Wednesday (girls)	6	Learning outcome: Students will complete the practical sheet	GC	Students will complete the practical sheet assigned for them in GC and turn in after completion
11th Feb Thursday (Boys)	4	L.O: Explain that an object moving in a circular orbit at constant speed has a changing velocity (qualitative only).		
11th Feb Thursday (Girls)	1	Explain that for motion in a circle there must be a resultant force known as a centripetal force that acts towards the centre of the circle. Learning outcome: Students will be able to <ul style="list-style-type: none"> • Describe circular motion at constant speed as a changing velocity and hence as an acceleration • Describe the force needed to keep an object moving in a circular path. • Give some examples of objects moving in circular paths and the type of centripetal force involved. 	Zoom/ GM	Teacher uses a powerpoint presentation to explain different situations involving circular motion. Discusses the factors affecting the circular motion and identifies the type of centripetal force involved in different circular motion

YEAR 11 (A- F) – PHYSICS (GCSE)

WEEK 24 (7th Feb - 11th Feb)

Work Sent to the students through Google classroom

Topic:– SP 15 Forces and matter

Resources: Text book, Worksheets, GCSE science free lesson video& power points.

Date	Lesson	Topic	Mode of Teaching	
7 th Feb Sunday (Girls)	3	Learning Objective : <u>Core Practical</u> Investigate extension and work done when applying a forces to a spring	Zoom	Students use interactive simulation to collect data and draw graph to show the relationship between extension and force applied
8 th Feb Monday (boys)	4	Learning outcome Realise that more mass is added to a spring the extension gets larger Draw a line graph that shows the relationship between extension and weight		
8 th Feb Monday (Girls)	1	Learning Objective : <u>Core Practical</u> Investigate extension and work done when applying a forces to a spring	zoom	Teacher uses worksheet that contains productive questions
9 th Feb Tuesday (Boys)	1	Learning outcome : Describe the relationship between force and extension as being proportional. Use values from the graph (best fit) to calculate spring constant to avoid any random error. Compare the spring constant of two different sprigs.		
8 th Feb Monday – (girls)	2	Learning Objective : <u>Core Practical</u> Investigate extension and work done when applying a forces to a spring	GC	Teacher uses worksheet that contains productive questions
9 th Feb Tuesday – (boys)	2	Learning outcomes Calculate the energy transferred in stretching each of the springs that they tested using the equation $W = 1/2 kx^2$. Explain how the method could be modified to improve the accuracy of student's result.		

<p>10th Feb Wednesda y– (girls)</p> <p>10th Feb. Wednesda y – (boys)</p>	<p>1</p> <p>7</p>	<p>Learning Objective : Explain why atmospheric pressure varies with height above the Earth's surface with reference to a simple model of the Earth's atmosphere.</p> <p>Describe the pressure in a fluid as being due to the fluid and atmospheric pressure.</p> <p>Recall that the pressure in fluids causes a force normal to any surface Describe and explain how pressure in fluids increases with depth and density. Use the equation relating pressure in a fluid to height, density and gravitational field strength</p> <p>Learning outcome Use a model of the Earth's atmosphere to explain why pressure varies with height Describe the pressure in a fluid as being due to the fluid and atmospheric pressure Explain why the pressure in a liquid depends on density and depth Use the equation to calculate the magnitude of the pressure in liquids and calculate the differences in pressure at different depths in a liquid</p>	<p>Zoom</p>	<p>Teacher uses power point presentation that contains interactive questions and online simulation</p>
<p>11th Feb Thursday – (girls)</p> <p>11th Feb Thursday – (boys)</p>	<p>3</p> <p>7</p>	<p>Learning Objective: Explain why an object in a fluid is subject to an upwards force (upthrust) and relate this to examples including objects that are fully immersed in a fluid (liquid or gas) or partially immersed in a liquid.</p> <p>Recall that the upthrust is equal to the weight of fluid displaced.</p> <p>Explain how the factors (upthrust, weight, density of fluid) influence whether an object will float or sink.</p> <p>Learning outcome : Explain how upthrust occurs. Relate the upthrust to the floating or sinking of objects immersed or partially immersed in fluids. Recall that the upthrust is equal to the weight of fluid displaced. Explain the factors that determine whether or not an object will float or sink</p>	<p>Zoom</p>	<p>Teacher uses power point presentation that contains interactive questions and online simulation</p>

YEAR 11 G/H (IGCSE) – PHYSICS

WEEK 24 (7th Feb - 11th Feb)

Work sent to the students through Google classroom

Topic: Unit 8.26 Motion in the universe

Unit 8.27 Stellar evolution

Lesson Objective: Explain the terms solar system and orbital speed of planets and satellites
Explain the classification and life cycle of stars

Resources: Text book, Worksheet file, interactive power point and online simulations.

Date	Lesson	Learning objective and Success Criteria	Mode of teaching	
8 th Feb Monday (boys & girls)	8	LO- To explain the term gravitational force. Learning outcome <ul style="list-style-type: none"> • Recollect the knowledge about galaxy, stars and solar system. • Explain that gravitational force causes moons to orbit planets; causes the planets and comets to orbit the Sun; causes artificial satellites to orbit the earth. • Understand why gravitational field strength, g, varies and know that it is different on other planets and the Moon from that on the Earth. 	Zoom	Teacher uses power point presentation to explain the term gravitational force.
9 th Feb Tuesday (boys & girls)	7	LO- To describe the term orbital speed. Learning outcome <ul style="list-style-type: none"> • Describe the differences in the orbits of comets, moons and planets • Use the relationship between orbital speed, orbital radius and time period. 	Zoom	Teacher uses power point presentation to describe the term orbital speed.

<p>9th Feb Tuesday (boys & girls)</p>	<p>8</p>	<p>LO- To reinforce the concepts gravitational force, gravitational field strength and orbital speed. Learning Outcome-</p> <ul style="list-style-type: none"> • Recollect the knowledge about the concepts gravitational force, gravitational field strength and orbital speed. • Reinforce the concepts by solving the questions. 	<p>GC</p>	<p>Instructions will be given to solve the questions.</p>
<p>10th Feb Wednesd ay (boys & girls)</p>	<p>8</p>	<p>LO- To describe how stars can be classified. Learning Outcome-</p> <ul style="list-style-type: none"> • Understand how stars can be classified according to their colour. • Know that a star's colour is related to its surface temperature 	<p>Zoom</p>	<p>Teacher uses power point presentation to describe how stars can be classified.</p>
<p>11th Feb Thursday (boys & girls)</p>	<p>2</p>	<p>LO- To describe the life cycle of stars. Learning Outcome-</p> <ul style="list-style-type: none"> • Describe the evolution of stars of similar mass to the Sun through the following stages: <ul style="list-style-type: none"> • nebula • star (main sequence) • red giant • white dwarf. • Describe the evolution of stars with a mass larger than the Sun. able to use and apply the concepts by solving the questions. 	<p>Zoom</p>	<p>Teacher uses power point presentation to describe the life cycle of stars.</p>

H.W- Text book - page no.264 (Tuesday 9th February).

YEAR 12 A/ B –PHYSICS

WEEK 24 (7th Feb - 11th Feb) (3 lessons)

Work sent to the students through: Google classroom / Zoom Learning Platform

Topic: Electrical circuit rules

Resources: Student text book, worksheet file, interactive power point from Board works and Online PHET simulations

Date	Class	Lesson	Lesson objectives & Learning outcomes	Mode of teaching															
7 th Feb Sunday	12 A	8	Learning objectives: Recap and revise how to calculate the voltages and currents in series and parallel circuits Learning Outcomes : Complete of the exam style questions from the worksheet given.	GC	Worksheet send in GC														
9 th Feb Tuesday		6				8 th Feb Monday	12 A	1	Learning objectives: Understand how the distribution of current in a circuit is a consequence of charge conservation. Learning Outcomes : Be able to make calculations based on Electric current rule. Complete text book questions 1,2 on Page 95	Zoom	Teacher uses power point presentation and breakout sessions for students to collaborate and attain the objectives	11 th Feb Thursday	12B	3	1 st Feb Monday	12 A	2	Learning objectives: Understand how the distribution of potential difference in a circuit is a consequence of energy conservation. Learning Outcomes: Make calculations based on Electric voltage rule. Complete text book questions 3,4 on Page 95 Complete Worksheet file questions	Zoom
8 th Feb Monday	12 A	1	Learning objectives: Understand how the distribution of current in a circuit is a consequence of charge conservation. Learning Outcomes : Be able to make calculations based on Electric current rule. Complete text book questions 1,2 on Page 95	Zoom	Teacher uses power point presentation and breakout sessions for students to collaborate and attain the objectives														
11 th Feb Thursday	12B	3				1 st Feb Monday	12 A	2	Learning objectives: Understand how the distribution of potential difference in a circuit is a consequence of energy conservation. Learning Outcomes: Make calculations based on Electric voltage rule. Complete text book questions 3,4 on Page 95 Complete Worksheet file questions	Zoom	Teacher uses power point presentation and breakout sessions for students to collaborate and attain the objectives	4 th Feb Thursday	12B	4					
1 st Feb Monday	12 A	2	Learning objectives: Understand how the distribution of potential difference in a circuit is a consequence of energy conservation. Learning Outcomes: Make calculations based on Electric voltage rule. Complete text book questions 3,4 on Page 95 Complete Worksheet file questions	Zoom	Teacher uses power point presentation and breakout sessions for students to collaborate and attain the objectives														
4 th Feb Thursday	12B	4																	

YEAR 12 A/ B – PHYSICS

WEEK 24 - (7th Feb to 11th Feb) - 3 lessons for both batches

Work sent to the students through: Whatsapp group / Google classroom / Zoom Learning Platform

Topic: 2.14 Moments

Resources: Student text book, worksheet file, interactive power point from Board works and Online animations

Date & Class	Lesson	Lesson objectives & Learning outcomes	Mode of teaching	
7 th Feb Sunday - 12 B	6	L.O – Define moment of a force State the principle of moments Learning outcomes- • Define moment of force = Fx where x is the perpendicular distance between the line of action of the force and the axis of rotation. • Use the principle of moments to solve numerical problems.	Zoom	<i>Carried forward from last week- used 2 lessons to explain practicals</i> Discuss that the turning effect depends on both the magnitude of the force applied and the distance of its point of application from the pivot
9 th Feb Tuesday - 12 A	4			
7 th Jan Sunday - 12 B	7	L.O – State and apply the principle of moments. Learning outcomes- • Discuss experiment to verify the principle of moments using a metre rule pivoted at the centre and various weights suspended from it on either side. • Plan an experiment to investigate how the support forces for a metre rule suspended on two newton meters changes as the load changes position between them.	Zoom	Assignment given. Plan an experiment to determine the mass of a meter ruler using the principle of moments. (<i>using graphical method</i>)
11 th Feb Thursday - 12 A	1			
10 th Feb Wednesda y - 12 B	3	Learning Objective: To answer the questions, on moments and principle of moments, in the worksheet.	Zoom	Worksheet assigned in GC
11 th Feb Thursday - 12 A	2	Learning outcome: Students will be able to reinforce the concepts learned in the previous lessons by answering the questions in the worksheet.		

HOMEWORK: Complete worksheet file questions (exam style questions)

YEAR 13 A/ B –PHYSICS

WEEK 24 - (7th Feb to 11th Feb) - 3 lessons for both batches

Work sent to the students through: Whatsapp group / Google classroom / Zoom Learning Platform

Topic: - 8.2 Particle detectors

Resources: Student text book, interactive power point, Board works, worksheet file and online videos/animations

Date	Lesson	Lesson objectives & Learning outcome	Mode of teaching	
8 th Feb Monday - 13 A	1	Learning Objective: Explain the role of electric and magnetic fields in particle detectors (general principles of ionisation and deflection only)	Zoom	Teacher uses ppt, board works and online simulation to explain the working of GM tube.
9 th Feb Tuesday - 13 B	6	Learning Outcome: <ul style="list-style-type: none"> • Describe and explain the structure and working of a GM tube • State how the conduction properties of air vary with voltage and pressure. • Describes the design of a Geiger-Muller Tube and how it detects ions. 		
8 th Feb Monday - 13 A	2	L.O – Explain the role of electric and magnetic fields in particle detectors like cloud chamber and bubble chamber in terms of ionization and deflection.	Zoom	Teacher uses ppt, board works and online simulation to explain the working of cloud chamber and bubble chamber. Provide worksheet with exam style questions.
11 th Feb Thursday - 13 B	3	Learning outcomes- <ul style="list-style-type: none"> • Describe the structure of a cloud chamber and the appearance of tracks of alpha, beta or any other ions. • Describe the structure of a bubble chamber and the appearance of tracks of alpha, beta or any other ions. • Interpret bubble chamber tracks and predict the nature and energy of ions. 		
9 th Feb Tuesday - 13 A	5	L.O – Apply conservation of charge, energy and momentum to interactions between particles and interpret particle tracks.	Zoom	Teacher uses ppt, board works and online simulation to explain how to analyse the particle tracks.
11 th Feb Thursday - 13 B	4	Learning outcomes- <ul style="list-style-type: none"> • Why do the tracks spiral inwards? • Use ionization, conservation of momentum, energy and charge of an ion to predict the nature of tracks in cloud and bubble 		

		chambers. • Identify the significance of particle tracks in particle physics research.		
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HOMEWORK: Complete the textbook Qs: Page 99 and worksheet file questions

YEAR 13 A/ B –PHYSICS

WEEK 24 (7th Feb - 11th Feb) (3 lessons)

Work sent to the students through: Google classroom / Zoom Learning Platform

Topic: - Oscillations

Date	Class	Lesson	Lesson objectives & Learning outcome	Mode of teaching	
8 th Feb Monday	13 B	6	Learning objectives: Recall that the condition for simple harmonic motion is $F = -kx$, and hence identify situations in which simple harmonic motion will occur	Zoom	Teacher uses power point presentation and breakout sessions for students to collaborate and attain the objectives.
9 th Feb Tuesday	13A	4	Learning Outcomes : Describe simple examples of free oscillations. Define and use the terms displacement, amplitude, period, frequency, angular frequency and phase difference. Define simple harmonic motion; Recognise that force, acceleration and displacement are vectors so their direction (-sign) has importance		
8 th Feb Monday	13 B	7	Learning objectives: Recognise and use the expressions $A = -\omega^2 x$, $x = A \cos \omega t$ ($A \sin \omega t$) $v = -A\omega \sin \omega t$, ($A\omega \cos \omega t$) $a = -A\omega^2 \cos \omega t$, ($-A\omega^2 \sin \omega t$)	zoom	Teacher uses power point presentation and breakout sessions for students to collaborate and attain the objectives.
11 th Feb Thursday	13A	1	Learning Outcomes : Derive the equation of SHM for displacement Derive the equation of SHM for velocity and acceleration from the displacement equation. State the relation between		

			<p>acceleration and displacement. Use the expressions $a = -\omega^2 x$, $x = A \cos \omega t$ $v = -A\omega \sin \omega t$, $a = -A\omega^2 \cos \omega t$, and $T = 1/f = 2\pi/\omega$ to solve numerical problems.</p>		
<p>10th Feb Wednesday</p>	<p>13 B</p>	<p>3</p>	<p>Learning objectives: Recognise and use the expressions $T = 1/f$ $\omega = 2\pi/T = 2\pi f$ as applied to a simple harmonic oscillator</p>	<p>zoom</p>	<p>Teacher uses power point presentation and breakout sessions for students to collaborate and attain the objectives.</p>
<p>11th Feb Thursday</p>	<p>13 A</p>	<p>2</p>	<p>Learning Outcomes : Use the expressions $a = -\omega^2 x$, $x = A \cos \omega t$ $v = -A\omega \sin \omega t$, $a = -A\omega^2 \cos \omega t$, and $T = 1/f = 2\pi/\omega$ to solve numerical problems. Select and apply the equations $v_{\max} = (2\pi f) A$ for the maximum speed and $a_{\max} = A\omega^2$ for maximum acceleration. Explain that the period of an object with simple harmonic motion is independent of its amplitude or mass.</p>		