

NAME OF THE DEPARTMENT - SCIENCE													SYLLABUS BREAK UP 2021-22-AJI	
Name of the Subject Teacher:- LEKSHMI CHANDRAN			Grade:- 11											
MONTH	WEEK	Unit/Section	No of Periods	Topic Break Down / for Periods/Learning objectives / progression	Learning Outcomes/ Skills acquired	Activities (Formative assessment tasks, projects, Visits) INCLUDING VIRTUAL LEARNING	Teaching Aids / Reference/ Resources	Competencies and Values	MY IDENTITY	Cross curricular link	Artificial Intelligence	Critical Thinking Questions- Descriptive	Critical Thinking Questions- Objective	
APRIL	2nd week	Physical World and Measurement	18	<ul style="list-style-type: none"> To know Physics - scope and excitement; nature of physical laws; Physics, technology and society. To explain Need for measurement: Units of measurement; systems of units; SI units. To distinguish between fundamental and derived units. <p>To discuss Length, mass and time measurements;</p> <ul style="list-style-type: none"> To analyze accuracy and precision of measuring instruments; 	<p>STUDENTS WILL BE ABLE TO</p> <ul style="list-style-type: none"> know and explain Physics - scope and excitement; nature of physical laws; Physics, technology and society. Explain Need for measurement: Units of measurement; systems of units; SI units. know and explain fundamental and derived units; Length, mass and time measurements; analyze accuracy and precision of measuring instruments; through research, by solving HOT questions, related numerical and by addressing open ended questions 	<ul style="list-style-type: none"> Group discussion Experiments Project Differentiated Worksheets Power point presentation 	Smart board, Ncert book, related videos, ppt, sticky notes, blank papers, differentiated worksheets, assessment tasks etc, PHET simulations.	<p>Competencies: Communication, problem solving digital competence, critical thinking, collaboration, cultural awareness, creativity and innovation, independent learning, leadership and responsibility, self confidence, innovation and self direction, global and environmental awareness</p> <p>Values: Respect, integrity, empathy, resilience, honesty, care, tolerance</p>	Visit an amusing park near to you in UAE and identify various types of motion involved in the rides.	Englishspeaking and communication skills, interpreting datas Social studieslife story of scientists. mathematics.....pythagorus theorem, parallax method, integration and differentiation, trigonometric ratios, binomial theorem, logarithm	story about great scientists and their discoveries using story speaker Link to install Story Speaker extension for Story Speaker: https://chrome.google.com/webstore/detail/story-speaker/ohfibhfbhbkndfkdjopbneqkbpj Introduction to Story Speaker: https://www.youtube.com/watch?v=wszrvYYvhH8&feature=youtu	<ol style="list-style-type: none"> Show that the expression $v \sqrt{v_0^2 + a^2 t^2}$ is dimensionally correct, where v and v_0 represent velocities, a is acceleration, and t is a time interval. True or False: An equation that is dimensionally correct is always physically correct, up to a constant of proportionality. Determine whether the equation $x = v_0 t + \frac{1}{2} a t^2$ is dimensionally correct. If not, provide a correct expression, up to an overall constant of proportionality. Find a relationship between an acceleration of constant magnitude a, speed v, and distance r from the origin for a particle traveling in a circle. True or False: Replacing v by vt in the final answer also gives a dimensionally correct equation. In physics, energy E carries dimensions of mass times length squared divided by time squared. Use dimensional analysis to derive a relationship for energy in terms of mass m and speed v, up to a constant of proportionality. Set the speed equal to c, the speed of light, and the constant of proportionality equal to 1 to get the most famous equation in physics. Several carpet installers make measurements for carpet installation in the different rooms of a restaurant, reporting their measurements with inconsistent accuracy, as compiled in Table . Compute the areas for (a) the banquet hall, (b) the meeting room, and (c) the dining room, taking into account significant figures. (d) What total area of carpet is required for these rooms? A ranch has two fenced rectangular areas. Area A has a length of 750 m and width 125 m, and area B has length 400 m and width 150 m. Find (a) area A, (b) area B, and (c) the total area, with attention to the rules of significant figures. Assume trailing zeros are not significant. If a car is traveling at a speed of 28.0 m/s, is the driver exceeding the speed limit of 55.0 mi/h? Given that astronomers can see about 10 billion light-years into space and that there are 14 galaxies in our local group, 2 million light-years from the next local group, estimate the number of galaxies in the observable universe. 	<ol style="list-style-type: none"> A person measures the height of a building by walking out a distance of 46.0 m from its base and shining a flashlight beam towards the top. When the beam is elevated at an angle of 39.0° with respect to the horizontal, as shown in Figure, the beam just strikes the top of the building. (a) If the flashlight is held at a height of 2.00 m, find the height of the building. (b) Calculate the length of the light beam. The magnitudes of two vectors A and B are 12 units and 8 units, respectively. What are the largest and smallest possible values for the magnitude of the resultant vector $R = A + B$? none of these shows two vectors lying in the xy - plane. Determine the signs of the x - and y - components of VECTOR A, B, and $A + B$. Which vector has an angle with respect to the positive x - axis that is in the range of the inverse tangent function? [PICTURE OPTIONS] 	
	3rd week	Physical World and Measurement		<ul style="list-style-type: none"> To analyze errors in measurement; significant figures. To know and explain Dimensions of physical quantities, dimensional analysis and its applications. 	<p>STUDENTS WILL BE ABLE TO</p> <ul style="list-style-type: none"> analyze errors in measurement; significant figures. know Dimensions of physical quantities, dimensional analysis and its applications, through research, by solving HOT questions, related numerical and by addressing open ended questions 	<ul style="list-style-type: none"> Group discussion Experiments Project Differentiated Worksheets Power point presentation 	Smart board, Ncert book, related videos, ppt, sticky notes, blank papers, differentiated worksheets, assessment tasks etc, PHET simulations.	<p>Competencies: Communication, problem solving digital competence, critical thinking, collaboration, cultural awareness, creativity and innovation, independent learning, leadership and responsibility, self confidence, innovation and self direction, global and environmental awareness</p> <p>Values: Respect, integrity, empathy, resilience, honesty, care, tolerance</p>	Plot a speed- time graph while you travel from al ain to Dubai.	Englishspeaking and communication skills, interpreting datas mathematics.....pythagorus theorem, parallax method, integration and differentiation, trigonometric ratios, binomial theorem, logarithm, analyzing graphs.	Google map in determining real time and speed relation: Rule Based AI App.students to go to https://maps.google.com and enter a specific source and destination.			
	4th week	Kinematics		<ul style="list-style-type: none"> To discuss Frame of reference, Motion in a straight line: Position-time graph, speed and velocity. To explain Elementary concepts of differentiation and integration for describing motion. Uniform and non-uniform motion. To analyse average speed and instantaneous velocity. To explain Uniformly accelerated motion. To analyse velocity-time and position-time graphs. To understand Relations for uniformly accelerated motion (graphical treatment). 	<p>STUDENTS WILL BE ABLE TO</p> <ul style="list-style-type: none"> understand and explain Frame of reference, Motion in a straight line: Position-time graph, speed and velocity. explain Elementary concepts of differentiation and integration for describing motion. Uniform and non-uniform motion, understand and explain average speed and instantaneous velocity. Uniformly accelerated motion, explain velocity-time and position-time graphs. understand Relations for uniformly accelerated motion (graphical treatment), through research, by solving HOT questions, related numerical and by addressing open ended questions 	<ul style="list-style-type: none"> Group discussion Experiments Project Differentiated Worksheets Power point presentation 	Smart board, Ncert book, related videos, ppt, sticky notes, blank papers, differentiated worksheets, assessment tasks etc, PHET simulations.	<p>Competencies: Communication, problem solving digital competence, critical thinking, collaboration, cultural awareness, creativity and innovation, independent learning, leadership and responsibility, self confidence, innovation and self direction, global and environmental awareness</p> <p>Values: Respect, integrity, empathy, resilience, honesty, care, tolerance</p>	Use equations of motion to check the value of a variable while you visit Abu dhabhi.	Englishspeaking and communication skills, interpreting datas mathematics.....pythagorus theorem, parallax method, integration and differentiation, trigonometric ratios, binomial theorem, logarithm, analyzing graphs.	Data representation and analysis An online open-source website is available at https://datavizcatalogue.com where the students can observe various types of representations that can be used in data visualization.	<ol style="list-style-type: none"> A turtle and a rabbit engage in a footrace over a distance of 4.00 km. The rabbit runs 0.500 km and then stops for a 90.0 - min nap. Upon awakening, he remembers the race and runs twice as fast. Finishing the course in a total time of 1.75 h, the rabbit wins the race. (a) Calculate the average speed of the rabbit. (b) What was his average speed before he stopped for a nap? Assume no detours or doubling back. A train moves slowly along a straight portion of track according to the graph of position vs. time in Figure. Find (a) the average velocity for the total trip, (b) the average velocity during the first 4.00 s of motion, (c) the average velocity during the next 4.00 s of motion, (d) the instantaneous velocity at $t = 5.00$ s, and (e) the instantaneous velocity at $t = 9.00$ s. A baseball player moves in a straight - line path in order to catch a fly ball hit to the outfield. His velocity as a function of time is shown in Figure. Find his instantaneous acceleration at points (A), (B), and (C). race car starting from rest accelerates at a constant rate of 5.00 m/s². What is the velocity of the car after it has traveled 1.00 3 102 ft? (b) How much time has elapsed? (c) Calculate the average velocity two different ways. A car traveling at a constant speed of 24.0 m/s passes a trooper hidden behind a billboard, as in Figure 2.17. One second after the speeding car passes the billboard, the trooper sets off in chase with a constant acceleration of 3.00 m/s². (a) How long does it take the trooper to overtake the speeding car? (b) How fast is the trooper going at that time? A typical jetliner lands at a speed of 1.60 3 102 mi/h and decelerates at the rate of (10.0 mi/h)/s. If the plane travels at a constant speed of 1.60 3 10 2 mi/h for 1.00 s after landing before applying the brakes, what is the total displacement of the aircraft between touchdown on the runway and coming to rest? 	<ol style="list-style-type: none"> Figure shows the unusual path of a confused football player. After receiving a kickoff at his own goal, he runs downfield to within inches of a touchdown, then reverses direction and races back until he's tackled at the exact location where he first caught the ball. During this run, which took 25 s, what is (a) the path length he travels, (b) his displacement, (c) his average velocity in the x - direction, and (d) his average speed? True or False? (a) A car must always have an acceleration in the same direction as its velocity. (b) It's possible for a slowing car to have a positive acceleration. (c) An object with constant nonzero acceleration can never stop and remain at rest. Parts (a), (b), and (c) of Figure represent three graphs of the velocities of different objects moving in straight - line paths as functions of time. The possible accelerations of each object as functions of time are shown in parts (d), (e), and (f). Match each velocity vs. time graph with the acceleration vs. time graph that best describes the motion. [OPTIONS IN THE FORM OF GRAPH] Figure 2.14a is a diagram of a multiframe image of an air puck moving to the right on a horizontal surface. The images sketched are separated by equal time intervals, and the first and last images show the puck at rest. (a) In Figure 2.14b, which color graph best shows the puck's position as a function of time? (b) In Figure 2.14c, which color graph best shows the puck's velocity as a function of time? (c) In Figure 2.14d, which color graph best shows the puck's acceleration as a function of time? 	
1st week	Kinematics	<ul style="list-style-type: none"> To distinguish between Scalar and vector quantities; To explain Position and displacement vectors, 	<p>STUDENTS WILL BE ABLE TO</p> <ul style="list-style-type: none"> explain Scalar and vector quantities; explain Position and displacement vectors, through research, by solving HOT questions, related numerical and by addressing open ended questions 	<ul style="list-style-type: none"> Group discussion Experiments Project Differentiated Worksheets Power point presentation 	Smart board, Ncert book, related videos, ppt, sticky notes, blank papers, differentiated worksheets, assessment tasks etc, PHET simulations.	<p>Competencies: Communication, problem solving digital competence, collaboration, cultural awareness, creativity and innovation, independent learning, leadership and responsibility, self confidence, innovation and self direction, global and environmental awareness</p> <p>Values: Respect, integrity, empathy, resilience, honesty, care, tolerance</p>	Explain motion of your car in the round about in connection with circular motion.	Englishspeaking and communication skills, interpreting datas mathematics.....pythagorus theorem, parallax method, integration and differentiation, trigonometric ratios, binomial theorem, logarithm, analyzing graphs.						

May	2nd week	Kinematics	<p>To discuss general vectors and their notations; equality of vectors.</p> <ul style="list-style-type: none"> To explain multiplication of vectors by a real number; To analyse addition and subtraction of vectors. 	<p>STUDENTS WILL BE ABLE TO</p> <ul style="list-style-type: none"> explain multiplication of vectors by a real number; explain addition and subtraction of vectors, through research, by solving HOT questions, related numerical and by addressing open ended questions 	<ul style="list-style-type: none"> Group discussion Experiments Project Differentiated Worksheets Power point presentation 	<p>Smart board, Ncert book, related videos, ppt, sticky notes, blank papers, differentiated worksheets, assessment tasks etc, PHET simulations.</p>	<p>Competencies: Communication, problem solving digital competence, critical thinking, collaboration, cultural awareness, creativity and innovation, independent learning, leadership and responsibility, self confidence, innovation and self direction, global and environmental awareness</p> <p>Values: Respect, integrity, empathy, resilience, honesty, care, tolerance</p>	<p>Englishspeaking and communication skills, interpreting datas mathematics.....pythagorus theorem, parallax method, integration and differentiation, trigonometric ratios, binomial theorem, logarithm, analyzing graphs.</p>	<p>1) The sleek high-speed electric train known as the Acela (pronounced "ah cel" la") is currently in service on the Washington-New York-Boston run. The Acela consists of two power cars and six coaches and can carry 304 passengers. The train speeds up to 170 mi/h. To negotiate curves comfortably at high speeds, the train carriages tilt as much as 6° from the vertical, preventing passengers from being pushed to the side. A velocity vs. time graph for the Acela is shown in Figure 2.19a. (a) Describe the motion of the Acela. (b) Find the peak acceleration of the Acela in miles per hour per second (mi/h/s) as the train speeds up from 45 mi/h to 170 mi/h. (c) Find the train's displacement in miles between 150 and 15200 s. (d) Find the average acceleration of the Acela and its displacement in miles in the interval from 200 s to 300 s. (The train has regenerative braking, which means that it feeds energy back into the utility lines each time it stops!) (e) Find the total displacement in the interval from 0 to 400 s.</p> <p>2) A ball is thrown from the top of a building with an initial velocity of 20.0 m/s straight upward, at an initial height of 50.0 m above the ground. The ball just misses the edge of the roof on its way down, as shown in Figure 2.20. Determine (a) the time needed for the ball to reach its maximum height, (b) the maximum height, (c) the time needed for the ball to return to the height from which it was thrown and the velocity of the ball at that instant, (d) the time needed for the ball to reach the ground, and (e) the velocity and position of the ball at t = 5.00 s. Neglect air drag. 3) A rocket moves straight upward, starting from rest with an acceleration of 129.4 m/s². It runs out of fuel at the end of 4.00 s and continues to coast upward, reaching a maximum height before falling back to Earth. (a) Find the rocket's velocity and position at the end of 4.00 s. (b) Find the maximum height the rocket reaches. (c) Find the velocity the instant before the rocket crashes on the ground. 4) paper in the journal Current Biology tells of some jellyfish-like animals that attack their prey by launching stinging cells in one of the animal kingdom's fastest movements. High-speed photography showed the cells were accelerated from rest for 700. ns at 5.30 × 10⁷ m/s². Calculate (a) the maximum speed reached by the cells and (b) the distance traveled during the acceleration. 5) speedboat increases its speed uniformly from v_i = 5.20 m/s to v_f = 30.0 m/s in a distance of 2.00 × 10² m. (a) Draw a coordinate system for this situation and label the relevant quantities, including vectors. (b) For the given information, what single equation is most appropriate for finding the acceleration? (c) Solve the equation selected in part (b) symbolically for the boat's acceleration in terms of v_f, v_i, and Dx. (d) Substitute given values, obtaining that acceleration. (e) Find the time it takes the boat to travel the given distance.</p>	
	3RD WEEK		UNIT TEST - 1 [REVISION]						<p>Give a brief description about inertia with reference to your journey in Dubai metro.</p>	<p>A description about journey to Dubai taking in to consideration the terms velocity, Acceleration, displacement etc of the vehicle Link to install Story Speaker extension for Story Speaker: https://chrome.google.com/webstore/detail/story-speaker/ohfifbfbhbkfnfdkjpjopbneqbkjppj</p>
	3rd week	Kinematics	<p>To explain Relative velocity, Unit vector;</p> <ul style="list-style-type: none"> To explain Resolution of a vector in a plane - rectangular components To discuss Scalar and Vector product of vectors. To explain Motion in a plane, Cases of uniform velocity and uniform acceleration- To discuss projectile motion, Uniform circular motion. 	<p>STUDENTS WILL BE ABLE TO</p> <ul style="list-style-type: none"> explain Relative velocity, Unit vector; explain Resolution of a vector in a plane - rectangular components understand Scalar and Vector product of vectors. explain Motion in a plane, Cases of uniform velocity and uniform acceleration- understand and explain projectile motion, Uniform circular motion, through research, by solving HOT questions, related numerical and by addressing open ended questions 	<ul style="list-style-type: none"> Group discussion Experiments Project Differentiated Worksheets Power point presentation 	<p>Smart board, Ncert book, related videos, ppt, sticky notes, blank papers, differentiated worksheets, assessment tasks etc, PHET simulations.</p>	<p>Competencies: Communication, problem solving digital competence, critical thinking, collaboration, cultural awareness, creativity and innovation, independent learning, leadership and responsibility, self confidence, innovation and self direction, global and environmental awareness</p> <p>Values: Respect, integrity, empathy, resilience, honesty, care, tolerance</p>	<p>Englishspeaking and communication skills, interpreting datas mathematics.....pythagorus theorem, parallax method, integration and differentiation, trigonometric ratios, binomial theorem, logarithm, analyzing graphs.</p>	<p>1) A tennis player on serve tosses a ball straight up. While the ball is in free fall, does its acceleration (a) increase, (b) decrease, (c) increase and then decrease, (d) decrease and then increase, or (e) remain constant? 2) As the tennis ball of Question 1 travels through the air, does its speed (a) increase, (b) decrease, (c) decrease and then increase, (d) increase and then decrease, or (e) remain the same? 3) A skydiver jumps out of a hovering helicopter. A few seconds later, another skydiver jumps out, so they both fall along the same vertical line relative to the helicopter. Assume both skydivers fall with the same acceleration. Does the vertical distance between them (a) increase, (b) decrease, or (c) stay the same? 4) Does the difference in their velocities (d) increase, (e) decrease, or (f) stay the same? 4) In a test run, a certain car accelerates uniformly from zero to 24.0 m/s in 2.95 s. (a) What is the magnitude of the car's acceleration? (b) How long does it take the car to change its speed from 10.0 m/s to 20.0 m/s? (c) Will doubling the time always double the change in speed? Why? 5) A jet plane lands with a speed of 100 m/s and can accelerate at a maximum rate of 25.0 m/s² as it comes to rest. (a) From the instant the plane touches the runway, what is the minimum time needed before it can come to rest? (b) Can this plane land on a small tropical island airport where the runway is 0.800 km long? 6) Speedy Sue, driving at 30.0 m/s, enters a one-lane tunnel. She then observes a slow-moving van 155 m ahead traveling at 5.00 m/s. Sue applies her brakes but can accelerate only at 22.0 m/s² because the road is wet. Will there be a collision? State how you decide. If yes, determine how far into the tunnel and at what time the collision occurs. If no, determine the distance of closest approach between Sue's car and the van.</p>	
	4th week	Laws of Motion	<ul style="list-style-type: none"> To explain Intuitive concept of force, Inertia, To understand Newton's first law of motion; momentum and Newton's second law of motion; impulse; Newton's third law of motion. 	<p>STUDENTS WILL BE ABLE TO</p> <ul style="list-style-type: none"> explain Intuitive concept of force, Inertia, understand Newton's first law of motion; momentum and Newton's second law of motion; impulse; Newton's third law of motion, through research, by solving HOT questions, related numerical and by addressing open ended questions 	<ul style="list-style-type: none"> Group discussion Experiments Project Differentiated Worksheets Power point presentation 	<p>Smart board, Ncert book, related videos, ppt, sticky notes, blank papers, differentiated worksheets, assessment tasks etc, PHET simulations.</p>	<p>Competencies: Communication, problem solving digital competence, critical thinking, collaboration, cultural awareness, creativity and innovation, independent learning, leadership and responsibility, self confidence, innovation and self direction, global and environmental awareness</p> <p>Values: Respect, integrity, empathy, resilience, honesty, care, tolerance</p>	<p>Englishspeaking and communication skills, interpreting datas mathematics.....pythagorus theorem, parallax method, integration and differentiation, trigonometric ratios, binomial theorem, logarithm, analyzing graphs.</p>	<p>Analyse about the permitted speed limits in various parts of UAE</p>	<p>1) An airboat with mass 3.50 × 10² kg, including the passenger, has an engine that produces a net horizontal force of 7.70 × 10² N, after accounting for forces of resistance (see Fig. 4.7). (a) Find the acceleration of the airboat. (b) Starting from rest, how long does it take the airboat to reach a speed of 12.0 m/s? (c) After reaching that speed, the pilot turns off the engine and drifts to a stop over a distance of 50.0 m. Find the resistance force, assuming it's constant. 2) Two horses are pulling a barge with mass 2.00 × 10³ kg along a canal, as shown in Figure 4.8. The cable connected to the first horse makes an angle of 15° with respect to the direction of the canal, while the cable connected to the second horse makes an angle of 25°. Find the initial acceleration of the barge, starting at rest, if each horse exerts a force of magnitude 6.00 × 10² N on the barge. Ignore forces of resistance on the barge. 3) (a) Find the gravitational force exerted by the Sun on a 70.0-kg man located at the Earth's equator at noon, when the man is closest to the Sun. (b) Calculate the gravitational force of the Sun on the man at midnight, when he is farthest from the Sun. (c) Calculate the difference in the acceleration due to the Sun between noon and midnight. 4) A man of mass M = 575.0 kg and woman of mass m = 55.0 kg stand facing each other on an ice rink, both wearing ice skates. The woman pushes the man with a horizontal force of F = 85.0 N in the positive x - direction. Assume the ice is frictionless. (a) What is the man's acceleration? (b) What is the reaction force acting on the woman? (c) Calculate the woman's acceleration. 5) As shown in the figure, a block having a mass of 4.00 kg rests on a slope that makes an angle of 30.0° with the horizontal. If the coefficient of static friction between the block and the surface it rests upon is 0.650, calculate (a) the normal force, (b) the maximum static friction force, and (c) the actual static friction force required to prevent the block from moving. (d) Will the block begin to move or remain at rest? 6) A traffic light weighing 1.00 × 10² N hangs from a vertical cable tied to two other cables that are fastened to a support, as in Figure 4.31a. The upper cables make angles of 37.0° and 53.0° with the horizontal. Find the tension in each of the three cables. 7) Suppose your friend is sitting on a sled and asks you to move her across a flat, horizontal field. You have a choice of (a) pushing her from behind by applying a force downward on her shoulders at 30° below the horizontal (Fig. 4.22a) or (b) attaching a rope to the front of the sled and pulling with a force at 30° above the horizontal (Fig. 4.22b). Which option would be easier and why? 8) Consider the two situations shown in Figure 4.30, in which there is no acceleration. In both cases the men pull with a force of magnitude F. Is the reading on the scale in part (i) of the figure (a) greater than, (b) less than, or (c) equal to the reading in part (ii)?</p>
1st week	Laws of Motion	<p>To explain Law of conservation of linear momentum and its applications.</p> <ul style="list-style-type: none"> To understand Equilibrium of concurrent forces. To explain Static and kinetic friction, laws of friction, rolling friction, lubrication. 	<p>STUDENTS WILL BE ABLE TO</p> <ul style="list-style-type: none"> explain Law of conservation of linear momentum and its applications. understand and explain Equilibrium of concurrent forces. explain Static and kinetic friction, laws of friction, rolling friction, lubrication, through research, by solving HOT questions, related numerical and by addressing open ended questions 	<ul style="list-style-type: none"> Group discussion Experiments Project Differentiated Worksheets Power point presentation 	<p>Smart board, Ncert book, related videos, ppt, sticky notes, blank papers, differentiated worksheets, assessment tasks etc, PHET simulations.</p>	<p>Competencies: Communication, problem solving digital competence, critical thinking, collaboration, cultural awareness, creativity and innovation, independent learning, leadership and responsibility, self confidence, innovation and self direction, global and environmental awareness</p> <p>Values: Respect, integrity, empathy, resilience, honesty, care, tolerance</p>	<p>Englishspeaking and communication skills, interpreting datas mathematics.....pythagorus theorem, parallax method, integration and differentiation, trigonometric ratios, binomial theorem, logarithm, analyzing graphs.</p>	<p>Analyse the accident rates and severity in UAE. What safety measures can you suggest to minimize it?</p>	<p>1) A man returning from a successful ice fishing trip pulls a sled loaded with salmon. The total mass of the sled and salmon is 50.0 kg, and the man exerts a force of magnitude 1.20 × 10² N on the sled by pulling on the rope. (a) How much work does he do on the sled if the rope is horizontal to the ground (u = 5.0° in Fig. 5.6) and he pulls the sled 5.00 m? (b) How much work does he do on the sled if u = 30.0° and he pulls the sled the same distance? (Treat the sled as a point particle, so details such as the point of attachment of the rope make no difference.) (c) At a coordinate position of 12.4 m, the man lets up on the applied force. A friction force of 45.0 N between the ice and the sled brings the sled to rest at a coordinate position of 18.2 m. How much work does friction do on the sled? 2) The man pushes the same 50.0-kg sled over level ground with a force of 1.75 × 10² N exerted horizontally, moving it a distance of 6.00 m over new terrain. (a) If the net work done on the sled is 1.50 × 10² J, find the coefficient of kinetic friction. (b) Repeat the exercise with the same data, finding the coefficient of kinetic friction, but assume the applied force is upwards at a 45.0° angle with the horizontal. 3) Assume for simplicity that the force of kinetic friction between the car and the road surface is constant and the same at both speeds. From the work-energy theorem, the net force exerted on the car times the displacement of the car, Fnet Dx, is</p>	
2nd week	Laws of Motion	<p>To understand Dynamics of uniform circular motion:</p>	<p>STUDENTS WILL BE ABLE TO</p> <ul style="list-style-type: none"> understand and explain Dynamics of uniform circular motion; through research, by solving HOT questions, related numerical and by addressing open ended questions 	<ul style="list-style-type: none"> Group discussion Experiments Project Differentiated Worksheets Power point presentation 	<p>Smart board, Ncert book, related videos, ppt, sticky notes, blank papers, differentiated worksheets, assessment tasks etc, PHET simulations.</p>	<p>Competencies: Communication, problem solving digital competence, critical thinking, collaboration, cultural awareness, creativity and innovation, independent learning, leadership and responsibility, self confidence, innovation and self direction, global and environmental awareness</p> <p>Values: Respect, integrity, empathy, resilience, honesty, care, tolerance</p>	<p>Englishspeaking and communication skills, interpreting datas mathematics.....pythagorus theorem, parallax method, integration and differentiation, trigonometric ratios, binomial theorem, logarithm, analyzing graphs.</p>	<p>Google map in determining real time speed limits for vehicles in UAE and find out the vehicles that crosses the speed limit and analyse the accident rates and its severity due to this negligence Rule Based AI app. students to go to https://maps.google.com and enter a</p>	<p>1) In Fig. (a)–(d), a block moves to the right in the positive x - direction through the displacement Dx while under the influence of a force with the same magnitude F. Which of the following is the correct order of the amount of work done by the force F, from most positive to most negative? (a) d, c, a, b (b) c, a, b, d (c) c, a, d, b 2) A block slides at constant speed down a ramp while acted on by three forces: its weight, the normal force, and kinetic friction. Respond to each statement, true or false. (a) The combined net work done by all three forces on the block equals zero. (b) Each force does zero work on the block as it slides. (c) Each force does negative work on the block as it slides. 3) Three identical balls are thrown from the top of a building, all with the same initial speed. The first ball is thrown horizontally, the second at some angle above the horizontal, and the third at some angle below the horizontal, as in Figure 5.16. Neglecting air resistance, rank the speeds of the balls as they reach the ground, from fastest to slowest. (a) 1, 2, 3 (b) 2, 1, 3 (c) 3, 1, 2 (d) All three balls strike the ground at the same speed. 4) Bob, of mass m, drops from a tree limb at the same time that Esther, also of</p>	

October	1st week	Motion of System of Particles and Rigid Body	<ul style="list-style-type: none"> To understand Centre of mass of a two-particle system. To explain momentum conservation and centre of mass motion. To understand Centre of mass of a rigid body; centre of mass of a uniform rod. 	<p>STUDENTS WILL BE ABLE TO understand and analyse Centre of mass of a two-particle system.</p> <ul style="list-style-type: none"> explain momentum conservation and centre of mass motion. understand Centre of mass of a rigid body; centre of mass of a uniform rod. <p>through research, by solving HOT questions, related numerical and by addressing open ended questions</p>	<ul style="list-style-type: none"> Group discussion Experiments Project Differentiated Worksheets Power point presentation 	Smart board, Ncert book, related videos, ppt, sticky notes, blank papers, differentiated worksheets, assessment tasks etc, PHET simulations.	<p>Competencies:Communication, problem solving digital competence,critical thinkng,collaboration, cultural awareness,creativity and innovation,independent learning,leadership and responsibility,self confidence,innovation and self direction,global and environmental awareness</p> <p>Values: Respect,integrity,empathy,resilience,honesty,care,tolerance</p>	What suggestions do you have to enhance the efficient utilisation of electrical energy in U A E.	Englishspeaking and communication skills, interpreting datas mathematics.....pythagorus theorem, parallax method, integration and differentiation, trigonometric ratios, binomial theorem, logarithm, analyzing graphs. Social studies.....energy sources maping	<p>visualize the acquired data in some user-friendly format so that they can:</p> <ul style="list-style-type: none"> Quickly get a sense of the trends, relationships and patterns contained within the data. Define strategy for which model to use at a later stage. Communicate the same to others effectively. <p>To visualize data, various types of visual representations can be used by the students like diagrams, charts, graphs, flows, etc. Using these representations, students need to understand the patterns of lifestyle in the past and deliver a presentation on the same.</p>	<p>1)The rotor on a helicopter turns at an angular velocity of 3.20 3 102 revolutions per minute. (In this book, we sometimes use the abbreviation rpm, but in most cases we use rev/min.) (a) Express this angular velocity in radians per second. (b) If the rotor has a radius of 2.00 m, what arclength does the tip of the blade trace out in 3.00 3 102 s? (c) The pilot opens the throttle, and the angular velocity of the blade increases while rotating twenty-six times in 3.60 s. Calculate the average angular velocity during that time. 2) A wheel rotates with a constant angular acceleration of 3.50 rad/s². If the angular velocity of the wheel is 2.00 rad/s at t 5.0, (a) through what angle does the wheel rotate between t 5.0 and t 5.200 s? Give your answer in radians and in revolutions. (b) What is the angular velocity of the wheel at t 5.200 s? (c) What angular displacement (in revolutions) results while the angular velocity found in part (b) doubles? 3) A compact disc (CD) rotates from rest up to an angular velocity of 231.4 rad/s in a time of 0.892 s. (a) What is the angular acceleration of the disc, assuming the angular acceleration is uniform? (b) Through what angle does the disc turn while coming up to speed? (c) If the radius of the disc is 4.45 cm, find the tangential velocity of a microbe riding on the rim of the disc when t 5.0 892 s. (d) What is the magnitude of the tangential acceleration of the microbe at the given time? 4) In a compact disc player, as the read head moves out from the center of the disc, the angular speed of the disc changes so that the linear speed at the position of the head remains at a constant value of about 1.3 m/s. (a) Find the angular speed of a CD of radius 6.00 cm when the read head is at 5.20 cm and again at 5.6 cm. (b) An old-fashioned record player rotates at a constant angular speed, so the linear speed of the record groove moving under the detector (the stylus) changes. Find the linear speed of a 45.0-rpm record at points 2.0 cm and 5.6 cm from the center. (c) In both the CDs and phonograph records, information is recorded in a continuous spiral track. Calculate the total length of the track for a CD designed to play for 1.0 h. 5) A rotating cylindrical space station creates an environment of artificial gravity. The normal force of the rigid walls provides the centripetal force, which keeps the astronauts moving in a circle (Fig. 7.10). To an astronaut, the normal force can't be easily distinguished from a gravitational force as long as the radius of the station is large compared with the astronaut's height. (Otherwise, there are unpleasant inner ear effects.) This same principle is used in certain amusement park rides in which passengers are pressed against the inside of a rotating cylinder as it tilts in various directions. The visionary physicist Gerard O'Neill proposed creating a giant space colony a kilometer in radius that rotates slowly, creating Earth-normal artificial gravity for the inhabitants in its interior. These inside-out artificial worlds could enable safe transport on a several-thousand-year journey to another star system.</p>
	2nd week	Motion of System of Particles and Rigid Body	To explain Moment of a force, torque, angular momentum, laws of conservation of angular momentum and its applications.	<p>STUDENTS WILL BE ABLE TO explain Moment of a force, torque, angular momentum, laws of conservation of angular momentum and its applications.</p> <p>through research, by solving HOT questions, related numerical and by addressing open ended questions through research, by solving HOT questions, related numerical and by addressing open ended questions</p>	<ul style="list-style-type: none"> Group discussion Experiments Project Differentiated Worksheets Power point presentation 	Smart board, Ncert book, related videos, ppt, sticky notes, blank papers, differentiated worksheets, assessment tasks etc, PHET simulations.	<p>Competencies:Communication, problem solving digital competence,critical thinkng,collaboration, cultural awareness,creativity and innovation,independent learning,leadership and responsibility,self confidence,innovation and self direction,global and environmental awareness</p> <p>Values: Respect,integrity,empathy,resilience,honesty,care,tolerance</p>	Assuming the density of Burj Khalifa, calculate the pressure exerted by it.	Englishspeaking and communication skills, interpreting datas mathematics.....pythagorus theorem, parallax method, integration and differentiation, trigonometric ratios, binomial theorem, logarithm, analyzing graphs. Social studies.....	<p>Discuss about the support of U A E government for all residents through their well planned energy distribution system.</p> <p>Link to install Story Speaker extension for Story Speaker: https://chrome.google.com/webstore/detail/story-speaker/ohfibfhhfbhknfdkjpdpbnegkbbkjj</p>	
	3rd week	Motion of System of Particles and Rigid Body	To understand Equilibrium of rigid bodies, rigid body rotation and equations of rotational motion.	<p>STUDENTS WILL BE ABLE TO understand Equilibrium of rigid bodies, rigid body rotation and equations of rotational motion.</p> <ul style="list-style-type: none"> compare linear and rotational motions. understand Moment of inertia, radius of gyration. explain Values of moments of inertia, for simple geometrical objects (no derivation). understand and explain Statement of parallel and perpendicular axes theorems and their applications. <p>through research, by solving HOT questions, related numerical</p>	<ul style="list-style-type: none"> Group discussion Experiments Project Differentiated Worksheets Power point presentation 	Smart board, Ncert book, related videos, ppt, sticky notes, blank papers, differentiated worksheets, assessment tasks etc, PHET simulations.	<p>Competencies:Communication, problem solving digital competence,critical thinkng,collaboration, cultural awareness,creativity and innovation,independent learning,leadership and responsibility,self confidence,innovation and self direction,global and environmental awareness</p> <p>Values: Respect,integrity,empathy,resilience,honesty,care,tolerance</p>		Englishspeaking and communication skills, interpreting datas mathematics.....pythagorus theorem, parallax method, integration and differentiation, trigonometric ratios, binomial theorem, logarithm, analyzing graphs. Social studies.....		
	4th week	Gravitation	To explain Kepler's laws of planetary motion. The universal law of gravitation.	<p>STUDENTS WILL BE ABLE TO explain Kepler's laws of planetary motion. The universal law of gravitation.</p> <ul style="list-style-type: none"> explain Acceleration due to gravity and its variation with altitude and depth. understand and explain Gravitational potential energy and gravitational potential. explain Escape velocity. understand Geo-stationary satellites. <p>through research, by solving HOT questions, related numerical and by addressing open ended questions</p>	<ul style="list-style-type: none"> Group discussion Experiments Project Differentiated Worksheets Power point presentation 	Smart board, Ncert book, related videos, ppt, sticky notes, blank papers, differentiated worksheets, assessment tasks etc, PHET simulations.	<p>Competencies:Communication, problem solving digital competence,critical thinkng,collaboration, cultural awareness,creativity and innovation,independent learning,leadership and responsibility,self confidence,innovation and self direction,global and environmental awareness</p> <p>Values: Respect,integrity,empathy,resilience,honesty,care,tolerance</p>	Name the major innovation by U A E in the field of astronomy.	Englishspeaking and communication skills, interpreting datas mathematics.....pythagorus theorem, parallax method, integration and differentiation, trigonometric ratios, binomial theorem, logarithm, analyzing graphs. Social studies.....		
November	1st week	UNIT TEST - 2 [REVISION]									
	1st week	Properties of Bulk Matter	<ul style="list-style-type: none"> To explain Elastic behaviour. To explain Stress-strain relationship, Hooke's law. To understand Young's modulus, bulk modulus, shear modulus of rigidity. To explain Poisson's ratio; elastic energy. 	<p>STUDENTS WILL BE ABLE TO explain Elastic behaviour.</p> <ul style="list-style-type: none"> explain Stress-strain relationship, Hooke's law. understand Young's modulus, bulk modulus, shear modulus of rigidity. explain Poisson's ratio; elastic energy. <p>through research, by solving HOT questions, related numerical and by addressing open ended questions</p>	<ul style="list-style-type: none"> Group discussion Experiments Project Differentiated Worksheets Power point presentation 	Smart board, Ncert book, related videos, ppt, sticky notes, blank papers, differentiated worksheets, assessment tasks etc, PHET simulations.	<p>Competencies:Communication, problem solving digital competence,critical thinkng,collaboration, cultural awareness,creativity and innovation,independent learning,leadership and responsibility,self confidence,innovation and self direction,global and environmental awareness</p> <p>Values: Respect,integrity,empathy,resilience,honesty,care,tolerance</p>	Name the major innovation by U A E in the field of astronomy. Site the contributions by astronomers in U A E	Englishspeaking and communication skills, interpreting datas mathematics.....pythagorus theorem, parallax method, integration and differentiation, trigonometric ratios, binomial theorem, logarithm, analyzing graphs. Social studies.....history based on astronomical bodies.	<p>A description about contribution of astronomers in the field of astrophysics and about communication satellites.</p> <p>Link to install Story Speaker extension for Story Speaker: https://chrome.google.com/webstore/detail/story-speaker/ohfibfhhfbhknfdkjpdpbnegkbbkjj</p> <p>3D representation of space using AI go to https://autodraw.com.</p>	

November	2nd week	Properties of Bulk Matter	24	To understand Pressure due to a fluid column; Pascal's law and its applications (hydraulic lift and hydraulic brakes). • To explain Effect of gravity on fluid pressure. • To explain Viscosity, Stokes' law, terminal velocity. • To understand nstreamline and turbulent flow, critical velocity. • To explain Bernoulli'stheorem and its applications.	STUDENTS WILL BE ABLE TO understand Pressure due to a fluid column; Pascal's law and its applications (hydraulic lift and hydraulic brakes). • explain Effect of gravity on fluid pressure. • To explain Viscosity, Stokes' law, terminal velocity. • understand nstreamline and turbulent flow, critical velocity. • explain Bernoulli'stheorem and its applications, through research,by solving HOT questions, related numerical and by addressing open ended questions	Group discussion • Experiments • Project • Differentiated Worksheets • Power point presentation	Smart board, Ncert book, related videos, ppt, sticky notes , blank papers, differentiated worksheets, assessment tasks etc, PHET simulations.	Competencies: Communication, problem solving digital competence,critical thinkng,collaboration, cultural awareness,creativity and innovation,independent learning,leadership and responsibility,self confidence,innovation and self direction,global and environmental awareness Values: Respect,integrity,empathy,resilienc e,honesty,care,tolerance	Englishspeaking and communication skills, interpreting datas mathematics.....pythagorus theorem, parallax method, integration and differentiation, trigonometric ratios, binomial theorem, logarithm, analyzing graphs. Social studies.....history based on astronomical bodies.	1) After an exciting but exhausting lecture, a physics professor stretches out for a nap on a bed of nails, as in Figure, suffering no injury and only moderate discomfort. How is that possible? 2) (a) Calculate the weight of a cylindrical column of water with height h 5 40.0 m and radius r 5 1.00 m. (See Fig. 9.7.) (b) Calculate the force exerted by air on a disk of radius 1.00 m at the water's surface. (c) What pressure at a depth of 40.0 m supports the water column? 3) In a huge oil tanker, salt water has flooded an oil tank to a depth of h2 5 5.00 m. On top of the water is a layer of oil h1 5 8.00 m deep, as in the cross-sectional view of the tank in Figure . The oil has a density of 0.700 g/cm3. Find the pressure at the bottom of the tank. (Take 1 025 kg/m3 as the density of salt water.) 4) In a car lift used in a service station, compressed air exerts a force on a small piston of circular cross section having a radius of r1 5 5.00 cm. This pressure is transmitted by an incompressible liquid to a second piston of radius r 2 5 15.0 cm. (a) What force must the compressed air exert on the small piston in order to lift a car weighing 13 300 N? Neglect the weights of the pistons. (b) What air pressure will produce a force of that magnitude? (c) Show that the work done by the input and output pistons is the same. 5) A corollary to the statement that pressure in a fluid increases with depth is that water always seeks its own level. This means that if a vessel is filled with water, then regardless of the vessel's shape the surface of the water is perfectly flat and at the same height at all points. The ancient Egyptians used this fact to make the pyramids level. Devise a scheme showing how this could be done. 6)A bargain hunter purchases a "gold" crown at a flea market. After she gets home, she hangs it from a scale and finds its weight to be 7.84 N (Fig. 9.22a). She then weighs the crown while it is immersed in water, as in Figure 9.22b, and now the scale reads 6.86 N. Is the crown made of pure gold?	1) Suppose you have one cubic meter of gold, two cubic meters of silver, and six cubic meters of aluminum. Rank them by mass, from smallest to largest. (a) gold, aluminum, silver (b) gold, silver, aluminum (c) aluminum, gold, silver (d) silver, aluminum, gold 2) The pressure at the bottom of a glass filled with water (r 5 1 000 kg/m3) is P. The water is poured out and the glass is filled with ethyl alcohol (r 5 806 kg/m3). The pressure at the bottom of the glass is now (a) smaller than P (b) equal to P (c) larger than P (d) indeterminate. 3)Several common barometers are built using a variety of fluids. For which fluid will the column of fluid in the barometer be the highest? (Table) (a) mercury (b) water (c) ethyl alcohol (d) benzene 4) Blood pressure is normally measured with the cuff of the sphygmomanometer around the arm. Suppose the blood pressure is measured with the cuff around the calf of the leg of a standing person. Would the reading of the blood pressure be (a) the same here as it is for the arm, (b) greater than it is for the arm, or (c) less than it is for the arm? 5)Atmospheric pressure varies from day to day. The level of a floating ship on a high-pressure day is (a) higher, (b) lower, or (c) no different than on a low-pressure day. 6)The density of lead is greater than iron, and both metals are denser than water. Is the buoyant force on a solid lead object (a) greater than, (b) equal to, or (c) less than the buoyant force acting on a solid iron object of the same dimensions? 7) You observe two helium balloons floating next to each other at the ends of strings secured to a table. The facing surfaces of the balloons are separated by 1–2 cm. You blow through the opening between the balloons. What happens to the balloons? (a) They move toward each other. (b) They move away from each other. (c) They are unaffected.
	3rd week	Properties of Bulk Matter		To understand Pressure due to a fluid column; Pascal's law and its applications (hydraulic lift and hydraulic brakes). • To explain Effect of gravity on fluid pressure. • To explain Viscosity, Stokes' law, terminal velocity. • To understand nstreamline and turbulent flow, critical velocity. • To explain Bernoulli'stheorem and its applications.	STUDENTS WILL BE ABLE TO understand Pressure due to a fluid column; Pascal's law and its applications (hydraulic lift and hydraulic brakes). • explain Effect of gravity on fluid pressure. • To explain Viscosity, Stokes' law, terminal velocity. • understand nstreamline and turbulent flow, critical velocity. • explain Bernoulli'stheorem and its applications, through research,by solving HOT questions, related numerical and by addressing open ended questions	Group discussion • Experiments • Project • Differentiated Worksheets • Power point presentation	Smart board, Ncert book, related videos, ppt, sticky notes , blank papers, differentiated worksheets, assessment tasks etc, PHET simulations.	Competencies: Communication, problem solving digital competence,critical thinkng,collaboration, cultural awareness,creativity and innovation,independent learning,leadership and responsibility,self confidence,innovation and self direction,global and environmental awareness Values: Respect,integrity,empathy,resilienc e,honesty,care,tolerance	Englishspeaking and communication skills, interpreting datas mathematics.....pythagorus theorem, parallax method, integration and differentiation, trigonometric ratios, binomial theorem, logarithm, analyzing graphs. Social studies.....historic buildings in UAE	How the property of elastic behaviour is used in the construction of bridges, and flyovers in UAE	
	4th week	Properties of Bulk Matter		To explain Surface energy and surface tension, • To understand angle of contact, excess of pressure across a curved surface, • application of surface tension ideas to drops, bubbles and capillary rise.	STUDENTS WILL BE ABLE TO explain Surface energy and surface tension, • understand angle of contact, excess of pressure across a curved surface, • analyse application of surface tension ideas to drops, bubbles and capillary rise, by solving HOT questions, related numerical and by addressing open ended questions	Group discussion • Experiments • Project • Differentiated Worksheets • Power point presentation	Smart board, Ncert book, related videos, ppt, sticky notes , blank papers, differentiated worksheets, assessment tasks etc, PHET simulations.	Competencies: Communication, problem solving digital competence,critical thinkng,collaboration, cultural awareness,creativity and innovation,independent learning,leadership and responsibility,self confidence,innovation and self direction,global and environmental awareness Values: Respect,integrity,empathy,resilienc e,honesty,care,tolerance	Englishspeaking and communication skills, interpreting datas mathematics.....pythagorus theorem, parallax method, integration and differentiation, trigonometric ratios, binomial theorem, logarithm, analyzing graphs. Social studies.....historic buildings in UAE		
December	1st week	Properties of Bulk Matter		To understand Heat, temperature, thermal expansion; thermal expansion of solids, • To explain liquids and gases, anomalous expansion of water; To understand specific heat capacity; Cp, Cv - calorimetry; • To explain change of state - latent heat capacity. Heat transfer-conduction, convection and radiation, thermal conductivity	STUDENTS WILL BE ABLE TO understand Heat, temperature, thermal expansion; thermal expansion of solids, expansion of water, through research,by solving HOT questions, related numerical and by addressing open ended questions understand specific heat capacity; Cp, Cv - calorimetry; •explain change of state - latent heat capacity. Heat transfer-conduction, convection and radiation, thermal conductivity	Group discussion • Experiments • Project • Differentiated Worksheets • Power point presentation	Smart board, Ncert book, related videos, ppt, sticky notes , blank papers, differentiated worksheets, assessment tasks etc, PHET simulations.	Competencies: Communication, problem solving digital competence,critical thinkng,collaboration, cultural awareness,creativity and innovation,independent learning,leadership and responsibility,self confidence,innovation and self direction,global and environmental awareness Values: Respect,integrity,empathy,resilienc e,honesty,care,tolerance	Englishspeaking and communication skills, interpreting datas mathematics.....pythagorus theorem, parallax method, integration and differentiation, trigonometric ratios, binomial theorem, logarithm, analyzing graphs. Social studies.....historic buildings in UAE	Make an innovate product that suite for U A E ,based on the concept of buoyancy.	To construct a building usind 3D autodraw go to https://autodraw.com . Explain various measurements that can be taken to protect the building from external calamities. Link to install Story Speaker extension for Story Speaker: https://chrome.google.com/webstore/detail/story-speaker/ohfibfhbkhkndfkipjdpbnegkbkjpj
	2nd week	Thermodynamics	12	• To understand Thermal equilibrium and definition of temperature (zeroth law of thermodynamics). • To explain Heat, work and internal energy. First law of thermodynamics. To understand Isothermal and adiabatic processes. • To explain Second law of thermodynamics: reversible and irreversible processes. • To understand Heat engine and refrigerator.	STUDENTS WILL BE ABLE TO understand Thermal equilibrium and definition of temperature (zeroth law of thermodynamics). • explain Heat, work and internal energy. First law of thermodynamics. Through research,by solving HOT questions, related numerical and by addressing open ended questions STUDENTS WILL BE ABLE TO understand Isothermal and adiabatic processes. • explain Second law of thermodynamics: reversible and irreversible processes. • understand Heat engine and refrigerator, through research,by solving HOT questions, related numerical and by addressing open ended questions	Group discussion • Experiments • Project • Differentiated Worksheets • Power point presentation	Smart board, Ncert book, related videos, ppt, sticky notes , blank papers, differentiated worksheets, assessment tasks etc, PHET simulations.	Competencies: Communication, problem solving digital competence,critical thinkng,collaboration, cultural awareness,creativity and innovation,independent learning,leadership and responsibility,self confidence,innovation and self direction,global and environmental awareness Values: Respect,integrity,empathy,resilienc e,honesty,care,tolerance	Englishspeaking and communication skills, interpreting datas mathematics.....pythagorus theorem, parallax method, integration and differentiation, trigonometric ratios, binomial theorem, logarithm, analyzing graphs. Social studies.....weather forecasting	Record the temperature for about one week and find out how is it affected in the daily life of people in UAE	1) The temperature gradient between the skin and the air is regulated by cutaneous (skin) blood flow. If the cutaneous blood vessels are constricted, the skin temperature and the temperature of the environment will be about the same. When the vessels are dilated, more blood is brought to the surface. Suppose during dilation the skin warms from 72.0°F to 84.0°F. (a) Convert these temperatures to Celsius and find the difference. (b) Convert the temperatures to Kelvin, again finding the difference. 2) a) A steel railroad track has a length of 30.000 m when the temperature is 0°C. What is its length on a hot day when the temperature is 40.0°C? (b) Suppose the track is nailed down so that it can't expand. What stress results in the track due to the temperature change (Fig)? 3) When the temperatures of a brass rod and a steel rod of equal length are raised by the same amount from some common initial value, the brass rod expands more than the steel rod because brass has a larger coefficient of expansion than steel. A simple device that uses this principle is a bimetallic strip. Such strips can be found in the thermostats of certain home heating systems. The strip is made by securely bonding two different metals together. As the temperature of the strip increases, the two metals expand by different amounts and the strip bends, as in Figure 10.10. The change in shape can make or break an electrical connection. 4) (a) A circular copper ring at 20.0°C has a hole with an area of 9.980 cm2. What minimum temperature must it have so that it can be slipped onto a steel metal rod having a cross-sectional area of 10.000 cm2? (b) Suppose the ring and the rod are heated simultaneously. What minimum change in temperature of both will allow the ring to be slipped onto the end of the rod? (Assume no significant change in the coefficients of linear expansion over this temperature range 5) Estimate the fractional change in the volume of Earth's oceans due to an average temperature change of 1°C. (b) Use the fact that the average depth of the ocean is 4.00 3 103 m to estimate the change in depth. Note that bwater 5 2.07 3 024(°C)21.
WINTER VACATION											

January	1st week	Behaviour of Perfect Gases and Kinetic Theory of Gases	<ul style="list-style-type: none"> To explain Equation of state of a perfect gas, work done in compressing a gas. To understand Kinetic theory of gases - assumptions, concept of pressure. To explain Kinetic interpretation of temperature; To explain Rmsspeed of gas molecules; To understand degrees of freedom, law of equi-partition of energy (statement only) and application to specific heat capacities of gases; To explain concept of mean free path, Avogadro's number 	<p>STUDENTS WILL BE ABLE TO</p> <ul style="list-style-type: none"> explain Equation of state of a perfect gas, work done in compressing a gas. understand Kinetic theory of gases - assumptions, concept of pressure. explain Kinetic interpretation of temperature; explain Rmsspeed of gas molecules; understand degrees of freedom, law of equi-partition of energy (statement only) and application to specific heat capacities of gases; explain concept of mean free path, Avogadro's number through research, by solving HOT questions, related numerical and by addressing open ended questions 	<ul style="list-style-type: none"> Group discussion Experiments Project Differentiated Worksheets Power point presentation 	Smart board, Ncert book, related videos, ppt, sticky notes, blank papers, differentiated worksheets, assessment tasks etc, PHET simulations.	<p>Competencies:Communication, problem solving digital competence,critical thinkng,collaboration, cultural awareness,creativity and innovation,independent learning,leadership and responsibility,self confidence,innovation and self direction,global and environmental awareness</p> <p>Values: Respect,integrity,empathy,resilienc e,honesty,care,tolerance</p>	Record the temperature for about one week and find out how is it affected in the daily life of people in UAE	Englishspeaking and communication skills, interpreting datas mathematics.....pythagorus theorem, parallax method, integration and differentiation, trigonometric ratios, binomial theorem, logarithm, analyzing graphs. Social studies.....weather forecasting	<p>1) The temperature gradient between the skin and the air is regulated by cutaneous (skin) blood flow. If the cutaneous blood vessels are constricted, the skin temperature and the temperature of the environment will be about the same. When the vessels are dilated, more blood is brought to the surface. Suppose during dilation the skin warms from 72.0°F to 84.0°F. (a) Convert these temperatures to Celsius and find the difference. (b) Convert the temperatures to Kelvin, again finding the difference.</p> <p>2) A 1.00-liter aluminum cylinder at 5.00°C is filled to the brim with gasoline at the same temperature. If the aluminum and gasoline are warmed to 65.0°C, how much of the gasoline spills out? Hint: Be sure to account for the expansion of the container. Also, ignore the possibility of evaporation, and assume the volume coefficients are good to three digits.</p> <p>3) Why doesn't the melting of ocean-based ice raise as much concern as the melting of land-based ice?</p> <p>4) An ideal gas at 20.0°C and a pressure of 1.50 3 105 Pa is in a container having a volume of 1.00 L. (a) Determine the number of moles of gas in the container. (b) The gas pushes against a piston, expanding to twice its original volume, while the pressure falls to atmospheric pressure. Find the final temperature.</p> <p>5) A beachcomber finds a corked bottle containing a message. The air in the bottle is at atmospheric pressure and a temperature of 30.0°C. The cork has a cross-sectional area of 2.30 cm². The beachcomber places the bottle over a fire, figuring the increased pressure will push out the cork. At a temperature of 99°C the cork is ejected from the bottle. (a) What was the pressure in the bottle just before the cork left it? (b) What force of friction held the cork in place? Neglect any change in volume of the bottle.</p>	<p>1) Two objects with different sizes, masses, and temperatures are placed in thermal contact. Choose the best answer: Energy travels (a) from the larger object to the smaller object (b) from the object with more mass to the one with less mass (c) from the object at higher temperature to the object at lower temperature.</p> <p>2) If you quickly plunge a room-temperature mercury thermometer into very hot water, the mercury level will (a) go up briefly before reaching a final reading, (b) go down briefly before reaching a final reading, or (c) not change.</p> <p>3) If you are asked to make a very sensitive glass thermometer, which of the following working fluids would you choose? (a) mercury (b) alcohol (c) gasoline (d) glycerin</p> <p>4) Two spheres are made of the same metal and have the same radius, but one is hollow and the other is solid. The spheres are taken through the same temperature increase. Which sphere expands more? (a) solid sphere, (b) hollow sphere, (c) they expand by the same amount, or (d) not enough information to say</p> <p>5) One container is filled with argon gas and another with helium gas. Both containers are at the same temperature. Which atoms have the higher rms speed? (a) argon, (b) helium, (c) they have the same speed, or (d) not enough information to say.</p>
	2nd week	Oscillations and Waves	<ul style="list-style-type: none"> motion - time period, frequency, displacement as a function of time. Periodic functions. To explain Simple harmonic motion (S.H.M) and its equation; To understand phase; oscillations of a spring-restoring force and force constant; To explain energy in S.H.M. Kinetic and potential energies; To explain simple pendulum derivation of expression for its time period. To understand Free, forced and damped oscillations (qualitative ideas only), resonance. 	<p>STUDENTS WILL BE ABLE TO</p> <ul style="list-style-type: none"> understand Periodic motion - time period, frequency, displacement as a function of time. Periodic functions. explain Simple harmonic motion (S.H.M) and its equation; understand phase; oscillations of a spring-restoring force and force constant; explain energy in S.H.M. Kinetic and potential energies; explain simple pendulum derivation of expression for its time period. understand Free, forced and damped oscillations (qualitative ideas only), resonance. through research, by solving HOT questions, related numerical and by addressing open ended questions 	<ul style="list-style-type: none"> Group discussion Experiments Project Differentiated Worksheets Power point presentation 	Smart board, Ncert book, related videos, ppt, sticky notes, blank papers, differentiated worksheets, assessment tasks etc, PHET simulations.	<p>Competencies:Communication, problem solving digital competence,critical thinkng,collaboration, cultural awareness,creativity and innovation,independent learning,leadership and responsibility,self confidence,innovation and self direction,global and environmental awareness</p> <p>Values: Respect,integrity,empathy,resilienc e,honesty,care,tolerance</p>	Englishspeaking and communication skills, interpreting datas mathematics.....pythagorus theorem, parallax method, integration and differentiation, trigonometric ratios, binomial theorem, logarithm, analyzing graphs. Social studies.....weather forecasting	<p>1) A 0.350 - kg object attached to a spring of force constant 1.30 3 102 N/m is free to move on a frictionless horizontal surface, as in Figure 13.1. If the object is released from rest at x = 5.0 100 m, find the force on it and its acceleration at x = 5.0 100 m, x = 5.0 050 0 m, x = 5.0 m, x = 5.20 050 0 m, and x = 5.20 100 m.</p> <p>2) A spring is hung vertically (Fig. 13.2a), and an object of mass m attached to the lower end is then slowly lowered a distance d to the equilibrium point (Fig. 13.2b). (a) Find the value of the spring constant if the magnitude of the displacement d is 2.0 cm and the mass is 0.55 kg. (b) If a second identical spring is attached to the object in parallel with the first spring (Fig. 13.2d), where is the new equilibrium point of the system? (c) What is the effective spring constant of the two springs acting as one?</p> <p>3) A 13 000 - N car starts at rest and rolls down a hill from a height of 10.0 m (Fig. 13.6). It then moves across a level surface and collides with a light spring - loaded guardrail. (a) Neglecting any losses due to friction, and ignoring the rotational kinetic energy of the wheels, find the maximum distance the spring is compressed. Assume a spring constant of 1.0 3 106 N/m. (b) Calculate the magnitude of the car's maximum acceleration after contact with the spring, assuming no frictional losses. (c) If the spring is compressed by only 0.30 m, find the change in the mechanical energy due to friction.</p> <p>4) A 0.500 - kg object connected to a light spring with a spring constant of 20.0 N/m oscillates on a frictionless horizontal surface. (a) Calculate the total energy of the system and the maximum speed of the object if the amplitude of the motion is 3.00 cm. (b) What is the velocity of the object when the displacement is 2.00 cm? (c) Compute the kinetic and potential energies of the system when the displacement is 2.00 cm.</p> <p>5) A 1.30 3 103 - kg car is constructed on a frame supported by four springs. Each spring has a spring constant of 2.00 3 104 N/m. If two people riding in the car have a combined mass of 1.60 3 102 kg, find the frequency of vibration of the car when it is driven over a pothole in the road. Find also the period and the angular frequency.</p>	<p>1) A block on the end of a horizontal spring is pulled from equilibrium at x = 5.0 to x = 5 A and released. Through what total distance does it travel in one full cycle of its motion? (a) A/2 (b) A (c) 2A (d) 4A</p> <p>2) For a simple harmonic oscillator, which of the following pairs of vector quantities can't both point in the same direction? (The position vector is the displacement from equilibrium.) (a) position and velocity (b) velocity and acceleration (c) position and acceleration</p> <p>3) When an object moving in simple harmonic motion is at its maximum displacement from equilibrium, which of the following is at a maximum? (a) velocity, (b) acceleration, or (c) kinetic energy</p> <p>4) An object of mass m is attached to a horizontal spring, stretched to a displacement A from equilibrium, and released, undergoing harmonic oscillations on a frictionless surface with period T0. The experiment is then repeated with a mass of 4m. What's the new period of oscillation? (a) 2T0 (b) T0 (c) T0/2 (d) T0/4</p> <p>5) Consider the situation in Quick Quiz 13.4. Is the subsequent total mechanical energy of the object with mass 4m (a) greater than, (b) less than, or (c) equal to the original total mechanical energy?</p> <p>6) If the amplitude of a system moving in simple harmonic motion is doubled, which of the following quantities doesn't change? (a) total energy (b) maximum speed (c) maximum acceleration (d) period</p> <p>7) A simple pendulum is suspended from the ceiling of a stationary elevator, and the period is measured. If the elevator moves with constant velocity, does the period (a) increase, (b) decrease, or (c) remain the same? If the elevator accelerates upward, does the period (a) increase, (b) decrease, or (c) remain the same?</p> <p>8) A pendulum clock depends on the period of a pendulum to keep correct time. Suppose a pendulum clock is keeping correct time and then Dennis the Menace slides the bob of the pendulum downward on the oscillating rod. Does the clock run (a) slow, (b) fast, or (c) correctly?</p> <p>9) The period of a simple pendulum is measured to be T on the Earth. If the same pendulum were set in motion on the Moon, would its period be (a) less than T, (b) greater than T, or (c) equal to T?</p>	
	3rd week	Oscillations and Waves	<ul style="list-style-type: none"> To understand Wave motion. Transverse and longitudinal waves, To explain speed of wave motion. Displacement relation for aprogressive wave. To understand Principle of superposition of waves, reflection of waves, To understand standing waves in stringsand organ pipes, fundamental mode and harmonics, To explain Beats, To explain Doppler effect. 	<p>STUDENTS WILL BE ABLE TO</p> <ul style="list-style-type: none"> understand Wave motion. Transverse and longitudinal waves, explain speed of wave motion. Displacement relation for aprogressive wave. understand and explain Principle of superposition of waves, reflection of waves, understand and explain standing waves in stringsand organ pipes, fundamental mode and harmonics, explain Beats, explain Doppler effect. through research, by solving HOT questions, related numerical and by addressing open ended questions 	<ul style="list-style-type: none"> Group discussion Experiments Project Differentiated Worksheets Power point presentation 	Smart board, Ncert book, related videos, ppt, sticky notes, blank papers, differentiated worksheets, assessment tasks etc, PHET simulations.	<p>Competencies:Communication, problem solving digital competence,critical thinkng,collaboration, cultural awareness,creativity and innovation,independent learning,leadership and responsibility,self confidence,innovation and self direction,global and environmental awareness</p> <p>Values: Respect,integrity,empathy,resilienc e,honesty,care,tolerance</p>	Englishspeaking and communication skills, interpreting datas mathematics.....pythagorus theorem, parallax method, integration and differentiation, trigonometric ratios, binomial theorem, logarithm, analyzing graphs. Chemistry	<p>Infinite Drum machine.</p> <p>Students will be able to</p> <ul style="list-style-type: none"> Differentiate between amplitude and frequencies of sound waves. Relate performances of different musical instruments with amplitude and frequencies. understand and relate how sound is applied in AI based solutions <p>Link to Infimite Drum Machine: https://experiments.withgoogle.com/ai/drum-machine/view/ Video to know more: https://youtu.be/9x-My5yJYQY Ask the students to go to the link: https://experiments.withgoogle.com/ai/drum-machine/view/ And click on start playing. Ask the students to do the following: Move the circles appearing on the map all over.</p>		
4th week		REVISION OF ALL CHAPTERS, PREVIOUS YEARS QUESTION PAPER DISCUSSION, SOLVING NUMERICALS AND HOT QUESTIONS									
February	1st week	revision	REVISION OF ALL CHAPTERS, PREVIOUS YEARS QUESTION PAPER DISCUSSION, SOLVING NUMERICALS AND HOT QUESTIONS								
	2nd week	revision	ANNUAL EXAMINATION								
	3rd week	revision									

