

NAME OF THE DEPARTMENT: SCIENCE SUBJECT: PHYSICS SYLLABUS BREAK UP 2021-22 -AJI														
Name of the Subject Teacher:- LEKSHMI CHANDRAN				Grade:- 9										
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	Art Integration	Artificial Intelligence	Critical Thinking Questions_ Descriptive	Critical Thinking Questions- Objective(ASSET BASED)
April	3rd week	MOTION	4	Differentiate between the distance and displacement and calculate them in real situations. Calculate and compare speed of an object at different intervals of time and differentiate between uniform and non-uniform motion. Calculate and compare speed of an object at different intervals of time and differentiate between uniform and non-uniform motion.	Students will be able to Calculate using the data given, such as distance, velocity, speed,	Design and carry out activities, for example, "tug of war" to understand balanced and unbalanced forces. They may be encouraged to experiment by applying forces (equal and unequal) on an object in same and opposite direction, followed by peer group discussion to generalise.	Smart board, Ncert book, related videos, ppt, stcky notes , blank papers, differentiated worksheets, assessment tasks etc.	Competencies:Communication, problem solving,critical thinking,collaboration,creativity and innovation,independent learning,self confidence,innovation and self direction,global and environmental awareness Values: Respect,integrity,empathy,resilience,honesty,care,tolerance	Amusing park near to you in U A E and identify various types of motion involed in the rides.	Linked to mathematics, social studies, English.	(i) Make a treasure map to practice using reference points: (schematic representation)	make a 3-D treasure map	1) A car travels 3 km of distance in 10 minutes to reach the destination. On the return journey, the car travels the same distance in 15 minutes. What is the average speed of car in entire journey? 2) A student completes his journey from his house to school with an average speed of 5m/s in 10 minutes. If the student travels with the speed of 5 m/ s in first 4 minutes. What will be its speed in next 6 minutes? 3) A car travels on a straight road with a velocity of 25km/ hour in first one hour and in the next one hour it changes its speed to 35km/ hour. What is the average velocity of the car? 4) A student jogs on the track of 150m long. The student starts jogging on the track and reaches the end of the track in 1 minute 30 seconds and comes back to the middle of the track in 1 minute. What is the average velocity of the student? 5) A person rides a motor bike at the speed of 30m/ s. The person applies the brake and the velocity of motor bike comes down to 20m/ s in 3 s. What is the magnitude of acceleration of motor bike? 6) A car is travelling on a path Badhe tables show the velocity of a car on each path at different intervals of time. Which option is showing the magnitude of acceleration of the car on each path? 7) Which distance time graph is representing an object in uniform motion? 8) The graph shows the distance travelled by a car and the time taken by the car. Between which points the car travels the fastest? 9) The graph shows the change in velocity of a car with time. Which portion of the graph shows the negative acceleration for the car? 10) The graph shows the rate of change of the speed of the car. What will be the velocity of the car at 40 s?	1) A boy walks 10m in straight path moving away from a lamp pole in a garden and walks5m back on the same path. What is the displacement of the boy from the lamp pole? (a)0m (b)5m (c)10m (d)15m 2) A car travels 5 km towards north than turns right and travels 3km further, the car again turns right and travel 1 km and comes to rest. What is the distance travelled and displacement of the car? (a) Distance: 5km and Displacement: 9km (b) Distance: 9km and Displacement: 5km (c) Distance: 9km and Displacement: 7km (d) Distance: 7km and Displacement: 9km 3) 1) Two cars X and Y are travelling along a straight road. The two cars are said to be in uniform motion when: (a)the two cars travel with same speed (b)they continuously travel along the straight road (c)the speed of the cars reduces with the same rate (d)the two cars travels equal distance in equal interval of time 4) The table shows the distance covered by three cars A,B and C at different time of a day. Which option classifies the cars in uniform motion and non-uniform motion? 5) The area under the velocity-time graph of a body gives: (a)speed of the body (b)retardation of the body (c)acceleration of the body (d)distance travelled by the body 6) A student ties a stone to a thread of length 1 m and starts swinging it in a circular motion. The stone completes 20 rotations in 10 seconds. With what speed the stone is moving? (a) π m/ sec (b) 2π m/ sec (c) 4π m/ sec (d) 8π m/ sec 7) A cyclist riding a bicycle at a constant speed of 10 m/ s on a circular track. The cyclist completes the three rounds of a track in 6 minutes. What is the radius of the circular track? (a) 191 m (b) 573 m (c) 1200 m (d) 3600 m
April	4th week	MOTION		Distinguish between speed and velocity and calculate average velocity. Define accelerated motion and compute the change in velocity of a moving object in a non-uniform motion. Plot distance-time graph for a moving object and determine its speed, velocity, acceleration.To identify the different types of motion. To analyze the graphs to study the motion of the objects	Students will be able to identify the different types of motion . They may be able to represent the motion of an object graphically and analyze it.	Gather data for calculating different physical quantities, such as distance, displacement, velocity, which can be shared and discussed in groups /with peers. Rubrics can be used to assess the conversion of units and reporting results.	Smart board, Ncert book, related videos, ppt, stcky notes , blank papers, differentiated worksheets, assessment tasks etc.	Competencies:Communication, problem solving,critical thinking,collaboration,creativity and innovation,independent learning,self confidence,innovation and self direction,global and environmental awareness Values: Respect,integrity,empathy,resilience,honesty,care,tolerance	Plot a speed- time graph while you travel from Al Ain to Dubai.	Linked to mathematics, social studies, English.	To plot graphs. To draw route map of their journey from one city to another and express the challenges they faced and the triumphs they achieved.			
May	1stweek	MOTION	8	Extrapolate velocity-time graphs to derive velocity-time, position-time & position-velocity relations.	students will be able to analyse the velocity - time graph of a body executing uniform acceleration and derive equation of motion.	To solve problems based on equations of motion.	Smart board, Ncert book, related videos, ppt, stcky notes , blank papers, differentiated worksheets, assessment tasks etc.	Competencies:Communication, problem solving,critical thinking,collaboration,creativity and innovation,independent learning,self confidence,innovation and self direction,global and environmental awareness Values: Respect,integrity,empathy,resilience,honesty,care,tolerance	Use equatons of motion to check the value of a variable while you visit Abu dhabhi.	Linked to mathematics, social studies, English.	Make a video on your Journey explaining the terms like velocity, acceleration, distance			
May	2nd week	MOTION		To understand uniform circular motion. To solve problems .	Studentswill be able to analyse and solve the numericals based on uniform circular motion	Solve problems based on uniform circular motion.	Smart board, Ncert book, related videos, ppt, stcky notes , blank papers, differentiated worksheets, assessment tasks etc.	Competencies:Communication, problem solving,critical thinking,collaboration,creativity and innovation,independent learning,self confidence,innovation and self direction,global and environmental awareness Values: Respect,integrity,empathy,resilience,honesty,care,tolerance	Explain motion of your car in the round about in connection with circular motion.	Linked to mathematics, social studies, English.	Explain motion of your car in the round about in connection with circular motion.	story speaker in google https://docsgoogle.com/document/		
May	3rd week	UT1		Term 1 - UNIT TEST -1 [REVISION]										
May	3rd week	Force and laws of motion	8	To identify the types of forces	Students will be able to Elaborate the types of forces	In which of the following situations are the applied forces balanced or unbalanced? Record whether the object will move or not in each situation:	Smart board, Ncert book, related videos, ppt, stcky notes , blank papers, differentiated worksheets, assessment tasks etc.	Competencies:Communication, problem solving,critical thinking,collaboration,creativity and innovation,independent learning,self confidence,innovation and self direction,global and environmental awareness Values: Respect,integrity,empathy,resilience,honesty,care,tolerance	Analyse the accident rates and severity in U A E. What safety measures can you suggest to minimize it?	Linked to mathematics, social studies, English.	Create a comic strip to illustrate how different forces applied to an object can cause or change object movement."			

May	4th week	Force and laws of motion		To learn the three laws of motion	Students will be able to Explain and derive the three laws of motion	Find out the reason (i) An athlete doing a long jump starts his run from a distance. (ii) A running elephant cannot change its direction suddenly.	Smart board, Ncert book, related videos, ppt, sticky notes, blank papers, differentiated worksheets, assessment tasks etc.	Competencies: Communication, problem solving, critical thinking, collaboration, creativity and innovation, independent learning, self confidence, innovation and self direction, global and environmental awareness Values: Respect, integrity, empathy, resilience, honesty, care, tolerance	Give a brief description about inertia with reference to your journey in Dubai metro.	Linked to mathematics, social studies, English.	To demonstrate inertia of rest and inertia of motion (puppet show)	Make a balancing robot. (creativity)	1) Image shows a distance time graph of a train's journey. Which type of motion the train is following? 2) The image shows the forces acting on a block. The length of the arrow shows the strength of the force and the direction of the arrow shows the direction of application of the force. What is the direction of the resultant force? [figure] 3) A block is at rest on a table. A girl applies a force towards the right. The applied force is equal to the frictional force between block and the surface. What will happen to the block? 4) Two boys X and Y push a block in directions shown in the image. If the box starts moving towards the left, what will be the direction of the frictional force acting on the block? [fig] 5) A ball of 150 g is hit with a bat: the ball starts travelling with a velocity of 3m/ s. 6) A bullet of mass 0.020 kg is fired; it strikes the wooden block of 0.50kg and sticks in it. The bullet and wooden block move off together with a velocity of 100 m/ s. 7) Earth pulls objects towards it due to gravity. If the force applied by the earth on an apple is 100 Newtons, what is the mass of the apple, given the acceleration that apple undergoes is 10m/ s ² ? 8) A block X of mass "m" strikes another block Y of mass "2m". Both the blocks collide and at point of collision the block X exerts the force of 10 N to block Y. What will be the size and direction of the force exerted by block Y? 9) A person pushes a rock, R1, to the right while pushing another rock, R2, that is heavier than R1. The total mass of R2 is three times the total mass of R1. If the person is pushing with enough force that the two rocks accelerate to the right, what can be said for sure about the magnitudes of the forces on the rocks? 10) A boy of mass 40 kg jumps out of a boat of 200 kg on the bank, with a velocity of 2m/ s. If the momentum is conserved. With what velocity the boat will move backwards?	1) A student practicing for the hurdle race puts 4 hurdles A,B,C and D at equal distance on a straight track as shown in the image. The student records the time at each hurdle. Based on the table, which option defines the motion of the student? [fig and table] (a) uniform motion because the student is travelling in a same direction from O to D (b) non-uniform motion because the student is moving over four hurdles between O and D (c) uniform motion because the time difference between two consecutive paths is equal (d) non-uniform motion because the student covers equal distance at unequal intervals of time 2) A force of 10 N is acting on a block towards the left, if the force of 15 N is acting towards the right. How much net force is acting on the object? (a) 5 N towards left (b) 5 N towards right (c) 25 N towards left (d) 25 N towards right 3) Which of the given example can be illustrated using the Newton's first law of motion? (a) rowing of boat (b) rocket propulsion (c) wearing a seat belt in a car (d) releasing an arrow from bow 4) A tennis ball and a bowling ball are kicked with the same force; which option relates the distance travelled by the balls to the inertia of the balls? (a) tennis ball moves farther than bowling ball because it has less inertia (b) tennis ball moves farther than bowling ball because it has high inertia (c) bowling ball moves farther than tennis ball because it has less inertia (d) bowling ball moves farther than tennis ball because it has high inertia 5) A marble of mass "m" at rest is pushed with force "F", it starts travelling with velocity "v" in time "t". Which option correctly relates the force with change in momentum? (a) F= (mv/ t) (b) F= (mv/ t) (c) F= (mv)/ t (d) F= (mv)/ t 6) The image shows the forces acting on the Which option defines the state of the car? (a) car is at rest (b) car is accelerating (c) car is slowing down (d) car is moving with a constant velocity 7) A cricket ball strikes the wall; which option shows the correct pair of forces acting on the ball? [fig option] 8) According to the third law of motion, every object acted upon by an external force applies an equal force in opposite direction. Which of the following phenomenon is best described by this law? 9) Recoil when a gun is fired (b) Engine thrust produced by rockets (c) An apple kept on the desk motionless (d) All of the above 9) A Ball A of mass m1 travelling with a velocity u1 collides with another Ball B of mass m2 at rest. After collision the velocity of Ball A changes to v1 and velocity of Ball B changes to v2. If the momentum is conserved, which option correctly relates the momentum before and after the collision?
June	1st week	Force and laws of motion	8	To derive second law of motion mathematically	Students will be able to Apply the second law of motion in real life application	Apply the second law of motion in real life application	Smart board, Ncert book, related videos, ppt, sticky notes, blank papers, differentiated worksheets, assessment tasks etc.	Competencies: Communication, problem solving, critical thinking, collaboration, creativity and innovation, independent learning, self confidence, innovation and self direction, global and environmental awareness Values: Respect, integrity, empathy, resilience, honesty, care, tolerance	Analyse about the safety measures used for applying brakes in vehicles in various parts of U A E	Linked to mathematics, social studies, English.	making a video about Newton and laws of motion	video making		
June	2nd week	Force and laws of motion		To study about Newton's third law of motion and its application.	Apply the third law of motion in real life application	Apply the third law of motion in real life application Examine given situations and complete given table.	Smart board, Ncert book, related videos, ppt, sticky notes, blank papers, differentiated worksheets, assessment tasks etc.	Competencies: Communication, problem solving, critical thinking, collaboration, creativity and innovation, independent learning, self confidence, innovation and self direction, global and environmental awareness Values: Respect, integrity, empathy, resilience, honesty, care, tolerance	Analyse about the permitted speed limits in various parts of U A E	Linked to mathematics, social studies, English.	Make a model of a rocket and try to launch it.	games based on laws of motion.		
JUNE	3RD WEEK	PERIODIC ASSESSMENT - 1	PERIODIC ASSESSMENT - 1 [REVISION]											
June	3rd week and 4th week	Force and laws of motion		To derive law of conservation of momentum.	Students will be able to define the law of conservation of momentum and its applications in real life situation.	Solve problems based on conservation of momentum and recoil of gun.	Smart board, Ncert book, related videos, ppt, sticky notes, blank papers, differentiated worksheets, assessment tasks etc.	Competencies: Communication, problem solving, critical thinking, collaboration, creativity and innovation, independent learning, self confidence, innovation and self direction, global and environmental awareness Values: Respect, integrity, empathy, resilience, honesty, care, tolerance	Find out situations from our daily life to explain law of conservation of momentum. Is it permitted to have licensed gun in U A E for the citizen	Linked to mathematics, social studies, English.	make a PPT to explain the different laws of motion and conservation of momentum.	Recoil of a gun an illustration.		
July August	SUMMER VACATION													
September	1st week	Gravitation		Relate Newton's third law of motion and gravitational force to explain the motion of bodies.	Students will be able to Apply and understand the concepts of gravitation. Analyse the concept of universal law of gravitation in real life in connection to earth and moon.	complete the given table based on universal law of gravitation and answer the questions.	Smart board, Ncert book, related videos, ppt, sticky notes, blank papers, differentiated worksheets, assessment tasks etc.	Competencies: Communication, problem solving, critical thinking, collaboration, creativity and innovation, independent learning, self confidence, innovation and self direction, global and environmental awareness Values: Respect, integrity, empathy, resilience, honesty, care, tolerance	Site the contributions by astronomers in U A E	Linked to mathematics, social studies, English.	(i) To compare the effect of air resistance on different bodies, visual representation.	gravitation in 3D representation.	1) Which law of motion explains the occurrence of tides due to the gravitational pull of the Moon and the Sun? 2) "An apple falls from its tree onto the ground". What does it tell about the nature of gravitational force? 3) The image shows the revolution of Moon around the Earth. [fig] What is true for the force which keeps Moon in its orbit around the Earth? 4) The magnitude of gravitational force between two objects is F. What change will increase the magnitude of gravitational force by three times the original magnitude? 2) A ball is dropped from a height and the distance covered by the ball each second is recorded. The image shows the distance the ball covers each second. [fig] What can be understood about the effect of gravitational force of Earth on the ball? (a) It causes the ball to decrease its speed of fall. (b) It causes the ball to fall with a constant speed. (c) It increases the distance covered by the ball with every passing second. (d) It decreases the distance covered by the ball with every passing second 3) A student places a stone on a sling and moves it in circular motion, as shown [fig] In which direction does the centripetal force act on the stone? (a) It acts towards the hand. (b) It acts towards the ground. (c) It acts tangential to the circular motion of stone. (d) It acts in the direction opposite to the direction of motion.	
September	2nd week		HALF YEARLY EXAM											
September	3RD week		HALF YEARLY EXAM											

			8	<p>To Calculate gravitational force and its impact on objects. Estimate the acceleration due to gravity acting on a body.</p> <p>Students will be able to Interpret and relate the acceleration due to gravity</p> <p>compare the acceleration due to gravity of different satellites.</p> <p>Smart board, Ncert book, related videos, ppt, sticky notes, blank papers, differentiated worksheets, assessment tasks etc.</p> <p>Competencies: Communication, problem solving, critical thinking, collaboration, creativity and innovation, independent learning, self confidence, innovation and self direction, global and environmental awareness Values: Respect, integrity, empathy, resilience, honesty, care, tolerance</p> <p>Give the name of communication satellite used by U A E.</p> <p>Linked to mathematics, social studies, English.</p> <p>(ii) Compare the acceleration due to gravity of different planets and calculate your weight in each planet and create a three dimensional art form to represent the same.</p> <p>3D platform to represent gravitation.</p> <p>5) An object has a mass of 163 kg. When the object is kept on a weighing scale, it exerts a force of 1.597 x 103 N. What is the value of acceleration due to gravity? 6) If the mass of a planet is 6 x 1026kg and its radius is 6.4 x 103 km, what is the estimated acceleration due to gravity on the surface of the planet? 7) A ball is thrown vertically upwards as shown. [fig] The ball reaches a height, H. What is the acceleration, a of the ball at point P? 8) The acceleration due to the force applied by m1 on m2 in the below given configuration can be represented by: [fig] 9) The gravity on Moon is approximately one-sixth that on Earth. If an object weighs 100 N on Earth, how much would it weigh on Moon? 10) An object of 8 kg mass has a weight of 8.15 N on Moon. How much would an object of 8 kg mass weigh on Moon?</p> <p>4) The image shows a model of Earth with mass m1 and its moon with mass m2. [fig] Based on the model, what should be the magnitude of forces F1 and F2 in accordance with the Newton's third law of motion? (a) F1 = F2 (b) F1 > F2 (c) F1 < F2 (d) F1 = -F2 5) The image shows Earth with its Moon. [fig] The mass of Earth is m1 and that of Moon is m2. They are separated by distance, r. Which statement is in accordance with the Newton's third law of motion? (a) The acceleration due to gravity on Earth is equal to that on Moon. (b) The acceleration due to gravity on Earth is greater than that on Moon. (c) Gravitational force due to the Earth on Moon is equal to that due to Moon on the Earth. (d) Gravitational force due to the Earth on Moon is greater than that due to Moon on the Earth. 6) The image shows the shape of Earth. [fig] Which point on the surface of the Earth experiences greater acceleration due to gravity? (a) P (b) Q (c) R (d) S 7) The image shows the distances of points P and Q from the Earth's center. [fig] If rQ > rP, how would the acceleration due to gravity (g) and weight of an object (W) compare at these two points? (a) gP > gQ and WP > WQ (b) gP < gQ and WP < WQ (c) gP > gQ and WP < WQ (d) gP < gQ and WP > WQ 8) The image shows the path of a ball. [fig] At which point, does the vertical component of acceleration of the ball has a negative magnitude? (a) P (b) Q (c) R (d) S 9) What is true for thrust and pressure? (a) Pressure varies with area, while thrust remains constant. (b) Thrust varies with area, while pressure remains constant. (c) Magnitude of thrust is always greater than that of pressure. (d) Magnitude of pressure is always greater than that of thrust. 10) Why does a ship made of steel floats, while a slab of steel sinks in water? (a) Ship has lower density than that of a slab of steel. (b) Ship has lower mass than that of a slab of steel. (c) Ship has greater volume than that of a slab of steel. (d) Ship has thinner surface than that of a slab of steel.</p>
October	1st week	Gravitation		<p>Define free fall. To derive the equation of motion for a free fall.</p> <p>Differentiate mass and weight.</p> <p>Students will be able to Derive an equation about free fall. Solve the numericals by analysing the difference between mass and weight Simplify the problems based on gravitation</p> <p>discussion about solar system and force of gravitation.</p> <p>Smart board, Ncert book, related videos, ppt, sticky notes, blank papers, differentiated worksheets, assessment tasks etc.</p> <p>Competencies: Communication, problem solving, critical thinking, collaboration, creativity and innovation, independent learning, self confidence, innovation and self direction, global and environmental awareness Values: Respect, integrity, empathy, resilience, honesty, care, tolerance</p> <p>Name the major innovation by U A E in the field of astronomy</p> <p>Linked to mathematics, social studies, English.</p> <p>To construct a telescope. A journey to the spacemaking a documentary.</p> <p>Space games</p> <p>Animated</p>
	2nd week	Gravitation		<p>To differentiate thrust and pressure</p> <p>Students will be able to Elaborate about thrust and pressure in practical life Derive the mathematical expression in relation to pressure</p> <p>discussion about thrust and pressure</p> <p>Smart board, Ncert book, related videos, ppt, sticky notes, blank papers, differentiated worksheets, assessment tasks etc.</p> <p>Competencies: Communication, problem solving, critical thinking, collaboration, creativity and innovation, independent learning, self confidence, innovation and self direction, global and environmental awareness Values: Respect, integrity, empathy, resilience, honesty, care, tolerance</p> <p>Assuming the density of Burj Khalifa, calculate the pressure exerted by it.</p> <p>Linked to mathematics, social studies, English.</p> <p>Draw a picture to represent the flow of liquids and compare their density.</p>
	3rd Week	Gravitation		<p>To Calculate buoyant force acting on a body and determine its impact. To Examine the impact of buoyant force to determine if an object will sink or float in water.</p> <p>Students will be able to Elaborate how buoyancy plays a important role in real life application. • Analyse about Archimedes Principle and apply it in real life</p> <p>How to measure buoyancy? (ACTIVITY)</p> <p>Smart board, Ncert book, related videos, ppt, sticky notes, blank papers, differentiated worksheets, assessment tasks etc.</p> <p>Competencies: Communication, problem solving, critical thinking, collaboration, creativity and innovation, independent learning, self confidence, innovation and self direction, global and environmental awareness Values: Respect, integrity, empathy, resilience, honesty, care, tolerance</p> <p>Make an innovate product that suite for U A E, based on the concept of buoyancy.</p> <p>Linked to mathematics, social studies, English.</p> <p>A ppt on ARCHIMEDES Principle</p> <p>flow of liquids animated show</p>
	4th week	Gravitation		<p>To know relative density</p> <p>Students will be able to Solve the numericals based on relative density</p> <p>Activity to find relative density .</p> <p>Smart board, Ncert book, related videos, ppt, sticky notes, blank papers, differentiated worksheets, assessment tasks etc.</p> <p>Competencies: Communication, problem solving, critical thinking, collaboration, creativity and innovation, independent learning, self confidence, innovation and self direction, global and environmental awareness Values: Respect, integrity, empathy, resilience, honesty, care, tolerance</p> <p>How will you check purity of gold in U A E?</p> <p>Linked to mathematics, social studies, English.</p> <p>innovative activity to check the relative density of different objects.</p>
November	IST WEEK	UT2	8	<p>TERM - 2 (October to March) UNIT TEST - 2 [REVISION]</p>
	1st week	Work and Energy.		<p>To Calculate the total work done on an object when force is applied in varied directions and determine its nature To Judge situations to identify where work is done according to scientific conception and calculate the magnitude of work</p> <p>Students will be able to Explain How work and energy can be analyse in practical life. • Apply the nature of work in day to day life</p> <p>• Discuss work and energy. • Explain nature of work</p> <p>Smart board, Ncert book, related videos, ppt, sticky notes, blank papers, differentiated worksheets, assessment tasks etc.</p> <p>Competencies: Communication, problem solving, critical thinking, collaboration, creativity and innovation, independent learning, self confidence, innovation and self direction, global and environmental awareness Values: Respect, integrity, empathy, resilience, honesty, care, tolerance</p> <p>Discuss about the support of U A E government for all residents through their well planned energy distribution system.</p> <p>Linked to mathematics, social studies, English.</p> <p>(i) To study the variation in kinetic and potential energies by making a rocket and catapult. (hands on activity)</p> <p>3D Energy games</p> <p>1) A force of 20N acts on an object. It causes a displacement of 500 cm in the direction of force. What would be the work done in Nm on the object? 2) A boy pushes a lawn mower to a total distance of 125 m over the grass with a force of 60 N directed horizontally. How much work is done in joules by the boy? 3) An object is moving with a uniform velocity along a particular direction. A retarding force of 5N, is applied in the direction as shown. [fig] The object stops after a displacement of 5m. What is the work done by the retarding force? 4) An object of mass 25 kg is at a height of 8 m above the ground. How much work is this object capable of doing? Given g = 9.8 m s⁻². 5) The kinetic energy of an object weighing 10 kg moving with a velocity of 5m/ s is 125J. What is the maximum amount of work that can be done by the object? 6) What would be the kinetic energy possessed by an object of mass, '2m' and moving with a uniform velocity, 'v' ? 7) A car weighing 500 kg is moving with a uniform velocity of 15m/ s. What is the kinetic energy possessed by the car? 8) An object of mass 'x' kg is placed on the surface of Earth. What is the energy possessed by the object by the virtue of its position? Given g = 9.8m/ s². 9) A 50 kg skydiver jumps from a height of 20 m. What would be his kinetic and potential energies when he is halfway down? Assume g=10m/ s². 10) A factory has eight machines of 1200 W each. If each machine runs for 10 hours a day, find the cost of electrical units' consumption per day if the rate per unit is 4.00 rupees?</p> <p>1) Which of these is an example of scientific work done? (a) Standing with a load of 2kg on the head for 5 minutes (b) Playing video games when sitting on a sofa (c) Sitting on a chair and reading a book (d) Climbing stairs of a bridge 2) A particle is thrown upward with some kinetic energy. What happened to its kinetic energy at the highest point or height it reaches? (a) Its kinetic energy is lost; (b) It's all kinetic energy is absorbed by the air; (c) Its kinetic energy is converted to potential energy; (d) Its kinetic energy is remain same; 3) Compare the energy possessed by the virtue of position for the 2 bodies shown below. [fig] (a) By virtue of their positions, the energy possessed by body A is half the energy possessed by body B. (b) By virtue of their positions, the energy possessed by body A is twice the energy possessed by body B. (c) By virtue of their positions, the energy possessed by body A is 4 times the energy possessed by body B. (d) By virtue of their positions, the energy possessed by both Body A and Body B is the same. 4) Refer to the image below. [figure and options] Which option correctly compares the KE and PE of the ball in the stages A, B and C? 5) The power expended by 4 persons to do a task is shown in the table below. [optional box] Who performed the task most efficiently? (a) A (b) B (c) C (d) D 6) A household has four bulbs of 100 W each. If the bulbs operate for 10 hours daily, find the monthly expenditure incurred? (Cost of 1 unit = 2.50 rupees) (a) Rs 75 (b) Rs 250 (c) Rs 300 (d) Rs 2500</p>
November	2nd week	Work and Energy.		<p>To Generalise the law of conservation of energy to situations of energy transfer and calculate the total energy of an object • To Relate potential energy to position and calculate potential energy possessed by the objects.</p> <p>Students will be able to Examine the different situations in conversion of energy • Analyse the different situations for an expression of kinetic energy and potential energy.</p> <p>Explain different forms of energy. • derive an expression for kinetic energy and potential energy.</p> <p>Smart board, Ncert book, related videos, ppt, sticky notes, blank papers, differentiated worksheets, assessment tasks etc.</p> <p>Competencies: Communication, problem solving, critical thinking, collaboration, creativity and innovation, independent learning, self confidence, innovation and self direction, global and environmental awareness Values: Respect, integrity, empathy, resilience, honesty, care, tolerance</p> <p>What suggestions do you have to enhance the efficient utilisation of electrical energy in U A E.</p> <p>Linked to mathematics, social studies, English.</p>
	3rd Week			<p>• To Generalise the law of conservation of energy to situations of energy transfer and calculate the total energy of an object</p> <p>Students will be able to Apply the law of conservation of energy in real life application. • Explain and apply the commercial unit of energy. • Solve the numericals based on power.</p> <p>identify some real life situations where law of conservation of energy is applied.</p> <p>Smart board, Ncert book, related videos, ppt, sticky notes, blank papers, differentiated worksheets, assessment tasks etc.</p> <p>Competencies: Communication, problem solving, critical thinking, collaboration, creativity and innovation, independent learning, self confidence, innovation and self direction, global and environmental awareness Values: Respect, integrity, empathy, resilience, honesty, care, tolerance</p> <p>Identify renewable and non renewable energy sources in</p> <p>Linked to mathematics, social studies, English.</p> <p>Draw the map of UAE and identify the places where</p> <p>create a web page regarding renewable and</p>

	4hweek			To Calculate power and assess the efficiency of work done. To Calculate total energy consumption and determine total cost in households and industries	Students will be able to Analyse how power and energy are related.	solve problems related to power.	Smart board, Ncert book, related videos, ppt, stcky notes , blank papers, differentiated worksheets, assessment tasks etc.	U A E	energy resources are available.	nonrenewable sources of energy.		
December	1st	Sound	8	To Generalise that sound travels as successive compressions and rarefactions in the medium.	Students will be able to Predict and do a scientific research that sound travels as waves.	Predict and do a scientific research that sound travels as waves.	Smart board, Ncert book, related videos, ppt, stcky notes , blank papers, differentiated worksheets, assessment tasks etc.	U A E			Infinite Drum machine Link to Infinite Drum Machine: https://experiments.withgoogle.com/ai/drum-machine/view/ Video to know more: https://youtu.be/9x_My5jYQY 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. When they move the circles, they will hear various sounds. Ask them to notice the difference in their frequencies, amplitude and pitch. Now, move a circle in just one area, where the dots are of the same color. Ask them to observe if the sounds are similar. With the help of this experiment, explain the unsupervised learning concept to the students where the machine is interpreting sounds on the basis of various parameters like amplitude, frequency and/or pitch. Ask students to create their own beats by selecting any 4 sounds and pressing the play button shown at the bottom left corner. They can also select a filter which will highlight all those sounds which come under it.	1)The image shows a rubber diaphragm kept near a vibrating tuning fork.[FIG] How would the tuning fork affect the rubber diaphragm? 2) The image shows a speaker causing density variation in air. [FIG] Based on the image, what can be inferred about the characteristics of sound waves? 3) The image shows the wave shape of four different sound [FIG] What is true about the characteristics of these sounds? 4) Below is a wave form representation of a sound wave. What is the amplitude of the sound wave represented below? (Speed of the sound 3.30×10^4 m/s) [FIG] 5) Which medium will have sound waves propagating at a higher speed? (a)A liquid medium at 25°C temperature. (b)A liquid medium at 50°C temperature. (c) A gaseous medium at 25°C temperature. (d) The table lists speed of sound in different media.[TABLE] Based on the table, what characteristics of the medium affect the speed of sound? 7) The image shows reflection of sound by a polished wall.[FIG] Based on the image, what can be inferred about how sound reflects off the polished wall? 8)The image shows reflection of sound on three different surfaces.[IMAGE] Based on the image, what can be inferred about how reflection of sound is affected on these surfaces? 9) The image shows reflection of sound by a wall[IMAGE] What change would cause reverberation of the sound? 10) People of old age have trouble hearing certain frequencies of sound. Which range of frequencies is mostly heard by these people? (a)10 Hz – 1,000 Hz (b)20 Hz – 10,000 Hz (c)9,500 Hz – 20,000 Hz (d)20,000 Hz – 22,000 Hz 11) How does the human ear sense the fluctuations in the air pressure due to sound? 3) The image shows a vibrating tuning fork producing sound in the air.What can be inferred from the image? (a) The air molecules move down when the prongs of tuning fork push the air and move up when the prongs of tuning fork move back. (b) The air molecules move up when the prongs of tuning fork push the air and move down when the prongs of tuning fork move back. (c)The air molecules decompress when the prongs of tuning fork push the air and compress when the prongs of tuning fork move back. (d) The air molecules compress when the prongs of tuning fork push the air and decompress when the prongs of tuning fork move back. 4) A pianist is playing several notes which was graphed by a scientist. The scientist has been told that the loudest notes have the highest amplitude. Among the following notes, which one is the loudest note: [OPTIONS AS PICT]
	2nd week	Sound		To Examine the paths of reflection of sound on different surfaces. To Infer and demonstrate that sound is produced due to vibration of different objects.	Students will be able to Analyse the different situations where transverse and longitudinal waves come into play.	Differentiate transverse and longitudinal waves. Analyse and understand that sound needs a medium to travel through. Explain why sound needs a medium	Smart board, Ncert book, related videos, ppt, stcky notes , blank papers, differentiated worksheets, assessment tasks etc.	Is it legal to use air horn in U A E			ii) To study about the science behind sound. (DIY Project)	
January	1st week	Sound		To Relate frequency, amplitude and speed of a sound wave to determine its loudness and frequency. To Relate properties of the medium through which sound travels to its speed.	Students will be able to Examine the sound needs a medium to travel through. Examine the speed of sound in different media.	Analyse and understand that sound needs a medium to travel through. Explain why sound needs a medium	Smart board, Ncert book, related videos, ppt, stcky notes , blank papers, differentiated worksheets, assessment tasks etc.					
	2nd week	Sound	4	To explain propagation of sound in a medium based on their knowledge of echo and reverberation. To Classify audible range of sounds of different organisms into ultra and infra sounds. To Explain the process of hearing in human beings. To Interpret the graphical representation of sound waves to determine its frequency, amplitude, and speed. To Demonstrate an understanding of application of ultrasound waves in medical, defence and other fields	Students will be able to Analyse the characteristics of sound. Analyse and differentiate ultrasound and infra sound Students will be able to Organize and summarize the structure of human ear.	Examine the difference between ultrasound and infra sound Draw and explain the structure of human ear. Solve the numericals and interpret the exercise questions.	Smart board, Ncert book, related videos, ppt, stcky notes , blank papers, differentiated worksheets, assessment tasks etc.		Give some applications of ultrasound in U AE Suggest measures to protect your ear		(iii) Can sound makes a light spot dance? (video representation)	study about velocity of sound in a medium.
February	3rd Week	Revision		REVISION QUESTIONS FROM ALL CHAPTERS / PRACTICING QUESTIONS, SOLVING NUMERICAL AND HOT QUESTIONS.								
	4th week	Revision	8	REVISION QUESTIONS FROM ALL CHAPTERS / PRACTICING QUESTIONS, SOLVING NUMERICAL AND HOT QUESTIONS.								
	1st Week	Revision		REVISION QUESTIONS/ PRACTICING QUESTIONS, SOLVING NUMERICAL AND HOT QUESTIONS.								

