Timeline	Themes/Enduring Understandings/Essential Questions for the Unit	Common Core Standards Addressed	Assessments	Standards Based Skills and Concepts Targeted	Strategies/Practices Used to Teach Skills and Concepts	Resources/Texts Used
August/ September UNIT 1: Intro to Biology and characteristic of life	What are the essential parts of an experiment? Describe the major characteristics that distinguish living from nonliving things. What are the major elements essential for life? What are the differences between prokaryotes and Eukaryotes?	A 12.5 A 12.7 B.12.3 B.12.4 G.12.1 A 12.1 F.12.1 F.12.2	Formal lab discussions. Lab reports, Graphs, analysis of data, test, quiz, Journal reflection, computer model, concept mapping	Describe the common characteristics of life. Compare and contrast the cellular structures and degrees of complexity of prokaryotic and eukaryotic cells developed from early prokaryotic cells (e.g., mitochondria, chloroplasts)	Lecture: Ch-1. Notes PP Lecture: Lab Safety Notes PP Lecture: Lab Safety Notes PP Lecture: How to Write up a Lab Report Notes PP Activity: Scientific Method Smart board Activity: What is a living thing? (outside) Activity: Video/Play of cell functions Activity: Jeopardy! Review	Biology by Glencoe Science Textbook Internet Resources
October UNIT 2: Cell and Organelle structure and function	What is the endosymbiont theory? How do prokaryotes and eukaryotes differ in structure and function? What are main organelles of eukaryotes and how do they function individually and as a whole?	A.12.5 A.12.7 A.12.12 B.12.3 B.12.4 G.12.1 A.12.1 F.12.1 F.12.2 F.12.4	Lecture, worksheets, Vocabulary, WebQuest, 3-D Cells Project,	Explain how the structure of an organelle is essential to its function Id the parts of a cell under a microscope. Manipulating microscope parts. Creating a wet mount	Lecture, Notes, Smart board Presentation, online video ACTIVITY: students will create a play or video where they will use an analogy to describe the functions of the organelle.	Biology by Giencoe Science Textbook Internet Resources
November UNIT 3: Ecology	What is the difference between a population and a community? How do organisms cooperate and compete in ecosystems? How might destruction, overpopulation, invasive species and overharvesting influence biodiversity around the world? How do chemicals in agricultural runoff influence water quality and pollution?	A12.1 A12.5 A12.7 B.12.1 B.12.5 C.12.1 C.12.2 C.12.6 C.12.7 F.12.5 F.12.6 F.12.7 F.12.7 F.12.8 F.12.9 F.12.10 F.12.11	Chapter Tests Chapter Quizzes Research paper on effect of introduction of new species. Analysis of ecological data	Evaluate evolution in terms of evidence as found in the following: viral evolution, antibiotic and pesticide resistance in various organisms. Understanding succession, carrying capacity, logistic and exponential growth, limiting factors, niches, endangered organisms, habitat fragmentation. Discuss the effects of phosphates, and nitrates on water quality and soil richness. Using the science themes, infer changes in ecosystems prompted by the introduction of new species, environmental conditions, chemicals and air, water or earth pollution.	Lecture: Biomes, Energy Flow, Evolution Smart board Presentation Activity: make inferences about the effects of destruction, overpopulation, invasive species and overharvesting in different scenarios.	Biology by Giencoe Science Textbook Internet Resources Current event articles Scientific Journal analysis
December Unit 4: Inorganic Chemistry and water properties	What is a polar molecule and how does polarity affect bonding between water? What is the difference between a covalent bond and an ionic bond? How do water properties support life on earth? How does the cell membrane keep some substances out? Which substances can cross the lipid bilayer?	F.12.3 F.12.11 D.12.4 D.12.1 D.12.2 D.12.3 D.12.3 D.12.11 D.12.12	Formal Lab Lab reports Graphs Analysis of Data Test Quiz Journal Reflection	Explain the role of water in cell metabolism. Explain how water properties are essential to the proper functioning of living things on the cellular level, tissue level and organismal level. Predict water movement into and out of cells with various solute concentrations. Explain how the cell membrane functions as a regulatory structure and a protective barrier for the cell. Describe transport mechanisms across the plasma membrane.	Dialysis bag as a model for cell membrane. Diffusion and osmosis LAB Create a wet mount of plant and animal cells. Showing plasmolysis and turgidity. Draw hydrogen bonds between water molecules and use water properties to explain biological phenomenon.	Biology by Glencoe Science Textbook Internet Resources

January 2 weeks Unit 5: Biochemistry and organic Chemistry	What are the building blocks of carbohydrates, proteins, lipids and nucleic acids? What is each used for in living things? What methods and indicators are used to id nutrients in foods? What are the main reactants and products of photosynthesis and cellular respiration?	F.12.9 F.12.10 D.12.4 D.12.3 D.12.2 D.12.3 D.12.6 D.12.12	Formal Lab Lab reports Graphs Analysis of Data Test Quiz Journal Reflection	Use organic model kits to build functional groups. Use diagrams to recognize and classify organic compounds. Use indicator solutions such as benedict's test and biuret reagent to id carbohydrates and proteins. Measure the rate of cell respiration in various organisms under various conditions using digital equipment. Id photosynthetic pigments through chromatography.	Biology by Glencoe Science Textbook Internet Resources Online LAB activities	
January 2 weeks Unit 6: Cellular Transport and Homeostasis	What types of molecules enter and leave cells easily through the plasma membrane? Which substances use transport proteins? How does the structures of the cell membrane relate to its functioning transporting substances? How do large substances enter and exit the plasma membrane? What is the role of the cell membrane in maintaining homeostasis? What are some examples of homeostasis in animal and plant systems?	A.12.7, C.12.3, C.12.4, C.12.5, F.12.1, F.12.2, F.12.4, F.12.9, F.12.10, F.12.11	Formal Lab Lab reports Graphs Analysis of Data Test Quiz Journal Reflection	Relate the structure of cell organelles to their function. Explain the role of water in cell metabolism. Discuss the conditions of active transport versus passive transport. Explain how cells perform endocytosis and exocytosis. Id the main components and functions of the components in the plasma membrane.	Biology by Glencoe Science Textbook Internet Resources Online LAB activities	
February 2 weeks Unit 7: Energy Transformations—p hotosynthesis and cellular respiration.	How does the structure of the mitochondria and chloroplast enable the fast movement of nutrients, CO2, and ATP into and out of cells? What are the main reactants and products of photosynthesis and respiration? How are they different? Similar? What is the role of co-enzymes, ATP and gases in photosynthesis and cellular resp.?	A.12.7, C.12.3, C.12.4, C.12.5, F.12.1, F.12.2, F.12.4, F.12.9, F.12.10, F.12.11	Notes on videos Lab reports. Worksheets Quiz's Test	Discuss the role of NAD and NADP as electron carriers and reducing agents. Explain the main role of enzymes in relation to activation energy and how they are influenced by temperature and ph.	Use laboratory equipment to measure the rate of cell respiration and photosynthesis and biological systems. Explain the idea of surface area to volume ratio using manipulative.	Biology by Glencoe Science Textbook Internet Resources
February 2 weeks Unit 8: Cell Cycle: Mitosis and Meiosis	What is the difference between the prokaryotic and eukaryotic genome? What cells typically undergo mitosis? When does mitosis occur? How does a normal cell become a cancerous cell?	A.12.1 F.12.1 F.12.2 F.12.3, F.12.4	Lecture notes Worksheets Project Quizzes Mitosis booklet Activity Test Examples of cause and effect in organisms.	Describe now the process or meiosis results in the formation of haploid gametes and analyze the importance of meiosis in sexual reproduction Compare and contrast meiosis and mitosis. Illustrate that the sorting and recombining of genes in sexual reproduction results in a great variety of possible gene combinations in offspring. Explain how all organisms begin their life cycles as a single cell and that in multicellular organisms, successive generations of empryonic cells form by cell division.	Modeling Mitosis and meiosis Extract DNA from cheek cells. Differentiate between mitosis and meiosis. Creating Punnett squares using Mendel's laws of heredity Family Pedigree Project Use smart board presentation to illustrate Mendelian Genetics. Be able to complete a mono and dihybrid cross.	Biology by Glencoe Science Textbook Internet Resources

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			Research paper: Mutations	Describe the basic structure of DNA, including the role of hydrogen bonding.	Use gel electrophoresis for restriction enzyme analysis.	
	How is an organism able to take up foreign		Worksheets	Explain how the process of DNA replication results in the	Activity: DNA line up in the hallway	
	DNA and express genes as part of its phenotype?			transmission and conservation of the genetic code.	Create a model of DNA replication.	
March	What is the main process of DNA		Quizzes	Describe how transcription and	Transcription and Translation.	Biology by Glencoe Science Textbook
Unit 9: DNA structure and	semiconservative replication?	A.12.1 F.12.3	Activity: Replication, Transcription and Translation	translation result in gene expression. Differentiate among the	LAB: DNA genetic code kit	Internet Deseurees
Function and Genetic engineering	How do mutations occur and what is the consequence of various mutations?	F.12.4 F.12.6	Test	end products of replication, transcription and translation. Cite	LAB: DNA wheat germ	
Unit 10: Genetics	How do inheritance laws help determine		Compare and contrast DNA	evidence to support that the genetic code is universal.	Article Summary	of biotechnology
	and predict future phenotypes?		mutations and chromosomal mutations	Explain how genetic technologies	Distinguish among observed	
	What is a stem cell?		Discuss the advantages and	have impacted the fields of medicine, forensics, and agriculture.	inheritance patterns caused by several types of genetic traits	
			disadvantages of stem cell	Stem cells can differentiate because	(dominant, recessive, codominant, sex-linked,	
			research.	of chemical signals encoded in genetic code.	polygenic, incomplete dominance, multiple alleles.	
				Describe the theory suggesting that	Explain the mechanisms or evolution through natural selection by manipulatives.	
			Assignment: using a	life on Earth arose as a single,		
	How to small changes in genetics accumulate in a gene pool?		dichotomous key	years ago and that fo th next 2 billion years a huge diversity of sing-	Be able to support the theory of evolution using specific documentations, examples and	
	How does genetic drift affect a population?		LAB: Classification Lab	Analyze how increasingly complex	experiments. Compare various mechanisms of	
	What is the evidence for evolution?	12.1	Test	multicellular organisms evolved once cells with nuclei developed.	evolution.	Biology by Glencoe Science Textbook
April 2 weeks	How does artificial selection provide experimental evidence for evolution?	F.12.3 F.12.4	PAPER on Islamic perspective	Describe how mutations in sex cells	Understand that	Internet Resources
Unit 10: Evolution	What is speciation?	F.12.6	on evolution.	may be passed on to successive generations and that the resulting	classification is based on an analysis of the	Quran/Hadith
	What are the mechanisms that lead to		Bottleneck genes	phenotype may help, harm, or have little/ no effect on offspring's	presence and modification of features inherited from	
	speciation?		LAB: Natural Selection	success in its environment.	common ancestors.	
	How does genetics play a role in speciation?		Quizzes	Describe the relationship between environmental changes and changes in the gene pool of a population.	variation arises from sexual reproduction, genetic recombination (meiosis and crossing- over) and mutation.	
				student will describe how the environment and interactions between organisms can	l Indonesia debas acalceira	
				affect the number of species and the	LAB: Dissections: Worms, Frogs, Crayfish 4	
	How are living things classified?			diversity of species in an ecosystem.	Concept mapping	
	What are the key features of a plant?	A.12.1 A.12.3		The student will relate the structure, complexity and	Students will categorize the	
May-June	How have plants adapted to life on land?	A.12.4 B.12.1	Lecture	organization of organ systems to the methods of	traits of plants	Biology by Glencoe Science
Unit 11: Organizing	What are the major groups of plants?	B.12.5 F.12.5	Worksheets	obtaining, transforming, releasing and	Students will categorize the key traits of chordates, sponges,	Textbook
Plants and Animals	What are the key features of animals?	F.12.6 F.12.7	Mini lab: 22.1	eliminating the matter and energy used	cnidarians, flatworms and roundworms	Internet Resources
	Which anatomical features mark branch points on the animal evolutionary tree?	F.12.9 F.12.11 F.12.12	WebQuest 7	to sustain the organism.	Students will categorize the key features of arthropods,	
	What are the major animal phyla?			The student will recognize that organisms have both innate and learned behavioral responses to internal and external stimuli, including	invertebrates, amphibians, fishes, birds and mammals. Minilab 24.1 p 63	
				the tropic responses in plants.		

Timeline	Themes/Enduring Understandings/Essential Questions for the	Common Core Standards Addressed	Assessments	Standards Based Skills and Concepts Targeted	Strategies/Practices Used to Teach Skills and Concepts	Resources/Texts Used
Quarter one	Unit Unit 1: Scientific Measurement Overarching: How are measurements used	A.12.5, B.12.4, D.12.1, D.12.2, D.12.3, D.12.4, D.12.5, D.12.6,	Homework Problems, Classwork Worksheets, Individual and	Unit1: Scientific Measurement A. Scientific Measurements B.	Teacher led discussions, Student led discussions, individual and	Prentice Hall Chemistry Textbook, workbook, resource book and
	orcharding. Two the interstrept Topical: How are numbers written using Sig. Figs? What is scientific notation? How are numbers manipulated using scientific notation? What is the connection between some lab equipment and the level of accuracy achieved in measurements? Unit 2: The atom and matter Overarching: What is the basic unit of matter in the universe? Topical: What identifies an element (what makes each element unique from the others)? What is the currently accepted model of the atom? What is an orbital? What is the pattern of electron filing? Unit 3: The periodic table Overarching: What does the location of an element on the periodic table indicate about its reactivit?? Lessons: How is an element identified? What atomic particle is used? What are the major trends in: - Atomic radius (down a group and across a period)? - What is the signifigance of the group #? - lonic radius? (down a group and across a period)? - Electronegativity? What elements form cations and what elements form anions? How is the atomic mass of an element calculated? - What is an isotope?	H 12.6, H 12.7	Group Presentations, Laboratory Notebooks and Procedures, Quizzes and Tests	A scientific Motation C. Metric System D. Accuracy and measurement Vocabulary: Metric Pre-fixes Significant figures Table C – Reference tables Unit 2: The atom and matter A. Physical and chemical properties B. Elements and compounds C. Calculating percentages of elements in compounds D. Atom structure (models) E. electron orbitals and diagrams Vocabulary: Physical properties Chemical properties Atoms Element Law of definite proportions Daltons atomic theory Wave-mechanical model Valence electrons Quantum # Orbital Atomic radius Gold foil experiment Unit 3: The periodic table A. Classify Elements B. Explain the Placement of an Unknown Element on the Periodic Table Based on Properties C. Compare and Contrast Properties Within a Group and Within a Period D. Explain Periodic Trends in Terms of Structure E. Calculate atomic mass of an element F. Explain the trends of action and anion formation Vocabulary: atomic radius electronegativity family group ionic radius ionization energy metal metalloid	In the analysis of the second	small scale laboratory notebook.
Timeline	Themes/Enduring Understandings/Essential Questions for the Unit	Common Core Standards Addressed	Assessments	Standards Based Skills and Concepts Targeted	Strategies/Practices Used to Teach Skills and Concepts	Resources/Texts Used
Quarter two	Unit 4 - Bonding and Naming Overarching: Why do elements form chemical bonds? Topical: What is the Octet Rule? How is electronegativity used to determine bond type? When will ionic bonds conduct electricity? How does symmetry determine polarity? What is the difference between molecular and empircal formulas? Unit 5 - Matter and Energy Overarching: How can KMT be used to describe the relationship between pressure, volume and temperature of a substance? Part I - What is hotogenous matter? What is a pure substance? What is the law of definite proportions? When does it apply? (Is there a chemical bond in the substance you are looking at?) What is a mixture? What is a solution? What is a mixture? What is a solution? What is potential energy? Where on the energy diagram is it increasing? Staying the same? What is kinetic energy? What is temperature? What are the phases of matter? What does the particle diagram look like for solid and gas?	D.12.10, H.12.6, H.12.7	Homework Problems, Classwork Worksheets, Individual and Group Presentations, Laboratory Notebooks and Procedures, Quizzes and Tests	Unit 4 - Bonding and Naming A. Distinguish Between Ionic, Molecular, and Metallic Substances Based on Properties B. Draw Lewis Dot Diagrams C. Distinguish Between Polar and Nonpolar Bonds and Molecules D. Compare Physical Properties of Substances Based on Chemical Bonds and Intermolecular Forces Vocabulary: octet rule action anion ionic compound salt crystal lattice monatomic ion binary compound polyatomic ions covalent bond molecular compound polyatomic ions covalent bond molecular bond polar covalent bond polar covalent bond polar covalent bond hydrogen bond single bond Lewis structure Asymmetrical symmetrical double bond, triple bond, molecular formula, empirical formula. Unit 5 - Matter and Energy A. Draw Particle Diagrams B. Differentiate Between Different Forms of Matter 1. Interpret and understand the phase change diagram C. Describe How to	Teacher led discussions, Student led discussions, individual and group presentations, hands-on laboratory work, Teacher lecturing, Students employing the Socratic questioning method in group type activities, laboratory demonstrations, videos, in-class worksheets/examples.	Prentice Hall Chemistry Textbook, workbook, resource book and small scale laboratory notebook.

	What is a heating, cooling curve? Can you label the important information? What is a physical change? What is a chemical change? What processes on the heating, cooling curve is endothermic, which are exothermic?			Separate a Given Mixture Vocabulary: condensation deposition freezing fusion gas phase heat heat of fusion heat of vaporization kinetic molecular theory liquid phase solid phase sublimation temperature vaporization		
Timeline	Themes/Enduring Understandings/Essential Questions for the Unit	Common Core Standards Addressed	Assessments	Standards Based Skills and Concepts Targeted	Strategies/Practices Used to Teach Skills and Concepts	Resources/Texts Used
Quarter three	Unit 5 - Matter and Energy Part II	D.12.10, H.12.6, H.12.7	Homework Problems, Classwork	Unit 5 - Matter and Energy Part II	Teacher led discussions, Student	Prentice Hall Chemistry
	Overarching: How can KMT be used to		Worksheets, Individual and Group Presentations, Laboratory	D.Calculate the Heat in joules E.	roup presentations, hands-op	lextbook, workbook, resource
	volume and temperature of a substance?		Notebooks and Procedures	Kelvin E. Describe an ideal gas G	laboratory work Teacher	notebook
	Part II - 1. What are the phases of matter? 2.		Quizzes and Tests	Describe the KMT H. Apply the	lecturing. Students employing	in the book
	What are the parts of the phase change			gas laws I. Describe vapor	the Socratic questioning method	
	diagram? a.) How does potential and kinetic			pressure and polarity of	in group type activities,	
	energy relate to the diagram? 3. What is			molecules relationship (reference	laboratory demonstrations,	
	meant by average kinetic energy? 4. How is			Table H) Vocabulary: Kinetic	videos, in-class	
	heat energy measured? a.) What is the			energy Vapor pressure Potential	worksheets/examples.	
	equation used to measure heat? Where			energy KMT STP		
	neatr 5. What are the four assumptions			Unit 6 - Math of Chemistry A.		
	volume and temperature related to each			Compounds B. Convert Between		
	other: a.) Using Boyles law? (what is the			Grams, Moles, and Molecules C.		
	equation) b.) Using Charles law? (what is the			Determine Empirical and		
	equation) c.) Combined gas law? (what is			Molecular Formulas D. Identify		
	the equation) 7. When is each gas law			Reactions E. Balance Equations F.		
	applied? 8. When does a real gas behave like			Predict the Products of a		
	an ideal gas? a.) What conditions must exist			Reactions G. Convert Moles Using		
	for a real gas to behave like an ideal gas? b.)			a Balanced Equation Vocabulary:		
	What real gases behave most like ideal			formula mass gram formula mass		
	gases? c.) What is standard temperature and			mole percentage composition		
	pressure? 9. Why do equal volumes of a gas			Unit 6b - Solutions. A. Recognize		
	contain the same number of particles? 10.			the ageous phase in a chemical		
	How does the polarity of a molecule affect			a solution and a mixture C		
	reference table H? Unit 6 - Math of			Quantitative descriptions of a		
	Chemistry Overarching: What technique is			solution: - calculatin Molarity.		
	used to count objects that are too small to			and parts per million D.		
	be seen without the aid of instruments?			Recognize colligative properties		
	Topical: What is the Law of Conservation of			of solutes. (both ionic and		
	mass and how does a balanced chemical			covalent) Vocabulary boiling		
	equation show this law? What is the			point molarity parts per million		
	relationship between the gram-atomic mass			(ppm) percent by volume percent		
	of an element or compound and the			mass saturated solute solution		
	contains? What are the mole to mole ratios			unsaturated vapor vapor		
	in a chemical equation or compound and			pressure Unit 7 - Equilibrium A		
	what do they mean? How do we calculate			define collision theory B.		
	the amount of a substance made in grams			Recognize endothermic and		
	given an amount in grams? Unit 6b -			exothermic reactions C.		
	Solutions Overarching: What are the			Recognize and label parts of the		
	properties and characteristics of solutions?			potential energy diagram. Relate		
	Topical: How are solutions represented in a			temperature change to delta H.		
	cnemical reaction? How are solutions			D. Define the major factors of a		
	describe solutions quantitatively in			effect of a catalyst on a chomical		
	chemistry? Make a 3M Kool-Aid solution of			reaction E. Define LeChatliers		
	your own using a cup and the Kool-Aid mix			principle G. Understand the		
	What mass of Kool-Aid (C12H22O11) is you			effect of stresses on a system at		
	in your cup? What is ppm and % by volume?			equilibrium H. Recognize a		
	Where do you see them used? How do you			reaction that is spontaneous		
	use reference table F? What compounds on			Vocabulary: activated complex		
	this reference table are not electrolytes?			activation energy catalyst entropy		
	How do you use reference table G? Why do			equilibrium LeChatliers principle		
	some of the lines show an increasing trend			potential energy diagram stress		
-			-	• • •		. .

1	and others show a decreasing trend? What		1	to a closed system		
	are colligative properties of solutions? What					
	difference do covalent bonds and ionic					
	bonds have on melting and boiling points of					
	water? Unit 7 - Equilibrium Overarching:					
	Topical: What is collision theory? Why do					
	collisions need to occur? What role does					
	the energy in chemical reactions					
	represented graphically? What is an					
	exothermic reaction? What ΔH sign does it					
	have? What is an endothermic reaction?					
	What ΔH sign does it have? What are the					
	parts of the energy graph? What are the					
	major factors that affect a chemical					
	reaction? What is a catalyst and how does it					
	affect a the energy required to start a					
	chemical reaction? How do you know a chemical reaction is in dynamic equilibrium?					
	What is the exact definition of dynamic					
	equilibrium? If a forward reaction is					
	exothermic, what is the reverse reaction?					
	What is LeChatliers principle? What are the					
	changes that are made to a chemical					
	reaction? How does a catalyst effect the					
	chemical equilibrium? What is the definition					
	of entropy and enthalpy? What are the					
	symbols associated with it? And what is the					
	sign with each?					
Timeline	Themes/Enduring	Common Core Standards	Assessments	Standards Based Skills and	Strategies/Practices Used to	Resources/Texts Used
	Understandings/Essential Questions for the	Addressed		Concepts Targeted	Teach Skills and Concepts	
	Unit					
Quarter four	Unit 8 - Acids and Bases Overarching: What	U.12.11, U.12.12, H.12.6, H.12.7	Homework Problems, Classwork	Unit 8 - Acids and Bases A.	leacher led discussions, Student	Prentice Hall Chemistry
	are the properties and characteristics of acids and bases? Topical: What are the		Group Presentations, Laboratory	acid and Arrhenius base B	reu discussions, individual and	hook and small scale laboratory
	differences between acids and bases? What		Notehooks and Procedures	Identify acids bases and salts as	lahoratory work Teacher	notebook
	is an electrolyte? Are Acids and bases		Quizzes and Tests	electrolytes, C. Identify a	lecturing. Students employing	HOLEDUUK.
	electrolytes? What is the Arrhenius theory			neutralization reaction as double	the Socratic questioning method	
	of acids and bases? What is a neutralization			replacement reaction. Identify a	in group type activities,	
	reaction? What general category do they fall			neutralization by the products	laboratory demonstrations,	
	into? What are the products of an acid-base			produced. D. Define titration. E.	videos, in-class	
	reaction? What is a titration? What is			Differentiate between strong	worksheets/examples.	
	ionization? How is ionization related to pH			acids and bases and weak acids		
	level and the strength of acids and bases?			and bases. Link this to the pH		
	Onic 9 - Redox and electrochemistry			level of various solutions. F.		
	overar ching: what are the electrical properties of the elements? Topical: What is			scale as a logarithmic scale		
	meant by the term redox? What is			Vocabulary: acidity alkalinity		
	reduction? What is evidation? What is a			Arrhenius acid Arrhenius base		
-	reduction: what is oxidation: what is a		1			
	reducing agent? What is an oxidizing agent?			electrolyte hydrogen ion		
	reducing agent? What is an oxidizing agent? What are the rules for determining			electrolyte hydrogen ion hydronium ion indicator		
	reduction: what is outdation: what is a reducing agent? What is an oxidizing agent? What are the rules for determining oxidation numbers for: elements? ions?			electrolyte hydrogen ion hydronium ion indicator neutralization pH scale salt		
	reducing agent? What is an oxidizing agent? What are the rules for determining oxidation numbers for: elements? ions? atoms in polyatomic? What are redox			electrolyte hydrogen ion hydronium ion indicator neutralization pH scale salt titration Unit 9 - Redox and		
	reducing agent? What is an oxidizing agent? What are the rules for determining oxidation numbers for: elements? ions? atoms in polyatomic? What are redox reactions? How are redox reactions			electrolyte hydrogen ion hydronium ion indicator neutralization pH scale salt titration Unit 9 - Redox and electrochemistry A. Identify the		

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How are half reactions written? What is a		the elements that are anions. B.		
voltaic cell? What is electrolysis? What is		Define the term redox. C. Define		
electroplating? Unit 9 - Redox and		reduction and oxidation. D.		
electrochemistry Unit 10 - Organic		Identify elements that are		
Chemistry Overarching: In whey ways are		reducing agents and elements		
organic compounds and reactions classified?		that are oxidizing agents. E. Learn		
Topical: What is meant by "organic"? What		and apply the rules for assigning		
Topical: what is means by organic r what		and apply the rules for also and as a		
element must be present to classify a		Oxidation values for elements in		
compound as organic? What are		compounds. Recall the crisscross		
hydrocarbons? What is meant by saturated		method for making compounds.		
and unsaturated hydrocarbons? What is a		F. Define redox reaction and		
homologous series? What reference table		balance redox reactions. G.		
do you use for hydrocarbons? What are the		Define a corrosion reaction, H.		
major functional groups of organic		Identify and write redox half-		
compounds? What is an isomer? What are		reactions Define voltaic and		
compounds: what is an isomer: what are		reductions. I. Define voltaic and		
the major organic chemistry reactions r		electrolytic cells and the		
		associated parts of each. J.		
		Compare and contrast the voltaic		
1		and electrolytic cells. K. Define		
1		electroplating. Vocabulary: anode		
		cathode electrochemical cell		
		electrode electrolysis electrolytic		
		electrode electrolysis electrolytic		
		cells half-reaction oxidation		
		oxidation number (state) redox		
		reduction salt bridge voltaic cell.		
		Unit 10 - Organic chemistry A.		
		Name the element that is present		
		in all organic compounds B		
		Define hydrocarbone, Manipulate		
		benne nydrocarbons. Manipulate		
		the NYS reference tables in order		
		to identify homologous series of		
		hydrocarbons. C. Define		
		saturated and unsaturated in		
		terms of hydrocarbons D		
		Identify the major functional		
		groups of organic compounds. E.		
		Identify and define isomers of		
		different organic compounds. F.		
		Identify the major classes or		
		organic reactions. Vocabulary:		
		addition reaction functional		
		group alconor nyurocarbon		
		aldehyde isomer alkane ketone		
		alkene organic acid alkyne		
		organic halide amide polymer		
		amine polymerization amino acid		
		saponification esterification		
		saturated ester substitution		
		saturated ester substitution		
		reaction ether unsaturated		
		fermentation		
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Grade	Timeline	Themes/Enduring Understandings/Essential Questions for the Unit	Common Core Standards Addressed	Assessments	Standards Based Skills and Concepts Targeted	Strategies/Practices Used to Teach Skills and Concepts	Resources/Texts Used
	August - September	Nature of Physics. Physics is a physical science related to other fields. Process in physics are defined by the scientific method. Measurement systems esp. the S.I. relate physical quantities to units. Students distinguish between fundamental and derived units and use dimensional analysis to confirm validity of equations. Tolerance in measurements allows for numbers to adhere to sci. not. and significant figures. Orders of magnitude allow for "ball-park" figures to estimate final answers.	UNIFYING CONCEPTS AND PROCESSES UCP.1 Using the science themes, distinguish between basic vs. compound units and use mathematical models to represent phenomenon. UCP.2 Using the science themes during laboratory investigation, collect evidence, use models and establish verifiable explanations. UCP. 3 Using the science themes apply error and uncertainty in measurement, develop consistency in units and conversions.	 Chapter Project: construct a timeline of science advances. Section Quizzes and Chapter Test Content labs Develop a spreadsheet on the seven areas of physics. 	 Demonstrate understanding of measurement. Perform unit conversions. Formulate questions (Blooms Taxonomy) Graph and estimate physical data. Describe the theory of continental drift. Make estimates and rough calculations to the nearest order of magnitude. Apply dimensions to validate equations. 	Instruction on Material Guided Practice January and the second sec	Holt, Physics and Interactive Edition. Advance Work from James Walker AP Physics, Fourth Edition
	October	Linear Motion/Kinematics or Translational Motion. Motion in a straight line allows for the use of an inertial frame of reference. Students describe motion in terms of displacement, time, and velocity and changes in velocity (acceleration). Graphs are important tools for accelerated and non-accelerated motion. Students grasp that a pair of basic kinematic equations leads to the three kinematic equations of motion. Students draw connections between freely falling bodies to constant acceleration and re-arrange kinematic equations for falling objects.	SCIENCE AS INQUIRY UCP. 2 Using the science themes, develop abilities to do scientific inquiry. UCP.3 Create line graphs using measured values of position and elapsed time. SAI 1. Using the science themes during the process of investigation, calculate impact speed from a random height. SAI 2. Using the science themes, distinguish between variables of distance, displacement, speed, velocity, and acceleration.	 Chapter Project: Construct an accelerometer. Section Quizzes and Chapter Test Content labs Homework 	 Solve math problems involving average speed and constant acceleration. Create line graphs using measured values of position and elapsed time. Use the area under a velocity-time graph to calculate the distance traveled. Calculate the average speed, final velocity, and acceleration of an object in a lab setting. Describe the effect of air resistance on free fall motion 	 Instruction on Material Guided Practice Independent Practice Projects Content Labs Content Maps 	Holt, Physics and Interactive Edition. Advance Work from James Walker AP Physics, Fourth Edition and Sticky Tape Demonstrations and Labs.
	November	TWO DIMENSIONAL MOTION AND VECTORS. Motion in two-dimension requires the knowledge of scalar and vector mathematics. Vectors are treated graphically and analytically. Students apply algebra and trigonometry in solving physics math. By using some basic strategies (like resolving a vector and adding their components), students solve more complex motion problems. Students recognize parabolic motion as a commingling of constant motion and accelerated motion. Students are	SCIENCE AS INQUIRY UCP.2 Using the science themes, describe and classify various motions in a plane as one dimensional, two dimensional, circular or periodic. UCP. 3 Using the science themes, demonstrate how vectors can be added graphically using DTS. SA I. Using the science themes recognize that vectors have other mathematical properties including subtraction,	 Chapter Project: Sports Physics (Throwing a Hardball) Section Quizzes and Chapter Test Content labs Dart Gun/Blow Gun analysis. 	 Describe position, velocity, and acceleration in two dimensions. State and define the terminology innate to two-dimensional motion. Distinguish problem-solving strategies in mathematically solving 2-D problems with launch angles vs. horizontal deliveries. Explain why the velocity along the x-plane is invariant. Describe the properties of a parabola and 	 Instruction on Material Guided Practice Independent Practice Projects Content Labs homework 	Holt, Physics and Interactive Edition. Advance Work from James Walker AP Physics, Fourth Edition and Sticky Tape Demonstrations and Labs.

how they relate to two-dimensional motion.

SA 2. Using the science themes, compare and contrast projectile

engaged in solving relative motion problems utilizing multiplication, and commutative.

earlier learning paradigms.

motion with and without gravity.

	FORCES AND THE LAWS OF MOTION. Forces play an	SCIENCE AS INQUIRY.	 Oral Presentation or 	 Understand the historical context between 	 Oral Presentation. 	
	important role in our lives. In general, forces are	UCP.1 Recognize the presence of forces and name common	Demonstration	the advent of Newtonian physics and the work	 Design an experiment 	
	dichotomized into two categories: field and contact	forces.	Chapter tests.	of Galileo.	incorporating multi-force	
	. They are describe mathematically by Newton's	UCP 1. Draw force vector scale diagrams	 Traffic accident 	Explain how normal forces are developed	environment.	
	Laws of Motion. The first law depicts why objects	UCP 1. Interpret and create free body diagrams and establish	investigation applying	and their role in calculating friction.	 Instruction Material 	
	maintain their state of motion, inertia. The second	conditions for equilibrium	Newton's laws.	 Differentiate between inertial and 	 Guided Practice 	5.
	law, describes how net forces impact the extent of	UCP 2. Apply Newton's Second Law in a variety of different	4. Research paper on	accelerated motion by using free-body	Content Labs	
	direction and velocity changes. The third law	situations.	Newton, Galileo, Einstein	diagrams.		
	defines the interdependence of pairs of forces equal	UCP 2. Decompose s single vector into two components.	related to the study of	Identify action-reaction pairs of forces.		
	in magnitude but opposite in direction.	SA 1. Explain the difference between mass and weight.	mass.	5. Describe how dynamic problems are solved		
		SA 2. Predict the net external force on an object. SA 2. Find	5. PowerPoint on the four	using the unification of free-body diagrams and		
		the direction and magnitude of normal forces.	forces of the universe with	vector math.		
		SA 2. Use Coefficients of Friction to calculate friction force in an	the possibility of the fifth	6. Describe how contact and field forces affect		
December - January		experimental setting.	force. 6.	the movement of electrical charges and free-		
,			Review and assessment	falling objects.		
			quizzes.	Identify forces in their relationship to		
				changes in motion and relate to precious		
				studies in 2-D.		

	WORK, POWER, ENERGY. Work, energy, and power	SCIENCE AS INQUIRY.		1. Chapter Project: Human	1. Explain how energy can be transferred in	1. Instruction on Material	Holt, Physics and Interactive
	are related to another. Everyday machines, such as			power Lab 2.	many different ways.	 Guided Practice 	Edition. Advance Work from James
	motors, are usually described by the amount of	UCP 1. Recognize the difference between t	the scientific and	Section Quizzes and	2. Describe how energy is associated with heat,	 Independent Practice 	Walker AP Physics, Fourth Edition
	work that they are capable of doing. Equally	ordinary definitions of work. UCP 1	 Define where 	Chapter Test	light, electricity, motion, sound, and the nature	4. Projects	and Sticky Tape Demonstrations
	fundamental to force is work. It is the idea that a	work is being performed in a variety of situa	ations. Calculate the	Content labs	of a chemical reaction.	5. Content Labs	and Labs.
	force times a displacement through which its acts is	net work done when many forces are applie	ed to an object	4. Problem WB and WS	3. Describe the movement of a pendulum	6. Research Project	
	an important physical quantity. In this chapter the	SA 1. Identify several forms of energy and c	calculate the kinetic		(roller coaster) as to the energy		
	student gets a precise definition of work and shows	energy in an object. Calculate the potential	energy associated		transformations that occur between U and K.		
February	how it is related to energy. Energy is described by its	with an object's position.			4. Analyze a situation as to no work, positive		
rebruary	motion or kinetic qualities and by its elevation above				work, and negative work.		
	zero height or potential. The student also learns				5. Explain the role of friction between contact		
	that the total amount of energy in the universe is				surfaces and its function in dissipating energy.		
	constantnever changing. Finally, consideration is				6. Explain the nature of the scalar quantity in K		
	given to the rate of energy consumed or power.				and U.		
					7. Describe the meaning of the elastic constant		
					in a spring system.		
	MOMENTUM AND COLLISIONS. Collisions and	SCIENCE AS INOUIRY.	UCP 1. Define and	1. Chapter Project:	1. Explain the role of Newton's second law in	1. Instruction on Material	Holt. Physics and Interactive
	MOMENTUM AND COLLISIONS. Collisions and other transfers of momenta occur frequently in	SCIENCE AS INQUIRY. calculate linear momentum and impulse.	UCP 1. Define and	1. Chapter Project: Momentum changes in	 Explain the role of Newton's second law in forming the basis behind Leibniz and Huygens 	1. Instruction on Material 2. Guided Practice	Holt, Physics and Interactive Edition, Advance Work from James
	MOMENTUM AND COLLISIONS. Collisions and other transfers of momenta occur frequently in everyday life. Examples in soorts include the motion	SCIENCE AS INQUIRY. calculate linear momentum and impulse. UCP 1. Calculate the change of momentum	UCP 1. Define and and relate it to	 Chapter Project: Momentum changes in Sports 	 Explain the role of Newton's second law in forming the basis behind Leibniz and Huygens impulse-momentum equation. 	 Instruction on Material Guided Practice Independent Practice 	Holt, Physics and Interactive Edition. Advance Work from James Walker AP Physics, Fourth Edition
	MOMENTUM AND COLLISIONS. Collisions and other transfers of momenta occur frequently in everyday life. Examples in sports include the motion of balls against rackets or the motion of human	SCIENCE AS INQUIRY. calculate linear momentum and impulse. UCP 1. Calculate the change of momentum impulse.	UCP 1. Define and and relate it to SA 1. Observe	 Chapter Project: Momentum changes in Sports Section Quizzes and 	 Explain the role of Newton's second law in forming the basis behind Leibniz and Huygens impulse-momentum equation. Describe the effects of changing mass and 	 Instruction on Material Guided Practice Independent Practice Projects 	Holt, Physics and Interactive Edition. Advance Work from James Walker AP Physics, Fourth Edition and Sticky Tape Demonstrations
	MOMENTUM AND COLLISIONS. Collisions and other transfers of momenta occur frequently in everyday life. Examples in sports include the motion of balls against rackets or the motion of human bodies against each other in football. Here again,	SCIENCE AS INQUIRY. calculate linear momentum and impulse. UCP 1. Calculate the change of momentum impulse. and Describe different types of collisions.	UCP 1. Define and and relate it to SA 1. Observe	 Chapter Project: Momentum changes in Sports Section Quizzes and Chapter Test 	 Explain the role of Newton's second law in forming the basis behind Leibniz and Huygens impulse-momentum equation. Describe the effects of changing mass and speed on the overall total momentum of an 	1. Instruction on Material 2. Guided Practice 3. Independent Practice 4. Projects 5. Content Labs	Holt, Physics and Interactive Edition. Advance Work from James Walker AP Physics, Fourth Edition and Sticky Tape Demonstrations and Labs.
	MOMENTUM AND COLLISIONS. Collisions and other transfers of momenta occur frequently in everyday life. Examples in sports include the motion of balls against rackets or the motion of human bodies against each other in football. Here again, conservation laws play a major role. Like energy, the	SCIENCE AS INQUIRY. calculate linear momentum and impulse. UCP 1. Calculate the change of momentum impulse. and Describe different types of collisions. UCP 1. Solve collision problems using the c	UCP 1. Define and and relate it to SA 1. Observe	 Chapter Project: Momentum changes in Sports Section Quizzes and Chapter Test Content labs 	 Explain the role of Newton's second law in forming the basis behind Leibniz and Huygens impulse-momentum equation. Describe the effects of changing mass and speed on the overall total momentum of an object. 	 Instruction on Material Guided Practice Independent Practice Projects Content Labs Design an experiment 	Holt, Physics and Interactive Edition. Advance Work from James Walker AP Physics, Fourth Edition and Sticky Tape Demonstrations and Labs.
	MOMENTUM AND COLLISIONS. Collisions and other transfers of momenta occur frequently in everyday life. Examples in sports include the motion of balls against rackets or the motion of human bodies against each other in football. Here again, conservation laws play a major role. Like energy, the total momenta can not be changed within a system	SCIENCE AS INQUIRY. calculate linear momentum and impulse. UCP 1. Calculate the change of momentum impulse. and Describe different types of collisions. UCP 1. Solve collision problems using the c momentum in both elastic and inelastic situ	UCP 1. Define and and relate it to SA 1. Observe conservation of autions.	1. Chapter Project: Momentum changes in Sports 2. Section Quizzes and Chapter Test 3. Content labs 4. Formal Lab write-up	 Explain the role of Newton's second law in forming the basis behind Leibniz and Huygens impulse-momentum equation. Describe the effects of changing mass and speed on the overall total momentum of an object. Relate the role of restraint systems and seat 	 Instruction on Material Guided Practice Independent Practice Projects Content Labs Design an experiment 	Holt, Physics and Interactive Edition. Advance Work from James Walker AP Physics, Fourth Edition and Sticky Tape Demonstrations and Labs.
March	MOMENTUM AND COLLISIONS. Collisions and other transfers of momenta occur frequently in everyday life. Examples in sports include the motion of balls against rackets or the motion of human bodies against each other in football. Here again, conservation laws play a major role. Like energy, the total momenta can not be changed within a system of interest. In its simplest form, momentum is	SCIENCE AS INQUIRY. calculate linear momentum and impulse. UCP 1. Calculate the change of momentum impulse. and Describe different types of collisions. UCP 1. Solve collision problems using the c momentum in both elastic and inelastic situ UCP 1. Calculate the change of momentum	UCP 1. Define and and relate it to SA 1. Observe conservation of lations. and relate it to	 Chapter Project: Momentum changes in Sports Section Quizzes and Chapter Test Content labs Formal Lab write-up 	 Explain the role of Newton's second law in forming the basis behind Leibniz and Huygens impulse-momentum equation. Describe the effects of changing mass and speed on the overall total momentum of an object. Relate the role of restraint systems and seat belts on surviving a collision to the laws of 	 Instruction on Material Guided Practice Independent Practice Projects Content Labs Design an experiment 	Holt, Physics and Interactive Edition. Advance Work from James Walker AP Physics, Fourth Edition and Sticky Tape Demonstrations and Labs.
March	MOMENTUM AND COLLISIONS. Collisions and other transfers of momenta occur frequently in everyday life. Examples in sports include the motion of balls against rackets or the motion of human bodies against each other in football. Here again, conservation laws play a major role. Like energy, the total momenta can not be changed within a system of interest. In its simplest form, momentum is merely a product of its mass times its velocity. This	SCIENCE AS INQUIRY. calculate linear momentum and impulse. UCP 1. Calculate the change of momentum impulse. and Describe different types of collisions. UCP 1. Solve collision problems using the c momentum in both elastic and inelastic situ UCP 1. Calculate the change of momentum impulse.	UCP 1. Define and and relate it to SA 1. Observe conservation of iations. and relate it to	 Chapter Project: Momentum changes in Sports Section Quizzes and Chapter Test Content labs Formal Lab write-up 	 Explain the role of Newton's second law in forming the basis behind Leibniz and Huygens impulse-momentum equation. Describe the effects of changing mass and speed on the overall total momentum of an object. Relate the role of restraint systems and seat belts on surviving a collision to the laws of momentum. 	 Instruction on Material Guided Practice Independent Practice Projects Content Labs Design an experiment 	Holt, Physics and Interactive Edition. Advance Work from James Walker AP Physics, Fourth Edition and Sticky Tape Demonstrations and Labs.
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March	MOMENTUM AND COLLISIONS. Collisions and other transfers of momenta occur frequently in everyday life. Examples in sports include the motion of balls against rackets or the motion of human bodies against each other in football. Here again, conservation laws play a major role. Like energy, the total momenta can not be changed within a system of interest. In its simplest form, momentum is merely a product of its mass times its velocity. This concept is expanded to include what causes linear momentummerely a force exerted through time.	SCIENCE AS INQUIRY. calculate linear momentum and impulse. UCP 1. Calculate the change of momentum impulse. and Describe different types of collisions. UCP 1. Solve collision problems using the c momentum in both elastic and inelastic situ UCP 1. Calculate the change of momentum impulse.	UCP 1. Define and and relate it to SA 1. Observe conservation of lations. and relate it to	 Chapter Project: Momentum changes in Sports Section Quizzes and Chapter Test Content labs Formal Lab write-up 	 Explain the role of Newton's second law in forming the basis behind Leibniz and Huygens impulse-momentum equation. Describe the effects of changing mass and speed on the overall total momentum of an object. Relate the role of restraint systems and seat belts on surviving a collision to the laws of momentum. Identify the relationship between the conservation of K and the conservation of 	 Instruction on Material Guided Practice Independent Practice Projects Content Labs Design an experiment 	Holt, Physics and Interactive Edition. Advance Work from James Walker AP Physics, Fourth Edition and Sticky Tape Demonstrations and Labs.
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March	MOMENTUM AND COLLISIONS. Collisions and other transfers of momenta occur frequently in everyday life. Examples in sports include the motion of balls against rackets or the motion of human bodies against each other in football. Here again, conservation laws play a major role. Like energy, the total momenta can not be changed within a system of interest. In its simplest form, momentum is merely a product of its mass times its velocity. This concept is expanded to include what causes linear momentummerely a force exerted through time. This concept is quite analogous to the concept of work.	SCIENCE AS INQUIRY. calculate linear momentum and impulse. UCP 1. Calculate the change of momentum impulse. and Describe different types of collisions. UCP 1. Solve collision problems using the c momentum in both elastic and inelastic situ UCP 1. Calculate the change of momentum impulse.	UCP 1. Define and and relate it to SA 1. Observe conservation of iations. and relate it to	 Chapter Project: Momentum changes in Sports Section Quizzes and Chapter Test Content labs Formal Lab write-up 	 Explain the role of Newton's second law in forming the basis behind Leibniz and Huygens impulse-momentum equation. Describe the effects of changing mass and speed on the overall total momentum of an object. Relate the role of restraint systems and seat belts on surviving a collision to the laws of momentum. I.Identify the relationship between the conservation of K and the conservation of momentum during all three types of collisions. 	 Instruction on Material Guided Practice Independent Practice Projects Content Labs Design an experiment 	Holt, Physics and Interactive Edition. Advance Work from James Walker AP Physics, Fourth Edition and Sticky Tape Demonstrations and Labs.

CIRCULAR MOTION AND GRAVITATION. Circular MOTIONS AND FORCES

motion is omnipresent. A rotating Ferris wheel and UCP 1. While conducting investigations, explain the motion of a space shuttle orbiting the Earth share this objects by describing the forces acting on them quantity. A satellite orbiting the Earth is just a projectile that moves fast enough tangentially that it UCP 1. While conducting investigations, identify the forces falls around the planet rather than into it. Forces acting on objects moving with constant circular motion. play a big part here, too. Inward forces or

April centripetal pull their objects toward a center. The UCP 2. While conducting investigations explain the earth-moon Earth revolving around the planet is a good example. interactions utilizing the concepts of gravity, centripetal force, But, other forces might not be so obvious. The force inertia, centrifugal force, tangential velocity, and other dynamic of gravity, the pull of a string, the movement of your parameters. leg while walking, friction are just a few example of center seeking forces and motion.

PERIODIC WAVES AND SOUND. When an object is MOTIONS AND FORCES

experiences a restoring force that is directed toward stretched or compressed elastic objects. the equilibrium. Thus a restoring force accelerates the object in the direction of the equilibrium position, but, it does stop there. Carried by its own velocity in respect to the rest position of a vibrating body. momentum, it oscillates back and forth undergoing

May bumper of a car the shock absorber. Connecting oscillators leads to an assortment of new phenomenon including waves (mechanical, water, sound, and light).

displaced from a position of stable equilibrium it UCP 1. Identify that elastic potential energy is stored in UCP 1. Explain the position of maximum acceleration and

periodic motion. Students will learn that this is a UCP 2. Distinguish between transverse and longitudinal waves. significant even. In timepieces, the pendulum; in a Apply the wave equation to find either the velocity, frequency, or wavelength of a mechanical wave.

Far

Section Quizzes and

Chapter Test

3. Content labs

4. Presentation

UCP 2. Compare and contrast standing wave behavior at free and fixed boundaries. Describe how beats are formed by sound waves and the displacement of particles in constructive and destructive interference.

1. Chapter Project: Analysis 1. Distinguish between rotation and revolution 1. Instruction on Material of mass on a string. and describe and contrast the two speeds of an 2. Guided Practice 2. Section Ouizzes and object like the Farth 3 Independent Practice Chapter Test 2. Identify forces acting on objects moving with 4. Projects 3 Content labs uniform circular motion (e.g. a car on a circular 5. Content Labs 4. Lab Reports track) 3. Predict how the 6. Demonstrations gravitational force between objects changes when the distance between them changes. A Calculate force masses or distance using the Law of Universal Gravitation. 5. Draw vector arrows to represent how the direction and magnitude of a force changes on an object with eccentricity.

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1. Chapter Project: Human 1. Identify everyday examples of of transverse 1. Instruction on Material and longitudinal waves. 2. Guided Practice 2. Describe specific mechanical waves in terms 3. Independent Practice of lambda, amplitude, frequency and speed. 4. Projects 3. Calculate the amount of energy transferred 5. Content Labs by compression waves of different amplitudes 6. Demonstrations and frequencies. 4.Explain how waves propagate from vibrating sources and why the intensity decreases with the square of the distance from a point source. 5. Define the beat frequency

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Justice 20: Mail 11 Windowskie Decision All 12 All 2. All 2. All 2. All 3. All	Timeline	Themes/Enduring Understandings/Essential Questions for the	Common Core Standards Addressed	Assessments	Standards Based Skills and Concepts Targeted	Strategies/Practices Used to Teach Skills and Concepts	Resources/Texts Used
Unit in the set of the standard courses of the set of t	a	Unit					1
Protection in the intervent of attract is contract and its contract attract is contract attract attrattract attrattract attract attract attract attract att	Quarter one	Unit 1: Introduction to Science. Describe	A.12.1, A.12.2, A.12.3, A.12.4,	Homework Problems, Classwork	Unit1: Introduction to Science.	Teacher led discussions, Student	Khanacademy.org, MIT
In the best much and here. Dispands Descriptions of an exact source of the base of the ba		the main branches of natural science and	A.12.5, A.12.6, A.12.7,	Worksheets, Individual and	Identify the areas of physics,	led discussions, individual and	opencourseware
between sourceful (units and before): by source from the source in the		relate them to each other. Distinguish		Group Presentations, Virtual Lab,	chemistry and astronomy and	group presentations, hands-on	
Benche Neumann Bank in Neumann San Abank San Abank in San		between scientific laws and theories.		Quizzes and Tests	their contributions to careers.	laboratory work, Teacher	
physical exerts, fighth the splicit of all Substrates pice splice and the splice of all Substrates pice splice and the splice of all Substrates pice splice and the splice of all Substrates pice splice and the splice of all Substrates pice splice and the splice of all Substrates pice splice and the splice of all Substrates pice splice and the splice of all Substrates pice splice and the splice of all Substrates pice splice and the splice of all Substrates pice splice and the splice of all Substrates pice splice and the splice of all Substrates pice splice and the splice of all Substrates pice splice and the splice of all Substrates pice splice and the splice of all Substrates pice splice and the splice of all Substrates pice splice and the splice of all Substrates pice splice and the splice of all Substrates pice splice and the splice of all Substrates pice splice and the splice of all Substrates pice splice and the splice of all Substrates pice splice and the splice of all Substrates pice splice and the splice of all Substrates pice splice of all Substrates pice splice of all Substrates pice splice of all Substrates pice splice of all Substrates pice splice of all Substrates pice splice of all Substrates pice splice of all Substrates pice splice of all Substrates pice splice of all Substrates pice splice of all Substrates </td <td></td> <td>Describe how mathematics can describe</td> <td></td> <td></td> <td>Illustrate the role of serendipity in</td> <td>lecturing, Students employing</td> <td></td>		Describe how mathematics can describe			Illustrate the role of serendipity in	lecturing, Students employing	
constant of state, and destify he constant of state, and destify he Piceoconstant with is state, and how state of state o		physical events. Explain the objective of a			scientific discoveries. Create a	the socratic questioning method	
r ductamental late is a size as of time outcamental service works, in the service as of the servi		consistent system of units, and identify the			concept map of the various	in group type activities,	
corresponding during direct unders Differentiate barbars a throw many memory of seture. State statements Sind other syntheses and measurements. Bit of other syntheses and measurements. Sind other syntheses and measurements. Bit of other syntheses and measurements. Sind other syntheses and measurements. Bit of other syntheses and measurements. Sind other syntheses and measurements. Bit of other syntheses and measurements. Sind other syntheses and measurements. Bit of other syntheses and measurements. Sind other syntheses and measurements. Bit of other syntheses and measurements. Sind other syntheses and measurements. Bit of other syntheses and measurements. Sind other syntheses and measurements. Bit of other syntheses and measurements. Sind other syntheses and measurements. Bit of other syntheses and measurements. Sind other syntheses and measurements. Bit of other syntheses and measurements. Sind other syntheses and measurements. Bit of other syntheses and measurements. Sind other syntheses and measurements. Bit of other syntheses and measurements. Sind other syntheses and measurements. Bit of other syntheses and measurements. Sind other syntheses and measurements. Bit of other syntheses and measurements. Sind other syntheses and measurements. Bit of other syntheses and measurements. Sind other syntheses and measurements. Bit of other syn		7 fundamental units in science and their			divisions and branches of science	laboratory demonstrations	
and control to control to between and control to between Algely significant frames in sounding your data is a number state of control to be sound is a number state of control to be sound is a number state of control to be sound is a number state of control to be sound is a number state of control to be sound is a number state of control to be sound is a number state of control to be sound is a number state of control to be sound is a number state of control to be sound is a number state of control to be sound is a number state of control to be sound is a number state of control to be sound is a number state of control to be sound is a number state of control to be sound is a number state of control to be sound is a number state of control to be sound is a number state of control to be sound is a number state of control to be sound is a number state of control to be sound is a number state of control to be sound is a number state of control to be sound is a number state of control to be sound is a number state of control to be sound is a number state of control to be sound is a number state of control to be sound is a number state of control to be sound is a number state of control to be sound is a number state of control to be sound is a number state of control to be sound is a number state of control to be sound is a number state of control to be sound is a number state of control to be sound is a number state of control to be sound is a number state of control to be sound is a number state of control to be sound is a number state of control to be sound is a number state of control to be sound is a number state of control to be sound is a number state of control to be sound is a number state of control to be sound is a number state of control to be sound is a number state of control to be sound is a number state of control to be sound is a number state of control to be sound is a number state of control to be sound i		corresponding derived units. Use the unit			Differentiate between a theory	videos in-class	
Take after spread of inscreaments. Nonvert of inscreaments. Apply spring fragments in the source spread of inscreaments. Bala insures. Inscreaments. determine the store of inscreaments. Bala insures. determine the store of inscreaments. Bala instructures. determine the store of inscreaments. Bala instructures. determine the store of instructure. Bala instructures. determine the		cancellation method in converting between			and law and gives examples in the	worksheets/examples	
Big to get the second figure is to matrix get to the second se		SLand other systems of measurements			history of science. State scientific	worksheets/examples.	
apply application digits in function, and application applica		Si and other systems of measurements.			history of science. State scientific		
In a diverse, is used water with the second seco		Apply significant figures in rounding your			ideas in a mathematical context		
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				Unerentiate between the three types of friction (static, kinetic, and rolling) and rank them as to their overall average coefficient of friction value. Identify action- reaction pairs acting on a two- body system. Distinguish between mass and weight as to units and distance from a gravitational center. Be able to apply the w = mg equation to solve for the mass of an object. Explain how normal forces are developed and their role in calculating friction. Describe how contact and field forces are consequential in moving charges.		
Timeline	Themes/Enduring Understandings/Essential Questions for the Unit	Common Core Standards Addressed	Assessments	Standards Based Skills and Concepts Targeted	Strategies/Practices Used to Teach Skills and Concepts	Resources/Texts Used
Quarter two	Unit 3. Work and Energy. Define work and power. Calculate the work done on an object. Use the concept of mechanical advantage to explain how machines make doing work easier. Differentiate between work and power. Name the six types of simple machines and give examples of each. Describe how a lever can increase the force without changing the amount of work done. Choose a compound machine that you use everyday, and identify the simple machines that it contains. Explain the relationship between energy and work. Define potential and kinetic energy. Calculate GPE, KE, and EPE. Distinguish between mechanical and non-mechanical energy. Identify and describe the transformations of energy. Unit 4: Waves, Sound and Light. Recognize that waves transfer energy some through a medium others without a medium. Distinguish between mechanical and electromagnetic waves. Explain the relationship between particle vibration and wave motion. Distinguish between transverse and longitudinal waves. Identify the crest, trough, amplitude, and wavelength of a wave. Define the terms frequency and period. Describe the Doppler Effect. Solve problems using the wave equation for v, f, and lambda. Explain what happens when wave interference takes place. Distinguish between constructive and destructive interference. Recognize how beats are produced by mechanical means. Recognize what parameters affect the speed of sound. Relate loudness and pitch to properties of sound waves. Describe the function of the ear and the biological process of hearing. Identify the duality of light as a particle and wave. Relate the energy of light to the frequency of EM waves. Explain how EM waves are used in communication, medicine, and other areas.	B.12.3, B.12.4, B.12.5, C.12.2,	Homework Problems, Classwork Worksheets, Individual and Group Presentations, Laboratory Notebooks and Procedures, Quizzes and Tests	Unit3: Work and Energy. Determine if and the amount of work being done under certain circumstances. Describe how energy cannot be created nor destroyed, but only changed in form. Explain how energy is different than work. Describe a situation where GPE is useful and deleterious. Explain how energy can be associated with biotic and abiotic sources and how it is transferred through the "web of life". List three situations in which PE converts to KE and vice versa. Describe the rise and fall of a basketball using the concepts of KE and PE. Explain why machines are not 100% efficient. Describe the movement of a pendulum or roller coaster using different energy forms and the effect of non-conservative forces like friction. Unit 4: Waves, Sound and Light. Distinguish between the motion of the medium and that of the wave. Explain how principles of simple harmonic motion can be applied to the motion of a swing. Compare and contrast and mass-spring system oscillation with that of a simple pendulum. Distinguish between transverse and longitudinal waves by drawing model diagrams of each and corresponding similar parts (crest-compression). Explain how oscillating waves can be polarized by film or sunglasses. Identify the medium for different types of waves. Describe the motion of a water molecule on the surface of the ocean as the wave passes by. Describe several situations in which a wave transports energy. Apply Planck's equation in chemistry to find the energy in a	Teacher led discussions, Student led discussions, individual and group presentations, hands-on laboratory work, Teacher lecturing, Students employing the socratic questioning method in group type activities, laboratory demonstrations, videos, in-class worksheets/examples.	Khanacademy.org, MIT opencourseware
	frequency and period. Describe the Doppler Effect. Solve problems using the wave equation for v, f, and lambda. Explain what happens when wave interference takes place. Distinguish between constructive and destructive interference. Recognize how beats are produced by mechanical means. Recognize what parameters affect the speed of sound. Relate loudness and pitch to properties of sound waves. Describe the function of the ear and the biological process of hearing. Identify the duality of light as a particle and wave. Relate the energy of light to the frequency of EM waves. Explain how EM waves are used in communication, medicine, and other areas.			the motion of the medium and that of the wave. Explain how principles of simple harmonic motion can be applied to the motion of a swing. Compare and contrast and mass-spring system oscillation with that of a simple pendulum. Distinguish between transverse and longitudinal waves by drawing model diagrams of each and corresponding similar parts (crest-compression). Explain how oscillating waves can be polarized by film or sunglasses. Identify the medium for different types of waves. Describe the motion of a water molecule on the surface of the ocean as the wave passes by. Describe several situations in which a wave transports energy. Apply Planck's equation in chemistry to find the energy in a photon (particle) and relate it to visible light. Distinguish between seismic P and S waves and relate them to transverse and longitudinal waves. Illustrate the properties of a wave on a sine		

				curve. State the SI units for wavelength, frequency, period, speed,etc. Explain why sound waves travel faster in specific media viz. solids, liquids, etc. Describe the relationship (indirect) between frequency and wavelength. Arrange EM waves by wavelength and give uses for each form of electromagnetic radiation. Explain how the energy and penetration power of radiation is related to the color of visible light.		
Timeline	Themes/Enduring Understandings/Essential Questions for the Unit	Common Core Standards Addressed	Assessments	Standards Based Skills and Concepts Targeted	Strategies/Practices Used to Teach Skills and Concepts	Resources/Texts Used
Quarter three	Unit 5: Atoms and the Periodic Table. Explain Dalton's theory and describe why it	D.12.1, D. 12.2, D.12.3, D.12.4, D.12.5, D.12.6, D.12.7, D.12.8,	Homework Problems, Classwork Worksheets, Individual and	Unit 5: Atoms and the Periodic Table. Summarize the main ideas	Teacher led discussions, Student led discussions, individual and	Khanacademy.org, MIT opencourseware
	was more successful than Democritus's	D.12.9, D.12.10, D.12.11, D.12.12	Group Presentations, Laboratory	of Dalton's atomic theory. List the	group presentations, hands-on	
	theory. State the charge, mass, and location		Notebooks and Procedures,	charge, mass, and location of	laboratory work, Teacher	
	modern model of the atom. Compare and		Quizzes and rests	particles found within atoms.	the socratic questioning method	
	contrast the Bohr model with the modern			Predict how many valence	in group type activities,	
	quantum model. Relate the organization of			electrons a nitrogen atom has.	laboratory demonstrations,	
	the periodic table to the arrangement of electrons within an atom. Explain why some			Explain why atoms on the periodic table are essentially	videos, in-class worksheets/examples.	
	atoms gain or lose electrons to form ions.			neutral. Explain how the path of	·····	
	Determine how many protons, neutrons, and			an electron varies between		
	electrons an atom has, given its symbol,			Bohr's atom and the quantum-		
	atomic number, and mass number. Describe			mechanical atom. Calculate the number of protons, electrons and		
	element's average atomic mass. Locate alkali			neutrons an atom has from the		
	metals, alkaline-earth metals, and transition			atomic mass and its atomic		
	metals in the periodic table. Relate an			number. Predict which isotope of		
	elements chemical properties to the electron arrangement of its atoms. Explain			nitrogen is the most common based on the periodic table and		
	the relationship between a mole of a			its two isotopes. Describe why		
	substance and Avogadro's number. Find the			the elements in the modern		
	molar mass of an element by using the			periodic table (Moseley) are		
	periodic table. Solve problems converting			arranged by atomic number not		
	gram-mass and vice-versa Unit 6 Structure			(Mendeleev) Compare and		
	of Matter. Distinguish between compounds			contrast the characteristics of		
	and mixtures. Relate the chemical formula			metals, non-metals, and semi-		
	of a compound to the relative numbers of			conductors. cribe the reactivity		
	atoms or ions present. Draw models of			trends in the periodic table using		
	Describe how the chemical structure of a			the charge of metallic and non-		
	compound affects its properties. Explain the			metallic ions in the periodic table		
	role of the electron in forming ionic and			using the family number. Define		
	covalent bonds. Compare the properties of			Avogadro's constant and how it		
	Describe how carbon atoms bond covalently			graph relating the amount of a		
	to form organic compounds. Identify the			particular element and its mass is		
	names and structures of groups of simple			a linear function. Solve		
	organic compounds and polymers. Identify			mathematics problems relating		
	essential to life including proteins. DNA, and			Structure of Matter, Classify		
	carbohydrates. Unit 7 Chemical Reactions			substances as mixtures or		
	and Kinetics. Recognize some signs that a			compounds. Explain the		
	cnemical reaction may be taking place.			relationship between bonding,		
	structure and motion of atoms and			point and function in various		
	molecules. Describe the differences			compounds. Manipulate ball and		
	between endothermic and exothermic			stick models in forming		
	reactions. Identify situations involving			compounds. Be able to draw		
	energy. Distinguish among the five			format. Explain the characteristics		
	the products of some reactions based on			of network structures in forming		
	the reaction type. Describe reactions that			strong solids and high boiling and		
l	transfer or share electrons between			melting points. Explain why glass		

	molecules, atoms, or ions. Demonstrate how to balance chemical equations. Interpret chemical equations to determine the relative number of moles of reactants needed and moles of products formed. Explain the law of definite proportions and how it allows for predicting reaction amounts. Identify mole ratios in a balanced chemical equation. Calculate the relative masses of reactants and products from a chemical equation. Describe the factors affecting a chemical reaction. Explain the role of a catalyst on a chemical reaction. Explain chemical equilibrium in terms of equal forward and reverse reaction rates. Apply LeChatelier's principle to predict the effect of changes in concentration, temperature, and pressure in an equilibrium reaction.			(esp. Pyrex) has properties that allow it to be used for cookware. Explain the role of electrolytes (salts) in producing good and bad health. Compare and contrast the electron movement in metallic bonds versus covalent and ionic. Describe a polar covalent molecule (water or ammonium)) and draw the bonding relationship between H-O or N-H atoms. Name and write ionic compounds using the valence electrons that are transferred and the periodic table. Explain why the Stock System (Roman numerals is necessary for naming transitional compounds. Distinguish between alkanes, alkenes, or alcohols based on their names. Explain why certain compounds i.e. CBr5 can not exist according to your knowledge of valency. Draw a carbon atom skeleton and determine the number and positions of the hydrogen's in the hydrocarbon. Unit 7: Chemical Rections and Kinetics . Identify chemical reactions involving simple changes in state versus product formation. List three signs that a chemical reaction is taking place. List four forms of energy that might be absorbed or released during a chemical reaction. Classify give chemical reactions by type. Identify which element is oxidized and which is are known. Classify give chemical reactions by type. Identify which element is oxidized and which is element is oxidized and which is element or reactants. Contrast single eault creaction. Define Radical. Compare and contrast single and double displacement reactions. List three possible results from a double-replacement reaction. Identify whether reactions are balanced or unbalanced. Be able to balance an equation. Tegardless of type. Explain why cefficients not subscripts must be changed to balance an equation. Decombartat that in a balance equation that the gram masses in the reactants and products are uniform (conservation of mass). List five factors that may affect the rate of a chemical reaction. Describe what can happen to the reaction rate of a system that is heated and then cooled. Compare and contrast a catalyst and an inhibitor. Describe whic		
Timeline	Themes/Enduring	Common Core Standards	Assessments	Standards Based Skills and	Strategies/Practices Used to	Resources/Texts Used
Quarter (Understandings/Essential Questions for the Unit	Addressed	Hammund Darki oʻ	Concepts Targeted	Teach Skills and Concepts	Khannan dan sa tar
Quarter tour	significance of carbon in organic molecules. Recognize the six most common elements in	E.12.3, E.12.4, E.12.5, F. 12.1, F.12.2, F.12.3, F.12.4, F.12.5, F.12.6, F.12.7, F.12.8, F.12.9,	Worksheets, Individual and Group Presentations, Laboratory	the three subatomic particles found in atoms. Compare and	led discussions, individual and group presentations, hands-on	opencourseware

biological scale Guises and Tests: Mexteens. State the definition of a featurings. State State scale scal	organic molecules (C, H, N, O, P, S). Describe	F.12.10, F.12.11, F.12.12,	Notebooks and Procedures,	Contrast the isotopes of an	laboratory work, Teacher
migre decision of myoure mescale decision of a second	the composition and functions of the four		Quizzes and Tests	element. State the definition of a	lecturing, Students employing
Lackborden, Signing, Souther, and muchel Souther have object and souther have been Distributions, Signing, Souther, and well and souther Distributions, Signing, Souther,	major categories of organic molecules			chemical compound. Describe	the socratic questioning metho
scio), Besche box delydates synthesis add), Besche box delydates synthesis highen brie de norves sin ander delydates synthesis highen brie de norves sin ander delydates synthesis highen brie de norves sin add sources sin delydates synthesis brie de norves sin delydates synthesis highen brie de norves sin highen brie de norves sin	(carbohydrates, lipids, proteins, and nucleic			The two main types of chemical	in group type activities,
and percentian experiments in blockmedia production and percentian experiments. Define and the second production and percentian experiments in blockmedia production and percentian experiments. Defining and the second percentian e	acids). Describe how dehydration synthesis			bonds. Explain why water	laboratory demonstrations.
https://withinkar.outlooken.add between cultions and wetween cultions.add Of what an long thing manch two are are another thing. It is a solution. between cultions.add between cultions.add Of what are long thing manch two are are another thing. It is a solution. between cultions.add between cultions.add Of what are long thing manch two are are another thing. It is a solution. between cultions.add between cultions.add Chemical backs thing thing manch there are another thing. It is a solution. between paint ad another thing. between paint ad another thing. Chemical backs there are another thing. It is a solution and another thing. between paint ad another thing. between paint ad another thing. Add geness of complexity. J. Doinguid between paint ad another thing. between paint ad another thing. Add geness of complexity. J. Doinguid between paint ad another thing. between paint ad another thing. Add geness of complexity. J. Doinguid between paint ad another thing. between paint ad another thing. Add geness of complexity. J. Doinguid between paint ad another thing. between paint ad another thing. Add geness of complexity. J. Doinguid between paint ad another thing. between paint ad another thing. Add geness of complexity. J. Doinguid	and hydrolysis relate to organic molecules.			molecules are polar. Differentiate	videos. in-class
metanos. Exercised Durations: unpersonse for a data en long many data of data en long many data data en long many	Explain the role of enzymes in biochemical			between solutions and	worksheets/examples.
Of what are integ tinge made? How do regard solutions and basic solution. Direct and solution from the source of the do regard manual for the do	reactions. Essentail Questions:			suspensions. Define acidic	·····
organic moticals former of House do regards models interest to use programs of counter the end of structures and function of Col. 1. Networks the end of structures and probability to the end of the end of the end of the end of the demonstructures and function of Col. 1. Networks the end of the end of the end of the end of the demonstructures and the end of the end of the end of the end of the end of the end of the end of the end of the end of the end of the end of the end of the end of the end of the end of the end of the end of the end of the end of the end of the end of the end of the end of the end of the end of the end of the end of the end of the end of the end of the end of the end of the end of the end of the end of the end of the end of the end of the end of the end of the end of the end of the end of the end of the end of the end of the end of the end of the end of the end of the end of the end of the end of the end of the end of the end of the end of the end of the end of the end of the end of the end of the end of the end of the end of the	Of what are living things made? How are			solutions and basic solutions	
model structure and part user Viele Piele Institute of each properties Reture et all viogeneties to their compositions Reture et all viole their et all viole Retur	organic molecules formed? How do organic			Describe the composition and	
Demined Structure and Incition of Col. 1. Martieles and partypowers to share functions 2. Differentiate between primate cell and any properties to share there and prove the share of the second structures and there any prove the share of the second structures and there any prove the share of the second structures and there any prove the share of the second structures and there any prove the share of the second structures and there any prove the share of the second structures and there any prove the share of the second structures and the second structures and structures and the second structures and structures and structures and the second structures and structures and structures and structures the second structures and structures and structures and structures and structures the second structures the second structures and structures the second structures the second structures and structures the second structures the second structures the second structures th	moloculos interact to support life? Unit 9:			function of each group of organic	
Lefticited and functions and functions of the second secon	Chambred Structure and Support lifer Onit 9:			function of each group of organic	
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terms of me general structures and products of the service of complexity. So the service of complexity. So the service of the service of complexity. So the service of complexity of the service of complexity of the service of complexity. So the service of complexity of controls on a survey range of physical conditions, use is highly addented by the service of the service of complexity of controls on a survey range of complexity of controls on a survey range of complexity. So the service of complexity of controls on a survey range of complexity of controls on a survey range of complexity. So the service of complexity of complexity of complexity of complexity of complexity. So the service of complexity of complexity of complexity of complexity. So the service of complexity of complexity of complexity of complexity of complexity. So the service of complexity of complexity of complexity of complexity. So the service of complexity of complexity of complexity of complexity of complexity of complexity. So the service of complexity of complexity. So the service of complexity of complexity. So the service of complexity of comple	prokaryotic cells and eukaryotic cells, in			Describe how energy changes	
degrees of complexity. 3 Desinguith between plant and mark cells. A Desribu- bancesite constraint cells. Explain the and the spectrum functions that here and the spectrum functions of the spectrum function of the	terms of their general structures and			affect how easily a chemical	
between plant and annual cells. A Describe one cells function in a larger range of things Luts 2. Checken Luts 1. Success Luts 1. Su	degrees of complexity. 3. Distinguish			reaction will occur. Explain why	
how cells function is nurvour range of physical cell discus, such as temperatures, and gain, capetorn life functions that help cell membranes as help visication of all membranes as help visication products in the general reaction of products by plants are the primary source of energy and nutrients for most long in an ecological biological and the cell in general reaction of the cell processes of cennosis, field tead in the cell cennosis, field tead in the cell tead in the cell cennosis, field tead in the cell cennosis, field tead in the cell cennosis, field tead in an ecological biol 10. Ecological in an ecological biological in an ecological biol 10. Ecological in an ecological biological in an ecological bio	between plant and animal cells. 4. Describe			enzymes are important to living	
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and pit to perform life functions that helps of cell membranes as highly selective barrier (efficience, nonucle, and active protary potes and eukanyotes. Descrites the main function of the close of the conduction of the cell of energy and nutrients of most ling indicates that the registration produced by plants are the primary source of energy and nutrients of most ling indicates that the registration in ecosystem (uncless of the cell of energy and nutrients of most ling indicates that the registration in ecosystem (uncless of the cell of energy and nutrients of most ling indicates in the registration in ecosystem (uncless of the cell of energy and nutrients of most ling indicates in the registration in the conduction of the cell of energy and nutrients of the energy help produces, consumers, and decomposite, an ecosystem (uncless of energy through produces, consumers, and decomposite, an ecosystem (uncless of energy through produces, consumers, and decomposite, an ecosystem (uncless of energy through produces, through where plants is the energy help produces, consumers, and decomposite, an ecosystem (uncless of energy through produces, through where plants is the energy the produces of energy for if e- closely. Ling through where elected and produces of energy for if e- closely. Ling through where elected and produces of energy for if e- closely. Ling through where elected and produces of energy for if e- closely. Ling through where elected and the registration of energy for if e- closely. Ling	physical conditions, such as temperature,			and Structure of Cell. Explain the	
to markets is enabled with the reader of a construction of a const	and pH, to perform life functions that help			cell theory. Name the basic cell	
of ell methanes as highly selective bransport, 6. dentify the reactar and protocis in the general cactor of photosynthes. Describe the use of controls in the general cactor of photosynthes. Describe the use of controls in the general cactor of photosynthes. Describe the use of controls in the general cactor of photosynthes. Describe the use of controls in the general cactor of photosynthes. Describe the use of controls in the general cactor of photosynthes. Describe the use of controls in the general cactor of photosynthes. Describe the use of controls in the general cactor of produced by plants are the pinnary source of energy and unitaries. In Listenst produced by plants are the pinnary source of energy and unitaries. In Listenst produced by plants are the pinnary source of energy and unitaries. In Listenst produced by plants are the pinnary source of energy and unitaries. In Listenst produced by plants are the pinnary source of energy and unitaries. In Listenst Compare are of Contrast the important of the produced cactor of the important of the produced cactor of the controls of the produced cactor of the controls of the call in a cosystem toxic the dual table. The energy they meet to produce food bescribe in a cosystem toxic the call of the call in a cosystem toxic the call of the call of the call in a cosystem toxic the me	to maintain homeostasis. 5. Explain the role			structures. Contrast and Compare	
barers diffusion, spross, and active transport, 6. Genty the reactants and products in the general reaction of photosynthesis. Scoreb the use of storages in this dentification. 10 Provides development of the general compounds development of the reactant and photosynthesis. Scoreb the use of storages in this dentification. 10 Provides development of the reactant active of energy and nutrients for most binar of energy and horizon star for the production of ATP. 12. Explain how binart and abolits factors cycle in an ecosystem result of energy and decomposes, and explain the transfer of energy through the transfer of energy for life decision of energy for li	of cell membranes as a highly selective			prokarvotes and eukarvotes.	
ransport, 6. identify the reaction of products in the general reaction of the cell nucleus clearly the main photosynthesis. Describe the use of isopes in this identification. 10. Provide widence that the organic compounds produced by phase the primary source of energy and nucleus for nose the primary source of energy and nucleus for nose the primary source isoperative the primary source of energy and nucleus for nose the primary source isoperative the primary source of energy and nucleus for nose the primary source isoperative the primary source of energy and nucleus for nose the primary source isoperative the primary source processors of consols, fieldinand describe the generative the primary source processors of consols, fieldinand describe the generative the primary source processors of consols, fieldinand describe the generative the primary source processors of the consols, fieldinand describe the generative the primary source producer, commers, and decomposes, and explain the transfer of energy through the role of AP in cellular consorts in the inter-field for the transfer population is an ecosystem resulting the noise of AP in cellular consorts in the inter-field for the primary describe the transfer of energy for the population is an ecosystem resulting the noise of AP in cellular consorts the inter-field for the primary describe the methods used to the primary describe the energy for the population is an ecosystem resulting the noise of AP in cellular describe the energy for the describe the energy for the describent and change starts of describent and change starts of describent	barrier (diffusion osmosis and active			Describe the main function of the	
products in the general reaction of the main products is dentify the main products is dentify the main product	transport) 6 Identify the reactants and			cell wall. Describe the function of	
photocols multiple period is enclosed in the methy process. The photocols of the methy period is ph	and uses in the general reactants and			the cell nucleus. Identify the main	
processing in the contract of the Characteristic products of the Characteristic products of the control of the	products in the general reduction of			roles of the subscholeter	
soupe: Describe The functions of the major cell arguments. Journal produced by Junits are the primary source major cell arguments. Journal produced by Junits are the primary source major cell arguments. Journal produced by Junits are the primary source produced by Junits. https: 1. March Marchalluk register produced by Junits. Compare and Controls the major cell arguments. bit important for the production of AIP. 12. Describe cell specialization. bit important for the production of AIP. 12. Describe cell specialization. bit important for the production of AIP. 12. Describe cell specialization. bit important for the production of AIP. 12. Describe cell specialization. bit important for the production of AIP. 12. Describe cell specialization. bit important for the production of AIP. 12. Describe cell specialization. bit interpret for the production of AIP. 12. Describe the important interpret i	photosynthesis. Describe the use of			Describe The Cytoskeleton.	
evenence that the organic compounds or energy and nutrients for most king the second second second second second second second second is important for the production of APP 12. Lither into the production of APP 12. Events of a second seco	isotopes in this identification. 10. Provide			Describe The functions of the	
produced by plants are the primary source of energy and units for most living things. 11. Identify how cellular respiration is important for the production of AT.12. Explain the intervelated Unit 15. ctobpy. 1. Displant better data dubtic factors cycle the intervelated Unit 15. ctobpy. 1. Displant better, cathon, oxygen, and is an exceptent (water, cathon, oxygen, and and explain the trained of energy through producers, consumers, and decomposes, and explain the trained of energy through producers, consumers, and ecomposes, and explain the trained of energy through producers, some constrained excepted topics levels, 3. identify the factors in an ecosystem this influence fluctuations in producers, threatolism is producers, threatolism of the energy through from nature (auses, changes in an ecosystem species, 5. Explain how symbiotic behavior species, 5. Explain how symbiotic behavior topics interactions within ecosystems. Unit 11. Cassification 1. Analyze the decisification of organism saccording to their evolutionary, relationships, 2. The historical differences is and excepted. Scalastication of organism saccording to their evolutionary relationships, 3. Amily the species and differences is between existing is and differences is between existin	evidence that the organic compounds			major cell organelles. Identify the	
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		both Contracts in	
		Characteristics In	
		Chromosomestructure. Contrast	
		in size. 6. Comparison between	
		eukaryotic kingdoms should	
		include: Cellular structures,	
		Unicellular vs. multi-cellular,	
		Methods of making	
		getting/making food and	
		breaking down food to get	
		energy. Reproduction 7. Use	
		dichotomous keys to classify	
		organisms	
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