

Main/General Topic	Sub-Topic	Essential Questions	What The Students Will Know	What The Student Will Be Able To Do	Assessments	When Student Does It
Astronomy: Earth, Moon, and Sun	Earth in Space  Phases, Eclipses, Tides	How can an understanding of days/months/seasons & years help humans better plan their activities?  How do Earth, moon, and sun motions affect the quality of life on Earth?	Rotation, revolution, calendars, seasons  Moon, phases of moon, cycle of moon phases, eclipses: solar and lunar, tides and tide effects	Shine a light on a globe and see what pattern of shadow and illumination occurs  Record observations of the moon; sketch a diagram of the location, record compass directions and the moon's relationship to them.  Manipulate a penny and quarter in order to simulate rotation and revolution of the moon.	Quiz J 1-1 Quiz J 1-2 Quiz J 1-3 Quiz J 1-4  Unit Test: Earth in Space (Test J-1 Forms A and B.)  Day and Night ACT J14  CHP1 (J21) Journal: Daily Observations of moon map	September

<b>Main/General Topic</b>	<b>Sub-Topic</b>	<b>Essential Questions</b>	<b>What The Students Will Know</b>	<b>What The Student Will Be Able To Do</b>	<b>Assessments</b>	<b>When Student Does It</b>
Astronomy: Earth, Moon, and Sun	Rockets and Satellites  Earth's Moon	How would you get off the Earth to find materials that are in short supply?  How do we decide if the moon is worth colonizing/building on?	Action-reaction, multistage rockets, artificial satellites, space stations, space shuttles  Structure/Origin of moon, looking at moon from Earth, missions to moon, moon rocks, and moonquakes	Make a scale model of the solar system and hang in 4 walls of school: one for each class.  Students will measure distance traveled by balloons/rockets and decide if a different flight medium plays a role in distance traveled	Moon Movement ACT (J24)  Create and/or use a solar system model  Balloon Rocket Lab.	September
Astronomy: Solar System	Observing the Solar System	How can we predict future events based on our location in space?	Wandering stars, geocentric model, heliocentric, inertia, gravity; Kepler and Copernicus; planets in orbit	Toy truck/inertia lab (J50)  ACT (J52) Model inner solar system  ACT (J53) Loopy Ellipse	Quiz J 2-1	September
Astronomy: Solar System	The Sun	How does the sun produce and share its energy with the Earth to support living things?	How the sun produces energy, the layers of the sun's atmosphere, features of the sun's surface.	ACT (J58) Viewing Sunspots  ACT (J61) Stormy Sunspots	Quiz J 2-2	October

<b>Main/General Topic</b>	<b>Sub-Topic</b>	<b>Essential Questions</b>	<b>What The Students Will Know</b>	<b>What The Student Will Be Able To Do</b>	<b>Assessments</b>	<b>When Student Does It</b>
Astronomy: Solar System	The Inner Planets	How does an understanding of the inner planets enable us to understand our planet better?	Main characteristics of the inner planets.	ACT (J62) How does Mars Look from Earth? ACT (J65) Graphing	Quiz J 2-3	October
Astronomy: Solar System	The Outer Planets	How could we make the outer planets suitable for human habitation?	Main characteristics of the gas giant planets.  Compare Pluto with the other planets.	ACT (J70): graphing- How large are the outer planets?  ACT (J78) Speeding around the sun.	Quiz J 2-4	October
Astronomy: Solar System	Comets, Asteroids, and Meteors	Can we infer something about our past by studying comets, meteors, and asteroids?	Characteristics of comets and asteroids  How meteoroids form	DSC J80: Which way do comet tails point?	Quiz J 2-5	October
Astronomy: Solar System	Is There Life Beyond Earth?	How could we build a space station suitable for human habitation?	Conditions needed for living things to exist  What do Mars and Europa have to offer to humans?	DSC (J84) Is Yeast Alive or Not?  COM (J85) Write a letter to a friend on another planet.	Quiz J 2-6; Test J-2 Forms A and B	October
Astronomy: Stars, Galaxies, Universe	Tools of Modern Astronomy	What do you need to do to create your own rainbow?	Electromagnetic spectrum, purpose of the telescope, use of spectrographs	DSC (J94) Art Those Stars Really Grouped?	Quiz J 3-1	October
Astronomy: Stars, Galaxies, Universe	Characteristics of Stars	How do you create a classification system meaningful to you?	How astronomers measure distances to stars; how are stars classified?	LAB (J110-111): How Far is That Star?	Quiz J 3-2	October

<b>Main/General Topic</b>	<b>Sub-Topic</b>	<b>Essential Questions</b>	<b>What The Students Will Know</b>	<b>What The Student Will Be Able To Do</b>	<b>Assessments</b>	<b>When Student Does It</b>
Astronomy: Stars, Galaxies, Universe	Lives of Stars	What would you do if you run out of fuel in your automobile?	How stars are formed, star longevity, what happens at the end of a star's "life?"	DSC (J112) What Determines How Long Stars Live? (Graph interpretation)	Quiz J 3-3	October
Astronomy: Stars, Galaxies, Universe	Star Systems and Galaxies	How do other objects, like other classmates, interact with our bodies in space?	Characteristics of a star system, 3 types of galaxies	DSC (J117) How Does the Milky Way Look Hazy?	Quiz J 3-4	October
Astronomy: Stars, Galaxies, Universe	History of the Universe	Can we predict future success based on our experiences prior to first grade?	Principles of the Big Bang Theory. Theories about solar system formation.	LAB Expanding Universe Theory.	Quiz J 3-5 Test J-3 forms A and B	October
Weather and Climate: The Atmosphere	The Air Around You	What happens when you hold your breath?	How is the atmosphere important to living things?	DSC (I 14) How long will a Candle Burn?	Quiz I 1-1	November
Weather and Climate: The Atmosphere	Air Quality	What effect will acid have on the environment?	Main sources of acid rain; how do photochemical smog and acid rain form?	LAB Chicken Bone and Vinegar	Quiz I 1-2	November
Weather and Climate: The Atmosphere	Air Pressure	How can air pressure be determined?	Main layers of the atmosphere.	LAB Measuring Temperature and Relative Humidity.	Quiz I 1-3	November
Weather and Climate: The Atmosphere	Layers of the Atmosphere	How can eating a layer cake help in understanding the layers of the atmosphere?	Characteristics of the main layers of the atmosphere.		Quiz I 1-4  Test I-1 Forms A and B	November

<b>Main/General Topic</b>	<b>Sub-Topic</b>	<b>Essential Questions</b>	<b>What The Students Will Know</b>	<b>What The Student Will Be Able To Do</b>	<b>Assessments</b>	<b>When Student Does It</b>
Weather and Climate: Weather Factors	Energy in the Atmosphere	How does your body obtain energy on a daily basis?	In what form does solar energy travel to the earth? What happens to solar energy once it reaches Earth?	LAB (I46-47) Heating Earth's Surface.	Quiz I 2-1	November
Weather and Climate: Weather Factors	Heat Transfer	What happens to air temp. when you climb up inside a building?	How temperature is measured; 3 ways in which heat is transferred.	LAB Measuring temperature at two levels of a room.	Quiz I 2-2	November
Weather and Climate: Weather Factors	Winds	How can organizing a family tree help us to understand global and local winds?	What wind is caused by; local vs. global winds; major global wind belts and where located.	SKI (I 152-153) Think like a scientist.	Quiz I 2-3	November
Weather and Climate: Weather Factors	Water in the Atmosphere	How can you classify clouds?	How is Relative Humidity (RH) measured? How do clouds form? What are the different principle cloud types?	LAB Relative Humidity	Quiz I 2-4	November
Weather and Climate: Weather Factors	Precipitation	How can you stay prepared to deal with changes in weather?	Main types of precipitation. How is ppt. measured and how might it be controlled?	LAB (I69) Collecting Raindrops	Quiz I 2-5 Test I-2 Forms A and B	December
Weather and Climate: Weather Patterns	Air Masses and Fronts	How do fluids of different densities behave?	What are the major types of air masses in N. America? Main types of weather fronts. Cyclones vs. anticyclones	LAB Density of Cola	Quiz I 3-1	December

<b>Main/General Topic</b>	<b>Sub-Topic</b>	<b>Essential Questions</b>	<b>What The Students Will Know</b>	<b>What The Student Will Be Able To Do</b>	<b>Assessments</b>	<b>When Student Does It</b>
Weather and Climate: Weather Patterns	Storms	Can you make a tornado?  How can you stay safe in a storm?	Main types of storms and how they form.  Storm safety	LAB (I92-93) Tracking a Hurricane	Quiz I 3-2	December
Weather and Climate: Weather Patterns	Floods	How can you avoid being injured or killed by a flood?	Causes of Flooding. Reducing flooding danger.	DSC (I95) What Causes Flooding?	Quiz I 3-3	December
Weather and Climate: Weather Patterns	Predicting the Weather	Can you predict the weather for later the same day or for the next day?	Technology used in weather forecasting. Types of information shown on weather maps. El Nino and its effects.	DSC (I99) Local weather forecasts: newspaper and TV.  The Weather Cycler	Quiz I 3-4  Test I-3: forms A and B	December
Chemical Building Blocks: An Introduction to Matter	Describing Matter	What are the properties of matter and how do they impact on human life?	Phases of matter Characteristic properties Physical properties: boiling point, melting point. Changes in matter: Physical Change, chemical change & chemical activity Types of matter: mixtures, pure substances, elements. Compounds	K♦16: Sharpen your skills: Interpreting data  K♦18: Try This – Magnetic Personality  K♦20: Exploring: Matter at the Beach	Quiz K 1-1	December

<b>Main/General Topic</b>	<b>Sub-Topic</b>	<b>Essential Questions</b>	<b>What The Students Will Know</b>	<b>What The Student Will Be Able To Do</b>	<b>Assessments</b>	<b>When Student Does It</b>
Chemical Building Blocks: Measuring Matter	Measuring Matter	What is the difference between mass and weight?  If I lived in outer space, would my weight still be important?	Mass & Weight Units of mass Volume Measurement systems Density	K♦22: Discover: Which has more mass?  K♦23: Try This: Bubble Time  K♦24-25: Measurement Systems: Create your own timeline: grades beginning with Kindergarten	Quiz K 1-2	January
Chemical Building Blocks: Measuring Matter	Particles of Matter	What are the things around you made up of?	Atoms History: Democritus Dalton's contributions Atoms and Molecules today How small is small? The atom as a model.	K♦29: Discover: What's in the Box?  K♦31: Math Toolbox: Constant Ratios	Quiz K 1-3	January
Chemical Building Blocks: Measuring Matter	Elements From Earth	What makes gold and silver more valuable than other metals?	Density of gold Copper and Electrolysis	K♦34: Discover: How Can You Separate Bolts from Sand?  K♦36-37: Isolating Copper	Quiz K 1-4	January

<b>Main/General Topic</b>	<b>Sub-Topic</b>	<b>Essential Questions</b>	<b>What The Students Will Know</b>	<b>What The Student Will Be Able To Do</b>	<b>Assessments</b>	<b>When Student Does It</b>
Chemical Building Blocks: Changes in Matter	Solids, Liquids, and Gasses	Why is it easier to hold a solid than it is to hold a liquid?	Phases of Matter Solids Particles of Solids Liquids Particles in a Liquid Viscosity Gasses	K♦44: Discover: What Are Solids, Liquids, and Gasses?  K♦46: Using the Visuals: liquids	Q K 2-1	February
Chemical Building Blocks: Changes in Matter	Behavior of Gasses	What are some of the properties of the very air you breathe?	Measuring Gasses Relating Pressure and Volume Relating Pressure and Temperature Relating Volume and Temperature	K♦49: Discover: How can Air Keep Chalk From Breaking?  K♦50: Sharpen your Skills: Developing Hypotheses	Q K 2-2	February
Chemical Building Blocks: Changes in Matter	Graphing Gas Behavior	How can you determine if it is time to build additional schools for your district's children?	Temperature and Volume Collecting Data Graphing the Results Pressure and Volume	K♦56: Discover: What Does a Graph of Pressure and Temperature Show?  K♦60-61: Skills Lab: It's a Gas	Q K 2-3	February

<b>Main/General Topic</b>	<b>Sub-Topic</b>	<b>Essential Questions</b>	<b>What The Students Will Know</b>	<b>What The Student Will Be Able To Do</b>	<b>Assessments</b>	<b>When Student Does It</b>
Chemical Building Blocks: Changes in Matter	Physical and Chemical Changes	What impact do physical and chemical changes have on human life?	Energy and Change Changes Between Liquid and Solid: melting and freezing Changes between liquid and gas: vaporization, BP ,and air pressure Changes between solid and gas Chemical changes: chemical reactions Energy and chemical reactions.	K♦62: Discover: How Does a Burning Candle Differ from Boiling Water?	Q K 2-4  Test K-2: Forms A and B	February

Main/General Topic	Sub-Topic	Essential Questions	What The Students Will Know	What The Student Will Be Able To Do	Assessments	When Student Does It
Chemical Building Blocks: Elements and The Periodic Table	Organizing the Elements	<p>How does a calendar organize data in a meaningful way for us?</p> <p>How does the Periodic Table organize data in a meaningful way for us?</p> <p>Why does the Periodic Table, created hundreds of years ago, still work today?</p>	<p>Looking for Patterns in the Elements Mendeleev, the Detective The First Periodic Table The Periodic Table and the Atom: Inside an atom, Atomic number, the Periodic Table today</p> <p>Reading the Periodic Table Inside the Squares Organization of the Periodic Table: Groups and Periods</p> <p>Significance of Valence electrons and elemental stability</p>	<p>K♦76: Discover: Paper Squares</p> <p>K♦78: Sharpen Your Skills: Classifying</p> <p>K♦80-81: Exploring the Periodic Table – create your own table</p>	Q K 3-1	March
Chemical Building Blocks: Elements and The Periodic Table	Metals	What are the special/unique properties of metal?	<p>What is a Metal? Physical properties Chemical properties Alloys Metals in the Periodic Table: Alkali metals, Alkaline Earth Metals, Transition Metals Metals in Mixed Groups</p>	<p>K♦87: Discover: Why Use Aluminum?</p> <p>K♦89: Sharpen Your Skills: Observing – pennies</p>	Q K 3-2	March

<b>Main/General Topic</b>	<b>Sub-Topic</b>	<b>Essential Questions</b>	<b>What The Students Will Know</b>	<b>What The Student Will Be Able To Do</b>	<b>Assessments</b>	<b>When Student Does It</b>
Chemical Building Blocks: Elements and The Periodic Table	Non-metals and Metalloids	What are the properties of a good electrical conductor?  What are the properties of a good electrical insulator?	What is a non-metal? Physical properties, chemical properties, compound of non-metals  Families of Nonmetals The Carbon Family The Nitrogen Family The Oxygen Family The Halogen Family The Noble Gasses Hydrogen The Metalloids	K♦96: Discover: What Are The Properties of Charcoal?  K♦102-103: Alien Periodic Table	Q K 3-3	March
Chemical Building Blocks: Elements and The Periodic Table	Elements from Stardust	What is the composition of the universe, solar system, planets, stars?	Atomic nuclei collision Elements from the sun Elements from Large Stars	Computer Lab: The universe and chemical composition.	Q K 3-4  Test K-3: Forms A and B.	April
Chemical Interactions: Chemical Reactions	Matter and Changes in Matter	What simple substances make up matter?  How can you tell a chemical reaction has occurred?  What happens to chemical bonds in chemical reactions?	Matter Chemistry Building Blocks of Matter: Elements, Compounds, Mixtures Changes in Matter: Physical Change, Chemical Change, Observing Chemical Reactions, Chemical Reactions on a Small Scale	L♦14: Discover: Wafting techniques  L♦18: Try This: Mostly Cloudy  L♦22-23: Lab: Where's the Evidence?	Q L 1-1	April

<b>Main/General Topic</b>	<b>Sub-Topic</b>	<b>Essential Questions</b>	<b>What The Students Will Know</b>	<b>What The Student Will Be Able To Do</b>	<b>Assessments</b>	<b>When Student Does It</b>
Chemical Interactions: Chemical Reactions	Describing Chemical Reactions	Why is it important for scientists to speak a “universal language?”	Writing chemical equations Chemical formulas Structure of an Equation Conservation of mass Balancing Chemical Equations Classifying Chemical Reactions Decomposition Replacement	L ♦ 24: Discover: Do you lose anything?  L ♦ 27 Try This: Still There	Q L 1-2	April
Chemical Interactions: Chemical Reactions	Controlling Chemical Reactions	What do you use controlled energy reactions for in your day-to-day life?	Energy in Chemical Reactions Getting Reactions Started Rates of Chemical Reactions Concentration Surfact Area Temperature Catalysts Inhibitors	L ♦ 32: Discover: Inferring	Q L 1-3	April
Chemical Interactions: Chemical Reactions	Fire and Fire Safety	How do you decide whether a fire is useful or disastrous?	Understanding Fire The Fire Triangle Controlling Fire Home Fire Safety Common Sources of Fire Fighting Fires Preventing Trouble	Fire Safety Posters	Q L 1-4  Test L-1	April

<b>Main/General Topic</b>	<b>Sub-Topic</b>	<b>Essential Questions</b>	<b>What The Students Will Know</b>	<b>What The Student Will Be Able To Do</b>	<b>Assessments</b>	<b>When Student Does It</b>
Chemical Interactions: Atoms and Bonding	Inside an Atom	Do differences in the way matter is constructed account for the different properties of materials in our world?	Structure of an Atom Electrons in Atoms Little Particles, Big Spaces Valence Electrons Why Atoms form Bonds	L ♦ 50 Discover: Making Models	Q L 2-1	May
Chemical Interactions: Atoms and Bonding	Atoms in the Periodic Table	Why do some elements react whereas others do not?  Why are some chemical reactions violent and/or destructive?	Organizing the Elements Comparing Families of Elements Noble gasses Reactive Nonmetals Reactive Metals	L ♦ 56 Sharpen Your Skills: Periodic Table  Irradiated Salt  Polymers of Balloons	Q L 2-2	May
Chemical Interactions: Atoms and Bonding	Ionic Bonds	How can teamwork with a classmate make more things possible?  How does cooperation make more things happen?	Electron Transfer Forming an Ionic Bond Polyatomic Ions Naming Ionic Compounds Properties of Ionic Compounds Crystal Shape High Melting Points Electrical Conductivity	L ♦ 61 Exploring: Ionic Bonds  L ♦ 63 Try This: Crystal Clear	Q L 2-3	May

<b>Main/General Topic</b>	<b>Sub-Topic</b>	<b>Essential Questions</b>	<b>What The Students Will Know</b>	<b>What The Student Will Be Able To Do</b>	<b>Assessments</b>	<b>When Student Does It</b>
Chemical Interactions: Atoms and Bonding	Covalent Bonds	When can sharing be an advantage?	Electron Sharing How Many Bonds? Properties of Molecular Compounds Unequal Sharing of Electrons Nonpolar Molecules Polar Molecules Attractions Between Molecules	L ♦ 65 Discover: Why Don't Water and Oil Mix?  Computer Lab	Q L 2-4  Test L-2	May
Chemical Interactions: Acids, Bases, and Solutions	Working With Solutions	What are some of the solutions that people encounter in daily life?	Solutions and Suspensions Solvents and Solutes Water as Universal Solvent Particles in a Solution Ionic Solids in Water Molecular Solids in Water Solutions and Conductivity Concentration Solubility Changing Solubility Temperature Solvents Effects of Solutes on Solutions Lower Freezing Points Higher Boiling Points	L ♦ 80 Discover: What Makes a Mixture a Solution?  L ♦ 83 Try This: Does it Dissolve?	Q L 3-1	May

<b>Main/General Topic</b>	<b>Sub-Topic</b>	<b>Essential Questions</b>	<b>What The Students Will Know</b>	<b>What The Student Will Be Able To Do</b>	<b>Assessments</b>	<b>When Student Does It</b>
Chemical Interactions: Acids, Bases, and Solutions	Describing Acids and Bases	Do you eat foods that are acidic?  Do you eat foods that are basic or alkaline?	Properties of Acids Reactions with Metals Reactions with Carbonates Reactions With Indicators	L ♦ 93 Exploring: Uses of Acids  L ♦ 94 Exploring: Uses of Bases	Q L 3-2	May
Chemical Interactions: Acids, Bases, and Solutions	Acids and Bases in Solution	What acid solutions are used in everyday life?  What basic solutions are used in everyday life?	Acids in Solution Bases in Solution Strengths of Acids and Bases Measuring pH Acid-Base Reactions Products of Acid-Base Reactions	L ♦ 96 Discover: What Can Cabbage Juice Tell You?  L ♦ 102-103 Lab: The Antacid Test	Q L 3-3	May
Earth's Waters: Earth- The Water Planet	How is Water Important?	How is water important?	How Do People Use Water? Agriculture Industry Transportation Recreation Water and Living Things Water on Earth Oceans Ice Rivers and Lakes Below Earth's Surface	H ♦ 19 Demonstration: Peeled vs. unpeeled apples  H ♦ 20 Sharpen your Skills: Calculating	Q H 1-1	June

<b>Main/General Topic</b>	<b>Sub-Topic</b>	<b>Essential Questions</b>	<b>What The Students Will Know</b>	<b>What The Student Will Be Able To Do</b>	<b>Assessments</b>	<b>When Student Does It</b>
Earth's Waters: Earth- The Water Planet	The Properties of Water	How does the chemical structure of water molecules cause them to stick together?  How does water dissolve other polar substances?  What are the three states in which water exists on Earth?	Water's Unique Structure Surface Tension Capillary Action Water, the Universal Solvent Changing State Melting Boiling and Evaporation Condensation Freezing Why Ice Floats Specific Heat	H ♦ 25 Try This: Follow that String  H ♦ 30 Lab: Speeding up Evaporation	Q H 1-2	June
Earth's Waters: Earth- The Water Planet	The Water Cycle	How does Earth's water move through the water cycle?  In what ways do living things depend on the water cycle?	Water Evaporates Clouds Form Water Falls As Precipitation A Global Process	H ♦ 34 Try This: Tabletop Water Cycle	Q H 1-3	June
AIDS		What are AIDS and HIV? How does the virus spread from person to person?				June
Drugs/Alcohol		What are the properties of stimulants, depressants, and hallucinogens?				June