



Content Alignment: High School Chemistry

Unit Topic	Chapter Topic	Subtopic	NanoSense Lessons	Specific Materials
Nature of Chemistry	Tools of Science	Units & Measurement (size & scale)	Size Matters <ul style="list-style-type: none"> Lesson 1 (L1): Intro to Nanoscience Lesson 2 (L2): Scale of Objects Lesson 6 (L6): One Day Introduction 	Slides <ul style="list-style-type: none"> L1: 1-4 L6: 1-8 Activity/Handout <ul style="list-style-type: none"> L1 <ul style="list-style-type: none"> Student Reading: Intro to Nanoscience Worksheet: Intro to Nanoscience Handout: scale diagram L2 <ul style="list-style-type: none"> Reading: Visualizing the Nanoscale Card Sort/Number Line Activity Scale of Objects Activity Cutting it down activity Quiz: Scale of small Objects
Structure of Matter	Electron Configuration	Radiant Energy	Clear Sunscreen <ul style="list-style-type: none"> Lesson 1 (L1): Introduction to Sun Protection Lesson 2 (L2): All about Sunscreens Lesson 4 (L4): How sunscreens appear: scattering Lesson 5 (L5): culminating activities 	Slides <ul style="list-style-type: none"> L1: 1-14 (15-17 optional) L2: 2, 16-25 L4: All Slides Activity/Handout <ul style="list-style-type: none"> L1 <ul style="list-style-type: none"> UV Protection Lab Activity Summary of Sun Radiation L2 <ul style="list-style-type: none"> Light Scattering by 3 Sunscreens handout Sunscreen Ingredient Activity FDA Approved Sunscreen Ingredients L4 <ul style="list-style-type: none"> Reading: Scattering of Light by Particles Ad Campaign Project w/ ChemSense animation L5 <ul style="list-style-type: none"> Consumer Choice Pamphlet project Student Quiz
Structure of Matter	Electron Configuration	Quantum Theory	Clear Sunscreen <ul style="list-style-type: none"> Lesson 3 (L3): How 	Slides (Clear Sunscreen) <ul style="list-style-type: none"> L2: 8



			sunscreens block: absorption Size Matters <ul style="list-style-type: none"> Lesson 3 (L3): Unique Properties at the nanoscale 	<ul style="list-style-type: none"> L3: All Slides L4: 8, 9 Slides (Size Matters) <ul style="list-style-type: none"> L3: 5, 6, 12, 14 Activity/Handout (Clear Sunscreen) <ul style="list-style-type: none"> L3: Reading: Absorption of Light by Matter
		Atomic Structure	Fine Filters <ul style="list-style-type: none"> Lesson 2 (L2): Science of Water 	Slides <ul style="list-style-type: none"> L2: 3-10
		Bonding	Fine Filters <ul style="list-style-type: none"> Lesson 2 (L2): Science of Water 	Slides <ul style="list-style-type: none"> L2: 11-19
	Atomic Interactions	Chemical Reactions (precipitate formation, self-assembly)	Size Matters <ul style="list-style-type: none"> Lesson 1 (L1): Intro to Nanoscience 	Slides <ul style="list-style-type: none"> L1: 17-19 Activity/Handout <ul style="list-style-type: none"> Reading: Intro to Nanoscience Worksheet: Intro to Nanoscience
Nature of Chemistry	Tools of Science	Units & Measurement (size & scale)	Size Matters <ul style="list-style-type: none"> Lesson 1 (L1): Intro to Nanoscience Lesson 2 (L2): Scale of Objects Lesson 6 (L6): One Day Introduction 	Slides <ul style="list-style-type: none"> L1: 1-4 L6: 1-8 Activity/Handout <ul style="list-style-type: none"> L1 <ul style="list-style-type: none"> Reading: Intro to Nanoscience Worksheet: Intro to Nanoscience Handout: Scale Diagram L2 <ul style="list-style-type: none"> Reading: Visualizing the Nanoscale Card Sort/Number Line Activity Scale of Objects Activity Cutting it down activity Quiz: Scale of Small Objects
		Units & Measurement (Instruments)	Size Matters <ul style="list-style-type: none"> Lesson 1 (L1): Intro to Nanoscience Lesson 2 (L2): Scale of Objects Lesson 4 (L4): Tools of Nanoscience 	Slides <ul style="list-style-type: none"> L1: 5-9 L6: 11-14 Activity/Handout <ul style="list-style-type: none"> L1 <ul style="list-style-type: none"> Student Reading: Intro to Nanoscience Worksheet: Intro to Nanoscience



			<ul style="list-style-type: none"> Lesson 6 (L6): One Day Introduction 	<ul style="list-style-type: none"> Handout: Scale Diagram L2 <ul style="list-style-type: none"> Reading: Visualizing the Nanoscale Cutting it down activity L4 <ul style="list-style-type: none"> Black Box Activity Reading: Seeing & Building Small Things Quiz
Chemical Equilibrium	Solutions	<p>Nature of solutions</p> <p>Precipitates</p> <p>Common Ion Effect</p>	<p>Fine Filters</p> <ul style="list-style-type: none"> Lesson 2 (L2): Science of Water Lesson 3 (L3): Nanofiltration 	<p>Slides</p> <ul style="list-style-type: none"> L2: (all) L3: (all) <p>Activity/Handout</p> <ul style="list-style-type: none"> L2 <ul style="list-style-type: none"> Science of Water Labs Reflecting on Guiding Questions L3 <ul style="list-style-type: none"> The Filtration Spectrum Which Method is Best? Cleaning Jarny's Water Comparing Filtration to Nanofiltration Lab Activities
Redox Chemistry	Electrochemistry	Electrochemical cells	<p>Clean Energy</p> <ul style="list-style-type: none"> Lesson 2 (L2): Solar Energy and Nanoscience 	<p>Slides</p> <ul style="list-style-type: none"> L2: (all) <p>Activity/Handout</p> <ul style="list-style-type: none"> Solar Cell Animations Nanocrystalline Solar Lab
Chemistry of our World	Carbon Compounds	Hydrocarbons	<p>Clean Energy</p> <ul style="list-style-type: none"> Lesson 1 (L1): Intro to Clean Energy 	<p>Slides</p> <ul style="list-style-type: none"> L1: 1-11 <p>Activity/Handout</p> <ul style="list-style-type: none"> Reading: Hybrid Cars, Solar Cells, and Nanoscience
		Organic Chemistry	<p>Clear Sunscreen</p> <ul style="list-style-type: none"> Lesson 2 (L2): All About Sunscreens Lesson 3 (L3): Absorption 	<p>Slides</p> <ul style="list-style-type: none"> L2: 5-10 L3: 5-9 <p>Activity/Handout</p> <ul style="list-style-type: none"> L2: Summary of FDA Approved Sunscreen Ingredients