



Content Alignment: High School Biology

Unit Topic	Chapter Topic	Subtopic	NanoSense Lessons	Specific Materials
Nature of Life	Science of Biology	How Scientists Work	Size Matters <ul style="list-style-type: none"> Lesson 1 (L1): Introduction to Nanoscience 	Slides <ul style="list-style-type: none"> L1: 1-4 Activity/Handout <ul style="list-style-type: none"> Scale Diagram: Discuss using question 1-2 from Intro to Nanoscience worksheet
		Studying Life	Size Matters <ul style="list-style-type: none"> Lesson 2 (L2): Scale of Objects 	Slides <ul style="list-style-type: none"> L1: 3 Activity/Handout <ul style="list-style-type: none"> Number Line Student Quiz Reading: Visualizing the Nanoscale
		Tools and Procedure	Size Matters <ul style="list-style-type: none"> Lesson 4 (L4): Tools 	Slides <ul style="list-style-type: none"> L4: 1-11, 12 (optional) Activity/Handout <ul style="list-style-type: none"> Black Box Lab Activity Reading: Seeing and Building Small Things Quiz
Nature of Life	The Chemistry of Life	The Nature of Matter; Properties of Water; Carbon Compounds	Fine Filters <ul style="list-style-type: none"> Lesson 2 (L2): Science of Water Size Matters <ul style="list-style-type: none"> Lesson 3 (L3): Unique Properties at the Nanoscale 	Slides <ul style="list-style-type: none"> L2: 20-32 L3: 1-17 Activity/Handout <ul style="list-style-type: none"> L2 <ul style="list-style-type: none"> Science of Water Labs Science of Water Quiz L3 <ul style="list-style-type: none"> Reading: Size-Dependent Properties Unique Properties Labs Student Quiz Reading: The Personal Touch Reading: Intro to Nanoscience



Ecology	Humans in the Biosphere	Renewable and Nonrenewable Resources	Clean Energy <ul style="list-style-type: none"> Lesson 1 (L1): Intro to Clean Energy Lesson 2 (L2): Solar Energy and Nanoscience 	Slides <ul style="list-style-type: none"> L1: 1-18 L2: 1-18 Activity/Handout <ul style="list-style-type: none"> L1: <ul style="list-style-type: none"> Clean Energy Initial Ideas Reading: Hybrid Cars, Solar Cells, and Nanoscience Student Worksheet L2 <ul style="list-style-type: none"> Nanocrystalline Solar Cell Lab Solar Cell Animations
The Human Body	Nervous System	The Senses Drugs and the Nervous System	Size Matters <ul style="list-style-type: none"> Lesson 5 (L5): Applications of Nanoscience 	Slides L5: 1-2, 9
The Human Body	Skeletal, Muscular, and Integumentary System	The Integumentary System	Clear Sunscreen <ul style="list-style-type: none"> Lesson 1 (L1): Intro to Sun Protection Lesson 2 (L2): All About Sunscreens Lesson 3 (L3): How Sunscreens Block: Absorption Lesson 4 (L4): How Sunscreen Appear: Scattering Lesson 5 (L5): Culminating Activities (Optional) 	Slides <ul style="list-style-type: none"> L1: All slides (S10 optional) L2: All slides L3: <i>Use with instructor's discretion</i> L4: All slides Activity/Handout <ul style="list-style-type: none"> L1: UV Bead Lab L2: <ul style="list-style-type: none"> Sunscreen Ingredients Activity Light Scattering by Three Sunscreens Reflections on the Guiding Questions L3: <i>Use with instructor's discretion [1]</i> L4: <ul style="list-style-type: none"> Reading: Scattering of Light Particles Sunscreens & Sunlight Animations Ad Campaign Project
	Circulatory and Respiratory Systems	The Circulatory System	Size Matters <ul style="list-style-type: none"> Lesson 5 (L5): Applications of Nanoscience 	Slides L5: 1-2, 11
	The Immune	Infectious Disease		Slides L5: 1-2, 12



	System and Disease	Cancer		Slides L5: 1-2, 10
Extensions	Bioethics	Use of Nanotechnology in the Human Arena	Size Matters <ul style="list-style-type: none">• Lesson 5 (L5): Applications of Nanoscience	Any topics covered in L5 or any students may have considered

[1] Clear Sunscreen Lesson 3 requires some schema of chemistry and physics and can be used with biology students but this is at the instructor's discretion. Instructor should gauge student's depth of understanding behind the chemistry and physics concepts used in this particular lesson.