

Options FRMS Science 8B-OR		Scope and Sequence
Unit	Lesson	Objectives
Health-Sexuality		
	Puberty, Gender Identity, and Sexual Orientation	
		Explain the role of the endocrine system in adolescent development.
		Describe factors that influence sexual development, relationships, and behaviors.
		Identify individual differences in gender identity.
		Identify individual differences in sexual orientation.
	Respecting Individual Differences	
		Identify how gender identity and gender expression are different.
		Describe different sexual orientations.
		Describe the role media and bullying play in self-acceptance and acceptance of others.
		Identify ways to respect individual differences.
	Abstinence, Safe Sex, and Making Informed Decisions	
		Describe the benefits of abstinence.
		Compare and contrast a variety of FDA-approved contraceptives.
		Identify factors that influence one's perceptions about sexual activity.
		Identify ways to maintain sexual or reproductive health.
	Conception, Pregnancy, and Birth	
		Explain how conception occurs and the stages of pregnancy.
		Describe practices that are important for the health of a pregnant woman and her fetus.
		Evaluate the physical, social, emotional, legal, and economic effects of teen pregnancy and parenting.
	Test	

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<b>Motion and Forces</b>		
	Speed and Velocity	
		Differentiate between speed and velocity.
		Solve problems involving distance, time, speed, and/or velocity.
		Interpret graphs of distance versus time.
	Acceleration	
		Describe the concept of acceleration.
		Solve problems involving velocity, time, and acceleration.
		Interpret graphs of velocity versus time.
	Lab: Motion	
		Measure distance and time to determine speed.
		Graph changes in motion.
		Interpret data to determine acceleration.
	Introduction to Forces	
		Describe the concept of force.
		Explain how to determine the net force on an object.
		Distinguish between balanced and unbalanced forces and their effect on motion.
	Newton's Laws of Motion	
		Describe Newton's first law of motion and how it relates to inertia.
		Use Newton's second law of motion to calculate force, mass, and acceleration.
		Explain Newton's third law of motion and how it relates to action and reaction forces.
		Identify applications of Newton's three laws of motion.

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	Lab: Newton's Laws of Motion	
		Demonstrate Newton's first law.
		Verify Newton's second law by changing the variables F, m, or a.
	Momentum	
		Define and calculate momentum.
		Explain how momentum is conserved.
		Apply Newton's third law of motion to understand what happens to momentum when two objects collide.
		Use mathematical representations to show that the total momentum of a system of objects is conserved when there is no net force on the system.
	Unit Test	
Energy and Its Uses		
	Introduction to Energy	
		Define energy.
		Explain how energy and work are related.
		Identify and describe the different forms of energy.
	Potential and Kinetic Energy	
		Distinguish between potential and kinetic energy.
		Calculate the potential energy in a system.
		Calculate the kinetic energy in a system.
		Explain how energy is transferred in a moving system.
	Lab: Kinetic Energy	

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		Calculate the kinetic energy of objects of different mass.
		Determine the kinetic energy of objects at different speeds.
		Graph data to illustrate changes in kinetic energy.
	Energy on Earth	
		Distinguish between renewable and nonrenewable resources.
		Identify renewable and nonrenewable resources.
		Identify advantages and disadvantages of various energy sources.
	Unit Test	
<b>Waves, Sound, and Light</b>		
	Introduction to Waves	
		Define waves and explain how they carry energy.
		Distinguish between mechanical waves and electromagnetic waves.
		Compare and contrast transverse waves and longitudinal waves.
	Properties of Waves	
		Describe how a wave's amplitude is related to the energy the wave carries.
		Describe the relationship between the frequency and wavelength of a wave.
		Calculate the speed of a transverse wave.
		Explain why waves travel at different speeds.
		Use mathematical representations to show relationships among the frequency, wavelength, and speed of waves traveling in various media.
	Wave Interactions	
		Explain what happens when waves interact.
		Describe how a wave's direction is changed by reflection, refraction, and diffraction.

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		Differentiate between constructive and destructive interference.
	Sound Waves	
		Describe how sound waves are produced and how they travel.
		Identify the features of a sound wave.
		Explain how different materials and different temperatures affect the speed of sound waves.
	Using Sound	
		Explain how and why animals use echolocation.
		Describe the uses of ultrasound technology.
		Summarize the ways in which sound waves are used for communication.
	The Electromagnetic Spectrum	
		Describe the different parts of the electromagnetic spectrum.
		Distinguish how electromagnetic waves differ from one another.
		Identify how different types of electromagnetic waves are used.
	Properties of Light	
		Describe the wave and particle models of light.
		Explain what happens when light interacts with objects.
		Recognize what determines the color of an object.
	Reflection and Mirrors	
		Explain how light is reflected from a surface.
		Describe the law of reflection.
		Describe how a mirror forms an image.

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	Refraction and Lenses	Identify the types of images formed by different kinds of mirrors.
		Explain how light is refracted when it passes from one medium to another.
		Describe how a lens forms an image.
		Analyze ray diagrams for a lens.
		Identify the types of images formed by different kinds of lenses.
	Unit Test	
<b>Electricity and Magnetism</b>		
	Electric Charge	
		Determine how electric charges interact.
		Explain how electrons cause objects to become electrically charged.
		Analyze the factors that affect the strength of an electric force.
		Describe the electric field due to a charge.
	Electric Current	
		Explain how an electric current is produced.
		Explain the relationship between voltage and an electric current.
		Describe resistance and how it affects current.
		Distinguish between conductors, superconductors, semiconductors, and insulators.
	Ohm's Law	
		Explain the relationship between current, voltage, and resistance (Ohm's law).
		Calculate the voltage, current, or resistance given the other two quantities.
	Magnets and Magnetism	

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		Describe the properties of magnets.
		Determine how magnetic poles interact with each other.
		Illustrate the magnetic field around a magnet.
		Describe Earth's magnetic field.
Unit Test		
Cumulative Exam		
Cumulative Exam Review		
Cumulative Exam		