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Grade Level(s):	9th -12th Grade
Intended Audience:	Science 9-12th Grade Standards Map for the Discipline PHYSICS

**Standards Map - Basic Comprehensive Program
Grades Nine Through Twelve - Science**

Pursuant to the State Board approved, *Science Content Standards for California Public Schools, Kindergarten Through Grade Twelve*
Standards that all students are expected to achieve in the course of their studies are unmarked.
Standards that all students should have the opportunity to learn are marked with an asterisk (*).

Grade	Standard #	Text of Standard	PUBLISHER CITATIONS**			FOR LEA USE ONLY		
			Introduced	Practiced	Taught to Mastery	Meets Standard		Local Education Agency Evaluator Notes
DISCIPLINE		PHYSICS				Y	N	
		Motion and Forces Newton's laws predict the motion of most objects. As a basis for understanding this concept:	SE/TWE: 45, 49, 54, 56, 64, 67, 72, 90, 118, 119, 121, 122, 126, 130, 134, 135, 139, 141, 143, 150, 155, 158, 163, 167, 181, 182, 183, 185, 186, 190, 201, 207, 210, 224, 627, 477, 488, 637, 650, 658, 830, 833 TWE: 161, 660	SE/TWE: 50, 55, 58, 66, 69, 73, 75, 87, 119, 124, 127, 128, 131, 132, 137, 140, 151, 152, 153, 157, 159, 160, 162, 165, 179, 184, 185, 187, 203, 209, 212, 213, 215, 474, 491, 494, 631, 634, 638, 654, 655 TWE:139, 153, 183, 190	SE/TWE: 65, 68, 74, 82, 86, 88, 91, 92, 122, 125, 126, 127, 131, 135, 136, 143, 150, 156, 158, 161, 163, 164, 165, 166, 168, 182, 183, 185, 186, 188, 189, 190, 191, 208, 211, 472, 490, 639, 652, 658, 811, 815, 861, 867 TWE: 158, 209, 212, 833			
9-12	1a	Students know how to solve problems that involve constant speed and average speed.	SE/TWE: 45, 49, 54, 56, 90	SE/TWE: 50, 55, 58, 87	SE/TWE: 82, 86, 88, 91, 92			

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						Y	N	
9-12	1b	Students know that when forces are balanced, no acceleration occurs; thus an object continues to move at a constant speed or stays at rest (Newton's first law).	SE/TWE: 122, 130, 134, 150	SE/TWE: 127, 132, 151 TWE: 139, 153	SE/TWE: 125, 126, 131, 135, 815			
9-12	1c	Students know how to apply the law $F = ma$ to solve one-dimensional motion problems that involve constant forces (Newton's second law).	SE/TWE: 119, 121, 126, 135, 201, 224	SE/TWE: 119, 124, 128, 132, 137, 153, 203	SE/TWE: 125, 126, 136, 165, 811			
9-12	1d	Students know that when one object exerts a force on a second object, the second object always exerts a force of equal magnitude and in the opposite direction (Newton's third law).	SE/TWE: 139, 167, 207, 210, 214	SE/TWE: 140, 209, 212, 213, 215	SE/TWE: 143, 208, 211 TWE: 209, 212			
9-12	1e	Students know the relationship between the universal law of gravitation and the effect of gravity on an object at the surface of Earth.	SE/TWE: 141, 181, 183, 185, 190	SE/TWE: 179, 184, 186, 187 TWE: 183	SE/TWE: 182, 188, 190, 191, 811			
9-12	1f	Students know applying a force to an object perpendicular to the direction of its motion causes the object to change direction but not speed (e.g., Earth's gravitational force causes a satellite in a circular orbit to change direction but not speed).	SE/TWE: 155, 163, 167, 185, 226	SE/TWE: 157, 165, 187, 188 TWE: 184	SE/TWE: 156, 164, 168, 185, 186			
9-12	1g	Students know circular motion requires the application of a constant force directed toward the center of the circle.	SE/TWE: 163, 167	SE/TWE: 165, 187 TWE: 184	SE/TWE: 164, 166, 186			
9-12	1h*	Students know Newton's laws are not exact but provide very good approximations unless an object is moving close to the speed of light or is small enough that quantum effects are important.	SE/TWE: 627, 637, 650, 658, 830 TWE: 660	SE/TWE: 631, 634, 638, 654, 655	SE/TWE: 639, 652, 658, 861, 867			
9-12	1i*	Students know how to solve two-dimensional trajectory problems.	SE/TWE: 155, 158, 163, 185 TWE: 161	SE/TWE: 157, 159, 160, 162, 165, 187	SE/TWE: 156, 161, 164, 186 TWE: 158			
9-12	1j*	Students know how to resolve two-dimensional vectors into their components and calculate the magnitude and direction of a vector from its components.	SE/TWE: 64, 67, 72, 121, 150	SE/TWE: 66, 69, 73, 75, 151, 153, 165	SE/TWE: 65, 68, 74, 156, 158, 163			

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						Y	N	
9-12	1k*	Students know how to solve two-dimensional problems involving balanced forces (statics).	SE/TWE: 118, 130, 143, 150, 833	SE/TWE: 131, 151, 152 TWE: 139, 184	SE/TWE: 122, 127, 131, 150 TWE: 833			
9-12	1l*	Students know how to solve problems in circular motion by using the formula for centripetal acceleration in the following form: $a = v^2 / r$.	SE/TWE: 163, 182, 186	SE/TWE: 165, 187 TWE: 168	SE/TWE: 164, 167, 830			
9-12	1m*	Students know how to solve problems involving the forces between two electric charges at a distance (Coulomb's law) or the forces between two masses at a distance (universal gravitation).	SE/TWE: 181, 186, 470, 488	SE/TWE: 187, 474, 491, 494 TWE: 190	SE/TWE: 183, 189, 472, 490			
		Conservation of Energy and Momentum The laws of conservation of energy and momentum provide a way to predict and describe the movement of objects. As a basis for understanding this concept:	SE/TWE: 200, 207, 210, 214, 225, 249, 252, 258, 260, 262, 591, 635, 637 TWE: 254, 259, 263, 264, 525	SE/TWE: 203, 205, 209, 212, 213, 250, 254, 257, 261, 264 TWE: 204, 208, 252, 265, 275	SE/TWE: 201, 206, 207, 208, 210, 214, 249, 252, 259, 260, 262, 263, 629, 636, 826, 829, 867 TWE: 212, 254, 255, 264			
9-12	2a	Students know how to calculate kinetic energy by using the formula $E = (1/2)mv^2$.	SE/TWE: 225, 249, 262 TWE: 259	SE/TWE: 250, 257, 261, 264 TWE: 275	SE/TWE: 249, 259, 263, 829, 867			
9-12	2b	Students know how to calculate changes in gravitational potential energy near Earth by using the formula (change in potential energy) = mgh (h is the change in the elevation).	SE/TWE: 252 TWE: 254	SE/TWE: 254, 257, 261 TWE: 252	SE/TWE: 252, 259 TWE: 254, 255			
9-12	2c	Students know how to solve problems involving conservation of energy in simple systems, such as falling objects.	SE/TWE: 252, 258 TWE: 264	SE/TWE: 254, 257, 261, 264	SE/TWE: 259, 260, 262			
9-12	2d	Students know how to calculate momentum as the product mv .	SE/TWE: 200, 262, 637	SE/TWE: 203, 205, 209, 212, 213	SE/TWE: 206, 208, 263, 826			

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						Y	N	
9-12	2e	Students know momentum is a separately conserved quantity different from energy.	SE/TWE: 207, 210, 214, 262	SE/TWE: 209, 212, 257, 264 TWE: 208	SE/TWE: 208, 263, 636 TWE: 212			
9-12	2f	Students know an unbalanced force on an object produces a change in its momentum.	SE/TWE: 200, 207, 635	SE/TWE: 203, 205, 209, 212, 213	SE/TWE: 201, 210, 214, 636, 826			
9-12	2g	Students know how to solve problems involving elastic and inelastic collisions in one dimension by using the principles of conservation of momentum and energy.	SE/TWE: 200, 207, 258, 262 TWE: 263	SE/TWE: 209, 264 TWE: 204, 265	SE/TWE: 207, 263 TWE: 264			
9-12	2h*	Students know how to solve problems involving conservation of energy in simple systems with various sources of potential energy, such as capacitors and springs.	SE/TWE: 258, 260, 591 TWE: 525	SE/TWE: 254, 261, 264	SE/TWE: 252, 259, 262, 629			
		Heat and Thermodynamics Energy cannot be created or destroyed, although in many processes energy is transferred to the environment as heat. As a basis for understanding this concept:	SE/TWE: 224, 227, 273, 274, 275, 276, 286, 289, 291, 312, 314 TWE: 278, 282	SE/TWE: 226, 230, 280, 281, 283, 284, 288, 846 TWE: 276, 289, 292	SE/TWE: 225, 228, 275, 278, 278, 282, 290, 291, 292, 294, 845 TWE: 293			
9-12	3a	Students know heat flow and work are two forms of energy transfer between systems.	SE/TWE: 224, 227, 275, 289 TWE: 282	SE/TWE: 226, 230, 280, 281, 283	SE/TWE: 225, 228, 278, 282, 291			
9-12	3b	Students know that the work done by a heat engine that is working in a cycle is the difference between the heat flow into the engine at high temperature and the heat flow out at a lower temperature (first law of thermodynamics) and that this is an example of the law of conservation of energy.	SE/TWE: 273, 289	TWE: 289	SE/TWE: 290 TWE: 291			

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9-12	3c	Students know the internal energy of an object includes the energy of random motion of the object's atoms and molecules, often referred to as thermal energy. The greater the temperature of the object, the greater the energy of motion of the atoms and molecules that make up the object.	SE/TWE: 274, 276, 312, 314 TWE: 278	SE/TWE: 281, 284, 846 TWE: 276	SE/TWE: 275, 278, 291, 845 TWE: 293			
9-12	3d	Students know that most processes tend to decrease the order of a system over time and that energy levels are eventually distributed uniformly.	SE/TWE: 275, 286, 291	SE/TWE: 281, 288	SE/TWE: 278, 282, 292, 294			
9-12	3e	Students know that entropy is a quantity that measures the order or disorder of a system and that this quantity is larger for a more disordered system.	SE/TWE: 291	TWE: 292	SE/TWE: 292, 294 TWE: 293			
9-12	3f*	Students know the statement "Entropy tends to increase" is a law of statistical probability that governs all closed systems (second law of thermodynamics).	SE/TWE: 291	TWE: 292	SE/TWE: 292, 294 TWE: 293			
9-12	3g*	Students know how to solve problems involving heat flow, work, and efficiency in a heat engine and know that all real engines lose some heat to their surroundings.	SE/TWE: 278, 289 TWE: 273, 291	SE/TWE: 280, 281	SE/TWE: 275, 278, 291 TWE: 293			
		Waves Waves have characteristic properties that do not depend on the type of wave. As a basis for understanding this concept:	SE/TWE: 327, 328, 329, 334, 349, 350, 351, 363, 373, 394, 403, 444, 613, 619, 637, 659 TWE: 348, 354, 363, 376	SE/TWE: 330, 333, 351, 361, 362, 377, 380, 399, 401, 446, 448, 632 TWE: 332, 638, 652	SE/TWE: 328, 331, 340, 351, 354, 357, 358, 359, 360, 364, 374, 375, 386, 400, 447, 449, 450, 452, 615, 639, 855 TWE: 350, 363, 364			
9-12	4a	Students know waves carry energy from one place to another.	SE/TWE: 327, 350, 637, 659	SE/TWE: 333, 380, 632 TWE: 638, 652	SE/TWE: 328, 357, 615, 639, 855			

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						Y	N	
9-12	4b	Students know how to identify transverse and longitudinal waves in mechanical media, such as springs and ropes, and on the earth (seismic waves).	SE/TWE: 328, 334, 350, 363	SE/TWE: 330 TWE: 332, 352, 358	SE/TWE: 328, 351, 358, 364 TWE: 363			
9-12	4c	Students know how to solve problems involving wavelength, frequency, and wave speed.	SE/TWE: 329, 351, 444 TWE: 354	SE/TWE: 330, 333, 351, 361, 446, 448	SE/TWE: 331, 358, 375, 447, 450			
9-12	4d	Students know sound is a longitudinal wave whose speed depends on the properties of the medium in which it propagates.	SE/TWE: 349 TWE: 348, 363	SE/TWE: 361, 362	SE/TWE: 351, 359, 360 TWE: 350, 364			
9-12	4e	Students know radio waves, light, and X-rays are different wavelength bands in the spectrum of electromagnetic waves whose speed in a vacuum is approximately 3x10 ⁸ m/s (186,000 miles/second).	SE/TWE: 373, 613, 619 TWE: 376	SE/TWE: 377, 399, 401, 446	SE/TWE: 374, 400, 615, 620, 855			
9-12	4f	Students know how to identify the characteristic properties of waves: interference (beats), diffraction, refraction, Doppler effect, and polarization.	SE/TWE: 329, 350, 394, 403, 444	SE/TWE: 330, 333, 351, 362, 399	SE/TWE: 340, 354, 386, 449, 452, 855			

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					Y	N		
		Electric and Magnetic Phenomena Electric and magnetic phenomena are related and have many practical applications. As a basis for understanding this concept:	SE/TWE: 252, 320, 462, 481, 482, 484, 488, 489, 490, 497, 508, 512, 520, 532, 541, 542, 547, 558, 560, 567, 570, 572, 582, 586, 590, 613, 619, 670, 678, 679 TWE: 482, 487, 538, 540, 571, 591, 594, 596	SE/TWE: 254, 261, 467, 483, 484, 491, 492, 494, 496, 500, 511, 514, 518, 521, 522, 524, 536, 539, 545, 546, 562, 564, 569, 573, 584, 585, 674, 677, 681, 684 TWE: 252, 466, 538, 560, 572, 583, 588	SE/TWE: 258, 320, 464, 482, 484, 488, 490, 493, 497, 498, 510, 512, 516, 522, 533, 538, 543, 548, 561, 563, 567, 570, 572, 583, 588, 592, 615, 616, 619, 673, 675, 680, 682, 730, 855 TWE: 483, 500, 515, 521, 544, 571			
9-12	5a	Students know how to predict the voltage or current in simple direct current (DC) electric circuits constructed from batteries, wires, resistors, and capacitors.	SE/TWE: 508, 512, 532, 547 TWE: 538, 540	SE/TWE: 511, 514, 518, 536, 539, 546	SE/TWE: 510, 512, 516, 533, 538, 548			
9-12	5b	Students know how to solve problems involving Ohm's law.	SE/TWE: 512, 547 TWE: 532, 540	SE/TWE: 514, 518, 536, 539 TWE: 538	SE/TWE: 512, 533, 538, 543 TWE: 515			
9-12	5c	Students know any resistive element in a DC circuit dissipates energy, which heats the resistor. Students can calculate the power (rate of energy dissipation) in any resistive circuit element by using the formula $Power = IR$ (potential difference) x I (current) = $I^2 R$.	SE/TWE: 520, 541, 542 TWE: 591, 594	SE/TWE: 521, 522, 524, 545	SE/TWE: 522, 543 TWE: 521, 544			
9-12	5d	Students know the properties of transistors and the role of transistors in electric circuits.	SE/TWE: 670, 678, 679	SE/TWE: 674, 677, 681, 684	SE/TWE: 673, 675, 680, 682			

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						Y	N	
9-12	5e	Students know charged particles are sources of electric fields and are subject to the forces of the electric fields from other charges.	SE/TWE: 481, 484, 490, 497 TWE: 482	SE/TWE: 483, 491, 492, 494, 496, 500	SE/TWE: 482, 488, 493, 498 TWE: 483			
9-12	5f	Students know magnetic materials and electric currents (moving electric charges) are sources of magnetic fields and are subject to forces arising from the magnetic fields of other sources.	SE/TWE: 558, 560, 570, 572, 613	SE/TWE: 562, 569, 573 TWE: 560, 572	SE/TWE: 567, 570, 615, 619, 855 TWE: 571			
9-12	5g	Students know how to determine the direction of a magnetic field produced by a current flowing in a straight wire or in a coil.	SE/TWE: 560	SE/TWE: 562, 564	SE/TWE: 561, 563			
9-12	5h	Students know changing magnetic fields produce electric fields, thereby inducing currents in nearby conductors.	SE/TWE: 582, 586, 590, 613 TWE: 596	SE/TWE: 584, 585 TWE: 583, 588	SE/TWE: 583, 588, 592, 615, 619			
9-12	5i	Students know plasmas, the fourth state of matter, contain ions or free electrons or both and conduct electricity.	SE/TWE: 320-321		SE/TWE: 320-321, 730			
9-12	5j*	Students know electric and magnetic fields contain energy and act as vector force fields.	SE/TWE: 482, 488, 560, 567, 590	SE/TWE: 483, 484, 491, 492, 494, 569, 573	SE/TWE: 484, 490, 493, 570, 572, 619			
9-12	5k*	Students know the force on a charged particle in an electric field is qE , where E is the electric field at the position of the particle and q is the charge of the particle.	SE/TWE: 482, 488, 490, 619	SE/TWE: 483, 484, 491, 492, 494	SE/TWE: 482, 490, 493, 616 TWE: 500			
9-12	5l*	Students know how to calculate the electric field resulting from a point charge.	SE/TWE: 482, 489	SE/TWE: 483, 491, 492, 494	SE/TWE: 490, 493			
9-12	5m*	Students know static electric fields have as their source some arrangement of electric charges.	SE/TWE: 462, 482 TWE: 487	SE/TWE: 467, 483, 491, 492, 494, 496 TWE: 466	SE/TWE: 464, 484, 490, 493, 498			

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						Y	N	
9-12	5n*	Students know the magnitude of the force on a moving particle (with charge q) in a magnetic field is $qvB \sin(a)$, where a is the angle between v and B (v and B are the magnitudes of vectors v and B, respectively), and students use the right-hand rule to find the direction of this force.	SE/TWE: 572 TWE: 571	SE/TWE: 573	SE/TWE: 572 TWE: 571			
9-12	5o*	Students know how to apply the concepts of electrical and gravitational potential energy to solve problems involving conservation of energy.	SE/TWE: 252, 488	SE/TWE: 254, 261, 492, 496 TWE: 252	SE/TWE: 258, 490, 497			
DISCIPLINE	INVESTIGATION AND EXPERIMENTATION	Scientific progress is made by asking meaningful questions and conducting careful investigations. As a basis for understanding this concept and addressing the content in the other four strands, students should develop their own questions and perform investigations. Students will:	SE/TWE: 12, 32, 58, 69, 100, 137, 162, 179, 213, 232, 257, 281, 308, 330, 362, 377, 399, 433, 446, 467, 496, 518, 545, 562, 595, 612, 634, 656, 684, 700, 727	SE/TWE: 12, 32, 58, 69, 100, 137, 162, 179, 213, 232, 257, 281, 308, 330, 362, 377, 399, 433, 446, 467, 496, 518, 545, 562, 595, 612, 634, 656, 684, 700, 727	SE/TWE: 12, 32, 58, 69, 100, 137, 162, 179, 213, 232, 257, 281, 308, 330, 362, 377, 399, 433, 446, 467, 496, 518, 545, 562, 595, 612, 634, 656, 684, 700, 727			
9-12	1a	Select and use appropriate tools and technology (such as computer-linked probes, spreadsheets, and graphing calculators) to perform tests, collect data, analyze relationships, and display data.	SE/TWE: 12, 32, 58, 69, 100, 137, 162, 179, 213, 232, 257, 281, 308, 330, 362, 377, 399, 433, 446, 467, 496, 518, 545, 562, 595, 612, 634, 656, 684, 700, 727	SE/TWE: 12, 32, 58, 69, 100, 137, 162, 179, 213, 232, 257, 281, 308, 330, 362, 377, 399, 433, 446, 467, 496, 518, 545, 562, 595, 612, 634, 656, 684, 700, 727	SE/TWE: 12, 32, 58, 69, 100, 137, 162, 179, 213, 232, 257, 281, 308, 330, 362, 377, 399, 433, 446, 467, 496, 518, 545, 562, 595, 612, 634, 656, 684, 700, 727			

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9-12	1b	Identify and communicate sources of unavoidable experimental error.	SE/TWE: 32, 34, 58, 100, 162, 232, 257, 330, 545, 562, 595	SE/TWE: 32, 36, 58, 100, 162, 232, 257, 330, 545, 562, 595	SE/TWE: 32, 36, 58, 100, 162, 232, 257, 330, 545, 562, 595			
9-12	1c	Identify possible reasons for inconsistent results, such as sources of error or uncontrolled conditions.	SE/TWE: 24, 29, 32, 58, 100, 162, 232, 257, 330, 545, 562, 595	SE/TWE: 29, 32, 58, 100, 162, 232, 257, 330, 545, 562, 595	SE/TWE: 29, 32, 58, 100, 162, 232, 257, 330, 545, 562, 595			
9-12	1d	Formulate explanations by using logic and evidence.	SE/TWE: 12, 32, 58, 69, 100, 137, 162, 179, 213, 232, 257, 281, 308, 330, 362, 377, 399, 433, 446, 467, 496, 518, 545, 562, 595, 612, 634, 656, 684, 700, 727	SE/TWE: 12, 32, 58, 69, 100, 137, 162, 179, 213, 232, 257, 281, 308, 330, 362, 377, 399, 433, 446, 467, 496, 518, 545, 562, 595, 612, 634, 656, 684, 700, 727 TWE: 161	SE/TWE: 12, 32, 58, 69, 100, 137, 162, 179, 213, 232, 257, 281, 308, 330, 362, 377, 399, 433, 446, 467, 496, 518, 545, 562, 595, 612, 634, 656, 684, 700, 727			
9-12	1e	Solve scientific problems by using quadratic equations and simple trigonometric, exponential, and logarithmic functions.	SE/TWE: 16, 23, 30-34, 37, 53-57, 470-472, 474-476, 652-655, 657, 743-747	SE/TWE: 23, 32, 36, 38, 39, 40, 41, 57, 60, 61, 476, 479, 656, 657, 765 TWE: 34	SE/TWE: 36, 38, 39, 40, 41, 60, 61, 476, 479, 656, 657, 765, 777			
9-12	1f	Distinguish between hypothesis and theory as scientific terms.	SE/TWE: 4, 5, 10, 191-192, 652 TWE: 695	SE/TWE: 13, 192 TWE: 11	SE/TWE: 13, 192 TWE: 11			

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9-12	1g	Recognize the usefulness and limitations of models and theories as scientific representations of reality.	SE/TWE: 11, 126-137, 142, 191-192, 453, 473, 549, 565, 618, 646-654, 709	SE/TWE: 13, 136, 137, 142, 192, 473, 549, 565, 618, 667, 709 TWE: 10, 11	SE/TWE: 13, 136, 137, 192, 473, 549, 565, 618, 709 TWE: 10, 11			
9-12	1h	Read and interpret topographic and geologic maps.						

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 Science 9-12th Grade Standards Map Approved by the State Board of Education on Feb. 6, 2002.

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						Y	N	
9-12	1i	Analyze the locations, sequences, or time intervals that are characteristic of natural phenomena (e.g., relative ages of rocks, locations of planets over time, and succession of species in an ecosystem).	SE/TWE: 193, 694-695	SE/TWE: 196, 715	SE/TWE: 196, 715			
9-12	1j	Recognize the issues of statistical variability and the need for controlled tests.	SE/TWE: 32, 34, 58, 100, 162, 232, 257, 330, 545, 562, 595	SE/TWE: 32, 36, 58, 100, 162, 232, 257, 330, 545, 562, 595	SE/TWE: 32, 36, 58, 100, 162, 232, 257, 330, 545, 562, 595			
9-12	1k	Recognize the cumulative nature of scientific evidence.	SE/TWE: 6, 11, 117, 119, 144, 149, 175, 181, 191-192, 646-647, 650-654, 691 TWE: 10, 135	SE/TWE: 13, 184, 192, 193, 197, 667 TWE: 10, 11, 135, 283	SE/TWE: 13, 184, 192, 193, 197, 667 TWE: 10, 11, 283			
9-12	1l	Analyze situations and solve problems that require combining and applying concepts from more than one area of science.	SE/TWE: 18, 56, 89, 130, 158, 202, 238, 263, 289, 312, 335, 363, 437, 456, 493, 515, 566, 583, 620, 649, 663, 723	SE/TWE: 18, 56, 89, 130, 158, 202, 238, 263, 289, 312, 335, 363, 437, 456, 493, 515, 566, 583, 620, 649, 663, 723 TWE: 33, 121, 153	SE/TWE: 18, 56, 89, 130, 158, 202, 238, 263, 289, 312, 335, 363, 437, 456, 493, 515, 566, 583, 620, 649, 663, 723			
9-12	1m	Investigate a science-based societal issue by researching the literature, analyzing data, and communicating the findings. Examples of issues include irradiation of food, cloning of animals by somatic cell nuclear transfer, choice of energy sources, and land and water use decisions in California.	SE/TWE: 8, 10, 70, 266, 334, 356, 486, 587, 683	SE/TWE: 8, 70, 266, 334, 356, 486, 587, 683 TWE: 703	SE/TWE: 8, 70, 266, 334, 356, 486, 587, 683 TWE: 703			

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			Introduced	Practiced	Taught to Mastery	Meets Standard		Local Education Agency Evaluator Notes
					Y	N		
9-12	1n	Know that when an observation does not agree with an accepted scientific theory, the observation is sometimes mistaken or fraudulent (e.g., the Piltdown Man fossil or unidentified flying objects) and that the theory is sometimes wrong (e.g., the Ptolemaic model of the movement of the Sun, Moon, and planets).	SE/TWE: 4-6, 117, 175, 176-177, 185	SE/TWE: 5, 15, 184, 197 TWE: 4, 7, 10, 132	SE/TWE: 5, 13, 184, 197 TWE: 10			

* For more information, see Notes.
 Science 9-12th Grade Standards Map Approved by the State Board of Education on Feb. 6, 2002.