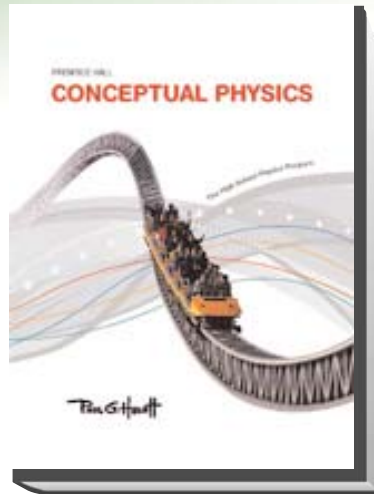


High School

Prentice Hall

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C O R R E L A T E D T O

Correlation to the Mississippi Curriculum Frameworks - Physics
(High School)

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CORRELATION TO THE MISSISSIPPI CURRICULUM FRAMEWORKS

PHYSICS
(HIGH SCHOOL)

CONTENT STRANDS:

Inquiry

Physical Science

1. INQUIRY - Apply inquiry-based and problem-solving processes and skills to scientific investigations.		
Objectives	Pupil Edition Page References	Teacher Edition Page References
a. Use current technologies such as CD-ROM, DVD, Internet, and on-line data search to explore current research related to a specific topic. (DOK 3)	163, 204, 236, 248, 275, 481, 526, 648, 727, 756	163, 204, 236, 248, 275, 481, 526, 648, 727, 756
b. Clarify research questions and design laboratory investigations. (DOK 3)	12, 28, 46, 55, 68, 75-76, 86, 88, 97, 106, 109, 124, 132, 144, 147, 170, 173, 179, 188, 190, 200, 212, 215, 232, 253, 262, 267, 282, 302, 324, 326, 344, 352, 362, 364, 369, 382, 387, 406, 409, 419, 430, 433, 436, 450, 455, 468, 471, 478, 490, 494, 514, 532, 539, 544, 554, 559,	12, 28, 46, 55, 68, 75-76, 86, 88, 97, 106, 109, 124, 132, 144, 147, 170, 173, 179, 188, 190, 200, 212, 215, 232, 253, 262, 267, 282, 302, 324, 326, 344, 352, 362, 364, 369, 382, 387, 406, 409, 419, 430, 433, 436, 450, 455, 468, 471, 478, 490, 494, 514, 532, 539, 544, 554, 559,

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CORRELATION TO THE MISSISSIPPI CURRICULUM FRAMEWORKS

PHYSICS
(HIGH SCHOOL)

	563, 578, 581, 590, 602, 615, 622, 627, 632, 644, 655, 664, 680, 702, 720, 725, 740, 766, 782, 808	563, 578, 581, 590, 602, 615, 622, 627, 632, 644, 655, 664, 680, 702, 720, 725, 740, 766, 782, 808
c. Demonstrate the use of scientific inquiry and methods to formulate, conduct, and evaluate laboratory investigations (e.g., hypotheses, experimental design, observations, data analyses, interpretations, theory development). (DOK 3)	12, 28, 46, 55, 68, 75-76, 86, 88, 97, 106, 109, 124, 132, 144, 147, 170, 173, 179, 188, 190, 200, 212, 215, 232, 253, 262, 267, 282, 302, 324, 326, 344, 352, 362, 364, 369, 382, 387, 406, 409, 419, 430, 433, 436, 450, 455, 468, 471, 478, 490, 494, 514, 532, 539, 544, 554, 559, 563, 578, 581, 590, 602, 615, 622, 627, 632, 644, 655, 664, 680, 702, 720, 725, 740, 766, 782, 808	12, 28, 46, 55, 68, 75-76, 86, 88, 97, 106, 109, 124, 132, 144, 147, 170, 173, 179, 188, 190, 200, 212, 215, 232, 253, 262, 267, 282, 302, 324, 326, 344, 352, 362, 364, 369, 382, 387, 406, 409, 419, 430, 433, 436, 450, 455, 468, 471, 478, 490, 494, 514, 532, 539, 544, 554, 559, 563, 578, 581, 590, 602, 615, 622, 627, 632, 644, 655, 664, 680, 702, 720, 725, 740, 766, 782, 808
d. Organize data to construct graphs (e.g., plotting points, labeling x-and y-axis, creating appropriate titles and legends for circle, bar, and line graphs) draw	834-836	834-836

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PHYSICS
(HIGH SCHOOL)

conclusions and make inferences. (DOK 3)		
e. Evaluate procedures, data, and conclusions to critique the scientific validity of research. (DOK 3)	12, 28, 46, 55, 68, 75-76, 86, 88, 97, 106, 109, 124, 132, 144, 147, 170, 173, 179, 188, 190, 200, 212, 215, 232, 253, 262, 267, 282, 302, 324, 326, 344, 352, 362, 364, 369, 382, 387, 406, 409, 419, 430, 433, 436, 450, 455, 468, 471, 478, 490, 494, 514, 532, 539, 544, 554, 559, 563, 578, 581, 590, 602, 615, 622, 627, 632, 644, 655, 664, 680, 702, 720, 725, 740, 766, 782, 808	12, 28, 46, 55, 68, 75-76, 86, 88, 97, 106, 109, 124, 132, 144, 147, 170, 173, 179, 188, 190, 200, 212, 215, 232, 253, 262, 267, 282, 302, 324, 326, 344, 352, 362, 364, 369, 382, 387, 406, 409, 419, 430, 433, 436, 450, 455, 468, 471, 478, 490, 494, 514, 532, 539, 544, 554, 559, 563, 578, 581, 590, 602, 615, 622, 627, 632, 644, 655, 664, 680, 702, 720, 725, 740, 766, 782, 808
f. Formulate and revise scientific explanations and models using logic and evidence (data analysis). (DOK 3)	12, 28, 46, 68, 86, 88, 97, 106, 124, 132, 144, 147, 170, 173, 179, 188, 190,	12, 28, 46, 68, 86, 88, 97, 106, 124, 132, 144, 147, 170, 173, 179, 188, 190,

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PHYSICS
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	200, 212, 215, 232, 253, 262, 282, 302, 324, 326, 344, 362, 364, 369, 382, 387, 406, 409, 419, 430, 433, 436, 450, 455, 468, 471, 478, 490, 494, 514, 532, 539, 544, 554, 559, 563, 578, 581, 590, 602, 615, 622, 627, 632, 644, 655, 664, 680, 702, 720, 725, 740, 766, 782, 808	200, 212, 215, 232, 253, 262, 282, 302, 324, 326, 344, 362, 364, 369, 382, 387, 406, 409, 419, 430, 433, 436, 450, 455, 468, 471, 478, 490, 494, 514, 532, 539, 544, 554, 559, 563, 578, 581, 590, 602, 615, 622, 627, 632, 644, 655, 664, 680, 702, 720, 725, 740, 766, 782, 808
g. Collect, analyze, and draw conclusions from data to create a formal presentation using available technology (e.g., computers, calculators, SmartBoard, CBL's, etc.) (DOK 3)	12, 28, 46, 55, 68, 75-76, 86, 88, 97, 106, 109, 124, 132, 144, 147, 170, 173, 179, 188, 190, 200, 212, 215, 232, 253, 262, 267, 282, 302, 324, 326, 344, 352, 362, 364, 369, 382, 387, 406, 409, 419, 430, 433, 436, 450,	12, 28, 46, 55, 68, 75-76, 86, 88, 97, 106, 109, 124, 132, 144, 147, 170, 173, 179, 188, 190, 200, 212, 215, 232, 253, 262, 267, 282, 302, 324, 326, 344, 352, 362, 364, 369, 382, 387, 406, 409, 419, 430, 433, 436, 450,

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PHYSICS
(HIGH SCHOOL)

	455, 468, 471, 478, 490, 494, 514, 532, 539, 544, 554, 559, 563, 578, 581, 590, 602, 615, 622, 627, 632, 644, 655, 664, 680, 702, 720, 725, 740, 766, 782, 808	455, 468, 471, 478, 490, 494, 514, 532, 539, 544, 554, 559, 563, 578, 581, 590, 602, 615, 622, 627, 632, 644, 655, 664, 680, 702, 720, 725, 740, 766, 782, 808
2. PHYSICAL SCIENCE - Develop an understanding of concepts related to forces and motion.		
Objectives	Pupil Edition Page References	Teacher Edition Page References
a. Use inquiry to investigate and develop an understanding of the kinematics and dynamics of physical bodies. (DOK 3)		
• Vector and scalar quantities	14, 24, 69, 80-81	14, 24, 69, 80-81
• Vector problems (solved mathematically and graphically)	19-22, 23, 25, 27, 70-73, 80-84	19-22, 23, 25, 27, 70-73, 80-84
• Vector techniques and free-body diagrams to determine the net force on a body when several forces are acting on it	91	91
• Relations among mass, inertia, and weight	36-38, 40-43, 45	36-38, 40-43, 45

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PHYSICS
(HIGH SCHOOL)

b. Analyze, describe, and solve problems by creating and utilizing graphs of one dimensional motion (e.g., position, distance, displacement, time, speed, velocity, acceleration, the special case of freefall). (DOK 2)	57-58, 61-64	57-58, 61-64
c. Analyze real-world applications to draw conclusions about Newton's three laws of motion. (DOK 2)	33-34, 40-41, 43, 88-89, 93-95, 98-99, 101-105, 108-116, 117-123	33-34, 40-41, 43, 88-89, 93-95, 98-99, 101-105, 108-116, 117-123
d. Apply the effects of the universal gravitation law to graph and interpret the force between two masses, acceleration due to gravity, and planetary motion. (DOK 2)		
• Situations where g is constant (falling bodies)	53-55, 61-63, 93-95, 98-99, 102-103, 232-243, 255-261	53-55, 61-63, 93-95, 98-99, 102-103, 232-243, 255-261
• Concept of centripetal acceleration undergoing uniform circular motion	175-177, 181-182	175-177, 181-182
• Kepler's third law	272, 276-277	272, 276-277
• Oscillatory motion and the mechanics of waves	490-506, 507-513	490-506, 507-513
3. Develop an understanding of concepts related to work and energy.		
a. Explain and apply the conservation of energy and momentum. (DOK 2)		

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PHYSICS
(HIGH SCHOOL)

• Concept of work and applications	145-146, 151-152, 164-165, 168	145-146, 151-152, 164-165, 168
• Concept of kinetic energy, using the elementary work-energy theorem	150-152, 164-169	150-152, 164-169
• Concept of conservation of energy with simple examples	153-154, 164-166	153-154, 164-166
• Concepts of energy, work, and power (qualitatively and quantitatively)	144-154, 164-169	144-154, 164-169
• Principles of impulse in inelastic and elastic collisions	132-134, 137, 139, 141-142	132-134, 137, 139, 141-142
b. Analyze real-world applications to draw conclusions about mechanical potential energy (the energy of configuration). (DOK 3)	148-149, 164-167, 169	148-149, 164-167, 169
c. Apply the principles of impulse and compare conservation of momentum and conservation of kinetic energy in perfectly inelastic and elastic collisions. (DOK 1)	125-135, 137-143	125-135, 137-143
d. Investigate and summarize the principles of thermodynamics. (DOK 2)		
• How heat energy is transferred from higher temperature to lower temperature until equilibrium is reached	409-410, 423-424	409-410, 423-424
• Temperature and thermal energy as related to molecular motion and states of matter	408, 423	408, 423

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• Problems involving specific heat and heat capacity	413-416, 423-424, 426-427, 429	413-416, 423-424, 426-427, 429
• First and second laws of thermodynamics as related to heat engines, refrigerators, and thermal efficiency	470-471, 474-478, 482-487	470-471, 474-478, 482-487
e. Develop the kinetic theory of ideal gases and explain the concept of Carnot efficiency. (DOK 2)	476-478, 483-484, 487	476-478, 483-484, 487
4. Discuss the characteristics and properties of light and sound.		
a. Describe and model the characteristics and properties of mechanical waves. (DOK 2)		
• Simple harmonic motion	491-493, 508	491-493, 508
• Relationships among wave characteristics such as velocity, period, frequency, amplitude, phase, and wavelength	491-493, 507-508	491-493, 507-508
• Energy of a wave in terms of amplitude and frequency.	492-493, 508	492-493, 508
• Standing waves and waves in specific media (e.g., stretched string, water surface, air, etc.)	490, 493-495, 497, 500-501, 507-508, 510-513	490, 493-495, 497, 500-501, 507-508, 510-513

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PHYSICS
(HIGH SCHOOL)

b. Differentiate and explain the Doppler effect as it relates to a moving source and to a moving observer. (DOK 1)	501-503	501-503
c. Explain the laws of reflection and refraction and apply Snell's law to describe the relationship between the angles of incidence and refraction. (DOK 2)	580, 587-588, 596-597, 599, 908	580, 587-588, 596-597, 599, 908
d. Use ray tracing and the thin lens equation to solve real-world problems involving object distance from lenses. (DOK 2)	606-609, 618, 620, 904	606-609, 618, 620, 904
e. Investigate and draw conclusions about the characteristics and properties of electromagnetic waves. (DOK 2)	536, 547-549	536, 547-549
5. Apply an understanding of magnetism, electric fields, and electricity.		
a. Analyze and explain the relationship between electricity and magnetism. (DOK 2)		
• Characteristics of static charge and how a static charge is generated	655-657, 658, 660-662	655-657, 658, 660-662
• Electric field, electric potential, current, voltage, and resistance as related to Ohm's Law	685, 695-696, 698-701	685, 695-696, 698-701
• Magnetic poles, magnetic flux and field, Ampère's law and Faraday's law	720-724, 726-727, 734-738, 743, 751, 757-760, 763	720-724, 726-727, 734-738, 743, 751, 757-760, 763

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PHYSICS
(HIGH SCHOOL)

• Coulomb's Law	648-650, 658-659, 661-663	648-650, 658-659, 661-663
b. Use schematic diagrams to analyze the current flow in series and parallel electric circuits, given the component resistances and the imposed electric potential. (DOK 2)	709-711, 715, 718	709-711, 715, 718
c. Analyze and explain the relationship between magnetic fields and electrical current by induction, generators, and electric motors. (DOK 2)	730-731, 734, 736, 738, 741-746, 751, 757-762	730-731, 734, 736, 738, 741-746, 751, 757-762
6. Analyze and explain concepts of nuclear physics.		
a. Analyze and explain the principles of nuclear physics. (DOK 1)		
• The mass number and atomic number of the nucleus of an isotope of a given chemical element	788-789, 805	788-789, 805
• The conservation of mass and the conservation of charge	646-647, 659	646-647, 659
• Nuclear decay	785-786, 790-794, 796-798, 802-807	785-786, 790-794, 796-798, 802-807
b. Defend the wave-particle duality model of light, using observational evidence. (DOK 3)		

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PHYSICS
(HIGH SCHOOL)

• Quantum energy and emission spectra	768, 779	768, 779
• Photoelectric and Compton effects	533, 769-770, 778-780	533, 769-770, 778-780

- All competencies and objectives must be listed even though you may not correlate to the competencies and/or objectives. Please write "NA" in the page reference if there is no correlation.
- If you have an annotated teacher edition (ATE), then you may correlate to that one book as it contains both the pupil and teacher edition. Please indicate that you are correlating to the ATE.
- If you have a series of books that are being submitted, please do a correlation for each book. Each book's correlation should stand-alone.