

Field 243 – Physics

Alignment of Test Framework Objectives with State and National Standards

Illinois Licensure Testing System Framework Objectives for Physics	State Board of Education Rules- Title 23 of the Illinois Administrative Code–27.140	Next Generation Science Standards	National Science Teacher Association Standards for Science Teacher Preparation
Subarea I: Science Process Skills			
0001 Understand practices of science and engineering.	a, b, i, o, p, q	MS-ETS1-1, MS-ETS1-2, MS-ETS1-3, MS-ETS1-4, SEP1–8	
0002 Understand crosscutting concepts and their applications across science and engineering disciplines.	j, k, o, p, q	CCC1–7	
0003 Understand the process of reading, and apply knowledge of strategies for promoting students' reading development in the science classroom.	s		
Subarea II: Disciplinary Core Ideas			
0004 Understand the disciplinary core ideas of chemistry.	b, e, o, p, q	MS-PS1-1, MS-PS1-2, MS-PS1-4, MS-PS1-5, MS-PS1-6, MS-PS3-4, HS-PS1-1, HS-PS1-2, HS-PS1-4, HS-PS1-5, HS-PS1-6, HS-PS1-7, HS-PS1-8, HS-PS2-6, SEP1, 2, 4, 5, 6, 8, CCC1–7	
0005 Understand the disciplinary core ideas of physics.	b, e, f, o, p, q	MS-PS2-1, MS-PS2-2, MS-PS2-3, MS-PS2-4, MS-PS2-5, MS-PS3-1, MS-PS3-2, MS-PS3-3, MS-PS3-4, MS-PS3-5, MS-PS4-1, MS-PS4-2, MS-PS4-3, HS-PS2-1, HS-PS2-2, HS-PS2-3, HS-PS2-4, HS-PS2-5, HS-PS3-1, HS-PS3-2, HS-PS3-3, HS-PS3-4, HS-PS4-1, HS-PS4-2, HSPS4-3, SEP1, 2, 4, 5, 6, 8, CCC1–8	

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0006 Understand the disciplinary core ideas of biology.	b, c, d, o, p, q	MS-LS1-1, MS-LS1-2, MS-LS1-3, MS-LS1-4, MS-LS1-5, MS-LS1-6, MS-LS1-7, MS-LS3-1, MS-LS3-2, MS-LS4-1, MSLS4-2, MS-LS4-4, MS-LS4-6, HS-LS1-1, HS-LS1-2, HS-LS1-3, HS-LS1-4, HS-LS1-5, HS-LS1-6, HS-LS1-7, HS-LS2-3, HS-LS3-1, HS-LS3-2, HS-LS3-3, HS-LS4-1, HSLS4-2, HS-LS4-3, HS-LS4-4, HS-LS4-5, SEP1, 2, 4, 5, 6, 8, CCC1–8	
0007 Understand the disciplinary core ideas of Earth and space science.	b, g, h, o, p, q	NGSS: MS-ESS1-1, MS-ESS1-2, MS-ESS1-4, MS-ESS2-1, MS-ESS2-2, MS-ESS2-3, MS-ESS2-4, MESS2-5, MS-ESS2-6, HS-ESS1-1, HS-ESS1-2, HS-ESS1-3, HS-ESS1-4, HS-ESS1-6, HS-ESS2-3, HS-ESS2-5, SEP1, 2, 4, 5, 6, 8, CCC1–8	
0008 Understand the disciplinary core ideas of environmental science.	b, d, g, o, p, q	MS-LS2-1, MSLS2-2, MS-LS2-3, MS-LS2-4, MS-LS2-5, MS-ESS3-1, MS-ESS3-2, MS-ESS3-3, MESS3-4, HS-LS2-1, HS-LS2-2, HS-LS2-3, HS-LS2-5, HS-LS2-7, HS-LS4-6, HSESS2-2, HS-ESS2-6, HS-ESS2-7, HS-ESS3-1, HS-ESS3-4, HS-ESS3-6, SEP1, 2, 4, 5, 6, 8, CCC1–8	
Subarea III: Physics Skills, Motion, Forces, and Waves			
0009 Understand skills required to practice physics.			SCA A10, A11, B3, B8, B9, B10, B11, C12, C13, C14
0010 Understand kinematics and mechanics.		MS-PS2-1, MS-PS2-2, MS-PS2-4, MS-PS2-5, HS-PS2-1, HS-PS2-2, HS-PS2-3, HS-PS2-4	SCA A2, A3, B3, C9, C11

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0011 Understand momentum, work, and energy.		MS-PS2-1, MS-PS3-1, MSPS3-2, MS-PS3-3, MS-PS3-4, MS-PS3-5, HS-PS2-2, HS-PS2-3, HS-PS3-1, HSPS3-2, HS-PS3-3	SCA A1, A2, A4, B1, B3, C9, C10, C11
0012 Understand properties of mechanical and electromagnetic waves.		MSPS4-1, MS-PS4-2, HS-PS4-1, HS-PS4-2, HS-PS4-5	SCA A8, C10
Subarea IV: Thermodynamics, Electromagnetism, and Modern Physics			
0013 Understand the principles of thermodynamics.		MS-PS1-2, MS-PS1-4, MS-PS3-4, MS-PS3-5, HS-PS3-1, HS-PS3-2, HS-PS3-4	SCA A5, A6, B1, C5, C7
0014 Understand static and moving electric charges.		MS-PS2-3, MS-PS2-5, MS-PS3-2, HS-PS1-3, HS-PS2-4, HS-PS3-5	SCA A9, B7, C6
0015 Understand magnetism and electromagnetic radiation.		MS-PS2-3, MSPS2-5, MS-PS3-2, HS-PS2-5, HS-PS3-1, HS-PS3-2, HS-PS3-3, HS-PS3-5, HSPS4-3, HS-PS4-4	
0016 Understand basic concepts of modern physics.	b, e, o, p, q	MS-PS1-1, MS-PS2-3, MS-PS4-1, MS-PS4-2, HS-PS1-1, HS-PS1-2, HS-PS1-3, HS-PS1-7, HS-PS1-8, HSPS4-1, HS-PS4-3, HS-PS4-4, HS-PS4-5, MSPS1-1, MS-PS1-2, MS-PS1-4, MS-PS1-5, MS-PS1-6, MS-PS3-4, HS-PS1-1, HSPS1-2, HS-PS1-4, HS-PS1-5, HS-PS1-6, HS-PS1-7, HS-PS1-8, HS-PS2-6, SEP1, 2, 4, 5, 6, 8, CCC1-7	SCA A7, B2, B4, B5, B6