

## Field 239 – Biology

### Alignment of Test Framework Objectives with State and National Standards

Illinois Licensure Testing System Framework Objectives for Biology	State Board of Education Rules-Title 23 of the Illinois Administrative Code–27.140	Next Generation Science Standards
<b>Subarea I: Science Process Skills</b>		
<b>0001</b> 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
<b>0002</b> Understand crosscutting concepts and their applications across science and engineering disciplines.	j, k, o, p, q	CCC1–7
<b>0003</b> Understand the process of reading, and apply knowledge of strategies for promoting students' reading development in the science classroom.	s	
<b>Subarea II: Disciplinary Core Ideas</b>		
<b>0004</b> 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
<b>0005</b> 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-PS-4-1, MS-PS-4-2, MS-PS-4-3, 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, HS-PS4-3, SEP1, 2, 4, 5, 6, 8, CCC1–8
<b>0006</b> 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, MS-LS4-2, 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, HS-LS4-2, HS-LS4-3, HS-LS4-4, HS-LS4-5, SEP1, 2, 4, 5, 6, 8, CCC1–8

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<b>0007</b> 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
<b>0008</b> Understand the disciplinary core ideas of environmental science.	b, d, g, o, p, q	MS-LS2-1, MS-LS2-2, 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
<b>Subarea III: Biochemistry, Cells, and Energetics</b>		
<b>0009</b> Understand biochemistry and energetics.	a, b, i, o, p, q	MS-LS1-6, MS-LS1-7, HS-LS1-1, HS-LS1-5–7, HS-LS2-3–5, MS-ETS1-1, MS-ETS1-2, MS-ETS1-3, MS-ETS1-4, SEP1–8
<b>0010</b> Understand cells and cell biology.	j, k, o, p, q	MS-LS1-1, MS-LS1-2, HS-LS1-4, CCC1–7
<b>Subarea IV: Molecular Biology, Genetics, and Evolution</b>		
<b>011</b> Understand molecular biology.	b, e, o, p, q	MS-LS 3-1, MS-LS4-5, HS-LS1-1, HS-LS3-1, HS-LS3-2, 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
<b>0012</b> Understand genetics and patterns of inheritance.	b, e, f, o, p, q	MS-LS1-5, MS-LS3-1, MS-LS4-5, HS-LS3-1, HS-LS3-3, 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, HS-PS4-3, SEP1, 2, 4, 5, 6, 8, CCC1–8

**The information in this document is subject to change if revisions are made to assessment framework or the state or national standards. Any changes will fully supersede the information in this document.**

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<b>0013</b> Understand biological evolution.	b, c, d, o, p, q	MS-LS1-4, MS-LS4-1–4, MS-LS4-6, HS-LS2-8, HS-LS3-3, HS-LS4 –4, 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, MS-LS4-2, 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, HSLS2-3, HS-LS3-1, HS-LS3-2, HS-LS3-3, HS-LS4-1, HS-LS4-2, HS-LS4-3, HS-LS4-4, HS-LS4-5, SEP1, 2, 4, 5, 6, 8, CCC1–8
<b>Subarea V: Ecology and the Unity and Diversity of Life</b>		
<b>0014</b> Understand ecology.	b, e, o, p, q	MS-LS1-8, MS-LS2-5, HS-LS2-1, HSLS2-2, HS-LS2-4, HS-LS2-6, HS-LS2-7, HS-LS 4-5, HS-LS4-6, 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
<b>0015</b> Understand the unity and diversity of life.	b, d, g, o, p, q	MS-LS1-1, MS-LS1-3, MS-LS1-8, MS-LS3-2, HS-LS1-2, HS-LS1-3, MS-LS2-1, MS-LS2-2, MS-LS2-3, MS-LS2-4, MS-LS2-5, MS-ESS3-1, MS-ESS3-2, MS-ESS3-3, MS-ESS3-4, HS-LS2-1, HS-LS2-2, HS-LS2-3, HS-LS2-5, HS-LS2-7, HS-LS4-6, HS-ESS2-2, HS-ESS2-6, HS-ESS2-7, HS-ESS3-1, HS-ESS3-4, HS-ESS3-6, SEP1, 2, 4, 5, 6, 8, CCC1–8