

Secondary Teacher Education Program in Science

University of Massachusetts Amherst

BIOLOGY SUBJECT MATTER KNOWLEDGE WORKSHEET

Name: _____

Undergraduate Institution and Major: _____

Graduate Institution and Program of Study: _____

Please indicate how your course work or other experience satisfies each of the following requirements:

<i>Course Title and Number</i>	<i>Semester</i>	<i>Year</i>	<i>Grade</i>
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(a) Biology of organisms:	_____	_____	_____
	_____	_____	_____
	_____	_____	_____

(b) Cells and cell theory:	_____	_____	_____
	_____	_____	_____
	_____	_____	_____

(c) Ecology and Evolutionary biology:	_____	_____	_____
	_____	_____	_____
	_____	_____	_____

(d) Matter and energy in ecosystems:	_____	_____	_____
	_____	_____	_____
	_____	_____	_____

(e) Genetics:	_____	_____	_____
	_____	_____	_____
	_____	_____	_____

(f) Molecular biology:	_____	_____	_____
	_____	_____	_____
	_____	_____	_____

(g) Chemistry, Physics, Earth Science, and Mathematics	_____	_____	_____
	_____	_____	_____
	_____	_____	_____

(h) Engineering and technical applications of biology:	_____	_____	_____
	_____	_____	_____
	_____	_____	_____

(i) History and philosophy of science: _____

(j) Methods of research in the sciences, _____
computers and lab work: _____

Subject Matter requirements have been checked and _____ has completed the requirements for Initial Licensure in biology at the 8-12 grade level.

Licensure Advisor Date

**Guidelines for Students Seeking Initial Licensure in High School Biology
Massachusetts Subject Matter Knowledge for Biology
(Grade Level: 8-12)**

- (a) Biology of organisms, especially that of humans, including characteristics and classifications of organisms
- (b) Cells and cell theory
- (c) Ecology and evolutionary biology
- (d) Matter and energy in ecosystems
- (e) Genetics, including chromosome structure and function and inheritance.
- (f) Molecular biology
- (g) Related aspects of chemistry, physics, earth science, and mathematics, such as statistics
- (h) Engineering and technical applications of biology
- (i) History and philosophy of science
- (j) Methods of research in the sciences, including laboratory techniques and the use of computers

Subject matter knowledge in Biology for Initial Licensure can be demonstrated by successful completion of appropriate course work and by passing the MTEL in biology. Normally the course work requirement can be met with a major in biology. Often candidates must take additional course work to fulfill requirements (h) and (i).