I. Teacher Preparation

A. Elementary School Licensure Requirements

1. Licensure Grade Levels[1]

a. Does the state offer an Early Elementary Education credential (Preschool/Kindergarten to Grade 2/3)?	Yes	Early Elementary (K-3)
b. Does the state offer an Elementary Education credential (Kindergarten/Grade 1 to Grade 5/6)?	Yes	General Education (K-8)

2. Early Elementary[2]

a. Is an educational practice examination required for licensure?	Yes
b. Is an examination in reading and writing or language arts required for licensure?	Yes
c. Is a mathematics examination required for licensure?	Yes
d. Is a science examination required for licensure?	No

3. Elementary Education[2]

a. Is an educational practice examination required for licensure?	Yes
b. Is an examination in reading and writing or language arts required for licensure?	Yes
c. Is a mathematics examination required for licensure?	Yes
d. Is a science examination required for licensure?	Yes

4. Licensure Renewal

a. What is the period of validity for an educator's license?	Less than 5 years	
	5 years	X[1]
	Greater than 5 years	

b. Can in-service teachers receive certification credit for professional development courses/programs in Earth and Space Sciences?	Yes	X	For renewal, teachers complete 90 hours or 6 credits in content area, which includes Earth and Space Sciences.[3]
	No		
	Local issue		
	Unknown		

B. Elementary School Curriculum Support

1. Guidelines for Curriculum Development[4]

a. Does the SEA provide guidelines for curriculum development, beyond the state's science standards?	No

b. If yes, which of the following does the state provide?	1. Science frameworks		
	2. Curriculum maps		
	3. Learning progressions		
	4. Benchmark maps		
	5. Templates for unit design		
	6. Curriculum development guides		
	7. Model units		
	8. Lesson plan templates/guides		
	9. Web-based lesson plan portals		
	10. Model lesson plans		
	11. Assessment guidelines		

2. Instructional Materials[5]

a. At what level does adoption of instructional materials occur?	State level	
	Local level	X

b. If the state is an adoption state, do adopted materials in science include those that address topics specific to the geosciences?	N/A	

3. Support for New Standards[3]

a. Does that state provide resources to school systems to effectively implement the standards as they change?	Yes	X	The sate provides funding to districts, but it is a local decision on how the funding is used.
	No		
	Local issue		
	Unknown		

4. Professional Development[3]

a. Does the SEA provide professional development that is, at least in part, specific to the geosciences?	Yes, provided by SEA		The state has an advisory role for professional development. Joint professional development is held with the ME State Teachers Association or through grants with the ME Mathematics and Science Alliance or through the University of Maine.
	Yes, but independent of SEA		
	No		
	Local issue		
	Unknown		

II. Curriculum

A. Elementary School State Science Standards

1. Organization[6]

a. What is the name of the state's elementary school science standards?	Maine Learning Results, Science and Technology

b. What is the grade-level arrangement of the standards?	Grade specific	
	Grade-level bands	X (PreK-2 and 3-5)
	Benchmark grade levels	

c. How are the standards outlined?	Overarching standard statements (level one)	X	d. What terms are used to identify each level?	Standards
	Sub-standard statements that provide more detail to the overarching standards (level two)	X		Performance Indicators and Descriptors

2. Content[6]

a. Are the science standards subdivided according to scientific discipline (Physical Science, Life Science, and Earth and Space Science)?	Yes	The standards are organized according to five strands: A. Unifying themes B. The Skills and Traits of Scientific Inquiry and Technological Design C. The Scientific and Technological Enterprise D. The Physical Setting E. The Living Environment Standards D and E have performance indicators that encompass the subject matter of life, physical, and Earth and space science. Standards A, B, and C refer to the nature and practice of science and are designed to be integrated into Standards D and E.
b. Are the Earth and Space Science standards identified by core ideas in the geosciences?	No	
c. Do the state's standards include current issues in the geosciences? Current issues in the geosciences can be described as Earth science processes altered by human activities or Earth science processes that affect human well-being.	No	
d. Do the state's standards include career exploration in the geosciences?	Yes	

3. Development

a. When were the standards adopted or last revised?	Within the last two years (2014-2015)		2007[6]
	Between 3-6 years ago (2010-2014)		
	Between 7-10 years ago (2006-2009)	X	
	More than 10 years ago (before 2006)		

b. Does the state have plans to review/revise its science standards?	Currently under review		Maine is planning to adopt NGSS. A timeline has not been developed.[3]
	Within the next 5 years (2015-2020)		
	Between 5 and 10 years from now (2020-2025)		
	No plan or timeline exists	X	
	Unknown		

B. Middle School State Science Standards

1. Content[6]

a. What is the name of the state's middle school science standards?	Maine Learning Results, Science and Technology
b. Are Earth and Space Science topics included in the standards?	Yes
c. Is Life Science and Physical Science content included in the standards?	Yes

C. High School State Science Standards

1. Content[6]

a. What is the name of the state's high school science standards?	Maine Learning Results, Science and Technology
b. Are Earth and Space Science topics included in the standards?	Yes
c. Is Life Science and Physical Science content included in the standards?	Yes

D. High School Course Requirements

1. Credits Required for Graduation[7]

a. What is the total number of credits required for graduation?	11
b. What is the number of science credits required for graduation?	2

2. Course Content[7]

a. Is Life Science required?	No
b. Is Physical Science required?	No
c. Is Earth Science required?	No
d. Is Environmental Science required?	No
e. Is Earth Science accepted?	Not stated
f. Does Earth Science have to be lab-based?	Not stated

III. Instruction

A. Elementary School Approaches to Instruction

1. State Science Standards[6]

a. Do the state's science standards provide guidelines regarding any specific approach to be used for science teaching?	Yes
b. If so, what is the term used to identify this approach?	Scientific Inquiry

c. Do the state's science standards provide a rationale for this approach?	Yes

d. If so, what is the rationale?	The Science and Technology Standards define both the student skills of scientific inquiry and the student skills of technological design. The inclusion of scientific inquiry, the development of a coherent section on technological design and the inclusion of a standard on scientific and technological enterprise highlight the importance of developing student understanding of the unique characteristics of and relationships between science and technology. The scientific and technological enterprise standard outlines key understandings about the relationships among science, technology and society and underscores the role of citizens in the decision-making process related to science and technology.

2. Guidelines for Curriculum Planning[4]

a. If the state offers guidelines for curriculum planning, do these advocate more specific strategies for science instruction?	No
b. If so, what are the strategies?	N/A

3. Technology[3]

a. Are decisions regarding the use of technology in elementary science classrooms made at the state level or local level?	Local level
b. What kinds of technology are being used by elementary school science teachers in the state?	All students 7-12 have access to a laptop or an ipad. The science software selection is up to the district.

IV. Learning Contexts

A. Elementary School Classrooms

1. Class Size[3]

a. What is the average number of students in an elementary classroom?	Unknown (local data)
b. What is the maximum allowable number of students in an elementary classroom?	Unknown (local data)

2. Instructional Time[3]

a. At the elementary level, are teachers recommended or required to dedicate a certain amount of instructional time to science?	There is no time requirement	X	There is not a requirement for instructional time. The only requirement is to demonstrate proficiency on the standards.
	Local decision		
	Teachers must spend a certain amount of time teaching science.		
	Unknown		

B. Elementary School Support Services

1. Specialized Support[3]

a. Are there specific policies in place regarding English as a Second Language (ESL) and Special Education services that could impact science instruction (e.g. pull-out or push-in models)?	Local level decision	X	
	Depends on the specifications of a student's IEP or ILP		
	Teachers must follow specific practices regarding science		
	Unknown		

V. Extra-Curricular Programs

A. Elementary School Geosciences Enrichment Opportunities

1. After-School and Informal Education[3]

a. Are opportunities to engage in geoscience-related topics outside of school (e.g. after-school programs and informal education programs) being offered to students in the state?	Yes

b. If so, what are they?	There are many science clubs across the state. Some examples are: Lego league, Robotics Club, 4-H Afterschool Programs, science fairs, and the Challenger Learning Center. The state partners with Project Learning Tree and WILD to provide additional science opportunities for students.

2. Remedial Education[3]

a. What remedial supports are in place for geosciences topics with which students are struggling?	Local level decision	X	
	Remediation services are being provided to students in science		
	No remediation support in science		
	Unknown		

VI. Monitoring Systems

A. Elementary School Statewide Science Assessment

1. Structure and Content

a. What is the name of the statewide standardized test in science at the elementary level?	The Maine Educational Assessment (MEA) for Science[8]
b. At what grade(s) is the assessment implemented?	5[8]
c. Does the statewide science assessment measure achievement of the state's standards, i.e. is the assessment aligned with state standards?	Yes[9]
d. Is the content of the statewide science assessment sub-divided by discipline, namely Physical Science, Life Science, Earth and Space Science?	Yes[9]

e. Are there any plans for revising or changing the current elementary level science assessment?	No plans for revision		
	Revision is planned, but timeline is unknown	X[3]	
	Revision is planned with implementation date set		
	Unknown		

2. Results[10]

a. Is student achievement measured by Performance Level Descriptors?	Yes
b. If yes, how many performance levels are there?	4

3. District Level Reporting

a. At the district level, are the percentages of students performing at each PLD reported to the public?	Yes[11]	The Main Department of Education Data Warehouse is an on-line tool that provides results from MEA science assessment at the district level. Summary results are available to the public. School Administration Unit Reports (district level reports) subdivide the scoring of the state science assessment according to: 1) Earth/Space 2) Matter and Energy/Force and Motion 3) The Living Environment These reports are made available to district personnel through a secure web-site. These reports are not available to the public.
b. At the district level, is student achievement reported according to scientific discipline (Life Sciences, Physical Sciences, Earth and Space Sciences)?	No[12]	
c. If yes, is this data available to the public?	N/A	

4. State Level Reporting

a. At the state level, are the percentages of students performing at each PLD reported to the public?	Yes[11]	The SEA produces a State Grade Level Summary Report that reports the average score for grade 5 students in the State of Maine on the MEA science assessment. This report subdivides the average score of students according to 1) Earth/Space 2) Matter and Energy/Force and Motion 3) The Living Environment This report is made available to district personnel through a secure web-site. This report is not published by the state on its data warehouse web site.
b. At the state level, is student achievement reported according to scientific discipline (Life Sciences, Physical Sciences, Earth and Space Sciences)?	Yes[12]	
c. If yes, is this data available to the public?	No	

B. Elementary School International Assessments in Science

1. TIMSS[13]

a. Has the state participated in the Trends in International Mathematics and Science Study (TIMSS)?	No

b. If yes, in which years did the state participate?	1995	
	2003	
	2007	
	2011	

C. Middle School Statewide Science Assessment

1. Structure and Content[14]

a. What is the name of the statewide standardized test in science at the middle school level?	The Maine Educational Assessment (MEA) for Science
b. At what grade(s) is the assessment implemented?	8
c. Does the assessment address Life Science concepts?	Yes
d. Does the assessment address Life Science concepts?	Yes
e. Does the assessment address Earth Science concepts?	Yes

C. High School Statewide Science Assessment(s)

1. Structure and Content[14]

a. What is the name of the state's standardized science assessment(s)?	The Maine Educational Assessment (MEA) for Science
b. At what grade level is the assessment implemented?	11
c. Does the assessment address Life Science concepts?	Yes
d. Does the assessment address Physical Science concepts?	Yes
e. Does the assessment address Earth Science concepts?	Yes

VII. Accountability

A. School Level

1. Individual Student[15]

a. Does the state produce an Individual Student Report (ISR) that describes a student's performance on the state's science assessment?	Yes	An Individual Student Report (ISR) is given to parent(s). The ISR reports the student's overall scaled score on the assessment. In addition, the ISR reports the points the child earned on each of the following categories: 1) Earth/Space 2) Matter and Energy/Force and Motion 3) The Living Environment Individual Student Reports (ISRs) are posted online via a secure web site for school and state personnel. In addition, Grade Level Summary Reports and School Administration Unit (district) Reports are generated for school personnel. Individual Student Report, Grade Level Summary Reports, and School Administration Unit Reports all subdivide the scoring of the state science assessment according to: 1) Earth/Space 2) Matter and Energy/Force and Motion 3) The Living Environment
b. Is the ISR made available to a student's parents or guardians?	Yes	
c. Is the ISR made available to a student's teacher?	Yes	
d. Does the ISR report student's performance in terms of scale score and achievement level?	Yes	
e. Does the ISR subdivide results by science discipline (Physical Science, Life Science, Earth and Space Science)?	Yes	

2. Teacher Appraisal[3]

a. Are students' results on the statewide science assessment a component of teacher evaluation?	No	The Maine Educational Assessment (MEA) for Science is administered at the end of 5th grade, and does not provide growth between two points of time.

B. District Level

1. District Accreditation[3]

a. Are student outcomes in statewide science assessments at the elementary level part of accreditation of public schools at the district level?	Yes		Just for high school. Schools receive accreditation through the New England Association of Schools and Colleges, (NEASC)
	No	X	
	At a future point		
	Local decision		
	Unknown		

C. State Level

1. Statewide Monitoring[3]

a. Are student outcomes in statewide science assessments at the elementary level used in monitoring the adequacy of state educational	Yes	Assessment results are used for analyzing trends. For example, the data may suggest that a different approach is

systems?		needed for a particular sub group.

2. Trends in Student Outcomes[10]

a. Does the SEA report to the public performance results on the state science assessment over time?	Yes

b. If yes, how many years of achievement data are available?	3 years (2011-2012 to 2013-2014)		
	4-7 years (2007-2008 to 2013-2014)	X	7 years of data (2005-2013)
	8 to 10 years (2004-2005 to 2013-2014)		
	11 or more years (before 2004-2005)		

c. Are the results also subdivided by science discipline (Life Sciences, Physical Sciences, Earth and Space Sciences)?	No

[1] Maine Department of Education, Certification, Initial Credentialing, Application and Instructions, Certification Application and Instructions: http://maine.gov/doe/cert/initial/application/index.html#app
[2] Educational Testing Service, Louisiana Test Requirements, Test Required for All Licensure Areas: http://www.ets.org/praxis/la/requirements/
[3] Maine Department of Education (personal communication).
[4] Maine Department of Education, Learning Standards and Guidelines, Content Area Resources, Science and Technology: http://www.maine.gov/education/lres/scitech/index.html
[5] Education Commission of the States, State Textbook Adoption: https://www.ecs.org/clearinghouse/57/75/5775.htm
[6] State of Maine, Department of Education, Learning Standards and Guidelines, Content Area Resources, Science and Technology, Science Standards, Science & Technology standards from the 2007 Maine Learning Results, PDF: http://www.maine.gov/education/lres/scitech/natlstandards.html
[7] Maine Legislature, Main Revised Statutes, Title 20-A: Education, High School Diploma Standards: http://www.mainelegislature.org/legis/statutes/20-a/title20-Asec4722.html
[8] Maine Department of Education, Main Comprehensive Assessment System, MEA for Science and Alternate Assessment: http://www.maine.gov/doe/assessment/science/index.html
[9] Maine Department of Education, Maine Educational Assessment – Science, Resource and Support Materials, Technical Report, Maine Educational Assessment, Grades 5 and 8 Science, MeCAS Part I, 2012-2013 Technical Report, PDF: http://www.maine.gov/doe/mea/resources/index.html
[10] Maine Department of Education Data Warehouse: http://dw.education.maine.gov/DirectoryManager/Web/maine_report/DTHome.aspx
[11] Maine Department of Education Data Warehouse: http://dw.education.maine.gov/DirectoryManager/Web/maine_report/DTHome.aspx
[12] Maine Department of Education, Maine Educational Assessment – Science, Resource and Support Materials, Technical Report, Maine Educational Assessment, Grades 5 and 8 Science, MeCAS Part I, 2012-2013 Technical Report, PDF: http://www.maine.gov/doe/mea/resources/index.html
[13] U.S. Dept. of Education, Institute of Education Sciences, National Center for Education Statistics, Trends in International Mathematics and Science Study (TIMSS), State and District Participation in TIMSS: https://nces.ed.gov/TIMSS/benchmark.asp
[14] Maine Department of Education, Maine Educational Assessment for Science: http://www.maine.gov/doe/mea/index.html
[15] Maine Department of Education, Maine Educational Assessment – Science, Resource and Support Materials, Technical Report, Maine Educational Assessment, Grades 5 and 8 Science, MeCAS Part I, 2012-2013 Technical Report, PDF: http://www.maine.gov/doe/mea/resources/index.html