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	Teacher – Pre K-3
b. Does the state offer an Elementary Education credential (Kindergarten/Grade 1 to Grade 5/6)?	Yes	Teacher – Elementary Classroom (K-6)

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?	Yes

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[3]
	Greater than 5 years	

b. Can in-service teachers receive certification credit for professional development courses/programs in Earth and Space Sciences?	Yes		Most likely depends on local approval.[4]
	No		
	Local issue	X	
	Unknown		

B. Elementary School Curriculum Support

1. Guidelines for Curriculum Development[5]

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[4]

a. Does that state provide resources to school systems to effectively implement the standards as they change?	Yes	X	The state provides suggested resources and workshops on understanding, unpacking, and implementing standards. It is a local decision to use the resources and participate in the workshops.
	No		
	Local issue		
	Unknown		

4. Professional Development[4]

a. Does the SEA provide professional development that is, at least in part, specific to the geosciences?	Yes, provided by SEA		Professional Development for teachers occurs at the local level and through Area Education Agencies.
	Yes, but independent of SEA		
	No		
	Local issue	X	
	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?	Iowa Core standards

b. What is the grade-level arrangement of the standards?	Grade specific	X
	Grade-level bands	
	Benchmark grade levels	

c. How are the standards outlined?	Overarching standard statements (level one)	X	d. What terms are used to identify each level?	Essential Concepts and/or Skills
	Sub-standard statements that provide more detail to the overarching standards (level two)			

2. Content[6]

a. Are the science standards subdivided according to scientific discipline (Physical Science, Life Science, and Earth and Space Science)?	Yes	Standards are divided by: Earth and Space Life Science Physical Science Science as Inquiry
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?	No	

3. Development

a. When were the standards adopted or last revised?	Within the last two years (2014-2015)		2008[4]
	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	Currently under review	X	A review process for the science standards will begin on November 4, 2014.[7]
	Within the next 5 years (2015-2020)		
	Between 5 and 10 years from now		

science standards?	(2020-2025)		
	No plan or timeline exists		
	Unknown		

B. Middle School State Science Standards

1. Content[6]

a. What is the name of the state's middle school science standards?	Iowa Core standards
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?	Iowa Core standards
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[8]

a. What is the total number of credits required for graduation?	Unknown
b. What is the number of science credits required for graduation?	3

2. Course Content[8]

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?	Science as Inquiry

c. Do the state's science standards provide a rationale for this approach?	No

d. If so, what is the rationale?	N/A

2. Guidelines for Curriculum Planning

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[4]

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?	Technology varies widely from district to district.

IV. Learning Contexts

A. Elementary School Classrooms

1. Class Size[4]

a. What is the average number of students in an elementary classroom?	Approximately 22
b. What is the maximum allowable number of students in an elementary classroom?	Unknown

2. Instructional Time[4]

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		
	Local decision	X	
	Teachers must spend a certain amount of time teaching science.		
	Unknown		

B. Elementary School Support Services

1. Specialized Support[4]

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		Must follow IEP and give accommodations.
	Depends on the specifications of a student's IEP or ILP	X	
	Teachers must follow specific practices regarding science		
	Unknown		

V. Extra-Curricular Programs

A. Elementary School Geosciences Enrichment Opportunities

1. After-School and Informal Education[4]

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 opportunities for elementary students to participate in science clubs. Funding is available through the federal program, 21st Century Community learning Programs. Many of the grant funded programs are STEM related. The state has informal partners like the Department of Natural Resources and museums that offer further science opportunities for students.

2. Remedial Education[4]

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?	Iowa Assessments Level 7 (Grades 1-2) Level 8 (Grade 2) Level 9 (Grade 3) Level 10 (Grade 4) Level 11 (Grade 5)[9]
b. At what grade(s) is the assessment implemented?	1-5[9]
c. Does the statewide science assessment measure achievement of the state's standards, i.e. is the assessment aligned with state standards?	Yes[10]
d. Is the content of the statewide science assessment sub-divided by discipline, namely Physical Science, Life Science, Earth and Space Science?	Yes[11]

e. Are there any plans for revising or changing the current elementary level science assessment?	No plans for revision	X	The assessment will change as the standards change.[4]
	Revision is planned, but timeline is unknown		
	Revision is planned with implementation date set		
	Unknown		

2. Results[12]

a. Is student achievement measured by Performance Level Descriptors?	Yes
b. If yes, how many performance levels are there?	3

3. District Level Reporting

a. At the district level, are the percentages of students performing at each PLD reported to the public?	Yes[13]	All districts publish and distribute an Annual Progress Report that includes student achievement results. Public reports at the district level that are accessible through the SEA provide science assessment performance scores, but they are not subdivided by discipline.
b. At the district level, is student achievement reported according to scientific discipline (Life Sciences, Physical Sciences, Earth and Space Sciences)?	No[14]	
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[15]	Statewide science assessment results are provided on two reports: The Condition of Education Reports and the State Report Card. Each report provides the results of the statewide assessment exam in science. The results are cumulative and are not subdivided by discipline.
b.	At the state level, is student achievement reported according to scientific discipline (Life Sciences, Physical Sciences, Earth and Space Sciences)?	No[16]	
c.	If yes, is this data available to the public?	N/A	

B. Elementary School International Assessments in Science

1. TIMSS[17]

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[18]

a.	What is the name of the statewide standardized test in science at the middle school level?	Iowa Assessments
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

a. What is the name of the state's standardized science assessment(s)?	Iowa Assessments[18]	Iowa End-of-Course Assessments in Physical Science, Biology, Chemistry[19]
b. At what grade level is the assessment implemented?	11	11
c. Does the assessment address Life Science concepts?	Yes	Yes
d. Does the assessment address Physical Science concepts?	Yes	Yes
e. Does the assessment address Earth Science concepts?	Yes	No

VII. Accountability

A. School Level

1. Individual Student[20]

a.	Does the state produce an Individual Student Report (ISR) that describes a student's performance on the state's science assessment?	Yes	Parents and teachers are provided an individual report for their child describing his/her performance on the Iowa Assessments. The report includes a page titled, "Individual Performance Profile" that gives the child's score on the science section of the test. Scores are subdivided by domain: Life Science, Earth and Space Science, and Physical Science.
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[4]

a.	Are students' results on the statewide science assessment a component of teacher evaluation?	No

B. District Level

1. District Accreditation[4]

a.	Are student outcomes in statewide science assessments at the elementary level part of accreditation of public schools at the district level?	Yes		
		No	X	
		At a future point		
		Local decision		
		Unknown		

C. State Level

1. Statewide Monitoring[4]

a.	Are student outcomes in statewide science assessments at the elementary level used in monitoring the adequacy of state educational systems?	Yes	Scores are reported for districts to use to improve instruction.

2. Trends in Student Outcomes[21]

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)		
	8 to 10 years (2004-2005 to 2013-2014)		
	11 or more years (before 2004-2005)	X	16 years of data (1998-2014)

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

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[2] Iowa Department of Education, Content Test Requirements for each endorsement area, PDF https://www.educateiowa.gov/documents/educator-quality/2013/04/content-test-requirements-each-endorsement-area
[3] Iowa Board of Educational Examiners, Answers to Frequently Asked Questions, Renewing your Iowa Teaching License: http://www.boee.iowa.gov/faqs.html#PraxisII
[4] Iowa Department of Education (personal communication).
[5] Iowa Department of Education, About the Iowa Education System: https://www.educateiowa.gov/about-iowas-education-system#Area_Education_Agencies_AEAs
[6] Iowa Core, About Iowa Core: https://iowacore.gov/about-iowa-core
[7] Iowa Department of Education, Iowans to weigh in on state academic standards, Friday, October 31, 2014: https://www.educateiowa.gov/article/2014/10/31/iowans-weigh-state-academic-standards
[8] Iowa Department of Education , Graduation Requirements: https://www.educateiowa.gov/graduation-requirements
[9] The University of Iowa, College of Education, Iowa Assessments, About the Iowa Assessments, Form E/F Scope and Sequence, Iowa Assessments, Form E, Scope and Sequence for Iowa Students, PDF: http://itp.education.uiowa.edu/ia/ScopeAndSequence.aspx
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[12] Iowa Department of Education, Annual Condition of Education Report (PK-12) https://www.educateiowa.gov/annual-condition-education-report-pk-12
[13] Iowa Department of Education, Student Assessment, Student Assessments in Iowa at a Glance, Reporting Results: https://www.educateiowa.gov/student-assessment
[14] Iowa Department of Education, Welcome to the Iowa Department of Education Public Reporting Website, Student Reports: http://reports.educateiowa.gov/Home
[15] Iowa Department of Education, Annual Condition of Education Report (PK-12): https://www.educateiowa.gov/annual-condition-education-report-pk-12
[16] Iowa Department of Education, Documents: State Report Card: https://www.educateiowa.gov/document-type/state-report-card
[17] 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

[18] Iowa Department of Education, Student Assessment: https://www.educateiowa.gov/pk-12/student-assessment/assessment-learning-summative-assessment/assessment-learning-summative
[19] The University of Iowa: http://itp.education.uiowa.edu/ieoc/Default.aspx
[20] The University of Iowa, College of Education, Iowa Assessments, Interpreting Results, Interpreting Reports from the Iowa Assessments, Interpreting Reports from the Iowa Assessments, PDF: http://itp.education.uiowa.edu/ia/IA_InterpretingReports.aspx
[21] Iowa Department of Education, Annual Condition of Education Report (PK-12): https://www.educateiowa.gov/annual-condition-education-report-pk-12