

Virginia Board of Education Agenda Item



Agenda Item: Q

Date: September 28, 2017

Title	First Review of Proposed Addition to <i>Board of Education Approved Courses to Satisfy Graduation Requirements for High School Diplomas in Virginia Public Schools</i>		
Presenter	Anne Petersen, Ph.D, Science Coordinator, Office of Science, Technology, Engineering, and Mathematics, Division of Instruction		
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Purpose of Presentation:

Action required by Board of Education regulation.

Previous Review or Action:

None

Action Requested:

Action will be requested at a future meeting. Specify anticipated date below:

Date: October 26, 2017

Alignment with Board of Education Goals: Please indicate (X) all that apply:

	Goal 1: Accountability for Student Learning
	Goal 2: Rigorous Standards to Promote College and Career Readiness
X	Goal 3: Expanded Opportunities to Learn
	Goal 4: Nurturing Young Learners
	Goal 5: Highly Qualified and Effective Educators
	Goal 6: Sound Policies for Student Success
	Goal 7: Safe and Secure Schools
	Other Priority or Initiative. Specify:

Background Information and Statutory Authority:

Goal 3: The addition of the Environmental Science course to the list of *Board of Education Approved Courses to Satisfy Graduation Requirements for High School Diplomas in Virginia Public Schools* would provide an additional course option for students, expanding learning opportunities in science that will provide another avenue to increase student scientific literacy and to prepare students for postsecondary education and/or careers in the global workplace.

On August 8, 2013, the Virginia Board of Education approved revisions to the *Regulations Establishing Standards for Accrediting Public Schools in Virginia* (8 VAC 20-131-10 et seq.) (Standards of Accreditation or SOA). Section 8 VAC 20-131-50 of the revised SOA sets forth the requirements for high school diplomas that became effective for students who entered the ninth grade for the first time in

2011-2012. Those requirements specify which level of courses and/or subject area disciplines students must complete to earn either a standard or verified unit of credit in the areas of mathematics, laboratory science, and history and social science, as well as the credit requirements in other content disciplines. The regulations also specify that the Board of Education shall approve courses (other than those specifically named in the standards) to satisfy the requirements in those areas.

On June 2014, Governor McAuliffe signed the 2014 Chesapeake Bay Watershed Agreement, a cooperative partnership that included seven jurisdictions in the Chesapeake Bay watershed. The Chesapeake Bay Watershed Agreement outlined goals to advance restoration and protection of the Chesapeake Bay ecosystem and its watershed. These goals include increasing environmental literacy of student to enable every student to graduate with the knowledge and skills to act responsibly to protect and restore their local watershed. The addition of the Environmental Science course would also support the Batten Environmental Education Initiative recently launched by WHRO and supported by Governor McAuliffe.

The 2010 *Science Standards of Learning* currently integrate environmental science content that is designed to build a foundation of environmental concepts and to develop environmental literacy in Virginia students.

Summary of Important Issues:

In an effort expand opportunities for students to learn science and become environmentally literate citizens, the Virginia Department of Education approved the addition of the Environmental Science course. This course would provide students the opportunity to learn environmental concepts in depth and build on the concepts currently embedded in the 2010 *Science Standards of Learning*. The addition of Environmental Science as a Board of Education approved course for the Standard and Advanced diplomas to satisfy graduation requirements would provide all students an additional opportunity to earn a laboratory science credit that can be used to meet Virginia Graduation requirements.

Impact on Fiscal and Human Resources:

The Office of Science, Technology, Engineering, and Mathematics staff will work collaboratively, with input from environmental stakeholders, to produce sample course outcomes for the Environmental Science course. School divisions interested in offering the Environmental Science course will need to review and adjust their course offerings if they choose to offer the course.

Timetable for Further Review/Action:

The anticipated date for final review by the Board of Education is October 26, 2017. Upon final approval by the Board of Education, the Department of Education will notify school divisions of the addition to the courses satisfying graduation requirements for high school diplomas in Virginia.

Superintendent's Recommendation:

The Superintendent of Public Instruction recommends the Board of Education receive for first review the addition of the Environmental Science course to the list of *Board of Education Approved Courses to Satisfy Graduation Requirements for High School Diplomas in Virginia Public Schools*.

Board of Education Approved Courses to Satisfy Graduation Requirements for the Standard, Advanced Studies, and Modified Standard Diplomas in Virginia Public Schools Approved Courses Effective with Ninth-Grade Class of 2010-2011 and Beyond

*Additional Graduation Requirements for Later Classes Begin on Page 6
Modified Standard Diploma Begins Phase-Out in 2013-2014 - See Page 8*

Revised [Date]

Background Information

Section 8 VAC 20-131-50 of *Regulations Establishing Standards for Accrediting Public Schools in Virginia* (8 VAC 20-131-10 et. seq.) (Standards of Accreditation or SOA) sets forth the requirements for the Standard, Advanced Studies, and Modified Standard Diplomas. Those requirements specify which level of courses and/or subject area disciplines students must complete to earn either a standard or verified unit of credit in the areas of mathematics, laboratory science, and history and social science, as well as the credit requirements in other content disciplines. The regulations also specify that the Board of Education shall approve courses (other than those specifically named in the standards) to satisfy the requirements in those areas.

Courses Approved for the Standard and Advanced Studies Diplomas, Effective with Ninth-Grade Class of 2010-2011

In February 1998, the Virginia Board of Education approved certain courses that would satisfy the mathematics, science, and history and social science course requirements for the Standard and Advanced Studies Diplomas. Subsequent to that time, some additional courses have been approved as additions to the original list.

The following tables contain a list of the courses to satisfy graduation requirements for the Standard and Advanced Studies Diplomas.

Courses from this list must be selected to satisfy the content level requirements prescribed in 8VAC 20-131-50.

Courses in Mathematics

Course Title	Virginia Course Codes	SCED Codes	SOL Test(s) Required
<i>Courses at or above the level of Algebra I</i>			
Algebra I ^{1,2}	3130	02052	Algebra I
Geometry ^{1,2}	3143	02072	Geometry
Algebra, Functions, and Data Analysis	3134	99001	None

Course Title	Virginia Course Codes	SCED Codes	SOL Test(s) Required
Computer Mathematics ³	3184	02156	None
Algebra I/Geometry/Algebra II, 3-yr. Sequence, Course I	3151	02061 (1 of 3)	See Footnote #4
Algebra I/Geometry/Algebra II, 3-yr. Sequence, Course II	3152	02061 (2 of 3)	See Footnote #4
Algebra I/Geometry/Algebra II, 3-yr. Sequence, Course III	3153	02061 (3 of 3)	See Footnote #4
<i>Courses at or above the level of Algebra II</i>			
Algebra II	3135	02056	Algebra II
Mathematics Capstone ⁵	3136	99002	None
Algebra II and Trigonometry	3137	02106	Algebra II
Trigonometry (one-semester)	3150	02103	None
Advanced Placement Computer Science A	3185	10157	None
Advanced Placement Computer Science AB	No Virginia Code	10158	None
Probability and Statistics ⁶	3190	02201	None
Advanced Placement Statistics	3192	02203	None
Discrete Mathematics ⁶	3154	02102	None
Advanced Mathematics	3160	02057	None
Mathematical Analysis/Pre-Calculus	3162	02104	None
Elementary Mathematics Functions	3163	02109	None
Advanced Placement Calculus AB	3177	02124	None

Course Title	Virginia Course Codes	SCED Codes	SOL Test(s) Required
Advanced Placement Calculus BC	No Virginia Code	02125	None
Analytic Geometry	3176	02073	None
Multivariate Calculus	3178	02122	None

¹Students who earn a mathematics unit of credit for Algebra I, Part I prior to entering the ninth grade in the 2010-2011 academic year may complete the Algebra I graduation requirement by completing an Algebra I or an Algebra I, Part II course. Students who earn a mathematics unit of credit for Geometry, Part I prior to entering the ninth grade in the 2010-2011 academic year may complete the Geometry graduation requirement by completing a Geometry or a Geometry, Part II course. Beginning with the ninth-grade class of 2010-2011, only one unit of credit each may be used to satisfy the mathematics graduation requirements by completing Algebra I or Geometry.

~~²The Algebra, Functions and Data Analysis SOL test development has been indefinitely delayed, pending available funding.~~

²The Board of Education's Guidelines on Credit Accommodations allow students with disabilities who are eligible for credit accommodations in mathematics to use each part of Algebra I, Parts I and II, and Geometry, Parts I and II, to earn a standard credit towards the three mathematics credits required for the Standard Diploma only. A student who chooses to earn standard credits by taking both Algebra I and Geometry in two parts must complete *both* parts of both courses to meet the minimum course requirements, and would earn three standard credits in mathematics plus one additional elective credit. Two-part courses may also be combined with full-year courses in other Board- approved mathematics courses to meet the requirements.

³Computer Mathematics may be used in conjunction with Algebra I and Geometry to satisfy mathematics graduation requirements if the student also completes a career and technical concentration.

⁴Students will take the Algebra I, Geometry, and/or Algebra II SOL test(s) when they have completed the appropriate SOL content, as determined by the local school division. Students enrolled in Course II must take at least one SOL test. Students enrolled in Course III must take the Algebra II SOL test and the Geometry SOL test if not taken in Course II.

⁵Prerequisites for the 12th-grade (senior level) course include earning at least two verified credits in mathematics, and satisfactory completion of either Algebra, Functions, and Data Analysis or Algebra II. Students seeking the Advanced Studies Diploma, whose course sequences include the Mathematics Capstone course, must also take Algebra II.

⁶May be a one-semester or two-semester course.

Courses in Science

Course Title	Virginia Course Codes	SCED Codes	SOL Test(s) Required
<i>Courses in the discipline of Environmental Sciences</i>			
<u>Environmental Science</u> ⁸		<u>03003</u>	<u>None</u>
<u>Advanced Placement in Environmental Science</u>		<u>03207</u>	<u>None</u>
<i>Courses in the discipline of Earth Sciences</i>			
Earth Science I ¹	4210	03001	Earth Science
Earth Science II – Advanced Survey of Earth Science Topics ²	4220	03049	Earth Science
Earth Science II – Geology ³	4240	03002	None
Earth Science II – Oceanography ³	4250	03005	None
Earth Science II – Astronomy ³	4260	03004	None
Advanced Placement in Environmental Science ²	4270	03207	Earth Science
<i>Courses in the discipline of Biology</i>			
Biology I ¹	4310	03051	Biology
Biology II – Advanced Survey of Biology Topics ²	4320	03052	Biology
Biology II – Anatomy/Physiology ³	4330	03053	None
Biology II – Ecology ³	4340	03063	None
Biology II – Genetics ³	4350	03059	None
Advanced Placement Biology ²	4370	03056	Biology

Course Title	Virginia Course Codes	SCED Codes	SOL Test(s) Required
<i>Courses in the discipline of Chemistry</i>			
Chemistry ⁴	4410	03101	Chemistry
Chemistry II ³	4420	03102	None
Advanced Placement Chemistry ²	4470	03106	Chemistry
<i>Courses in the discipline of Physics</i>			
Physics I ⁵	4510	03151	None
Physics II	4520	03152	None
Advanced Placement Physics B ⁶	4570	03155	None
Advanced Placement Physics 1 ⁶	4573	See Footnote #6	None
Advanced Placement Physics 2 ⁶	4574	See Footnote #6	None
Advanced Placement Physics C	4571	03156	None
<i>Integrated Sciences – Earth Sciences/Biology/Chemistry</i>			
Integrated Science, 3-yr Sequence, Course 1	4211	03201 (1 of 3)	See Footnote #7
Integrated Science, 3-yr Sequence, Course 2	4311	03201 (2 of 3)	See Footnote #7
Integrated Science, 3-yr Sequence, Course 3	4411	03201 (3 of 3)	See Footnote #7

¹The Board of Education's Guidelines on Credit Accommodations allow students with disabilities who are eligible for credit accommodations in science to use each part of Earth Science, Parts I and II, and Biology, Parts I and II, to earn a standard credit towards the three science credits required for the Standard Diploma only. A student who chooses to earn standard credits by taking both Earth Science

and Biology in two parts must complete *both* parts of both courses to meet the minimum course requirements, and would earn three standard credits in science plus one additional elective credit. Two-part courses may also be combined with full-year courses in other Board- approved science courses to meet the requirements.

²Students who have not taken the first-level course in this discipline will take the SOL test listed.

³The prerequisite content for this course is the first-level SOL core course in this discipline.

⁴Students who earn a science unit of credit for Chemistry, Part I prior to entering the ninth grade in the 2010-2011 academic year may complete the Chemistry graduation requirement by completing a Chemistry or a Chemistry, Part II course. Beginning with the ninth-grade class of 2010-2011, only one unit of credit each may be used to satisfy the science graduation requirements by completing a Chemistry course.

⁵The sequence of Principles of Technology I [9811/10153 (1 of 2)] and Principles of Technology II [9812/10153 (2 of 2)] will satisfy one (1) standard unit of credit in laboratory science for physics and one (1) elective credit. Students who enroll in Principles of Technology courses for a physics credit must have completed Algebra I and two (2) other laboratory science courses as specified by the Standards of Accreditation prior to enrolling in Principles of Technology. There is no SOL test associated with Principles of Technology I and II.

⁶Advanced Placement Physics 1 and 2 will begin to be offered in the 2014-2015 academic year, and Advanced Placement Physics B will be discontinued following the 2013-2014 academic year. SCED codes have not yet been determined for AP Physics 1 and 2.

⁷Students will take the Earth Science, Biology, and Chemistry test(s) when they have completed the appropriate SOL content, as determined by the local school division.

⁸Environmental Science will be offered as laboratory science credit beginning with students graduating in 2018. It is highly recommended that students planning to apply or attend college take four science courses to include Biology, Chemistry, and Physics.

Courses in History and Social Science

Course Title	Virginia Course Codes	SCED Codes	SOL Test(s) Required
World Geography	2210	04001	World Geography
World History and Geography to 1500 AD (CE)	2215	04052 (1 of 2)	World History and Geography to 1500 AD (CE)
World History and Geography: 1500 AD	2216	04052 (2 of 2)	World History and

Course Title	Virginia Course Codes	SCED Codes	SOL Test(s) Required
(CE) to the Present		2)	Geography: 1500 AD (CE)
Virginia and United States History ¹	2360	04101	Virginia and United States History
American Civilization (Must include the SOL for Virginia and United States History)	2376	04149	Virginia and United States History
Virginia and United States Government ¹	2440	04151	None
<p>Advanced Placement Courses <i>8 VAC 20-131-50 M - Students who complete Advanced Placement courses, college-level courses, or courses required for an International Baccalaureate Diploma shall be deemed to have completed the requirements for graduation under these standards provided they have earned the standard units of credit and earned verified units of credit in accordance with the requirements of subsections B and C of this section.</i> The use of courses that meet the provisions of 8 VAC 20-131-50 M but are not listed below is a school division decision.</p>			
Advanced Placement United States History	2319	04104	See Footnote #2
International Baccalaureate United States History (Higher Level)	IB2360	04054 (1 of 2)	See Footnote #2
Advanced Placement World History	2380	04057	See Footnote #2
Advanced Placement European History	2399	04056	See Footnote #2
International Baccalaureate History of Europe	IB2219	04054 (2 of 2)	See Footnote #2
Advanced Placement Human Geography	2212	04004	See Footnote #2
International Baccalaureate Geography	IB2210	04003	See Footnote #2
Advanced Placement Government and Politics: United States	2445	04157	None
Advanced Placement Government and Politics: Comparative	2450	04158	None

¹The Board of Education's Guidelines on Credit Accommodations allow students with disabilities who are eligible for credit accommodations in history and social science to use each part of Virginia and United States History, Parts I and II, and Virginia and United States Government, Parts I and II, to earn a standard credit towards the three history and social science credits required for the Standard Diploma only. A student who chooses to earn standard credits by taking both Virginia and United States History and Virginia and United States Government in two parts must complete *both* parts of both courses to meet the minimum course requirements, and would earn three standard credits in history and social science plus one additional elective credit; and the only verified credit available in this course configuration would be in Virginia and United States History. Two-part courses may also be combined with full-year courses in other Board- approved history and social science courses to meet the requirements.

²If students have not taken a lower level course and/or the associated test earlier, the approved end-of-course test or an approved substitute assessment test will be required at the completion of the Advanced Placement or International Baccalaureate course.

Additional Requirements

Fine Arts, Career and Technical Education, and Foreign Language - The Standard, Advanced Studies, and Modified Standard Diplomas each contain options or requirements in Fine Arts, Career and Technical Education, and/or Foreign Language.

The Standards of Accreditation do not require that courses used to satisfy the requirements in these subject areas be approved by the Board. Therefore, local school officials should use their own judgment in determining which courses students take to satisfy the specific credit requirements in Fine Arts, Career and Technical Education, or Foreign Language for the Standard, Advanced Studies, and Modified Standard Diplomas.

Foreign Language - The Advanced Studies Diploma contains a requirement for either three years of one foreign language or two years of two languages. In March 1998, the Board of Education approved the provision of three years of instruction in American Sign Language (ASL) for foreign language credit toward meeting graduation requirements; other foreign languages will satisfy this requirement as well. Details of this action are available in Superintendent's Memorandum, Interpretive, No. 1, June 12, 1998 (http://www.doe.virginia.gov/administrators/superintendents_memos/1998/int001.html).

Graduating Class of 2003 and Beyond

Sequential Electives – Effective with the graduating class of 2003, students who wish to receive a Standard or Modified Standard Diploma must successfully complete two sequential electives, which should provide a foundation for further education or training or preparation for employment. The Board of Education's *Guidance Document Governing Certain Provisions of the Regulations Establishing Standards for Accrediting Public Schools in Virginia*, available at <http://www.doe.virginia.gov/boe/accreditation/soa-guidance-provisions.doc>, provides additional information related to how this requirement may be satisfied.

Entering Ninth-Grade Class of 2011-2012 and Beyond

Economics and Personal Finance – Effective with the *entering 9th-grade class of 2011-2012*, Economics and Personal Finance is a required course for graduation in the Commonwealth. Various options exist to satisfy the Economics and Personal Finance graduation requirement for the Standard and Advanced Studies Diplomas, including the following:

- Economics and Personal Finance (6120/22210 (1 of 2)), 36 weeks (formerly named Finance)
- Semester options:
 - Finance 6121/22210 (2 of 2), 18 weeks *along with*
 - Economics 2801/04249, 18 weeks
- Other courses that are aligned with the Economics and Personal Finance Standards of Learning.

Provisions in Economics and Personal Finance for Students with Disabilities Eligible for Credit Accommodations as Determined by their Individualized Education Program (IEP)

The Personal Living and Finance course (3120/02003) may satisfy the Economics and Personal Finance requirement for the Standard Diploma if:

- It has been augmented to include the 21 Work Readiness Skills (WRS) for the Commonwealth, *and*
- The student earns at least 3 standard credits in history and social science, with the economics strands in these courses serving as a credit accommodation.

Upon completion of the augmented Personal Living and Finance course, the student may take the WRS assessment to earn the Board-approved Work Readiness Skills credential. This approach would satisfy the graduation requirements for Economics and Personal Finance, history and social science, and the workplace credential.

Entering Ninth-Grade Class of 2013-2014 and Beyond

Career and Technical Education Credential – Effective with the *entering 9th-grade class of 2013-2014*, students must earn a career and technical education credential approved by the Board of Education in order to earn a Standard Diploma. This credential could include, but is not limited to, an industry certification, a state licensure examination, a national occupational competency assessment, or the Virginia workplace readiness assessment.

Virtual Course – Effective with the *entering 9th-grade class of 2013-2014*, students must complete one virtual course, which may be a noncredit-bearing course or a required or elective credit-bearing course that is offered online.

Entering Ninth-Grade Class of 2016-2017 and Beyond

Training in Emergency First Aid, CPR, and Use of an AED - Beginning with first-time ninth grade students in the 2016-2017 school year, requirements for the standard and advanced diplomas shall include a requirement to be trained in emergency first aid, cardiopulmonary resuscitation, and the use of automated external defibrillators, including hands-on practice of the skills necessary to perform cardiopulmonary resuscitation.

**Courses Approved for the Modified Standard Diploma,
Effective Only for Students with Disabilities Who Entered the Ninth Grade Prior to 2013-2014**

HB 1061 and SB 489 in the 2012 General Assembly eliminated the Modified Standard Diploma and directed the Board of Education to make provisions in its regulations for students with disabilities to earn a Standard Diploma. On June 28, 2012, the Board approved emergency amendments to 8 VAC 20-131-50 of the Regulations Establishing Standards for Accrediting Public Schools in Virginia indicated its intent to establish guidelines for credit accommodations for this purpose. On March 28, 2013, the Board of Education approved Guidelines for Standard Diploma Credit Accommodations for Students with Disabilities.

As such, the Modified Standard Diploma will no longer be an option for students entering the ninth grade for the first time in 2013-2014 and beyond. Students with disabilities may be eligible for Standard Diploma credit accommodations in certain subject areas as noted in footnotes in previous sections of this document.

The *Regulations Establishing Accrediting Standards for Public Schools in Virginia* provide the option of a Modified Standard Diploma for "...certain students at the secondary level who have a disability and are unlikely to meet the credit requirements for a Standard Diploma. Eligibility and participation in the Modified Standard Diploma program shall be determined by the student's Individual Education Program (IEP) team and the student, where appropriate, at any point after the student's eighth grade year." (8 VAC 20-131-50.F.1). At its November 30, 2000, meeting, the Board of Education approved the list of mathematics, science, and history and social science courses to satisfy the standard units of credit that are required for the Modified Standard Diploma. Subsequent to that time, some additional courses have been approved as additions to the original list.

The approved list and the provisions identified for certain courses on the following list apply only to the Modified Standard Diploma. This list of courses provides students with options for satisfying the content requirements specified for the Modified Standard Diploma. To encourage and facilitate students' transition from a Modified Standard Diploma program to a Standard or Advanced Studies Diploma program, the list includes some of the courses approved by the Board of Education for the Standard and Advanced Studies Diplomas.

While students are not required to pass Standards of Learning end-of-course tests to earn a Modified Standard Diploma, they must take the tests that are required for any courses in which they are enrolled. Instruction provided in these courses, as well as the Standards of Learning tests associated with them, would be subject to any accommodations required in a student's Individual Education Program (IEP).

Mathematics

Mathematics Course Title	Virginia Course Codes	SCED Codes	SOL Test
<i>Courses that will satisfy the mathematics requirement for the Modified Standard Diploma shall include content from among applications of algebra, geometry, personal finance, and probability and statistics. Any of the following courses can be used to satisfy the mathematics content requirement.</i>			
Personal Living and Finance ¹	3120	02003	None
Economics and Personal Finance ¹	6120	22210	None
<i>Courses at or above the level of Algebra</i>			
Algebra I, 2-yr. Sequence, Part I ²	3131	02053	None
Algebra I, 2-yr. Sequence Part II	3132	02054	See Footnote #3
Algebra I	3130	02052	See Footnote #3
Geometry, 2-yr. Sequence, Part I ²	3144	02079 (1 of 2)	None
Geometry, 2-yr. Sequence, Part II	3145	02079 (2 of 2)	See Footnote #3
Geometry	3143	02072	See Footnote #3
Algebra/Geometry, 3-yr. Sequence, Course I	3146	02074 (1 of 3)	See Footnote #4
Algebra/Geometry, 3-yr. Sequence, Course II	3147	02704 (2 of 3)	See Footnote #4
Algebra/Geometry, 3-yr. Sequence, Course III	3148	02074 (3 of 3)	See Footnote #4

Mathematics Course Title	Virginia Course Codes	SCED Codes	SOL Test
Algebra I/Geometry/Algebra II, 3-yr. Sequence, Course I	3151	02061 (1 of 3)	See Footnote #4
Algebra I/Geometry/Algebra II, 3-yr. Sequence, Course II	3152	02061 (2 of 3)	See Footnote #4
Algebra I/Geometry/Algebra II, 3-yr. Sequence, Course III	3153	02061 (3 of 3)	See Footnote #4
Algebra, Functions, and Data Analysis	3134	99001	See Footnote #5
Computer Mathematics	3184	02156	None
<i>Courses at or above the level of Algebra II</i>			
Algebra II	3135	02056	See Footnote #3
Algebra II and Trigonometry	3137	02106	See Footnote #3
Trigonometry (one semester)	3150	02103	None
Advanced Placement Computer Science A	3185	10157	None
Advanced Placement Computer Science AB	No Virginia Code	10158	None
Probability and Statistics ⁶	3190	02201	None
Advanced Placement Statistics	3192	02203	None
Discrete Mathematics ⁶	3154	02102	None
Mathematics Capstone ⁷	3136	99002	None
Advanced Mathematics	3160	02057	None

Mathematics Course Title	Virginia Course Codes	SCED Codes	SOL Test
Mathematical Analysis/Pre-Calculus	3162	02104	None
Elementary Mathematics Functions	3163	02109	None
Advanced Placement Calculus AB	3177	02124	None
Advanced Placement Calculus BC	No Virginia Code	02125	None
Analytic Geometry	3176	02073	None
Multivariate Calculus	3178	02122	None

¹A personal living and finance course has been approved to meet a mathematics requirement for the Modified Standard Diploma. The personal living and finance course (3120/02003) may not be used to satisfy the mathematics requirement or the Economics and Personal Finance requirement for the Standard and Advanced Studies Diplomas. For the purpose of satisfying this requirement for the Modified Standard Diploma, one of the following options may be used: 1) a locally developed personal living and finance course based on the *Objectives for Personal Living and Finance* approved by the Board of Education in April 1999, and revised in 2006; 2) a course based on the 2006 *Economics Education and Financial Literacy: Objectives and Correlations to Mathematics and History and Social Science Standards of Learning and Career and Technical Education Competencies*; or 3) an economics and personal finance course based on the Standards of Learning for Economics and Personal Finance for a course to satisfy the requirements for the Standard and Advanced Studies Diplomas.

²Students may earn one mathematics credit for the Modified Standard Diploma by successfully completing this course.

³Students who are enrolled in a course that requires an end-of-course SOL test must take the test, but they do not have to pass the SOL test to satisfy the requirement for the Modified Standard Diploma.

⁴Students will take the Algebra I, Geometry, and/or Algebra II SOL test(s) when they have completed the appropriate SOL content, as determined by the local school division, but they do not have to pass the test(s) to satisfy the requirement for the Modified Standard Diploma.

⁵The Algebra, Functions and Data Analysis SOL test development has been indefinitely delayed, pending available funding.

⁶May be a one-semester or two-semester course.

⁷Prerequisites for the 12th-grade (senior level) course include earning at least two verified credits in mathematics, and satisfactory completion of either Algebra, Functions, and Data Analysis or Algebra II.

Students seeking the Advanced Studies Diploma, whose course sequences include the Mathematics Capstone course, must also take Algebra II.

Science

Science Course Title	Virginia Course Codes	SCED Codes	SOL Test
<i>Courses that will satisfy the science requirement for the Modified Standard Diploma shall include content from at least two of the following: applications of <u>environmental science</u>, earth science, biology, chemistry, or physics.</i>			
<u>Courses in the discipline of Environmental Sciences</u>			
<u>Environmental Science</u> ⁶		<u>03003</u>	<u>None</u>
<u>Advanced Placement in Environmental Science</u>		<u>03207</u>	<u>None</u>
<i>Courses at or above the level of Earth Science</i>			
Earth Science I, 2-Year Sequence, Part I ¹	4200	03049 (1 of 2)	None
Earth Science I, 2-Year Sequence, Part II	4201	03049 (2 of 2)	See Footnote #2
Earth Science I	4210	03001	See Footnote #2
Earth Science II – Advanced Survey of Earth Science Topics	4220	03049	***
Advanced Placement Environmental Science	4270	03207	***
Earth Science II – Geology	4240	03002	None
Earth Science II – Oceanography	4250	03005	None
Earth Science II – Astronomy	4260	03004	None

Science Course Title	Virginia Course Codes	SCED Codes	SOL Test
<i>Courses at or above the level of Biology</i>			
Biology I, 2-Year Sequence, Part I ¹	4300	03099 (1 of 2)	None
Biology I, 2-Year Sequence, Part II	4301	03099 (2 of 2)	See Footnote #2
Biology I	4310	03051	See Footnote #2
Biology II – Advanced Survey of Biology Topics	4320	03052	See Footnote #3
Advanced Placement Biology	4370	03056	See Footnote #3
Biology II – Anatomy/Physiology	4330	03053	None
Biology II – Ecology	4340	03063	None
Biology II – Genetics	4350	03059	None
<i>Courses at or above the level of Chemistry</i>			
Chemistry I, 2-Year Sequence, Part I ¹	4400	03149 (1 of 2)	None
Chemistry I, 2-Year Sequence, Part II	4401	03149 (2 of 2)	See Footnote #2
Chemistry I	4410	03101	See Footnote #2
Advanced Placement Chemistry	4470	03106	See Footnote #3
Chemistry II	4420	03102	None
<i>Courses at or above the level of Physics</i>			
Physics I	4510	03151	None

Science Course Title	Virginia Course Codes	SCED Codes	SOL Test
Advanced Placement Physics B	4570	03155	None
Advanced Placement Physics C	4571	03156	None
Physics II	4520	03152	None
Principles of Technology I ⁵	9811	10153(1 of 2)	None
Principles of Technology II	9812	10153 (2 of 2)	None
<i>Integrated Sciences - Earth Sciences/Biology/Chemistry</i>			
Integrated Science, 3-Year Sequence, Course 1	4211	03201 (1 of 3)	See Footnote #4
Integrated Science, 3-Year Sequence, Course 2	4311	03201 (2 of 3)	See Footnote #4
Integrated Science, 3-Year Sequence, Course 3	4411	03201 (3 of 3)	See Footnote #4

¹Students may earn one science credit towards the Modified Standard Diploma by successfully completing this course.

²Students who are enrolled in a course that requires an end-of-course SOL test must take the test, but they do not have to pass the SOL test to satisfy the requirement for the Modified Standard Diploma.

³Students who have not already taken a course in this discipline where a SOL test is required will take the SOL test associated with this discipline, but they do not have to pass the test to satisfy the requirement for the Modified Standard Diploma.

⁴Students will take the Earth Science, Biology, and Chemistry test(s) when they have completed the appropriate SOL content, as determined by the local school division, but they do not have to pass the test to satisfy the requirement for the Modified Standard Diploma.

⁵The sequence of Principles of Technology I [9811/03153 (1 of 2)] and Principles of Technology II [9812/03153 (2 of 2)] will satisfy one (1) standard unit of credit in laboratory science for physics and one (1) elective credit. Students who enroll in Principles of Technology courses for a physics credit must

have completed Algebra I and two (2) other laboratory science courses as specified by the Standards of Accreditation prior to enrolling in Principles of Technology. There is no SOL test associated with Principles of Technology I and II.

⁶ Environmental Science will be offered as laboratory science credit beginning with students graduating in 2018. It is highly recommended that students planning to apply or attend college take four science courses to include Biology, Chemistry, and Physics.

History and Social Science

History and Social Science Course Title	Virginia Course Code	SCED Codes	SOL Test
<i>Courses that will satisfy the history and social science requirement for the Modified Standard Diploma shall include one unit of credit in Virginia and United States History and one unit of credit in Virginia and United States Government.</i>			
<i>Courses at or above the level of Virginia and United States History</i>			
Virginia and United States History, 2-Year Sequence, Part I ¹	2361	04102	None
Virginia and United States History, 2-Year Sequence, Part II	2362	04103	See Footnote #2
Virginia and United States History	2360	04101	See Footnote #2
Advanced Placement United States History	2319	04104	See Footnote #2
American Civilization (must include the SOL for United States History)	2376	04149	See Footnote #2
<i>Courses at or above the level of Virginia and United States Government</i>			
Virginia and United States Government	2440	04151	None
Advanced Placement Government and Politics: United States	2445	04157	None

¹Students may earn one credit in Virginia and United States History for the Modified Standard Diploma by successfully completing this course. This course may be treated as a survey course of Virginia and United States History topics in the SOL.

²Students who are enrolled in a course that requires an end-of-course SOL test must take the test, but they do not have to pass the SOL test to satisfy the requirement for the Modified Standard Diploma.