

REGULAR

STATE OF CALIFORNIA—OFFICE OF ADMINISTRATIVE LAW

NOTICE PUBLICATION/REGULATIONS SUBMISSION

(See instructions on reverse)

For use by Secretary of State only

STD. 400 (REV. 01-2013)

OAL FILE NUMBERS	NOTICE FILE NUMBER Z-2015-0811-05	REGULATORY ACTION NUMBER 2015-1029-055	EMERGENCY NUMBER
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ENDORSED - FILED
in the office of the Secretary of State
of the State of California

DEC 14 2015

3:49 PM

For use by Office of Administrative Law (OAL) only

<p>RECEIVED FOR FILING PUBLICATION DATE</p> <p>AUG 11 '15 AUG 21 '15</p> <p>Office of Administrative Law</p> <p>NOTICE</p>	<p>2015 OCT 29 P 2:26</p> <p>OFFICE OF ADMINISTRATIVE LAW</p> <p>REGULATIONS</p>
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AGENCY WITH RULEMAKING AUTHORITY Commission on Teacher Credentialing	AGENCY FILE NUMBER (if any)
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A. PUBLICATION OF NOTICE (Complete for publication in Notice Register)

1. SUBJECT OF NOTICE Supplementary Authorization in Computer Science	TITLE(S) 5	FIRST SECTION AFFECTED 80057	2. REQUESTED PUBLICATION DATE August 21, 2015
3. NOTICE TYPE <input checked="" type="checkbox"/> Notice re Proposed Regulatory Action <input type="checkbox"/> Other	4. AGENCY CONTACT PERSON David Crable	TELEPHONE NUMBER (916) 323-5119	FAX NUMBER (Optional) (916) 322-0048
OAL USE ONLY <input type="checkbox"/> Approved as Submitted <input type="checkbox"/> Approved as Modified <input type="checkbox"/> Disapproved/Withdrawn	ACTION ON PROPOSED NOTICE	NOTICE REGISTER NUMBER 2015 34-2	PUBLICATION DATE 8/21/2015

B. SUBMISSION OF REGULATIONS (Complete when submitting regulations)

1a. SUBJECT OF REGULATION(S) SUPPLEMENTARY AUTHORIZATION IN COMPUTER SCIENCE	1b. ALL PREVIOUS RELATED OAL REGULATORY ACTION NUMBER(S)
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2. SPECIFY CALIFORNIA CODE OF REGULATIONS TITLE(S) AND SECTION(S) (Including title 26, if toxics related)				
<table border="1"> <tr> <td rowspan="3">SECTION(S) AFFECTED (List all section number(s) individually. Attach additional sheet if needed.)</td> <td>ADOPT</td> </tr> <tr> <td>AMEND 80057, 80089 80057.5, 80089, 80089.1, 80089.2 per agency request</td> </tr> <tr> <td>REPEAL</td> </tr> </table>	SECTION(S) AFFECTED (List all section number(s) individually. Attach additional sheet if needed.)	ADOPT	AMEND 80057, 80089 80057.5, 80089, 80089.1, 80089.2 per agency request	REPEAL
SECTION(S) AFFECTED (List all section number(s) individually. Attach additional sheet if needed.)		ADOPT		
		AMEND 80057, 80089 80057.5, 80089, 80089.1, 80089.2 per agency request		
	REPEAL			
TITLE(S) 5				

3. TYPE OF FILING			
<input checked="" type="checkbox"/> Regular Rulemaking (Gov. Code §11346) <input type="checkbox"/> Resubmittal of disapproved or withdrawn nonemergency filing (Gov. Code §§11349.3, 11349.4) <input type="checkbox"/> Emergency (Gov. Code, §11346.1(b))	<input type="checkbox"/> Certificate of Compliance: The agency officer named below certifies that this agency complied with the provisions of Gov. Code §§11346.2-11347.3 either before the emergency regulation was adopted or within the time period required by statute. <input type="checkbox"/> Resubmittal of disapproved or withdrawn emergency filing (Gov. Code, §11346.1)	<input type="checkbox"/> Emergency Readopt (Gov. Code, §11346.1(h)) <input type="checkbox"/> File & Print <input type="checkbox"/> Other (Specify) _____	<input type="checkbox"/> Changes Without Regulatory Effect (Cal. Code Regs., title 1, §100) <input type="checkbox"/> Print Only

4. ALL BEGINNING AND ENDING DATES OF AVAILABILITY OF MODIFIED REGULATIONS AND/OR MATERIAL ADDED TO THE RULEMAKING FILE (Cal. Code Regs. title 1, §44 and Gov. Code §11347.1)

5. EFFECTIVE DATE OF CHANGES (Gov. Code, §§ 11343.4, 11346.1(d); Cal. Code Regs., title 1, §100)
<input checked="" type="checkbox"/> Effective January 1, April 1, July 1, or October 1 (Gov. Code §11343.4(a)) <input type="checkbox"/> Effective on filing with Secretary of State <input type="checkbox"/> \$100 Changes Without Regulatory Effect <input type="checkbox"/> Effective other (Specify) _____

6. CHECK IF THESE REGULATIONS REQUIRE NOTICE TO, OR REVIEW, CONSULTATION, APPROVAL OR CONCURRENCE BY, ANOTHER AGENCY OR ENTITY
<input type="checkbox"/> Department of Finance (Form STD. 399) (SAM §6660) <input type="checkbox"/> Fair Political Practices Commission <input type="checkbox"/> State Fire Marshal <input type="checkbox"/> Other (Specify) _____

7. CONTACT PERSON DAVID CRABLE	TELEPHONE NUMBER 916-323-5119	FAX NUMBER (Optional) 916-322-0048	E-MAIL ADDRESS (Optional) dcrable@ctc.ca.gov
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8. I certify that the attached copy of the regulation(s) is a true and correct copy of the regulation(s) identified on this form, that the information specified on this form is true and correct, and that I am the head of the agency taking this action, or a designee of the head of the agency, and am authorized to make this certification.

SIGNATURE OF AGENCY HEAD OR DESIGNEE 	DATE 10/29/15
TYPED NAME AND TITLE OF SIGNATORY Mary Vixie Sandy, Executive Director	

For use by Office of Administrative Law (OAL) only

ENDORSED APPROVED

DEC 14 2015

Office of Administrative Law

NOTICE PUBLICATION/REGULATIONS SUBMISSION

STD. 400 (REV. 01-2013) (REVERSE)

**INSTRUCTIONS FOR PUBLICATION OF NOTICE
AND SUBMISSION OF REGULATIONS**

Use the form STD. 400 for submitting notices for publication and regulations for Office of Administrative Law (OAL) review.

ALL FILINGS

Enter the name of the agency with the rulemaking authority and agency's file number, if any.

NOTICES

Complete Part A when submitting a notice to OAL for publication in the California Regulatory Notice Register. Submit two (2) copies of the STD. 400 with four (4) copies of the notice and, if a notice of proposed regulatory action, one copy each of the complete text of the regulations and the statement of reasons. Upon receipt of the notice, OAL will place a number in the box marked "Notice File Number." If the notice is approved, OAL will return the STD. 400 with a copy of the notice and will check "Approved as Submitted" or "Approved as Modified." If the notice is disapproved or withdrawn, that will also be indicated in the space marked "Action on Proposed Notice." Please submit a new form STD. 400 when resubmitting the notice.

REGULATIONS

When submitting regulations to OAL for review, fill out STD. 400, Part B. Use the form that was previously submitted with the notice of proposed regulatory action which contains the "Notice File Number" assigned, or, if a new STD. 400 is used, please include the previously assigned number in the box marked "Notice File Number." In filling out Part B, be sure to complete the certification including the date signed, the title and typed name of the signatory. The following must be submitted when filing regulations: seven (7) copies of the regulations with a copy of the STD. 400 attached to the front of each (one copy must bear an original signature on the certification) and the complete rulemaking file with index and sworn statement. (See Gov. Code § 11347.3 for rulemaking file contents.)

RESUBMITTAL OF DISAPPROVED OR WITHDRAWN REGULATIONS

When resubmitting previously disapproved or withdrawn regulations to OAL for review, use a new STD. 400 and fill out Part B, including the signed certification. Enter the OAL file number(s) of all previously disapproved or withdrawn filings in the box marked "All Previous Related OAL Regulatory Action Number(s)" (box 1b. of Part B). Submit seven (7) copies of the regulation to OAL with a copy of the STD. 400 attached to the front of each (one copy must bear an original signature on the certification). Be sure to include an index, sworn statement, and (if returned to the agency) the complete rulemaking file. (See Gov. Code §§ 11349.4 and 11347.3 for more specific requirements.)

EMERGENCY REGULATIONS

Fill out only Part B, including the signed certification, and submit seven (7) copies of the regulations with a copy of the STD. 400 attached to the front of each (one copy must bear an original signature on the certification). (See Gov. Code §11346.1 for other requirements.)

NOTICE FOLLOWING EMERGENCY ACTION

When submitting a notice of proposed regulatory action after an emergency filing, use a new STD. 400 and complete Part A and insert the OAL file number(s) for the original emergency filing(s) in the box marked "All Previous Related OAL Regulatory Action Number(s)" (box 1b. of Part B), OAL will return the STD. 400 with the notice upon approval or disapproval. If the notice is disapproved, please fill out a new form when resubmitting for publication.

CERTIFICATE OF COMPLIANCE

When filing the certificate of compliance for emergency regulations, fill out Part B, including the signed certification, on the form that was previously submitted with the notice. If a new STD. 400 is used, fill in Part B including the signed certification, and enter the previously assigned notice file number in the box marked "Notice File Number" at the top of the form. The materials indicated in these instructions for "REGULATIONS" must also be submitted.

EMERGENCY REGULATIONS - READOPTION

When submitting previously approved emergency regulations for reoption, use a new STD. 400 and fill out Part B, including the signed certification, and insert the OAL file number(s) related to the original emergency filing in the box marked "All Previous Related OAL Regulatory Action Number(s)" (box 1b. of Part B).

CHANGES WITHOUT REGULATORY EFFECT

When submitting changes without regulatory effect pursuant to California Code of Regulations, Title 1, section 100, complete Part B, including marking the appropriate box in both B.3. and B.5.

ABBREVIATIONS

Cal. Code Regs. - California Code of Regulations
Gov. Code - Government Code
SAM - State Administrative Manual

For questions regarding this form or the procedure for filing notices or submitting regulations to OAL for review, please contact the Office of Administrative Law Reference Attorney at (916) 323-6815.

CALIFORNIA CODE OF REGULATIONS
TITLE 5. EDUCATION
DIVISION 8. COMMISSION ON TEACHER CREDENTIALING

§80057.5. Adding Supplementary Authorizations to Teaching Credentials Used Predominantly in Elementary Schools.

- (a) The holder of a valid teaching credential specified in Education Code Section 44256(b) may have one or more of the subjects listed in subsection (c) added as a supplementary authorization. The candidate or an approved institution shall verify completion of either (1) or (2) below:
- (1) 20 semester hours or 10 upper division semester hours of non-remedial collegiate course work in each subject from subsection (c) to be listed, or
 - (2) a collegiate major in a subject directly related to each subject from subsection (c) to be listed.
A "C" grade or above in any course used to meet the provisions of this section shall be required. Non-remedial coursework for the purposes of this section shall be defined as coursework that is applicable toward a bachelor's degree or a higher degree at a regionally accredited college or university.
- (b) Candidates seeking supplementary authorization in any language other than English shall, in addition to requirements specified in subsection (a), submit verification of having either (1), (2), (3), or (4) below:
- (1) passed the oral language portion of the Bilingual Certificate of Competence Examination in the language to be listed on the credential. Such verification shall be in the form of a letter from any institution or other educational agency, approved by the Commission as an assessor agency for the Bilingual Certificate of Competence. Whenever a written assessment instrument for a language other than Spanish is not available, a panel may be used by assessor agencies to assess a candidate's knowledge of the target language competencies, in accordance with Commission guidelines regulating assessment for languages other than Spanish, or
 - (2) passed the speaking and listening sections of Test 6 of the Crosscultural Language and Academic Development/Bilingual Crosscultural Language and Academic Development (CLAD/BCLAD) Examinations described in Section 80015.3 in the language to be listed on the credential; or
 - (3) oral proficiency in the language to be listed on the credential at a level equivalent to that of a person with a bachelor's degree with a major in that language. This level of proficiency shall be verified by a letter from the Chair of the Language Department of a regionally accredited four year college or university, or
 - (4) oral proficiency in the language to be listed on the credential at the level required to complete a Bilingual Emphasis or Bilingual Crosscultural Language and Academic Development (BCLAD) Emphasis Credential Program as verified by a letter from a person authorized to issue such verification by the college or university that offers such a program.
- (c) The following subjects may be added as supplementary authorizations to a valid teaching credential specified in Education Code Section 44256(b):

- (1) Agriculture, including at least one course in each of the following areas: animal science, plant science, and agricultural mechanics;
- (2) Art, including at least one course in each of the following areas: drawing and painting, art history or appreciation, and crafts;
- (3) Business, including at least one course in each of the following areas: business management, business marketing or introduction to business, computer concepts and applications, economics, business communications or business English, and accounting;
- (4) ~~Computer Concepts and Applications~~ Science, including at least one course in each of the following areas: ~~software evaluation and selection, hardware operation and functions, and classroom uses of computers~~ computational thinking, computing practice and programming, computer and communications devices, and impacts of computing. The course of study must cover all content areas but impacts of computing may be met within a single course also used to meet one of the other required content areas;
- (5) English, including at least one course in each of the following areas: grammar or language structure, composition, and literature;
- (6) A Language Other Than English (Specify), including at least one course in the language covering each of the following areas: grammar, composition, conversation, and literature;
- (7) Health Science, including at least one course in each of the following areas: substance abuse (including alcohol, drug, and tobacco), family life education (including human sexuality, HIV/AIDS, and sexually transmitted diseases), nutrition, comprehensive school health systems or programs, and health education theory, behavior, or foundations;
- (8) Home Economics, including at least one course in each of the following areas: food and nutrition, clothing, child development, and family life and parenting;
- (9) Industrial Arts, including at least one course in each of the following areas: drafting or graphic arts, woods or metals, and electricity or electronics;
- (10) Mathematics, including at least one course in each of the following areas (all course work shall be at least at a level for which intermediate algebra is a prerequisite): algebra, geometry, and development of the real number system or introduction to mathematics; or three courses in calculus or other mathematics courses for which algebra and geometry are prerequisites;
- (11) Music, including at least one course in each of the following areas: vocal music, instrumental music, music history or appreciation, and music theory;
- (12) Physical Education, including at least one course in each of the following areas: team sports and games, fundamental and creative movement skills (such as dance and gymnastics), human movement, motor development, and/or motor learning, and individual, dual, nontraditional and global sports and games (such as aquatics, conditioning, and archery);
- (13) Science, including at least one course in each of the following areas: biological sciences, chemistry, geosciences, and physics; and
- (14) Social Science, including at least one course in each of the following areas: United States history, California history, world history, geography, and United States government.

- (d) Home Economics Supplementary Authorizations must include a laboratory component in one of the listed subject areas. The course of study must cover both subject areas of food and nutrition but a single course may be used to meet the requirement. The course of study must cover both subject areas of family life and parenting, but a single course may be used to meet the requirement.
- (e) Science Supplementary Authorizations Authorized by ~~80057.5((c)13)~~ subdivision (c)(13) shall include a one-year sequence of courses in at least two of the listed subject areas. At least one course must include a laboratory component.
- (f) ~~A subject specified in subsection (c) and listed on a teaching credential specified in Education Code Section 44256(b) as a supplementary authorization shall authorize the teaching of courses related to that subject in departmentalized classes in grades 9 and below. The course of study for the Computer Science Supplementary Authorization authorized by subdivision (c)(4) must include coursework aligned with the following definitions:~~
- (1) Computational thinking—includes solving problems and designing systems, using fundamental computing concepts such as decomposition, data representation, generalization/abstraction, and algorithms.
 - (2) Computing practice and programming—includes expertise in at least one block-based, visual (drag-and-drop) programming language, or a modern, high-level programming language.
 - (3) Computer and communications devices—covers the major components and functions of digital devices and the computing systems they compose.
 - (4) Impacts of computing: including the social, ethical, and legal issues and impacts of computing, as well as the contributions of computer science to current and future innovations in sciences, humanities, the arts, and commerce. These topics may be included within any of the courses covering content areas (f)(1) through (f)(3).
- (g) ~~Applicants who are progressing toward completion of supplementary authorization requirements as they existed on July 1, 1996, shall have until July 1, 1998, to apply for said authorizations. A subject specified in subsection (c) and listed on a teaching credential specified in Education Code Section 44256(b) as a supplementary authorization shall authorize the teaching of courses related to that subject in departmentalized classes in grades 9 and below.~~
- (h) Applicants currently enrolled in coursework toward completion of requirements for the Supplementary Authorization in Computer Concepts and Applications must complete the required coursework and submit an application for this supplementary authorization no later than April 1, 2016. After that date, applicants must complete coursework for the Supplementary Authorization in Computer Science that meets the definitions listed in (f)(1) through (f)(4).

Note: Authority cited: Section 44225(b), Education Code. Reference: Section 44256(b), Education Code.

§80089. Adding Supplementary Authorizations to Teaching Credentials Used Predominantly in Secondary Schools.

(a) The holder of a valid teaching credential specified in Education Code Section 44256(a) may have one or more of the subjects listed in Sections 80089.1 and 80089.2, added as a supplementary authorization. The candidate or an approved institution shall verify completion of either (1) or (2) below:

- (1) 20 semester hours or 10 upper division semester hours of non-remedial collegiate coursework in a subject listed in Sections 80089.1 or 80089.2, or
- (2) a collegiate major in a subject directly related to each subject listed in Sections 80089.1 or 80089.2. A "C" grade or above in any course used to meet provisions of this section shall be required. Non-remedial coursework for the purposes of this section shall be defined as coursework that is applicable to a bachelor's degree or a higher degree at a regionally accredited college or university.

(b) Authorization.

- (1) A supplementary authorization added under the provisions of Section 80089.1 authorizes the holder to teach that subject at any grade level; preschool, kindergarten, grades 1-12, or in classes organized primarily for adults;
- (2) A supplementary authorization added under the provisions of Section 80089.2 authorizes the holder to teach at any grade level (preschool, kindergarten, grades 1-12, or in classes organized primarily for adults) only the subject matter content typically included for that subject in curriculum guidelines and textbooks for study in grades 9 and below.

~~(c) Applicants who are progressing toward completion of supplementary authorization requirements as they existed on July 1, 1996, shall have until July 1, 1998, to apply for said authorizations.~~

Note: Authority cited: Section 44225, Education Code. Reference: Sections 44256 and 44349, Education Code.

§80089.1. Subjects Added as Supplementary Authorizations (Specific Subjects).

(a) The following listed subjects may be added as supplementary authorizations to a valid teaching credential specified in Education Code Section 44256(a):

Accounting including finance	Forestry and horticulture
Agricultural mechanics	Geography
Animal science	Geosciences
Anthropology	Graphic Arts
Auto mechanics	Industrial crafts and plastics
Biological Sciences	Instrumental music
Chemistry	Interior design (home economics)
Child development (home economics)	Journalism
Clothing and textiles (home economics)	Literature
Comparative political systems and international relations	Marketing/entrepreneurship
Computer concepts and applications science	Metals (industrial arts)
Consumer education (home economics)	Metals (Industrial Arts)
Crafts, including jewelry and ceramics (art)	Office technologies including word processing and business communications
Dance	Ornamental horticulture
Drafting	Painting and drawing
Drama	Photography
Economics	Physics
Economic and consumer education	Plant Science
Electronics	Plastics (industrial arts)
English Composition	Psychology
Family life and parenting (home economics)	Sociology
Family life education including drug, alcohol and tobacco use prevention (health science)	Speech
Food and nutrition (home economics)	US Government and US Civics
	US History and California History
	Vocal Music
	Woods (industrial arts)
	World History

(b) A supplementary authorization in a specific subject of Science may be added to a valid teaching credential specified in Education Code Section 44256(a). The course of study for Biological Sciences or Chemistry or Geosciences or Physics must include each of the components for that area. One of the courses must include a laboratory component.

- (1) Biological Sciences, including: Molecular and Cellular Biology, Biology of Organisms, and Evolution.
- (2) Chemistry, including: Structure and Stability, and Chemical Reactions.
- (3) Geosciences, including: Astronomy, Geology, Meteorology and Oceanography.
- (4) Physics, including: Energy - Mechanics, Energy - Heat Energy - Electricity and Magnetism, Wave Motion and Atomic and Nuclear Physics.

- (c) A supplementary authorization in each of the specific subjects of Child development (home economics), Clothing and textiles (home economics), Food and nutrition (home economics), and Interior design (home economics) must include a laboratory component.
- (d) A supplementary authorization in the subject of Family life education including drug, alcohol, and tobacco use prevention (health science) must include the following components: sexually transmitted disease including HIV/AIDS, human development and human sexuality, parenting education, violence prevention, and drug, alcohol and tobacco use, prevention and cessation.
- (e) A supplementary authorization in the specific subject of Computer Science may be added to a valid teaching credential specified in Education Code Section 44256(a). The course of study must include coursework covering the following components:
- (1) Computer programming: including expertise in at least one modern, high-level programming language;
 - (2) Data structures and algorithms: data representation, abstraction, searching and sorting in the context of solving problems using programming and computational tools;
 - (3) Digital devices, systems and networks: covers devices and the systems they compose, including the concepts and abstractions that enable stand-alone, networked, and mobile digital devices to operate and communicate;
 - (4) Software design: the process of planning, engineering and implementing a software system to solve a problem, typically using both a design and a programming methodology. Programming methodologies that facilitate design include object-oriented and functional approaches; and
 - (5) Impacts of computing: including the social, ethical, and legal issues and impacts of computing, as well as the contributions of computer science to current and future innovations in sciences, humanities, the arts, and commerce. These topics may be included within any of the courses covering content areas (e)(1) through (e)(4).
- (f) Applicants currently enrolled in coursework toward completion of requirements for the Supplementary Authorization in Computer Concepts and Applications must complete the required coursework and submit an application for this supplementary authorization no later than April 1, 2016. After that date, applicants must complete coursework for the Supplementary Authorization in Computer Science that meets the definitions listed in (e)(1) through (e)(5).

Note: Authority cited: Section 44225, Education Code. Reference: Sections 44256 and 44349, Education Code.

§80089.2. Subjects Added as Introductory Supplementary Authorizations.

- (a) Candidates seeking supplementary authorization in any language other than English shall, in addition to the requirements specified in Section 80089, submit verification of having either (1), (2), (3), or (4) below:
- (1) passed the oral language portion of the Bilingual Certificate of Competence Examination in the language to be listed on the credential. Such verification shall be in the form of a letter from any institution or other educational agency, approved by the Commission as an assessor agency for the Bilingual Certificate of Competence. Whenever a written assessment instrument for a language other than Spanish is not available, a panel may be used by assessor agencies to assess a candidate's knowledge of the target language competencies, in accordance with Commission guidelines regulating assessment for languages other than Spanish, or
 - (2) passed the speaking and listening sections of Test 6 of the Crosscultural Language and Academic Development/Bilingual Crosscultural Language and Academic Development (CLAD/BCLAD) Examinations described in Section 80015.3 in the language to be listed on the credential; or
 - (3) oral proficiency in the language to be listed on the credential at a level equivalent to that of a person with a bachelor's degree with a major in that language. This level of proficiency shall be verified by a letter from the Chair of the Language Department of a regionally accredited 4 year college or university; or
 - (4) oral proficiency in the language to be listed on the credential at the level required to complete a Bilingual Emphasis or Bilingual Crosscultural Language and Academic Development (BCLAD) Emphasis Credential Program as verified by a letter from a person authorized to issue such verification by the college or university that offers such a program.
- (b) The following listed subjects may be added as introductory supplementary authorizations to a valid teaching credential specified in Education Code Section 44256(a).
- (1) Introductory Agriculture, including at least one course in each of the following areas: animal science, plant science, and agricultural mechanics;
 - (2) Introductory Art, including at least one course in each of the following areas: drawing and painting, art history or appreciation, and crafts;
 - (3) Introductory Business, including at least one course in each of the following areas: business management, business marketing or introduction to business, computer concepts and applications, economics, business communications or business English, and accounting;
 - (4) Introductory English, including at least one course in each of the following areas: composition, literature, and grammar or language structure;
 - (5) Introductory Language Other Than English (Specify), including at least one course in the language covering each of the following areas: grammar, composition, conversation, and literature;
 - (6) Introductory Health Sciences, including at least one course in each of the following areas: substance abuse (including alcohol, drug, and tobacco), family life education (including human sexuality, HIV/AIDS, and sexually transmitted diseases), nutrition, comprehensive

- school health systems or programs, and health education theory, behavior, or foundations;
- (7) Introductory Home Economics, including at least one course in each of the following areas: food and nutrition, clothing, child development, and family life and parenting;
 - (8) Introductory Industrial Arts, including at least one course in each of the following areas: drafting or graphic arts, woods or metals, and electricity or electronics;
 - (9) Introductory Mathematics, including at least one course in each of the following areas (all course work shall be at least at a level for which intermediate algebra is a prerequisite): college algebra, geometry, and development of the real number system or introduction to mathematics; or three courses in calculus or other mathematics courses for which algebra and geometry are prerequisites;
 - (10) Introductory Music, including at least one course in each of the following areas: vocal music, instrumental music, music history or appreciation, and music theory;
 - (11) Introductory Physical Education, including at least one course in each of the following areas: team sports and games; fundamental and creative movement skills (such as dance and gymnastics); human movement, motor development, and/or motor learning; and individual, dual, nontraditional and global sports and games (such as aquatics, conditioning, and archery);
 - (12) Introductory Science, including at least one course in each of the following areas: biological sciences, chemistry, geosciences, and physics; and
 - (13) Introductory Social Science, including at least one course in each of the following areas: United States history, California history, world history, geography, and United States government.
 - (14) Introductory Computer Science, including at least one course in each of the following areas: computational thinking, computing practice and programming, computer and communications devices, and the impacts of computing. The course of study must cover all content areas but impacts of computing may be met within a single course also used to meet one of the other required content areas.
- (c) Introductory Home Economics Supplementary Authorizations must include a laboratory component in one of the listed subject areas. The course of study must cover both subject areas of food and nutrition but a single course may be used to meet the requirement. The course of study must cover both subject areas of family life and parenting, but a single course may be used to meet the requirement.
- (d) Introductory Science Supplementary Authorizations Authorized by 80089.2(b)(12) shall include a one year sequence of courses in at least two of the listed subject areas. At least one course must include a laboratory component.
- (e) The course of study for the Introductory Computer Science Supplementary Authorization must include coursework aligned with the following definitions:

- (1) Computational thinking—includes solving problems and designing systems, using fundamental computing concepts such as decomposition, data representation, generalization/abstraction, and algorithms.
 - (2) Computing practice and programming—includes expertise in at least one block-based, visual (drag-and-drop) programming language, or a modern, high-level programming language.
 - (3) Computer and communications devices—covers the major components and functions of digital devices and the computing systems they compose.
 - (4) Impacts of computing: including the social, ethical, and legal issues and impacts of computing, as well as the contributions of computer science to current and future innovations in sciences, humanities, the arts, and commerce. These topics may be included within any of the courses covering content areas (e)(1) through (e)(3).
- (f) Applicants currently enrolled in coursework toward completion of requirements for the Supplementary Authorization in Computer Concepts and Applications must complete the required coursework and submit an application for this supplementary authorization no later than April 1, 2016. After that date, applicants must complete coursework for the Supplementary Authorization in Computer Science that meets the definitions listed in (e)(1) through (e)(4).

Note: Authority cited: Section 44225, Education Code. Reference: Sections 44256 and 44349, Education Code.