

Senator Stephen H. Urquhart proposes the following substitute bill:

SCIENCE, TECHNOLOGY, ENGINEERING, AND

MATHEMATICS AMENDMENTS

2014 GENERAL SESSION

STATE OF UTAH

Chief Sponsor: Val L. Peterson

Senate Sponsor: Stephen H. Urquhart

7	Cosponsors:	Richard A. Greenwood	Lee B. Perry
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21	Francis D. Gibson		

22

23 **LONG TITLE**

24 **General Description:**



25 This bill amends and enacts provisions relating to the Science, Technology,
26 Engineering, and Mathematics Action Center.

27 **Highlighted Provisions:**

28 This bill:

- 29 ▶ defines terms;
- 30 ▶ adds members to the STEM Action Center Board;
- 31 ▶ allows the STEM Action Center Board to create a foundation;
- 32 ▶ specifies that the STEM Action Center shall support high quality professional
33 development for educators related to STEM education in kindergarten through
34 grade 12;
- 35 ▶ allows the STEM Action Center to further STEM education with nontechnological
36 means;
- 37 ▶ expands the scope of the STEM education related technology program to more
38 students;
- 39 ▶ creates the STEM education endorsements and incentive program, and requires the
40 State Board of Education to make rules regarding the incentives;
- 41 ▶ requires the STEM Action Center to select technology providers to create a certain
42 professional development application;
- 43 ▶ requires the STEM Action Center to create in-person STEM education high quality
44 professional development;
- 45 ▶ creates the STEM education middle school applied science initiative;
- 46 ▶ creates the high school STEM education initiative; and
- 47 ▶ makes technical changes.

48 **Money Appropriated in this Bill:**

49 This bill appropriates in fiscal year 2015:

- 50 ▶ to the Governor's Office of Economic Development - STEM Action Center, as an
51 ongoing appropriation:
 - 52 • from the General Fund, \$5,000,000; and
- 53 ▶ to the Governor's Office of Economic Development - STEM Action Center, as a
54 one-time appropriation:
 - 55 • from the General Fund, \$15,000,000.

56 **Other Special Clauses:**

57 This bill provides an effective date.

58 **Utah Code Sections Affected:**

59 AMENDS:

60 **63M-1-3201**, as enacted by Laws of Utah 2013, Chapter 336

61 **63M-1-3202**, as enacted by Laws of Utah 2013, Chapter 336

62 **63M-1-3203**, as enacted by Laws of Utah 2013, Chapter 336

63 **63M-1-3204**, as enacted by Laws of Utah 2013, Chapter 336

64 **63M-1-3205**, as enacted by Laws of Utah 2013, Chapter 336

65 **63M-1-3207**, as enacted by Laws of Utah 2013, Chapter 336

66 ENACTS:

67 **63M-1-3208**, Utah Code Annotated 1953

68 **63M-1-3209**, Utah Code Annotated 1953

69 **63M-1-3210**, Utah Code Annotated 1953

70 **63M-1-3211**, Utah Code Annotated 1953



72 *Be it enacted by the Legislature of the state of Utah:*

73 Section 1. Section **63M-1-3201** is amended to read:

74 **63M-1-3201. Definitions.**

75 As used in this part:

76 (1) "Board" means the STEM Action Center Board created in Section **63M-1-3202**.

77 (2) "Educator" has the meaning defined in Section **53A-6-103**.

78 (3) "High quality professional development" means professional development that
79 meets high quality standards developed by the State Board of Education.

80 [~~3~~] (4) "Office" means the Governor's Office of Economic Development.

81 [~~4~~] (5) "Provider" means a provider, selected by staff of the board and staff of the
82 Utah State Board of Education, on behalf of the board:

83 (a) through a request for proposals process; or

84 (b) through a direct award or sole source procurement process for a pilot described in
85 Section **63M-1-3205**.

86 [~~5~~] (6) "STEM" means science, technology, engineering, and mathematics.

87 [~~(6)~~] (7) "STEM Action Center" means the center described in Section [63M-1-3204](#).

88 Section 2. Section **63M-1-3202** is amended to read:

89 **63M-1-3202. STEM Action Center Board creation -- Membership.**

90 (1) There is created the STEM Action Center Board within the office, composed of the
91 following members:

92 (a) [~~five~~] six private sector members who represent business, appointed by the
93 governor;

94 (b) the state superintendent of public instruction or the state superintendent of public
95 instruction's designee;

96 (c) the commissioner of higher education or the commissioner of higher education's
97 designee;

98 (d) one member appointed by the governor;

99 (e) a member of the State Board of Education, chosen by the chair of the State Board of
100 Education;

101 (f) the executive director of the Governor's Office of Economic Development or the
102 executive director of the Governor's Office of Economic Development's designee; [~~and~~]

103 (g) the president of the Utah College of Applied Technology or the president of the
104 Utah College of Applied Technology's designee[~~;~~]; and

105 (h) one member who has a degree in engineering and experience working in a
106 government military installation, appointed by the governor.

107 (2) (a) The private sector members appointed by the governor in Subsection (1)(a) shall
108 represent a business or trade association whose primary focus is science, technology, or
109 engineering.

110 (b) Except as required by Subsection (2)(c), members appointed by the governor shall
111 be appointed to four-year terms.

112 (c) The length of terms of the members shall be staggered so that approximately half of
113 the committee is appointed every two years.

114 (d) The members may not serve more than two full consecutive terms except where the
115 governor determines that an additional term is in the best interest of the state.

116 (e) When a vacancy occurs in the membership for any reason, the replacement shall be
117 appointed for the unexpired term.

118 (3) Attendance of a simple majority of the members constitutes a quorum for the
119 transaction of official committee business.

120 (4) Formal action by the committee requires a majority vote of a quorum.

121 (5) A member may not receive compensation or benefits for the member's service, but
122 may receive per diem and travel expenses in accordance with:

123 (a) Section 63A-3-106;

124 (b) Section 63A-3-107; and

125 (c) rules made by the Division of Finance pursuant to Sections 63A-3-106 and
126 63A-3-107.

127 (6) The governor shall select the chair of the board to serve a one-year term.

128 (7) The executive director of the Governor's Office of Economic Development or the
129 executive director of the Governor's Office of Economic Development's designee shall serve as
130 the vice chair of the board.

131 ~~[(8) The state science advisor described in Section 63M-1-606 and the office shall
132 provide staff support to the board.]~~

133 Section 3. Section 63M-1-3203 is amended to read:

134 **63M-1-3203. STEM Action Center Board -- Duties.**

135 (1) The board shall:

136 (a) establish a STEM Action Center program to:

137 (i) coordinate STEM activities in the state among the following stakeholders:

138 (A) the State Board of Education;

139 (B) school districts and charter schools;

140 (C) the State Board of Regents;

141 (D) institutions of higher education;

142 (E) parents of home-schooled students; and

143 (F) other state agencies;

144 (ii) align public education STEM activities with higher education STEM activities; and

145 (iii) create and coordinate best practices among public education and higher education;

146 (b) with the consent of the Senate, appoint an executive director to oversee the
147 administration of the STEM Action Center;

148 (c) select a physical location for the STEM Action Center;

- 149 (d) strategically engage industry and business entities to cooperate with the board:
150 (i) to support high quality professional development and provide other assistance for
151 educators and students; and
152 (ii) to provide private funding and support for the STEM Action Center;
153 (e) give direction to the STEM Action Center and the providers selected through a
154 request for proposals process pursuant to this part; and
155 (f) work to meet the following expectations:
156 (i) that at least 50 educators are implementing best practice learning tools in
157 classrooms per each product specialist or manager working with the STEM Action Center;
158 (ii) performance change in student achievement in each classroom working with a
159 STEM Action Center product specialist or manager; and
160 (iii) that students from at least 50 high schools participate in the STEM competitions,
161 fairs, and camps described in Subsection [63M-1-3204\(2\)\(d\)](#).
162 (2) The board may:
163 (a) enter into contracts for the purposes of this part;
164 (b) apply for, receive, and disburse funds, contributions, or grants from any source for
165 the purposes set forth in this part;
166 (c) employ, compensate, and prescribe the duties and powers of individuals necessary
167 to execute the duties and powers of the board;
168 (d) prescribe the duties and powers of the STEM Action Center providers; and
169 (e) in accordance with Title 63G, Chapter 3, Utah Administrative Rulemaking Act,
170 make rules to administer this part.
171 (3) The board may establish a foundation to assist in:
172 (a) the development and implementation of the programs authorized under this part to
173 promote STEM education; and
174 (b) implementation of other STEM education objectives described in this part.
175 (4) A foundation established by the board under Subsection (3):
176 (a) may solicit and receive contributions from a private organization for STEM
177 education objectives described in this part;
178 (b) shall comply with Title 51, Chapter 7, State Money Management Act;
179 (c) does not have power or authority to incur contractual obligations or liabilities that

180 constitute a claim against public funds;

181 (d) may not exercise executive or administrative authority over the programs or other
182 activities described in this part, except to the extent specifically authorized by the board;

183 (e) shall provide the board with information detailing transactions and balances of
184 funds managed for the board; and

185 (f) may not:

186 (i) engage in lobbying activities;

187 (ii) attempt to influence legislation; or

188 (iii) participate in any campaign activity for or against:

189 (A) a political candidate; or

190 (B) an initiative, referendum, proposed constitutional amendment, bond, or any other
191 ballot proposition submitted to the voters.

192 (5) Money donated to a foundation established under Subsection (3) may be accounted
193 for in an expendable special revenue fund.

194 Section 4. Section **63M-1-3204** is amended to read:

195 **63M-1-3204. STEM Action Center.**

196 (1) As funding allows, the board shall:

197 (a) establish a STEM Action Center;

198 (b) ensure that the STEM Action Center:

199 (i) is accessible by the public; and

200 (ii) includes the components described in Subsection (2);

201 (c) work cooperatively with the State Board of Education to [~~acquire technology and~~
202 ~~select schools~~];

203 (i) further STEM education; and

204 (ii) ensure best practices are implemented as described in Sections 63M-1-3205 and
205 63M-1-3206; and

206 (d) engage private entities to provide financial support or employee time for STEM
207 activities in schools in addition to what is currently provided by private entities.

208 (2) As funding allows, the executive director of the STEM Action Center shall:

209 (a) support high quality professional development for educators regarding [~~education~~
210 ~~related instructional technology that supports~~] STEM education;

211 (b) ensure that the STEM Action Center acts as a research and development center for
212 STEM education [~~related instructional technology acquired~~] through a request for proposals
213 process described in Section [63M-1-3205](#);

214 (c) review and acquire STEM education related [~~technology~~] materials and products
215 for:

216 (i) [~~educator~~] high quality professional development;

217 (ii) assessment, data collection, analysis, and reporting; and

218 (iii) public school instruction;

219 (d) facilitate participation in interscholastic STEM related competitions, fairs, [~~and~~]
220 camps, and STEM education activities;

221 (e) engage private industry in the development and maintenance of the STEM Action
222 Center and STEM Action Center projects;

223 (f) use resources to bring the latest STEM education learning tools into public
224 education classrooms;

225 (g) identify at least 10 best practice innovations used in Utah [~~schools~~] that have
226 resulted in at least 80% of students performing at grade level in STEM areas;

227 (h) identify best practices being used outside the state and, as appropriate, develop and
228 implement selected practices through a pilot program;

229 (i) identify:

230 (i) [~~three~~] learning tools for kindergarten through grade 6 identified as best practices;

231 and

232 (ii) [~~three~~] learning tools [~~per STEM subject~~] for grades 7 through 12 identified as best
233 practices;

234 (j) provide a Utah best practices database, including best practices from public
235 education, higher education, the Utah Education Network, and other STEM related entities;

236 (k) keep track of the following items related to the best practices database described in
237 Subsection (2)(j):

238 (i) how the best practices database is being used; and

239 (ii) how many individuals are using the database, including the demographics of the
240 users, if available;

241 (l) as appropriate, join and participate in a national STEM network;

242 (m) identify performance changes linked to use of the best practices database described
243 in Subsection (2)(j);

244 (n) work cooperatively with the State Board of Education to designate schools as
245 STEM schools, where the schools have agreed to adopt a plan of STEM implementation in
246 alignment with criteria set by the State Board of Education and the board;

247 (o) support best methods of high quality professional development[;] for STEM
248 education in kindergarten through grade 12, including methods of high quality professional
249 development that reduce cost and increase effectiveness, to help educators learn how to most
250 effectively implement best practice learning tools in classrooms;

251 (p) recognize a high school's achievement in the STEM competitions, fairs, and camps
252 described in Subsection (2)(d);

253 (q) send student results from STEM competitions, fairs, and camps described in
254 Subsection (2)(d) to media and ask the media to report on them;

255 (r) develop and distribute STEM [~~toolkits~~] information to parents of students being
256 served by the STEM Action Center;

257 (s) support targeted high quality professional development for improved instruction in
258 STEM [~~in grades 6, 7, and 8~~] education, including:

259 (i) improved instructional materials that are dynamic and engaging for students;

260 [~~(ii) targeted instruction for students who traditionally avoid enrolling in STEM~~
261 ~~courses;~~]

262 [~~(iii) introduction of engaging engineering courses; and~~]

263 (ii) use of applied instruction; and

264 [~~(iv)~~] (iii) introduction of other research-based methods that support student
265 achievement in STEM areas; and

266 (t) ensure that an online college readiness assessment tool be accessible by:

267 (i) public education students; and

268 (ii) higher education students.

269 (3) The board may prescribe other duties for the STEM Action Center in addition to
270 the responsibilities described in this section.

271 (4) (a) The executive director shall track and compare the student performance of
272 students participating in a STEM Action Center program to all other similarly situated students

273 in the state, in the following STEM related activities, at the beginning and end of each year:

274 (i) public education high school graduation rates;

275 (ii) the number of students taking a remedial mathematics course at an institution of
276 higher education described in Section 53B-2-101;

277 (iii) the number of students who graduate from a Utah public school and begin a
278 postsecondary education program; and

279 (iv) the number of students, as compared to all similarly situated students, who are
280 performing at grade level in STEM classes.

281 (b) The State Board of Education and the State Board of Regents shall provide
282 information to the board to assist the board in complying with the requirements of Subsection
283 (4)(a) if allowed under federal law.

284 Section 5. Section 63M-1-3205 is amended to read:

285 **63M-1-3205. Acquisition of STEM education related instructional technology**
286 **program -- Research and development of education related instructional technology**
287 **through a pilot program.**

288 (1) For purposes of this section:

289 (a) "Pilot" means a pilot of the program.

290 (b) "Program" means the STEM education related instructional technology program
291 created in Subsection (2).

292 (2) (a) There is created the STEM education related instructional technology program
293 to provide public schools the STEM education related instructional technology described in
294 Subsection (3).

295 (b) On behalf of the board, the staff of the board and the staff of the State Board of
296 Education shall collaborate and may select one or more providers, through a request for
297 proposals process, to provide STEM education related instructional technology to school
298 districts and charter schools.

299 (c) On behalf of the board, the staff of the board and the staff of the State Board of
300 Education shall consider and may accept an offer from a provider in response to the request for
301 proposals described in Subsection (2)(b) even if the provider did not participate in a pilot
302 described in Subsection (5).

303 (3) The STEM education related instructional technology shall:

304 (a) support mathematics instruction for students in [~~grade 6, 7, or 8; or~~]:

305 (i) kindergarten through grade 6; or

306 (ii) grades 7 and 8; or

307 (b) support mathematics instruction for secondary students to prepare the secondary
308 students for college mathematics courses.

309 (4) In selecting a provider for STEM education related instructional technology to
310 support mathematics instruction for the students [~~in grade 6, 7, or 8 as~~] described in Subsection
311 (3)(a), the board shall consider the following criteria:

312 (a) the technology contains individualized instructional support for skills and
313 understanding of the core standards in mathematics;

314 (b) the technology is self-adapting to respond to the needs and progress of the learner;
315 and

316 (c) the technology provides opportunities for frequent, quick, and informal assessments
317 and includes an embedded progress monitoring tool and mechanisms for regular feedback to
318 students and teachers.

319 (5) Before issuing a request for proposals described in Subsection (2), on behalf of the
320 board, the staff of the board and the staff of the State Board of Education shall collaborate and
321 may:

322 (a) conduct a pilot of the program to test and select providers for the program;

323 (b) select at least two providers through a direct award or sole source procurement
324 process for the purpose of conducting the pilot; and

325 (c) select schools to participate in the pilot.

326 (6) (a) A contract with a provider for STEM education related instructional technology
327 may include professional development for full deployment of the STEM education related
328 instructional technology.

329 (b) No more than 10% of the money appropriated for the program may be used to
330 provide professional development related to STEM education related instructional technology
331 in addition to the professional development described in Subsection (6)(a).

332 Section 6. Section **63M-1-3207** is amended to read:

333 **63M-1-3207. Report to Legislature and the State Board of Education.**

334 (1) The board shall report the progress of the STEM Action Center, including the

335 information described in Subsection (2), to the following groups once each year:

- 336 (a) the Education Interim Committee;
- 337 (b) the Public Education Appropriations Subcommittee; and
- 338 (c) the State Board of Education.

339 (2) The report described in Subsection (1) shall include information that demonstrates
340 the effectiveness of the program, including:

- 341 (a) the number of educators receiving high quality professional development;
- 342 (b) the number of students receiving services from the STEM Action Center;
- 343 (c) a list of the providers selected pursuant to this part;
- 344 (d) a report on the STEM Action Center's fulfilment of its duties described in
345 Subsection 63M-1-3204; and
- 346 (e) student performance of students participating in a STEM Action Center program as
347 collected in Subsection 63M-1-3204(4).

348 Section 7. Section **63M-1-3208** is enacted to read:

349 **63M-1-3208. STEM education endorsements and incentive program.**

350 (1) The State Board of Education shall collaborate with the STEM Action Center to:

- 351 (a) develop STEM education endorsements; and
- 352 (b) create and implement financial incentives for:
 - 353 (i) an educator to earn an elementary or secondary STEM education endorsement
354 described in Subsection (1)(a); and
 - 355 (ii) a school district or a charter school to have STEM endorsed educators on staff.

356 (2) In accordance with Title 63G, Chapter 3, Utah Administrative Rulemaking Act, the
357 State Board of Education shall make rules to establish how a STEM education endorsement
358 incentive described in Subsection (1)(a) will be valued on a salary scale for educators.

359 Section 8. Section **63M-1-3209** is enacted to read:

360 **63M-1-3209. Acquisition of STEM education high quality professional**
361 **development.**

362 (1) The STEM Action Center shall, through a request for proposals process, select
363 technology providers for the purpose of providing a STEM education high quality professional
364 development application.

365 (2) The high quality professional development application described in Subsection (1)

366 shall:

367 (a) allow the State Board of Education, a school district, or a school to define the
368 application's input and track results of the high quality professional development;

369 (b) allow educators to access automatic tools, resources, and strategies;

370 (c) allow educators to work in online learning communities, including giving and
371 receiving feedback via uploaded video;

372 (d) track and report data on the usage of the components of the application's system
373 and the relationship to improvement in classroom instruction;

374 (e) include video examples of highly effective STEM education teaching that:

375 (i) cover a cross section of grade levels and subjects;

376 (ii) under the direction of the State Board of Education, include videos of highly
377 effective Utah STEM educators; and

378 (iii) contain tools to help educators implement what they have learned; and

379 (f) allow for additional STEM education video content to be added.

380 (3) In addition to the high quality professional development application described in
381 Subsections (1) and (2), the STEM Action Center may create STEM education hybrid or
382 blended high quality professional development that allows for face-to-face applied learning.

383 Section 9. Section **63M-1-3210** is enacted to read:

384 **63M-1-3210. STEM education middle school applied science initiative.**

385 (1) The STEM Action Center shall develop an applied science initiative for students in
386 grades 7 and 8 that includes:

387 (a) a STEM applied science curriculum with instructional materials;

388 (b) STEM hybrid or blended high quality professional development that allows for
389 face-to-face applied learning; and

390 (c) hands-on tools for STEM applied science learning.

391 (2) The STEM Action Center may, through a request for proposals process, select a
392 consultant to assist in developing the initiative described in Subsection (1).

393 Section 10. Section **63M-1-3211** is enacted to read:

394 **63M-1-3211. High school STEM education initiative.**

395 (1) Subject to legislative appropriations, after consulting with State Board of Education
396 staff, the STEM Action Center shall award grants to school districts and charter schools to fund

397 STEM related certification for high school students.

398 (2) (a) A school district or charter school may apply for a grant from the STEM Action
399 Center, through a competitive process, to fund the school district's or charter school's STEM
400 related certification training program.

401 (b) A school district's or charter school's STEM related certification training program
402 shall:

403 (i) prepare high school students to be job ready for available STEM related positions of
404 employment; and

405 (ii) when a student completes the program, result in the student gaining a nationally
406 industry-recognized employer STEM related certification.

407 (3) A school district or charter school may partner with one or more of the following to
408 provide a STEM related certification program:

409 (a) a Utah College of Applied Technology college campus;

410 (b) Salt Lake Community College;

411 (c) Snow College; or

412 (d) a private sector employer.

413 **Section 11. Appropriation.**

414 Under the terms and conditions of Title 63J, Chapter 1, Budgetary Procedures Act, for
415 the fiscal year beginning July 1, 2014, and ending June 30, 2015, the following sums of money
416 are appropriated from resources not otherwise appropriated, or reduced from amounts
417 previously appropriated, out of the funds or accounts indicated. These sums of money are in
418 addition to any amounts previously appropriated for fiscal year 2015.

419 To Governor's Office of Economic Development - STEM Action Center

420 From General Fund \$5,000,000

421 From General Fund, one-time \$15,000,000

422 Schedule of Programs:

423 STEM Action Center \$20,000,000

424 The Legislature intends that:

425 (1) up to \$5,000,000 of the appropriation for the STEM Action Center program be used
426 for STEM education related instructional technology and related professional development to
427 support mathematics instruction as described in Subsection 63M-1-3205(3)(a)(i) and Section

428 63M-1-3206, and related assessment, data collection, analysis, and reporting;

429 (2) up to \$1,500,000 of the appropriation for the STEM Action Center program be used
430 for developing the STEM education endorsements and related incentive program described in
431 Section 63M-1-3208;

432 (3) up to \$5,000,000 of the appropriation for the STEM Action Center program be used
433 for providing a STEM education high quality professional development application as
434 described in Section 63M-1-3209;

435 (4) up to \$3,500,000 of the appropriation for the STEM Action Center program be used
436 to fund the STEM education middle school applied science initiative described in Section
437 63M-1-3210;

438 (5) up to \$5,000,000 of the appropriation for the STEM Action Center program be used
439 to fund the high school STEM education initiative described in Section 63M-1-3211;

440 (6) the appropriations described in Subsections (1), (2), (4), and (5):

441 (a) are one-time; and

442 (b) not lapse at the close of fiscal year 2015; and

443 (7) the appropriation described in Subsection (3):

444 (a) are ongoing; and

445 (b) not lapse at the close of fiscal year 2015.

446 Section 12. **Effective date.**

447 (1) Except as provided in Subsection (2), if approved by two-thirds of all the members
448 elected to each house, this bill takes effect upon approval by the governor, or the day following
449 the constitutional time limit of Utah Constitution, Article VII, Section 8, without the governor's
450 signature, or in the case of a veto, the date of veto override.

451 (2) Uncodified Section 11, Appropriation, takes effect on July 1, 2014.