



AMENDMENT NO. _____ Calendar No. _____

Purpose: In the nature of a substitute.

IN THE SENATE OF THE UNITED STATES—117th Cong., 1st Sess.**S. 735**

To amend the Scientific and Advanced-Technology Act of 1992 to further support advanced technological manufacturing, and for other purposes.

Referred to the Committee on _____ and
ordered to be printed

Ordered to lie on the table and to be printed

AMENDMENT IN THE NATURE OF A SUBSTITUTE intended
to be proposed by _____

Viz:

1 Strike all after the enacting clause and insert the fol-
2 lowing:

3 **SECTION 1. HARNESSING OUR NATION'S RESEARCH PO-**
4 **TENTIAL.**

5 (a) ESTABLISHMENT.—The Director of the National
6 Science Foundation shall conduct multiple pilot programs
7 within the Foundation to expand the number of institu-
8 tions of higher education (including such institutions that
9 are community colleges), and other eligible entities that
10 the Director determines appropriate, that are able to suc-
11 cessfully compete for National Science Foundation grants.

1 (b) COMPONENTS.—Each pilot program described in
2 subsection (a) shall include at least 1 of the following ele-
3 ments:

4 (1) A mentorship program.

5 (2) Grant writing technical assistance.

6 (3) Targeted outreach.

7 (4) Programmatic support or solutions for insti-
8 tutions or entities that do not have an experienced
9 grant management office.

10 (5) An increase in the number of grant review-
11 ers from institutions of higher education that have
12 not traditionally received funds from the National
13 Science Foundation.

14 (6) An increase of the term and funding, for a
15 period of 3 years or less, as appropriate, to a prin-
16 cipal investigator that is a first-time grant awardee,
17 when paired with regular mentoring on the adminis-
18 trative aspects of grant management.

19 (c) LIMITATION.—As appropriate, each pilot program
20 described in subsection (a) shall work to reduce adminis-
21 trative burdens.

22 (d) AGENCY-WIDE PROGRAMS.—Not later than 5
23 years after the date of enactment of this Act, the Director
24 of the National Science Foundation shall—

1 (1) review the results of the pilot programs de-
2 scribed in subsection (a); and

3 (2) develop agency-wide best practices from the
4 pilot programs for implementation across the Foun-
5 dation, in order to fulfill the requirement under sec-
6 tion 3(e) of the National Science Foundation Act of
7 1950 (42 U.S.C. 1862(e)).

8 (e) INSTITUTION OF HIGHER EDUCATION.—In this
9 section, the term “institution of higher education” has the
10 meaning given the term in section 101 of the Higher Edu-
11 cation Act of 1965 (20 U.S.C. 1001).

12 **SEC. 2. ADVANCED SCIENTIFIC AND TECHNICAL MANUFAC-**
13 **TURING.**

14 (a) FINDINGS AND PURPOSE.—Section 2 of the Sci-
15 entific and Advanced-Technology Act of 1992 (42 U.S.C.
16 1862h) is amended—

17 (1) in subsection (a)—

18 (A) in paragraph (3), by striking “science,
19 mathematics, and technology” and inserting
20 “science, technology, engineering, and mathe-
21 matics or STEM”;

22 (B) in paragraph (4), by inserting “edu-
23 cated and” before “trained”; and

24 (C) in paragraph (5), by striking “sci-
25 entific and technical education and training”

1 and inserting “STEM education and training”;

2 and

3 (2) in subsection (b)—

4 (A) in paragraph (2), by striking “mathe-
5 matics and science” and inserting “STEM
6 fields”; and

7 (B) in paragraph (4), by striking “mathe-
8 matics and science instruction” and inserting
9 “STEM instruction”.

10 (b) MODERNIZING REFERENCES TO STEM.—Section
11 3 of the Scientific and Advanced-Technology Act of 1992
12 (42 U.S.C. 1862i) is amended—

13 (1) in the section heading, by striking “**SCI-**
14 **ENTIFIC AND TECHNICAL EDUCATION**” and in-
15 serting “**STEM EDUCATION**”;

16 (2) in subsection (a)—

17 (A) in the subsection heading, by striking
18 “**SCIENTIFIC AND TECHNICAL EDUCATION**”
19 and inserting “**STEM EDUCATION**”;

20 (B) in the matter preceding paragraph
21 (1)—

22 (i) by inserting “and education to pre-
23 pare the skilled technical workforce to
24 meet workforce demands” before “, and to
25 improve”;

1 (ii) by striking “core education
2 courses in science and mathematics” and
3 inserting “core education courses in STEM
4 fields”;

5 (iii) by inserting “veterans and indi-
6 viduals engaged in” before “work in the
7 home”; and

8 (iv) by inserting “and on building a
9 pathway from secondary schools, to asso-
10 ciate-degree-granting institutions, to ca-
11 reers that require technical training” be-
12 fore “, and shall be designed”;

13 (C) in paragraph (1)—

14 (i) by inserting “and study” after
15 “development”; and

16 (ii) by striking “core science and
17 mathematics courses” and inserting “core
18 STEM courses”;

19 (D) in paragraph (2), by striking “science,
20 mathematics, and advanced-technology fields”
21 and inserting “STEM and advanced-technology
22 fields”;

23 (E) in paragraph (3)(A), by inserting “to
24 support the advanced-technology industries that
25 drive the competitiveness of the United States

1 in the global economy” before the semicolon at
2 the end;

3 (F) in paragraph (4), by striking “sci-
4 entific and advanced-technology fields” and in-
5 serting “STEM and advanced-technology
6 fields”; and

7 (G) in paragraph (5), by striking “ad-
8 vanced scientific and technical education” and
9 inserting “advanced STEM and advanced-tech-
10 nology”;

11 (3) in subsection (b)—

12 (A) by striking the subsection heading and
13 inserting the following: “CENTERS OF SCI-
14 ENTIFIC AND TECHNICAL EDUCATION.—”;

15 (B) in the matter preceding paragraph (1),
16 by striking “not to exceed 10 in number” and
17 inserting “in advanced-technology fields”;

18 (C) in paragraph (2), by striking “edu-
19 cation in mathematics and science” and insert-
20 ing “STEM education”; and

21 (D) in the flush matter following para-
22 graph (2), by striking “in the geographic region
23 served by the center”;

24 (4) in subsection (c)—

25 (A) in paragraph (1)—

1 (i) in subparagraph (A)—

2 (I) in the matter preceding clause
3 (i), by striking “to encourage” and all
4 that follows through “such means
5 as—” and inserting “to encourage the
6 development of career and educational
7 pathways with multiple entry and exit
8 points leading to credentials and de-
9 grees, and to assist students pursuing
10 pathways in STEM fields to transition
11 from associate-degree-granting col-
12 leges to bachelor-degree-granting in-
13 stitutions, through such means as—”;

14 (II) in clause (i), by striking “to
15 ensure” and inserting “to develop ar-
16 ticulation agreements that ensure”;
17 and

18 (III) in clause (ii), by striking
19 “courses at the bachelor-degree-grant-
20 ing institution” and inserting “the ca-
21 reer and educational pathways sup-
22 ported by the articulation agree-
23 ments”;

24 (ii) in subparagraph (B)—

8

1 (I) in clause (i), by inserting
2 “veterans and individuals engaged in”
3 before “work in the home”;

4 (II) in clause (iii)—

5 (aa) by striking “bachelor’s-
6 degree-granting institutions” and
7 inserting “institutions or work
8 sites”; and

9 (bb) by inserting “or indus-
10 try internships” after “summer
11 programs”; and

12 (III) by striking the flush text
13 following clause (iv); and

14 (iii) by striking subparagraph (C);

15 (B) in paragraph (2)—

16 (i) by striking “mathematics and
17 science programs” and inserting “STEM
18 programs”;

19 (ii) by inserting “and, as appropriate,
20 elementary schools,” after “with secondary
21 schools”;

22 (iii) by striking “mathematics and
23 science education” and inserting “STEM
24 education”;

1 (iv) by striking “secondary school stu-
2 dents” and inserting “students at these
3 schools”;

4 (v) by striking “science and advanced-
5 technology fields” and inserting “STEM
6 and advanced-technology fields”; and

7 (vi) by striking “agreements with local
8 educational agencies” and inserting “ar-
9 ticipation agreements or dual credit
10 courses with local secondary schools, or
11 other means as the Director determines
12 appropriate,”; and

13 (C) in paragraph (3)—

14 (i) by striking subparagraph (B);

15 (ii) by striking “shall—” and all that
16 follows through “establish a” and inserting
17 “shall establish a”;

18 (iii) by striking “the fields of science,
19 technology, engineering, and mathematics”
20 and inserting “STEM fields”; and

21 (iv) by striking “; and” and inserting
22 “, including jobs at Federal and academic
23 laboratories.”;

24 (5) in subsection (d)(2)—

1 (A) in subparagraph (D), by striking
2 “and” after the semicolon;

3 (B) in subparagraph (E), by striking the
4 period at the end and inserting “; and”; and

5 (C) by adding at the end the following:

6 “(F) as appropriate, applications that
7 apply the best practices for STEM education
8 and technical skills education through distance
9 learning or in a simulated work environment, as
10 determined by research described in subsection
11 (f).”;

12 (6) in subsection (g), by striking the second
13 sentence;

14 (7) in subsection (h)(1)—

15 (A) in subparagraph (A), by striking
16 “2022” and inserting “2026”;

17 (B) in subparagraph (B), by striking
18 “2022” and inserting “2026”; and

19 (C) in subparagraph (C)—

20 (i) by striking “up to \$2,500,000”
21 and inserting “not less than \$3,000,000”;
22 and

23 (ii) by striking “2022” and inserting
24 “2026”; and

25 (8) in subsection (j)—

1 (A) by striking paragraph (1) and insert-
2 ing the following:

3 “(1) the term ‘advanced-technology’ includes
4 technological fields such as advanced manufacturing,
5 agricultural-, biological- and chemical-technologies,
6 energy and environmental technologies, engineering
7 technologies, information technologies, micro and
8 nano-technologies, cybersecurity technologies,
9 geospatial technologies, and new, emerging tech-
10 nology areas;”;

11 (B) by striking paragraph (2) and insert-
12 ing the following:

13 “(2) the term ‘associate-degree-granting college’
14 means an institution of higher education (as defined
15 in section 102 of the Higher Education Act of 1965
16 (20 U.S.C. 1002)) that offers a 2-year associate-de-
17 gree program or 2-year certificate program;”;

18 (C) in paragraph (3), by striking “as de-
19 termined under section 101 of the Higher Edu-
20 cation Act of 1965” and inserting “as defined
21 in section 102 of the Higher Education Act of
22 1965 (20 U.S.C. 1002)”;

23 (D) in paragraph (4), by striking “sepa-
24 rate bachelor-degree-granting institutions” and
25 inserting “other entities”;

- 1 (E) by striking paragraph (7);
- 2 (F) by redesignating paragraphs (8) and
- 3 (9) as paragraphs (7) and (8), respectively;
- 4 (G) in paragraph (7), as redesignated by
- 5 subparagraph (F), by striking “and” after the
- 6 semicolon;
- 7 (H) in paragraph (8), as redesignated by
- 8 subparagraph (F)—
- 9 (i) by striking “mathematics, science,
- 10 engineering, or technology” and inserting
- 11 “science, technology, engineering, or math-
- 12 ematics”; and
- 13 (ii) by striking “computer science.”
- 14 and inserting “computer science and cyber-
- 15 security; and”; and
- 16 (I) by adding at the end the following:
- 17 “(9) the term ‘skilled technical workforce’
- 18 means workers—
- 19 “(A) in occupations that use significant
- 20 levels of science and engineering expertise and
- 21 technical knowledge; and
- 22 “(B) whose level of educational attainment
- 23 is less than a bachelor degree.”.

1 (c) AUTHORIZATION OF APPROPRIATIONS.—Section
2 5 of the Scientific and Advanced-Technology Act of 1992
3 (42 U.S.C. 1862j) is amended to read as follows:

4 **“SEC. 5. AUTHORIZATION OF APPROPRIATIONS.**

5 “There are authorized to be appropriated, from sums
6 otherwise authorized to be appropriated, to the Director
7 for carrying out this Act, \$150,000,000 for each of fiscal
8 years 2022 through 2027.”.