

118TH CONGRESS  
1ST SESSION

# H. R. 1050

To direct the Secretary of Education to make grants for the purpose of increasing access to data literacy education, and for other purposes.

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## IN THE HOUSE OF REPRESENTATIVES

FEBRUARY 14, 2023

Ms. STEVENS (for herself, Mr. BAIRD, Mr. BEYER, and Mrs. KIM of California) introduced the following bill; which was referred to the Committee on Education and the Workforce

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## A BILL

To direct the Secretary of Education to make grants for the purpose of increasing access to data literacy education, and for other purposes.

1 *Be it enacted by the Senate and House of Representa-*  
2 *tives of the United States of America in Congress assembled,*

3 **SECTION 1. SHORT TITLE; TABLE OF CONTENTS.**

4 (a) SHORT TITLE.—This Act may be cited as the  
5 “Data Science and Literacy Act of 2023”.

6 (b) TABLE OF CONTENTS.—The table of contents for  
7 this Act is as follows:

- Sec. 1. Short title; table of contents.
- Sec. 2. Findings.

TITLE I—DATA LITERACY EDUCATION GRANT PROGRAM

- Sec. 101. Grant program established.
- Sec. 102. Applications.
- Sec. 103. Use of funds.
- Sec. 104. Reporting and evaluation.
- Sec. 105. Definitions.
- Sec. 106. Authorization of appropriations.

TITLE II—STATISTICS ON SECONDARY SCHOOL STEM TEACHERS

- Sec. 201. Amendments to the Education Sciences Reform Act of 2002.

1 **SEC. 2. FINDINGS.**

2 Congress finds the following:

3 (1) Data science and literacy are vital for  
4 United States residents in an era of intense global  
5 competition and growing reliance on data.

6 (2) The American people constantly interact  
7 with and are affected by data. For example, they—

8 (A) regularly consume data, such as edu-  
9 cational data, business data, financial data,  
10 medical data, sports statistics, and data-based  
11 claims in news media;

12 (B) are included in a variety of data sets,  
13 such as medical and credit histories, web  
14 searches, social media activity, and purchase  
15 histories; and

16 (C) interact with products that are the re-  
17 sult of data-driven processes. For example,  
18 medications and other medical interventions are  
19 tested in randomized trials to assess their effi-  
20 cacy and safety. Similarly, data are often used

1 to inform policy decisions that have consider-  
2 able impact on citizens.

3 (3) Data literacy is increasingly integral in the  
4 fields of science, technology, engineering, and mathe-  
5 matics (STEM) and other fields.

6 (4) Data literacy is essential for both effective  
7 citizenship and personal well-being. Data literacy is  
8 an integral skill for understanding data-driven  
9 claims and making personal decisions in the 21st  
10 century. This includes the need to—

11 (A) contribute to the digital economy as a  
12 productive member of the workforce;

13 (B) interpret and synthesize data displays  
14 and summaries, such as polls, surveys, and  
15 study outcomes; and

16 (C) critically evaluate claims based on data  
17 both in consuming news media, advertising, and  
18 social media and in making personal decisions,  
19 such as those related to medical care or finan-  
20 cial well-being.

21 (5) Access to high-quality data science and lit-  
22 eracy education is vital for building the United  
23 States STEM workforce and United States competi-  
24 tiveness in the 21st century in the following ways:

1 (A) STEM fields are a well-known driver  
2 of the United States economy, job growth, and  
3 competitiveness. A 2022 government report  
4 from the National Science Foundation under-  
5 scores this point and also notes growing STEM  
6 competition from around the globe.

7 (B) Accessing talent and ideas from across  
8 the socioeconomic spectrum and from diverse  
9 geography is critical for building a vibrant  
10 United States STEM workforce.

11 (C) Concerted efforts to cultivate such tal-  
12 ent in the data-driven fields of statistics, data  
13 science, mathematical modeling, computer  
14 science, machine learning, artificial intelligence,  
15 operations research, and analytics are critical to  
16 United States competitiveness efforts.

17 (D) Data scientist, statistician, and oper-  
18 ations researcher roles are among the fastest  
19 growing positions in the United States. How-  
20 ever, United States companies often struggle to  
21 fill their data scientist, statistician, and oper-  
22 ations researcher positions, a situation not ex-  
23 pected to change this decade.

24 (E) The STEM workforce is projected to  
25 grow at a faster pace than the non-STEM

1 workforce; however, some have expressed con-  
2 cern that the domestic supply of STEM workers  
3 will not meet future workforce needs.

4 (F) More and earlier access to quality edu-  
5 cation that includes data-intense disciplines is  
6 necessary to meet industry demands and com-  
7 petitiveness pressures.

8 (G) Access to high-quality data literacy  
9 education with ongoing support is critical as an  
10 entry point to STEM fields for students from  
11 populations traditionally underrepresented in  
12 STEM fields, including Native Hawaiians, Alas-  
13 ka Natives, and American Indians.

14 (H) Such accessibility should also include  
15 community colleges, which are often more ac-  
16 cessible to diverse groups.

17 (6) The expanded focus on data science and lit-  
18 eracy would have several benefits, such as—

19 (A) helping the United States compete in  
20 the emerging field of data science and growing  
21 discipline of statistics;

22 (B) expanding the STEM workforce by ac-  
23 cessing talent across the socioeconomic spec-  
24 trum; and

1           (C) diversifying the STEM workforce by  
2 bringing access and support to populations tra-  
3 ditionally underrepresented in STEM fields, in-  
4 cluding female students, students of color, and  
5 students from disadvantaged backgrounds.  
6 Studies have identified positive associations be-  
7 tween diversity and performance for companies.

8           (7) Increased attention to data science and lit-  
9 eracy supports the burgeoning emphasis on evidence-  
10 based policymaking and data-driven decision, includ-  
11 ing in government as exemplified by the Founda-  
12 tions for Evidence-Based Policymaking Act of 2018  
13 (Public Law 115–435).

14           (8) Effective data science and statistics edu-  
15 cation at the pre-kindergarten through postsec-  
16 ondary levels would—

17           (A) ensure graduates have the skills and  
18 knowledge necessary to compete in the work-  
19 force of the 21st century, with its burgeoning  
20 growth of and dependence on data, and acquire  
21 the self-efficacy and motivation to embrace ca-  
22 reers in data science, statistics, and other  
23 STEM fields;

1 (B) contribute to student learning and  
2 problem-solving skills across multiple dis-  
3 ciplines; and

4 (C) equip students with the knowledge  
5 needed to be responsible and engaged citizens.

## 6 **TITLE I—DATA LITERACY** 7 **EDUCATION GRANT PROGRAM**

### 8 **SEC. 101. GRANT PROGRAM ESTABLISHED.**

9 From the amounts appropriated under section 106,  
10 the Secretary shall award grants, on a competitive basis,  
11 to eligible entities to carry out projects—

12 (1) that increase access to data literacy edu-  
13 cation for students at the pre-kindergarten through  
14 postsecondary levels;

15 (2) that improve data reasoning skills in such  
16 students;

17 (3) that will serve as models for national data  
18 science and data literacy education; and

19 (4) in accordance with section 103.

### 20 **SEC. 102. APPLICATIONS.**

21 (a) IN GENERAL.—To be eligible to receive a grant  
22 under this title, an eligible entity shall submit to the Sec-  
23 retary an application at such time, in such manner, and  
24 containing such information as the Secretary may require,  
25 which shall include a description of how the entity plans—

1           (1) to carry out project activities under section  
2 103 for the purposes of—

3           (A) increasing access to and support for  
4 data literacy, data science, and statistics edu-  
5 cation; and

6           (B) expanding access to and support for  
7 rigorous classes in STEM fields, including by—

8           (i) using data and statistical literacy  
9 to increase student interest in STEM  
10 fields; and

11           (ii) reducing enrollment gaps, oppor-  
12 tunity gaps, and differentiated success for  
13 underrepresented students;

14           (2) for the duration of a grant made to the eli-  
15 gible entity under this title, to continuously assess  
16 and evaluate project activities funded by such grant;  
17 and

18           (3) to continue project activities after the expi-  
19 ration of the grant (including a statement of the  
20 planned duration of such continuation).

21           (b) DURATION.—A grant made under this title shall  
22 be for a term of not more than 5 years.



1 **SEC. 103. USE OF FUNDS.**

2 (a) IN GENERAL.—An eligible entity that receives a  
3 grant under this title shall use the grant funds for not  
4 fewer than 2 of the following activities:

5 (1) Developing curricula in data literacy, data  
6 science, and statistics.

7 (2) Expanding student access to learning sup-  
8 port and high-quality learning materials in data  
9 science and statistics, including online courses and  
10 interactive learning platforms.

11 (3) Creating and implementing plans to—

12 (A) increase access to and support for rig-  
13 orous classes in STEM fields;

14 (B) use data literacy and statistical think-  
15 ing to increase student interest in STEM fields;  
16 and

17 (C) reduce gaps in access to data science  
18 and statistics courses for underrepresented stu-  
19 dents.

20 (4) Providing—

21 (A) evidence-based professional develop-  
22 ment for data science and statistics educators  
23 and specialists; or

24 (B) evidence-based training for educators  
25 and specialists transitioning from other subjects  
26 to data science and statistics.

1           (5) With respect to data literacy education, col-  
2           laborating with 1 or more of the following regional  
3           entities:

4                   (A) Industry.

5                   (B) A nonprofit organization.

6                   (C) An out-of-school education provider.

7                   (D) A two- or four-year institution of high-  
8           er education.

9           (6) Recruiting and hiring instructional per-  
10          sonnel, including specialists in data science and sta-  
11          tistics pedagogy and curricula.

12          (7) Preparing to continue project activities after  
13          the end of the grant period.

14          (8) Disseminating information about effective  
15          practices in data science and statistics education.

16          (b) **ADDITIONAL ALLOWABLE USES OF GRANT**  
17 **FUNDS FOR CERTAIN ELIGIBLE ENTITIES.**—In addition  
18 to the activities described in subsection (a)—

19               (1) in the case of an eligible entity that is not  
20               an institution of higher education, such entity may  
21               use the grant funds to—

22                   (A) increase access to and support for data  
23               literacy education for students at the pre-kin-  
24               dergarten through middle school levels to pre-

1           pare such students for data literacy education  
2           at the high school level;

3           (B) prepare and support teachers to teach  
4           students to—

5                   (i) understand data; and

6                   (ii) use computational, analytical, and  
7           statistical thinking to solve problems; and

8           (C) provide support and resources for  
9           underrepresented students;

10          (2) in the case of an eligible entity that is an  
11          institution of higher education (or an eligible consor-  
12          tium that includes such an institution), such entity  
13          may use the grant funds to provide financial support  
14          and mentorship to underrepresented students; and

15          (3) in the case of an eligible entity that is a  
16          two-year institution of higher education (or an eligi-  
17          ble consortium that includes such an institution),  
18          such entity may use the grant funds to:

19                   (A) Assess relevant local employment op-  
20                   portunities for students in data science, ana-  
21                   lytics, and statistics.

22                   (B) Establish industry partnerships.

23                   (C) Maintain up-to-date curricula.

24                   (D) Develop programs, partnerships, and  
25                   articulation agreements to facilitate the timely

1 transition of students from data science, ana-  
2 lytics, and statistics programs at the institution  
3 to—

4 (i) bachelor’s degree programs in data  
5 science, analytics, statistics, or related  
6 fields; or

7 (ii) relevant local employment.

8 (c) LIMITATION.—Not more than 15 percent of the  
9 funds of a grant made under this title in a fiscal year  
10 may be used to purchase equipment to enable the activities  
11 described in this section.

12 **SEC. 104. REPORTING AND EVALUATION.**

13 (a) RECIPIENT REPORTS.—Not less frequently than  
14 twice each year for the duration of a grant made under  
15 this title, an eligible entity that receives such a grant shall  
16 submit to the Secretary a report on the use of grant funds,  
17 including data on the students served through project ac-  
18 tivities assisted with such funds, disaggregated by—

19 (1) race (for Asian and Native Hawaiian or Pa-  
20 cific Islander students using the same race response  
21 categories as the decennial census of the popu-  
22 lation);

23 (2) ethnicity;

24 (3) gender; and

1           (4) eligibility to receive a free or reduced price  
2           lunch under the Richard B. Russell National School  
3           Lunch Act (42 U.S.C. 1751 et seq.).

4           (b) REPORT BY THE SECRETARY.—Not later than 5  
5           years after the date on which the first grant is made under  
6           this title, the Secretary shall submit to Congress and make  
7           publicly available a report that includes—

8           (1) an analysis of reports received by the Sec-  
9           retary pursuant to subsection (a); and

10           (2) recommendations for expanding the grant  
11           program established under this title.

12           (c) GRANT PROGRAM EVALUATION.—Not later than  
13           5 years after the date on which the first grant is made  
14           under this title, the Secretary, acting through the Director  
15           of the Institute of Education Sciences, shall carry out and  
16           make publicly available an evaluation of the effectiveness  
17           of the grants made under this title, including an analysis  
18           of the following:

19           (1) With respect to a project assisted with a  
20           grant made under this title, the effectiveness of such  
21           project with respect to—

22           (A) improving access to data science and  
23           data literacy curricula and instruction;

1 (B) improving data science and data lit-  
2 eracy skills in students at the pre-kindergarten  
3 through postsecondary levels; and

4 (C) assisting eligible entities that receive  
5 grants under this title in recruiting, preparing,  
6 and retaining qualified data science and statis-  
7 tics educators and specialists.

8 (2) The effectiveness of the grants made under  
9 this title with respect to improving national equi-  
10 table student access to data science and data literacy  
11 curricula and instruction.

12 **SEC. 105. DEFINITIONS.**

13 In this title:

14 (1) **DATA LITERACY.**—The term “data literacy”  
15 means the ability to understand and communicate  
16 claims derived from data, including—

17 (A) what data are;

18 (B) where data come from; and

19 (C) what aspects of the world data rep-  
20 resent.

21 (2) **DATA SCIENCE.**—The term “data science”  
22 means the interdisciplinary use of statistics, mathe-  
23 matics, and computer science to analyze data and  
24 provide tools to interact with data.

1           (3) DATA SCIENCE EDUCATION.—The term  
2 “data science education” includes education in any  
3 of the following subjects:

4           (A) Analytics.

5           (B) Applied statistics and data science.

6           (C) Artificial intelligence.

7           (D) Data acquisition and management.

8           (E) Data literacy.

9           (F) Data quality and representation.

10          (G) Data security and privacy.

11          (H) Ethical use of data.

12          (I) Machine learning.

13          (J) Operations research.

14          (K) Social impacts and professional prac-  
15 tices of statistics and data science.

16          (L) Statistical methods and modeling.

17          (M) Statistical problem-solving processes.

18           (4) ELIGIBLE CONSORTIUM.—The term “eligi-  
19 ble consortium” means a consortium that—

20           (A) includes—

21           (i) an eligible State educational agen-  
22 cy;

23           (ii) an eligible local educational agen-  
24 cy;

25           (iii) an eligible Tribal school; or

1 (iv) an institution of higher education;

2 and

3 (B) may include a non-profit or for-profit  
4 organization.

5 (5) ELIGIBLE ENTITY.—The term “eligible enti-  
6 ty” means an eligible State educational agency, eligi-  
7 ble local educational agency, eligible Tribal school,  
8 institution of higher education, or eligible consor-  
9 tium.

10 (6) ELIGIBLE LOCAL EDUCATIONAL AGENCY.—  
11 The term “eligible local educational agency” means  
12 a local educational agency described in section  
13 1003(f)(1) of the Elementary and Secondary Edu-  
14 cation Act of 1965 (20 U.S.C. 6303(f)(1)).

15 (7) ELIGIBLE STATE EDUCATIONAL AGENCY.—  
16 The term “eligible State educational agency” means  
17 a State educational agency that serves 1 or more eli-  
18 gible local educational agencies.

19 (8) ELIGIBLE TRIBAL SCHOOL.—The term “eli-  
20 gible Tribal school” means—

21 (A) a school operated by the Bureau of In-  
22 dian Education;

23 (B) a school operated pursuant to the In-  
24 dian Self-Determination and Education Assist-  
25 ance Act (25 U.S.C. 5301 et seq.); or



1 (C) a tribally controlled school (as such  
2 term is defined in section 5212 of the Tribally  
3 Controlled Schools Act of 1988 (25 U.S.C.  
4 2511)).

5 (9) ESEA TERMS.—The terms “local edu-  
6 cational agency” and “State educational agency”  
7 have the meanings given such terms in section 8101  
8 of the Elementary and Secondary Education Act of  
9 1965 (20 U.S.C. 7801).

10 (10) INSTITUTION OF HIGHER EDUCATION.—  
11 The term “institution of higher education” has the  
12 meaning given such term in section 101 of the High-  
13 er Education Act of 1965 (20 U.S.C. 1001).

14 (11) OPERATIONS RESEARCH.—The term “op-  
15 erations research” means the application of scientific  
16 methods to the management and administration of  
17 organized military, governmental, commercial, and  
18 industrial processes to maximize operational effi-  
19 ciency.

20 (12) SECRETARY.—The term “Secretary”  
21 means the Secretary of Education.

22 (13) STATISTICAL PROBLEM-SOLVING PROC-  
23 ESS.—The term “statistical problem-solving process”  
24 means a framework for decisionmaking that includes  
25 the following components:

1 (A) Formulating statistical investigative  
2 questions.

3 (B) Collecting and considering the data.

4 (C) Analyzing the data.

5 (D) Interpreting the results.

6 (14) STATISTICS.—The term “statistics” means  
7 the science of learning from data and of measuring  
8 and communicating uncertainty.

9 (15) STEM FIELDS.—The term “STEM fields”  
10 means the fields of science, technology, engineering,  
11 and mathematics and the fields of statistics and  
12 computer science.

13 (16) UNDERREPRESENTED STUDENT.—The  
14 term “underrepresented student”—

15 (A) means a student from a population  
16 that is traditionally underrepresented in STEM  
17 fields; and

18 (B) includes—

19 (i) female students;

20 (ii) students of color; and

21 (iii) students from low-income fami-  
22 lies.

1 **SEC. 106. AUTHORIZATION OF APPROPRIATIONS.**

2 (a) IN GENERAL.—There is authorized to be appro-  
3 priated to carry out this title \$10,000,000 for each of fis-  
4 cal years 2024 through 2028.

5 (b) LIMITATIONS.—

6 (1) ADMINISTRATIVE EXPENSES.—Not more  
7 than 2.5 percent of the funds made available for a  
8 fiscal year under subsection (a) may be used for ad-  
9 ministrative expenses of the Secretary associated  
10 with grants made under this title, including—

11 (A) technical assistance; and

12 (B) the dissemination of—

13 (i) the report required under section  
14 104(b); and

15 (ii) the evaluation required under sec-  
16 tion 104(c).

17 (2) PROGRAM EVALUATION.—Not more than 1  
18 percent of the funds made available for a fiscal year  
19 under subsection (a) may be used to carry out the  
20 evaluation required under section 104(c).

1 **TITLE II—STATISTICS ON SEC-**  
2 **ONDARY SCHOOL STEM**  
3 **TEACHERS**

4 **SEC. 201. AMENDMENTS TO THE EDUCATION SCIENCES RE-**  
5 **FORM ACT OF 2002.**

6 (a) IN GENERAL.—Section 153 of the Education  
7 Sciences Reform Act of 2002 (20 U.S.C. 9543) is amend-  
8 ed—

9 (1) in subsection (a)(1)—

10 (A) in subparagraph (N), by striking  
11 “and” at the end;

12 (B) in subparagraph (O), by adding “and”  
13 at the end; and

14 (C) by inserting after subparagraph (O)  
15 the following:

16 “(P) the number of science, technology, en-  
17 gineering, and math (STEM) teachers in sec-  
18 ondary schools in each State, including—

19 “(i) the subjects taught by such  
20 teachers;

21 “(ii) the educational backgrounds of  
22 such teachers; and

23 “(iii) the demographics of such teach-  
24 ers, disaggregated by race, ethnicity, and  
25 gender;”; and

1           (2) by adding at the end the following:

2           “(c) STEM TEACHERS REPORT FREQUENCY.—The  
3 statistical data described in subsection (a)(1)(P) shall be  
4 collected and reported not more frequently than once every  
5 5 years.”.

6           (b) EFFECTIVE DATE.—This section and the amend-  
7 ments made by this section shall take effect 1 year after  
8 the date of the enactment of this section.

○