November 28, 2018

NOTICE OF FUNDING OPPORTUNITY (NOFO)
Project to Develop and Distribute High School Curricula Materials that Reflect the Redefinition of the International System of Units (SI)

EXECUTIVE SUMMARY

- **Federal Agency Name:** National Institute of Standards and Technology (NIST), United States Department of Commerce (DoC)

- **Funding Opportunity Title:** Project to Develop and Distribute High School Curricula Materials that Reflect the Redefinition of the International System of Units (SI)

- **Announcement Type:** Initial

- **Funding Opportunity Number:** 2019-NIST-SI-01

- **Assistance Listings (CFDA Number):** 11.620, Science, Technology, Business and/or Education Outreach

- **Dates:** Applications must be received at Grants.gov no later than 11:59 p.m. Eastern Time, Monday January 28, 2019. Applications received after this deadline will not be reviewed or considered. Applicants should be aware, and factor in their application submission planning, that the Grants.gov system is expected to be closed for routine maintenance at these times: December 15-17, 2018, January 19-22, 2019. Applications cannot be submitted when Grants.gov is closed. NIST expects to complete its review, selection of successful applicants, and award processing by March 2019. NIST expects the earliest anticipated start date for awards under this NOFO to be March 2019.

  Applicants are strongly urged to read Section IV.2.b., Attachment of Required Application Documents, on page 14 of this NOFO, with great attention. Applicants should carefully follow the instructions and recommendations regarding attachments and using Grants.gov's Download Submitted Forms and Applications feature to check that all required attachments were contained in their submission. Applications submitted without the required documents will not pass the Initial Administrative Review, described in Section V.3.a. of this NOFO.

  When developing the submission timeline, please keep in mind that (1) all applicants are required to have a current registration in the System for Award Management (SAM.gov); (2) the free annual registration process in the electronic System for Award Management (SAM.gov) (*see* Section IV.3. and Section IV.7.a.(1).(b). of this NOFO) often takes between three and five business days and may take as long as two weeks; (3) applicants are required to have a current registration in Grants.gov;

and (4) applicants will receive email notifications over a period of up to two business days as the application moves through intermediate systems before the applicant learns via a validation or rejection notification whether NIST has received the application. (*See* http://www.grants.gov for full information on application and notification through Grants.gov). Please note that a federal assistance award cannot be issued if the designated recipient's registration in the System for Award Management (SAM.gov) is not current at the time of the award.

- **Application Submission Address:** Applications must be submitted using Grants.gov.

- **Funding Opportunity Description:** NIST invites applications from eligible applicants for the development, production and distribution of science and/or mathematics curricula resources for high school classrooms that reflect the redefinition of units within the international system of measurement (also called the metric system).

- **Anticipated Amounts:** NIST anticipates funding one award of up to $200,000 for a period of performance of up to 12 months.

- **Funding Instrument:** Grant

- **Who Is Eligible:** Eligibility for the program listed in this NOFO is open to all domestic non-Federal entities. Eligible applicants include accredited U.S. institutions of higher education; non-profit organizations incorporated in the United States; for-profit organizations incorporated in the United States; and state, local, territorial and Indian tribal governments within the United States. An eligible organization may work individually or include proposed subrecipients, contractors or unfunded collaborators. Please note that, for the purposes of this NOFO, individuals and unincorporated sole proprietors are not considered "non-Federal entities" and are not eligible to apply.

  NIST will only consider one application per applicant; however, an applicant entity may participate as a subrecipient, contractor, or unfunded collaborator within applications submitted by other entities.

- **Cost Sharing Requirements:** Matching funds are not required for this NOFO.

- **Public Website, Frequently Asked Questions (FAQs) and Webinar:** NIST has created a public website (www.nist.gov/director/pao/funding-opportunity-develop-and-distribute-high-school-curricula-materials) that provides information pertaining to this Funding Opportunity. NIST anticipates that a "Frequently Asked Questions" (FAQs) section as well as other resource materials will be maintained and updated on the website as needed to provide additional guidance and clarifying information

that may arise related to this Funding Opportunity. Any amendments to this NOFO will be announced through Grants.gov.

Applicants must submit all questions pertaining to this funding opportunity via e-mail to sicurricula.questions@nist.gov. Questions submitted to NIST may be posted on the public website for this competition as part of a FAQ document. Alternatively, applicants may ask questions during an informational webinar as described in the next paragraph.

NIST plans to hold an informational webinar on the Project to Develop and Distribute High School Curricula Materials that Reflect the Redefinition of the International System of Units (SI) NOFO. Scheduling and registration information for the webinar will be posted on the public website for this competition. The webinar will provide information on the project, this NOFO, general guidance on preparing applications, and offer opportunities for the public to ask questions about the project. Proprietary technical discussions about specific proposal ideas will not be permitted, and NIST will not critique or provide feedback on any proposal ideas brought forth during the webinar or at any time before the conclusion of this competition. There is no cost to attend the webinar, **but participants must register in advance**.

Participation in the webinar is not required for the submission of an application, and attendance/participation will not be considered as part of the application review and selection process. The webinar will be recorded, and a link to the recording will be available for public access on the public website for this competition.

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November 28, 2018

FULL ANNOUNCEMENT TEXT

I. Program Description

The statutory authority for the Project to Develop and Distribute High School Curricula Materials that Reflect the Redefinition of the International System of Units (SI) is 15 U.S.C. §§ 272(b)(4), 278g-1(a) and (e), and 205a et seq.

1. **Overview.** NIST invites applications from eligible applicants for the development, production and distribution of science and/or mathematics curricula resources for high school classrooms that reflect the recent redefinition of units within the international system of measurement (also called the metric system or SI).

   Over the course of the twentieth century, technology advances in industry and scientific research have demanded increasingly precise measurements. As a result, the definitions for some metric units of measurement have been updated from being based on physical objects to being based on immutable natural constants.

   For example, in 1967, the second was redefined to be the duration of 9,192,631,770 cycles of the radiation of the cesium-133 atom as it oscillates from one energy level to another. And in 1983, the length of a meter was redefined as the distance light travels in vacuum in 1/299,792,458 of a second. The kilogram and the measurement units derived from it, however, will no longer be determined by a single small cylinder of platinum-iridium stored in a vault outside of Paris.

   After many years of work, scientists have redefined the kilogram, the last remaining base unit of measure based on an artifact. On November 16, 2018, at an event held at the Palace of Versailles in France, a committee of the International Bureau of Weights and Measures endorsed a revised SI system of measurement based entirely on the natural world and the laws of physical science.

   See Section I.2. of this NOFO for additional background information.

2. **Background Information on the SI Redefinition**.

   In 2019, a metal cylinder in a Parisian vault will be replaced with a new way to measure mass based entirely on the laws of nature.

   Why is this important?

   The metal cylinder, known as the International Prototype Kilogram (aka “Big K”) is *the* kilogram. It is the standard for measuring mass in almost every nation on Earth. It is also, however, an antiquated artifact of a bygone era.

Big K is indeed the last “artifact,” or physical prototype of measurement, of the SI. It represents not only the mass of the kilogram, but an idea that goes back thousands of years, when actual physical objects defined all measurement systems. Think ‘hands,’ ‘stones,’ ‘feet,’ and ‘cubits.’

Over the course of the twentieth century, some of the metric units of measurement have been redefined in terms of natural constants. Measurement standards defined by natural phenomena are exceptionally accurate, precise and reproducible. But the kilogram, and the measurement units derived from it (such as force, which is measured in newtons), were not among them, until a vote on November 16 changed the way the world measures mass.

There is a reason the kilogram had not been redefined until recently, and why “Big K” still had a job: devising something better has been extremely difficult. The new definition starts with an agreed value for a quantum-mechanical quantity called Planck’s constant[1] (represented by a lowercase *h*). In 1999, NIST scientists first proposed the idea of defining the kilogram by assigning a fixed value to the Planck constant. This would be done by using a Kibble balance, a complex device named after scientist Bryan Kibble, who conceptualized it in 1975. The Kibble balance matches mechanical power, such as that generated by a moving kilogram mass, to an equivalent amount of electrical power, such as that generated by the voltage in a special coil in the device. The amount of voltage in the coil is proportional to Planck’s constant *h*. So, the Kibble balance could first use an exactly defined mass to measure the value of *h*, and then reverse the process: by using an exact fixed value of *h*, the same system could measure an unknown mass. A second proposed method would define the kilogram in terms of the mass of a silicon atom by counting the number of atoms in a 1 kg sphere of ultra-pure silicon-28 (the most abundant isotope of silicon, which contains a total of 28 protons and neutrons).

The General Conference on Weights and Measures, which oversees the International Bureau of Weights and Measures, endorsed the idea of using these new methods to redefine the kilogram with a few requirements, including: 1) at least three independent experiments had to produce a mass measurement that was accurate to 50 parts per billion, 2) at least one of them had to be accurate to within 20 parts per billion, AND 3) the results of the Kibble balance and silicon sphere methods had to agree with each other to a statistical confidence level of 95 percent. The agreed-upon value of Planck’s constant[2] was established in October 2017, and a paper[3] about this new value was published in January 2018.

The improvements to measurement science made possible by the redefinition of

[1] https://www.nist.gov/video/nist-90-measuring-plancks-constant
[2] https://www.nist.gov/news-events/news/2017/10/bringing-world-closer-revised-measurement-system-scientists-update-four-key
[3] http://iopscience.iop.org/article/10.1088/1681-7575/aa950a/meta

the kilogram will allow unprecedented scalability, meaning that measurements of the impossibly large to the vanishingly small will be linked through fundamental constants of nature.

If experience is an indicator, the implications for the future will be compelling. The 20th century redefinitions of the second and the meter enabled the development of *GPS,* the internet, and interstellar navigation. The vote to redefine the kilogram redefined not only how to measure a kilogram, but also three other measurement units, those used for measuring temperature (kelvin), electricity (ampere), and chemical amounts (mole).

The decades of work put into the kilogram redefinition culminated in a November 16, 2018, meeting of the General Conference on Weights and Measures (Conférence Générale des Poids et Mesures, CGPM) at the Palace of Versailles in France. Attended by scientists from around the world, the representatives from more than 50 nations came together and voted to officially implement the new definition of the kilogram and the units derived from it. The world's nations will begin to implement these new standards in May 2019. Therefore, U.S. schools will need either new or updated curricula to teach students about this major improvement in how measurements in industry and science will be made.

More information about the SI Redefinition can be found on NIST's website.

3. **Project Objectives:** The recipient will develop, produce and effectively distribute curricula material for high school classrooms that will:

   - align with state standards for use in mathematics classes and/or align with the Next Generation Science Standards[4] for use in science classes;
   - educate high school students about the new kilogram definition and the revised SI so they can enter the workforce or continue their academic studies with a strong understanding of and appreciation for the SI and how each unit is defined;
   - demonstrate the importance and use of the SI and measurement in the "real world" and assist students in understanding the pivotal role of measurement in science and commerce; and
   - include at least one interactive multimedia component, such as an online game, app, or virtual reality experience.

   All curricula materials produced under this program must be completed and distributed for use before the start of the 2020-2021 school year.

   NIST will provide access to its experts to help the recipient understand the revised SI and its expected implementation as the world's measurement system.

[4] https://www.nextgenscience.org/

The recipient is expected to understand the varying needs and expectations of the U.S. science and mathematics education community with respect to the 21st Century learning environment and to merge that understanding with knowledge of the SI redefinition to create curricula resources that can be widely adopted in classrooms.

To ensure accuracy and appropriateness of the products produced, the recipient must create a panel of at least 5 members, each of whom much have either relevant scientific, mathematical or educational expertise. The panel will review all curricula materials prepared under the grant. The review panel must include one NIST expert. NIST approval of the panel's membership will be a condition of the award.

4. **Ownership and Usage.** The DoC Financial Assistance Standard Terms and Conditions, dated October 9, 2018 (or a successor version), will govern any award made under this NOFO. Under these Terms and Conditions, which include the applicability of 2 C.F.R. § 200.315, the recipient will own the intellectual property rights to the finished curricula material, subject to NIST's Federal government rights. The recipient may earn revenue through distribution of the materials. Applicants must be aware that, pursuant to 2 CFR § 200.307, any revenue generated during the period of performance of the award must be treated as program income and used for the purposes of the award. Once the award terminates, the recipient will be permitted to retain all earned revenue for its own purposes.

   Pursuant to 2 C.F.R. § 200.315(b), NIST will reserve a royalty-free, nonexclusive and irrevocable right to reproduce, publish, or otherwise use the materials for Federal purposes, and to authorize others to do so.

   As an agency of the Federal government, NIST does not compete with the private sector.

5. **Attribution.** Using the appropriate credit language provided by NIST, recipient will credit NIST as the funding sponsor. Recipient will ensure that NIST is credited as the funding sponsor of the original work on any derivative works.

II. Federal Award Information

1. **Funding Instrument.** The funding instrument that will be used is a grant.

2. **Funding Availability.** NIST anticipates funding one award of up to $200,000 for a period of performance of up to 12 months.

III. Eligibility Information

1. Eligibility

Eligibility for the program listed in this NOFO is open to all domestic non-Federal entities. Eligible applicants include accredited U.S. institutions of higher education; non-profit organizations incorporated in the United States; for-profit organizations incorporated in the United States; and state, local, territorial and Indian tribal governments within the United States. An eligible organization may work individually or include proposed subrecipients, contractors or unfunded collaborators. Please note that, for the purposes of this NOFO, individuals and unincorporated sole proprietors are not considered "non-Federal entities" and are not eligible to apply.

NIST will only consider one application per applicant; however, an applicant organization may participate as a subrecipient, contractor, or unfunded collaborator within applications submitted by other organizations.

2. Cost Sharing or Matching. Matching funds are not required for this NOFO.

IV. Application and Submission Information

1. **Address to Request Application Package.** The application package is available at www.grants.gov under Funding Opportunity Number 2019-NIST-SI-01.

2. **Content and Format of Application Submission**

   a. Required Forms and Documents

   The Application must contain the following:

   (1) SF-424, Application for Federal Assistance. The SF-424 must be signed by an authorized representative of the applicant organization.

   - SF-424, Item 8.d Zip/Postal Code field should reflect the zip code + 4 (##### - ####) format.
   - SF-424, Item 12, should list the NOFO number 2019-NIST-SI-01.
   - SF-424, Item 18, should list the total Federal budget amount requested for the entire project.
   - For SF-424, Item 21, the list of certifications and assurances is contained in the SF-424B.

(2) SF-424A, Budget Information - Non-Construction Programs. The budget should reflect anticipated expenses for the project, considering all potential cost increases, including cost of living adjustments.

The Grant Program Function or Activity on Line 1 under Column (a) should be entered as "Science, Technology, Business, and/or Education Outreach". The Catalog of Federal Domestic Assistance Number on Line 1 under Column (b) should be entered as "11.620".

These sections of the SF-424A should reflect funds for the whole term of the award: Section A; Section B; Section C; and Section D. Section E is not relevant to a one-year proposal.

(3) SF-424B, Assurances - Non-Construction Programs

(4) CD-511, Certification Regarding Lobbying. Enter "2019-NIST-SI-01" in the Award Number field. Enter the title of the application used in field 15 of the SF-424, or an abbreviation of that title, in the Project Name field.

(5) SF-LLL, Disclosure of Lobbying Activities (if applicable)

(6) Project Proposal. The Project Proposal is a document of no more than twenty-five (25) pages responsive to the Program Description (see Section I. of this NOFO) and the evaluation criteria (*see* Section V.1. of this NOFO). Resumes required by Section IV.2.a.(6).3. do not count toward the twenty-five (25) page limit of the Project Proposal.

The Project Proposal should include the following:

1. **Plans to Meet the Project Objectives.** This is an overview of the curricula materials the applicant plans to create. The description should include:

   - The type of curricula materials the applicant proposes creating, including an overview of what materials would be created for students and what materials would be created for teachers and whether the material is intended for science and/or mathematics classrooms.

   - An overview of the type of interactive multimedia product(s) that will be created and the proposed approach for the interactive multimedia content (i.e., style of game, app or virtual reality experience, etc.). This description should indicate the platform on which the product will operate (e.g., desktop, tablet, or smart phone). Indicate whether the interactive multimedia content is the

development of an entirely new product, the addition of new and unique components to a prototype that already exists and is functioning, or the addition of new and unique components to a product that is already fully developed.

- How the curricula and interactive multimedia component would be implemented in the intended education setting. For example, would this product replace, supplement, or be integrated within existing practices? Would the product alter typical instructional approaches?

- The expected level of resources (e.g., time, funds, schedules, equipment) needed to implement and use the product(s). Discuss why this product's implementation will be feasible for users given resource constraints.

- How proposed science materials align with the NGSS and/or math materials meet specific state math standards.

- The evaluation and review process that the applicant will use to ensure that the target audience of high school students can use the materials prepared under the grant to effectively learn key concepts about the revised SI and the importance of measurement to science and commerce. This section should include a discussion of how the applicant plans to make use of the review panel.

- The applicant's plan to ensure national distribution of the created resources.

If applicable, this section should reference other curricular materials and/or interactive multimedia components created by the applicant and geared toward high school students that are similar in technique, style, or structure to the applicant's plans for this project. The applicant should also describe any previous experience with successful national distribution and use of curricular material and/or interactive multimedia content in the same or similar fields that is geared toward high school students.

Applicants should include information about how, over the term of the agreement, it will solicit and incorporate inputs from target audiences (teachers, and potentially also students) to ensure the products meet their needs.

This section will be evaluated in accordance with the *Plans to meet the Project Objectives* evaluation criterion (*see* Section V.1.a. of this NOFO).

2. **Management of the Project.** A description of the applicant's plan to manage the project tasks, timeline, budget, and work of all project participants, including subrecipients, contractors, and unfunded collaborators, to ensure realization of project goals and objectives. This section should include the following:

   - A description of the proposed roles and level of planned effort of all key personnel (see Section IV.2.a.(6).3.below).

   - The applicant's plan to form and coordinate a scientific and educational review panel to provide periodic review of materials developed and the interactive multimedia component to ensure scientific and/or mathematical accuracy and that the materials are appropriate for the grade(s) designated and fit within current curriculum requirements.

   - A timeline of the project's major phases, to include development and research, creation, production, marketing, and distribution.

   This section will be evaluated in accordance with *the Management of the Project* evaluation criterion (*see* Section V.1.b. of this NOFO).

3. **Qualifications and Experience of Key Personnel and Project Staff.** The qualifications and experience of the key personnel, staff, and participating subrecipients, contractors, and unfunded collaborators who will participate in the proposed project, if applicable, must be described in detail, including the applicant's demonstrated experience in successfully creating and distributing curricular materials that are used in high schools throughout the United States and the applicant's demonstrated experience in creating interactive multimedia products that are used in the classroom.

   The qualifications and experience outlined should demonstrate that the applicant has an understanding of the varying needs and expectations of the science and mathematics education community with respect to the 21st century learning environment.

   Resumes are required for all key personnel. Applicants are advised that any changes to key personnel, including disengagement from the project for more than three months or a 25% reduction of effort, will require prior approval, in writing, by the NIST Grants Officer. No individual resume may exceed three (3) pages. Resumes do not count toward the twenty-five (25) page limit of the Project Proposal.

This section will be evaluated in accordance with the *Qualifications and Experience of Key Personnel and Project Staff* evaluation criterion (*see* Section V.1.c. of this NOFO).

(7) Budget Narrative. (This document does not count toward the page limit). The Budget Narrative must provide a detailed breakdown of each of the object class categories as reflected on the SF-424A. The budget justification should address all of the budget categories (personnel, fringe benefits, equipment, travel, supplies, other direct costs and indirect costs) for which Federal funds are requested. The written justification should include the necessity and the basis for the cost and how much will be allocated for major phases of the project. Proposed funding levels must be consistent with the project scope, and only allowable costs should be included in the budget. Information on cost allowability is available in the Uniform Administrative Requirements, Cost Principles, and Audit Requirements for Federal Awards at 2 C.F.R. Part 200 (http://go.usa.gov/SBYh), which apply to awards in this program. Information needed for each category is as follows:

a. Personnel – At a minimum, the budget justification for all personnel should include the following: name, job title, commitment of effort on the proposed project in terms of average number of hours per week or percentage of time, salary rate, total direct charges on the proposed project, description of the role of the individual on the proposed project and the work to be performed.

b. Fringe Benefits – Fringe benefits should be identified separately from salaries and wages and based on rates determined by organizational policy. The items included in the fringe benefit rate (e.g., health insurance, parking, etc.) should not be charged under another cost category.

c. Travel - For all travel costs, the budget justification for travel should include the following: destination; names or number of people traveling; dates and/or duration; mode of transportation, lodging and subsistence rates; and description of how the travel is directly related to the proposed project. For travel that is yet to be determined, please provide best estimates based on prior experience. If a destination is not known, an approximate amount may be used with the assumptions given for the location of the meeting.

d. Equipment – Equipment is defined as an item of property that has an acquisition cost of $5,000 or more (unless the organization has established lower levels) and an expected service life of more than one year. Any items that do not meet the threshold for equipment can be included under the supplies line item. The budget justification should

list each piece of equipment, the cost, and a description of how it will be used and why it is necessary to the successful completion of the proposed project. Please note that any general use equipment (computers, etc.) charged directly to the award should be allocated to the award according to expected usage on the project.

e. Supplies – Provide a list of each supply, and the breakdown of the total costs by quantity or unit of cost. Include the necessity of the cost for the completion of the proposed project.

f. Contractual (i.e. Contracts or Subawards) – Each contract or subaward should be treated as a separate item. Identify the cost and describe the services to be provided and the necessity of the subaward or contract to the successful performance of the proposed project. Contracts are for obtaining normal goods and services. Subrecipients perform part of the project scope of work.

g. Construction – Not an allowable cost under this NOFO.

h. Other Direct Costs – For costs that do not easily fit into the other cost categories, please list the cost, and the breakdown of the total costs by quantity or unit of cost. Include the necessity of the cost for the completion of the proposed project. Only allowable costs can be charged to the award.

This section will be evaluated in accordance with the *Budget Narrative* evaluation criterion (*see* Section V.1.e. of this NOFO).

(8) Indirect Cost Rate Agreement. If indirect costs are included in the proposed budget, provide a copy of the approved negotiated agreement if this rate was negotiated with a cognizant Federal audit agency. If the rate was not established by a cognizant Federal audit agency, provide a statement to this effect. If the successful applicant includes indirect costs in the budget and has not established an indirect cost rate with a cognizant Federal audit agency, the applicant will be required to obtain such a rate in accordance with the Department of Commerce Financial Assistance Standard Terms and Conditions.

Alternatively, in accordance with 2 C.F.R. § 200.414(f), applicants that have never received a negotiated indirect cost rate may elect to charge indirect costs to an award pursuant to a de minimis rate of 10 percent of modified total direct costs (MTDC), in which case a negotiated indirect cost rate agreement is not required. Applicants proposing a 10 percent de minimis rate pursuant to 2 C.F.R. § 200.414(f) should note this election as part of the budget and budget narrative portion of the application.

b. Attachment of Required Documents

Items IV.2.a.(1) through IV.2.a.(5) above are part of the standard application package in Grants.gov and can be completed through the download application process.

Items IV.2.a.(6) through IV.2.a.(8) must be completed and attached by clicking on "Add Attachments" found in item 15 of the SF-424, Application for Federal Assistance. This will create a zip file that allows for transmittal of the documents electronically via Grants.gov.

Applicants should carefully follow specific Grants.gov instructions at www.grants.gov to ensure the attachments will be accepted by the Grants.gov system. *A receipt from Grants.gov indicates only that an application was transferred to a system. It does not provide details concerning whether all attachments (or how many attachments) transferred successfully.* Applicants using Grants.gov will receive a series of e-mail messages over a period of up to two business days before learning whether a Federal agency's electronic system has received its application.

Applicants are strongly advised to use Grants.gov's Download Submitted Applications option to check that their application's required attachments were contained in their submission.

After submitting the application, follow the directions found at this link, https://go.usa.gov/xQqeh in the Grants.gov Online Users Guide.

If any, or all, of the required attachments are absent from the submission, follow the attachment directions found above, resubmit the application before the deadline, and check again for the presence of the required attachments.

If the directions found at https://go.usa.gov/xQqeh are not effective, please contact the Grants.gov Help Desk immediately. If calling from within the United States or from a U.S. territory, please call 800-518-4726. If calling from a place outside the United States or a U.S. territory, please call 606-545-5035. E-mails should be addressed to support@grants.gov. Assistance from the Grants.gov Help Desk will be available around the clock every day, except for Federal holidays. Help Desk service will resume at 7:00 a.m. Eastern Time the day after Federal holidays.

Applicants can track their submission in the Grants.gov system by following the procedures at the Grants.gov site (http://go.usa.gov/cjamz). It can take up to two business days for an application to fully move through the Grants.gov system to NIST.

NIST uses the Tracking Numbers assigned by Grants.gov and does not issue Agency Tracking Numbers.

c. Application Format

(1) Paper, E-mail and Facsimile (fax) Submissions. Will not be accepted.

(2) Figures, Graphs, Images, and Pictures. Should be of a size that is easily readable or viewable and may be landscape orientation.

(3) Font. Easy to read font (10-point minimum). Smaller type may be used in figures and tables but must be clearly legible.

(4) Page Limits.

Twenty-five (25) pages for the Project Proposal.

Project Proposal Page Limit Includes: Project Proposal (including any figures, graphs, tables, images, and pictures), and all other pages of an application, with the exception of the page limit exclusions listed below.

Project Proposal Page Limit Excludes: SF-424, Application for Federal Assistance; SF-424A, Budget Information – Non-Construction Programs; SF-424B, Assurances – Non-Construction Programs; CD-511, Certification Regarding Lobbying; SF-LLL, Disclosure of Lobbying Activities; Resumes (although individual resumes are limited to three (3) pages each); Budget Narrative; and Indirect Cost Rate Agreement.

(5) Page size. 21.6 centimeters by 27.9 centimeters (8 ½ inches by 11 inches).

(6) Application language. English.

d. Application Replacement Pages. Applicants may not submit replacement pages and/or missing documents once an application has been submitted. Revisions may only be made by submitting a complete new application that is received by NIST before the submission deadline.

e. Pre-Applications. Pre-applications will not be accepted under this NOFO.

f. Certifications Regarding Federal Felony and Federal Criminal Tax Convictions, Unpaid Federal Tax Assessments and Delinquent Federal Tax Returns. In accordance with Federal appropriations law, an authorized representative of the selected applicant(s) may be required to provide certain pre-award certifications regarding federal felony and federal criminal tax

convictions, unpaid federal tax assessments, and delinquent federal tax returns.

3. **Unique Entity Identifier and System for Award Management (SAM).** Pursuant to 2 C.F.R. part 25, applicants and recipients (as the case may be) are required to: (i) be registered in SAM before submitting its application; (ii) provide a valid unique entity identifier in its application; and (iii) continue to maintain an active SAM registration with current information at all times during which it has an active Federal award or an application or plan under consideration by a Federal awarding agency, unless otherwise excepted from these requirements pursuant to 2 C.F.R. § 25.110. NIST will not make a Federal award to an applicant until the applicant has complied with all applicable unique entity identifier and SAM requirements and, if an applicant has not fully complied with the requirements by the time that NIST is ready to make a Federal award pursuant to this NOFO, NIST may determine that the applicant is not qualified to receive a Federal award and use that determination as a basis for making a Federal award to another applicant.

4. **Submission Dates and Times.** Applications must be received at Grants.gov no later than than 11:59 p.m. Eastern Time, Monday January 28, 2019. Applications received after this deadline will not be reviewed or considered. Applicants should be aware, and factor into their application submission planning, that the Grants.gov system is expected to be closed for routine maintenance at these times: December 15-17, 2018, January 19-22, 2019. Applications cannot be submitted when Grants.gov is closed. NIST expects to complete its review, selection of successful applicants, and award processing by March 2019. NIST expects the earliest anticipated start date for awards under this NOFO to be March 2019.

   When developing your submission timeline, please keep in mind that (1) all applicants are required to have a current registration in the System for Award Management (SAM.gov); (2) the free annual registration process in the electronic System for Award Management (SAM.gov) (*see* Sections IV.3. and IV.7.a.(1).(b). of this NOFO) often takes between three and five business days and may take as long as two weeks; (3) applicants are required to have a current registration in Grants.gov; and (4) applicants using Grants.gov will receive e-mail notifications over a period of up to two business days as the application moves through intermediate systems before the applicant learns via a validation or rejection notification whether NIST has received the application. (*See* http://www.grants.gov for full information on application and notification through Grants.gov.). Please note that a federal assistance award cannot be issued if the designated recipient's registration in the System for Award Management (SAM.gov) is not current at the time of the award.

5. **Intergovernmental Review.** Applications under this Program are not subject to Executive Order 12372.

6. Funding Restrictions. Profit or fee is not an allowable cost.

7. Other Submission Requirements

a. Applications must be submitted electronically.

(1) Applications must be submitted via Grants.gov at www.grants.gov.

(a) Applicants should carefully follow specific Grants.gov instructions to ensure that all attachments will be accepted by the Grants.gov system. A receipt from Grants.gov indicating an application is received does not provide information about whether attachments have been received. For further information or questions regarding applying electronically for the 2019-NIST-SI-01 announcement, contact Leon Sampson by phone at 301-975-3086 or by e-mail at grants@nist.gov.

(b) Applicants are strongly encouraged to start early and not wait until the approaching due date before logging on and reviewing the instructions for submitting an application through Grants.gov. The Grants.gov registration process must be completed before a new registrant can apply electronically. If all goes well, the registration process takes three to five business days. If problems are encountered, the registration process can take up to two weeks or more. Applicants must have a valid unique entity identifier number and must maintain a current registration in the Federal government's primary registrant database, the System for Award Management (https://www.sam.gov/), as explained on the Grants.gov Web site. *See also* Section IV.3. of this NOFO. After registering, it may take several days or longer from the initial log-on before a new Grants.gov system user can submit an application. Only individuals authorized as organization representatives will be able to submit the application, and the system may need time to process a submitted application. Applicants should save and print the proof of submission they receive from Grants.gov. If problems occur while using Grants.gov, the applicant is advised to (a) print any error message received and (b) call Grants.gov directly for immediate assistance. If calling from within the United States or from a U.S. territory, please call 800-518-4726. If calling from a place other than the United States or a U.S. territory, please call 606-545-5035. Assistance from the Grants.gov Help Desk will be available around the clock every day, with the exception of Federal holidays. Help Desk service will resume at 7:00 a.m. Eastern Time the day after Federal holidays. For assistance using Grants.gov, you may also contact support@grants.gov.

(c) To find instructions on submitting an application on Grants.gov, Applicants should refer to the "Applicants" tab in the banner just below the top of the www.grants.gov home page. Clicking on the "Applicants" tab produces two exceptionally useful sources of information, Grant Applications and Applicant Resources, which applicants are advised to review.

Applicants will receive a series of e-mail messages over a period of up to two business days before learning whether a Federal agency's electronic system has received their application. Closely following the detailed information in these subcategories will increase the likelihood of acceptance of the application by the Federal agency's electronic system.

Applicants should pay close attention to the guidance under "Applicant FAQs," as it contains information important to successful submission on Grants.gov, including essential details on the naming conventions for attachments to Grants.gov applications.

All applicants should be aware that adequate time must be factored into applicants' schedules for delivery of their application. Applicants are advised that volume on Grants.gov may be extremely heavy leading up to the deadline.

The application must be both received and validated by Grants.gov. The application is "received" when Grants.gov provides the applicant a confirmation of receipt and an application tracking number. If an applicant does not see this confirmation and tracking number, the application has not been received. After the application has been received, it must still be validated. During this process, it may be "validated" or "rejected with errors." To know whether the application was rejected with errors and the reasons why, the applicant must log in to Grants.gov, select "Applicants" from the top navigation, and select "Track my application" from the drop-down list. If the status is "rejected with errors," the applicant may still seek to correct the errors and resubmit your application before the deadline. If the applicant does not correct the errors, the application will not be forwarded to NIST by Grants.gov.

Refer to important information in Section IV.4. Submission Dates and Times, to help ensure the application is received on time.

b. Amendments. Any amendments to this NOFO will be announced through Grants.gov. Applicants may sign up on Grants.gov to receive amendments by e-mail or may request copies from Robin Materese by telephone at (301) 975-4158 or by e-mail to sicurricula.questions@nist.gov**.**

V. Application Review Information

1. **Evaluation Criteria.** The criteria that will be used in evaluating applications and associated point values are as follows:

   a. **Plans to Meet the Project Objectives. (0-40 points** – subcriteria will be weighted equally**)** Reviewers will evaluate:

      (1) how well the applicant's proposed plans and activities, as described in the Project Proposal, align to the objectives set forth in Section I of this NOFO;
      (2) the extent to which the proposed project and approach support, advance, and/or integrate content on the SI redefinition and the importance of measurement into high school courses on mathematics and/or science. For curricular materials intended for mathematics courses, higher scores will be given to proposals to create materials that can meet the requirements of multiple state standards;
      (3) the completeness, quality, and technical merit of the detailed work plan, which should clearly identify the final deliverables and include clear and measurable performance objectives and a clear statement of how each task will be accomplished. This also includes assessing the proposed interactive multimedia component and the plan for how that component would be used in a classroom; and
      (4) the likelihood that the applicant's proposed plan for distributing the curriculum will result in widespread adoption by high schools.

   b. **Management of the Project. (0-15 points** – subcriteria will be weighted equally**)** Reviewers will evaluate:

      (1) the appropriateness, quality, and completeness of the applicant's plan to manage the project tasks, timeline, budget, scientific review panel, and work of all project participants, including subrecipients, contractors, and unfunded collaborators, to ensure realization of project goals and objectives;
      (2) the appropriateness and reasonableness of the proposed roles and level of planned effort of all project participants; and
      (3) if subrecipients, contactors, or unfunded collaborators are proposed, reviewers will assess whether there is an adequate justification for their inclusion in the project and a clear structure to ensure effective coordination.

   c. **Qualifications and Experience of Key Personnel and Project Staff. (0-30 points** – subcriteria will be weighted equally**)** Reviewers will evaluate:

      (1) the appropriateness, quality, and degree of the qualifications and experience of the key personnel;

(2) the extent of the project staff members' demonstrated knowledge of the state math standards and/or NGSS and experience creating high school level curricular resources that adhere to one or more of the standards;
(3) The extent of the applicant's demonstrated experience with successfully distributing curricular materials; and
(4) the extent of the applicant's demonstrated experience creating and distributing interactive multimedia components that amplify scientific or mathematic concepts and are geared to high school students.

d. Budget Narrative. (0-15 points) Reviewers will evaluate the reasonableness and cost-effectiveness of the project budget to successfully meet the project objectives.

2. Selection Factors. The Selecting Official, who is the Director of the NIST Public Affairs Office, shall generally select and recommend applications for award based upon the rank order of the applications. The Selecting Official may select and recommend an application for award out of rank order based on one or more of the following selection factors:

a. The results of the reviewers' evaluations.
b. How well a proposal addresses the objectives as set forth in the Program Description (see Section I. of this NOFO).
c. Whether the project duplicates other projects funded by NIST, DoC, or by other Federal agencies.
d. The availability of Federal funds.

3. Review and Selection Process

Proposals, reports, documents and other information related to applications submitted to NIST and/or relating to financial assistance awards issued by NIST will be reviewed and considered by Federal employees, Federal agents and contractors, and/or by non-Federal personnel who have entered into conflict of interest and confidentiality agreements covering such information, when applicable.

a. Initial Administrative Review. An initial review of applications received by the deadline will be conducted to determine eligibility, completeness, and responsiveness to this NOFO. Applications determined to be ineligible, incomplete, and/or non-responsive may be eliminated from further review.

However, NIST, in its sole discretion, may continue the review process for an application that is missing non-substantive information, the absence of which may be easily rectified during the review process.

b. Review of Eligible, Complete, and Responsive Applications. Applications determined to be eligible, complete, and responsive will proceed for full reviews in accordance with the review and selection process below:

(1) Evaluation and Review. At least three independent, objective reviewers, who are Federal employees, and knowledgeable in the subject matter of this NOFO and its objectives, will evaluate each application based on the evaluation criteria (*see* Section V.1. of this NOFO). While every application will have at least three reviews, applications may have differing numbers of reviews if specialized expertise is needed to evaluate the application. The applications will be ranked by average review score. If deemed necessary to clarify information in an application, an applicant may be asked to submit answers to written questions from the technical reviewers, provided by the program.

(2) Ranking and Selection. The Selecting Official will be provided all eligible, complete, and responsive applications, all technical reviewer score sheets, and any other information solicited from applicants in the technical review process. The Selecting Official will determine, through consideration of the ranked list and selection factors, which application will be recommended for award to the NIST Grants Officer.

NIST reserves the right to negotiate budget costs with the selected applicant. Negotiations may include requesting that the applicant remove certain costs. Additionally, NIST may request that the applicant modify objectives or work plans and provide supplemental information required by the agency prior to award. NIST also reserves the right to reject an application where information is uncovered that raises a reasonable doubt as to the responsibility of the applicant. NIST may select some, all, or none of the applications, or part(s) of any particular application. NIST may request that applicants consider working together in a combined project if this approach might effectively advance the program mission. The final approval of selected application and issuance of an award will be by the NIST Grants Officer. The award decision of the NIST Grants Officer is final.

c. Federal Awarding Agency Review of Risk Posed by Applicants. After applications are proposed for funding by the Selecting Official, the NIST Grants Management Division (GMD) performs pre-award risk assessments in accordance with 2 C.F.R. § 200.205, which may include a review of the financial stability of an applicant, the quality of the applicant's management systems, the history of performance, and/or the applicant's ability to effectively implement statutory, regulatory, or other requirements imposed on non-Federal entities.

In addition, prior to making an award where the total Federal share is

expected to exceed the simplified acquisition threshold (currently $150,000), NIST GMD will review and consider the publicly available information about that applicant in the Federal Awardee Performance and Integrity Information System (FAPIIS). An applicant may review and comment on information about itself previously entered into FAPIIS by a Federal awarding agency. As part of its review of risk posed by applicants, NIST GMD will consider any comments made by the applicant in FAPIIS in making its determination about the applicant's integrity, business ethics, and record of performance under Federal awards. Upon completion of the pre-award risk assessment, the Grants Officer will make a responsibility determination concerning whether the applicant is qualified to receive the subject award and, if so, whether appropriate specific conditions that correspond to the degree of risk posed by the applicant should be applied to an award.

4. **Anticipated Announcement and Award Date.** NIST expects to complete its review, selection of successful applicants, and award processing by March 2019. NIST expects the earliest anticipated start date for awards under this NOFO to be March 2019.

5. **Additional Information**

   a. **Safety.** Safety is a top priority at NIST. Employees and affiliates of award recipients who conduct project work at NIST will be expected to be safety-conscious, to attend NIST safety training, and to comply with all NIST safety policies and procedures, and with all applicable terms of their guest research agreement.

   b. **Notification to Unsuccessful Applicants.** Unsuccessful applicants will be notified by e-mail.

   c. **Retention of Unsuccessful Applications.** Unsuccessful applications will be retained in accordance with the General Record Schedule 1.2/021.

VI. Federal Award Administration Information

1. **Federal Award Notices.** Successful applicants will receive an award package from the NIST Grants Officer.

2. **Administrative and National Policy Requirements**

   a. **Uniform Administrative Requirements, Cost Principles and Audit Requirements**. Through 2 C.F.R. § 1327.101, the Department of Commerce adopted Uniform Administrative Requirements, Cost Principles, and Audit Requirements for Federal Awards at 2 C.F.R. Part 200, which apply to awards in this program. Refer to http://go.usa.gov/SBYh and http://go.usa.gov/SBg4.

b. **Department of Commerce Financial Assistance Standard Terms and Conditions**. The Department of Commerce will apply to any award made under this NOFO the Financial Assistance Standard Terms and Conditions in effect on the date of award. The current version, dated October 9, 2018, is accessible at http://www.osec.doc.gov/oam/grants_management/policy/default.htm. Refer to Section VII. of this NOFO, Federal Awarding Agency Contacts, Grant Rules and Regulations, for more information.

c. **Pre-Award Notification Requirements.** The Department of Commerce will apply the Pre-Award Notification Requirements for Grants and Cooperative Agreements dated December 30, 2014 (79 FR 78390), accessible at http://go.usa.gov/hKkR to any award made under this NOFO. Refer to Section VII. of this NOFO, Federal Awarding Agency Contacts, Grant Rules and Regulations, if you seek the information at this link and it is no longer working or for more information.

d. **Funding Availability and Limitation of Liability.** NIST issues this notice subject to the appropriations made available under the current continuing resolution funding the Department of Commerce: Division C of Department of Defense and Labor, Health and Human Services, and Education Appropriations Act, 2019 and Continuing Appropriations Act, 2019, Public Law 115-245, September 28, 2018. NIST anticipates making awards for the program listed in this notice provided that funding for Fiscal Year 2019 is continued beyond December 7, 2018, the expiration of the current continuing resolution.

   In no event will NIST or the Department of Commerce be responsible for application preparation costs, including, but not limited to, if the program fails to receive funding or is cancelled because of agency priorities. Publication of this NOFO does not oblige NIST or the Department of Commerce to award any specific project or to obligate any available funds.

e. **Collaborations with NIST Employees**. All applications should include a description of any work proposed to be performed by an entity other than the applicant, and the cost of such work should ordinarily be included in the budget. If an applicant proposes collaboration with NIST, the statement of work should include a statement of this intention, a description of the collaboration, and prominently identify the NIST employee(s) involved, if known. Any collaboration by a NIST employee must be approved by appropriate NIST management and is at the sole discretion of NIST. Prior to beginning the merit review process, NIST will verify the approval of the proposed collaboration. Any unapproved collaboration will be stricken from the application prior to the merit review. Any collaboration with an identified NIST employee that is approved by appropriate NIST management will not

make an application more or less favorable in the competitive process.

f. Use of NIST Intellectual Property. If the applicant anticipates using any NIST-owned intellectual property to carry out the work proposed, the applicant should identify such intellectual property. This information will be used to ensure that no NIST employee involved in the development of the intellectual property will participate in the review process for that competition. In addition, if the applicant intends to use NIST-owned intellectual property, the applicant must comply with all statutes and regulations governing the licensing of Federal government patents and inventions, described in 35 U.S.C. §§ 200-212, 37 C.F.R. Part 401, 2 C.F.R. § 200.315, and in Section C.03 of the Department of Commerce Financial Assistance Standard Terms and Conditions dated October 9, 2018, found at http://www.osec.doc.gov/oam/grants_management/policy/default.htm. Questions about these requirements may be directed to the Chief Counsel for NIST, (301) 975-2803, nistcounsel@nist.gov.

Any use of NIST-owned intellectual property by an applicant is at the sole discretion of NIST and will be negotiated on a case-by-case basis if a project is deemed meritorious. The applicant should indicate within the statement of work whether it already has a license to use such intellectual property or whether it intends to seek one.

If any inventions made in whole or in part by a NIST employee arise in the course of an award made pursuant to this NOFO, the United States government may retain its ownership rights in any such invention. Licensing or other disposition of NIST's rights in such inventions will be determined solely by NIST and include the possibility of NIST putting the intellectual property into the public domain.

g. Research Activities Involving Human Subjects, Human Tissue, Data or Recordings Involving Human Subjects Including Software Testing. Any application that includes research activities involving human subjects, human tissue/cells, or data or recordings from or about human subjects, must satisfy the requirements of the Common Rule for the Protection of Human Subjects ("Common Rule"), codified for the Department of Commerce at 15 C.F.R. Part 27. Research activities involving human subjects that fall within one or more of the classes of vulnerable subjects found in 45 C.F.R. Part 46, Subparts B, C and D must satisfy the requirements of the applicable subpart(s). In addition, any such application that includes research activities on these subjects must be in compliance with all applicable statutory requirements imposed upon the Department of Health and Human Services (DHHS) and other Federal agencies, all regulations, policies and guidance adopted by DHHS, the Food and Drug Administration (FDA), and other Federal agencies on these topics, and all Executive Orders and Presidential statements of policy on applicable topics. (Regulatory Resources:

http://www.hhs.gov/ohrp/humansubjects/index.html which includes links to FDA regulations, but may not include all applicable regulations and policies).

On January 19, 2017, a final rule was published in the *Federal Register* that made significant amendments to the Common Rule: https://www.federalregister.gov/documents/2017/01/19/2017-01058/federal-policy-for-the-protection-of-human-subjects. These amendments, known as the "2018 Requirements," will take effect in general on January 19, 2019. Any award made by NIST during this period of transition may be subject to the 2018 Requirements.

NIST uses the following Common Rule definitions for research and human subjects research:

Research: A systematic investigation, including research development, testing and evaluation, designed to develop or contribute to generalizable knowledge. Activities which meet this definition constitute research for purposes of this policy, whether or not they are conducted or supported under a program which is considered research for other purposes. For example, some demonstration and service programs may include research activities.

Human Subject: A living individual about whom an investigator (whether professional or student) conducting research obtains data through intervention or interaction with the individual or identifiable private information.

(1) *Intervention* includes both physical procedures by which data are gathered and manipulations of the subject or the subject's environment that are performed for research purposes.

(2) *Interaction* includes communication or interpersonal contact between investigator and subject.

(3) *Private information* includes information about behavior that occurs in a context in which an individual can reasonably expect that no observation or recording is taking place, and information which has been provided for specific purposes by an individual and which the individual can reasonably expect will not be made public (for example, a medical record). Private information must be individually identifiable (i.e., the identity of the subject is or may readily be ascertained by the investigator associated with the information) in order for obtaining the information to constitute research involving human subjects.

See 15 C.F.R. § 27.102 (Definitions).

1) **Requirement for Federalwide Assurance.** If the application is accepted for [or awarded] funding, organizations that have an Institutional Review Board

(IRB) are required to follow the procedures of their organization for approval of exempt and non-exempt research activities that involve human subjects. Both domestic and foreign organizations performing non-exempt research activities involving human subjects will be required to have protocols approved by a cognizant, active IRB currently registered with the Office for Human Research Protections (OHRP) within the DHHS that is linked to the engaged organizations. All engaged organizations must possess a currently valid Federalwide Assurance (FWA) on file from OHRP. Information regarding how to apply for an FWA and register an IRB with OHRP can be found at http://www.hhs.gov/ohrp/assurances/index.html. NIST relies only on OHRP-issued FWAs and IRB Registrations for both domestic and foreign organizations for NIST supported research involving human subjects. NIST will not issue its own FWAs or IRB Registrations for domestic or foreign organizations.

2) **Administrative Review.** The NIST Human Subjects Protection Office (HSPO) reserves the right to conduct an administrative review[5] of all applications that potentially include research involving human subjects and were approved by an authorized non-NIST institutional entity (an IRB or entity analogous to the NIST HSPO) under 15 C.F.R. § 27.112 (Review by Institution). If the NIST HSPO determines that an application includes research activities that potentially involve human subjects, the applicant will be required to provide additional information to NIST for review and approval. The documents required for funded proposals are listed in each section below. Most documents will need to be produced during the proposal review process; however, the Grants Officer may allow final versions of certain required documents to be produced at an appropriate designated time post-award. Research involving human subjects may not start until the NIST Grants Officer issues an award explicitly authorizing such research. In addition, all amendments, modifications, or changes to approved research and requests for continuing review and closure will be reviewed by the NIST HSPO.

3) **Required documents for proposal review. All applications involving human subject research must clearly indicate, by separable task, all research activities believed to be exempt or non-exempt research involving human subjects, the expected institution(s) where the**

[5] Conducting an "administrative review" means that the NIST HSPO will review and verify the performing institution's determination for research not involving human subjects or exempt human subjects research. In addition, for non-exempt human subjects research, the NIST HSPO will review and confirm that the research and performing institution(s) are in compliance with 15 C.F.R. Part 27, which means HSPO will 1) confirm the engaged institution(s) possess, or are covered under a Federalwide Assurance, 2) review the research study documentation submitted to the IRB and verify the IRB's determination of level of risk and approval of the study for compliance with 15 C.F.R. Part 27, 3) review and verify IRB-approved substantive changes to an approved research study before the changes are implemented, and 4) review and verify that the IRB conducts an appropriate continuing review at least annually.

research activities involving human subjects may be conducted, and the institution(s) expected to be engaged in the research activities.

a. Not research determination. If an activity/task involves human subjects as defined in the Common Rule, but the applicant participant(s) indicates to NIST that the activity/task is not research as defined in the Common Rule, the following information may be requested for that activity/task:

(1) Justification, including the rationale for the determination and such additional documentation as may be deemed necessary by NIST to review and/or support a determination that the activity/task in the application is not research as defined in the Common Rule.
(2) If the applicant participant(s) used a cognizant IRB that provided a determination that the activity/task is not research, a copy of that determination documentation must be provided to NIST. The applicant participant(s) is not required to establish a relationship with a cognizant IRB if they do not have one.

NIST will review the information submitted and may coordinate further with the applicant before determining whether the activity/task will be defined as research under the Common Rule in the applicable NIST financial assistance program or project.

b. Research not involving human subjects. If an activity/task is determined to be research and involves human subjects, but is determined to be *not human subjects research* (or *research not involving human subjects*) under the Common Rule, the following information may be requested for that activity/task:

(1) Justification, including the rationale for the determination and such additional documentation as may be deemed necessary by NIST to review and/or support a determination that the activity/task in the application is not research as defined in the Common Rule.
(2) If the applicant participant(s) used a cognizant IRB that provided a determination that the activity/task is research not involving human subjects, a copy of that determination documentation must be provided to NIST. The applicant participant(s) is not required to establish a relationship with a cognizant IRB if they do not have one.

c. Exempt research determination with no IRB. If the application appears to NIST to include exempt research activities, and the performer of the activity or the supplier and/or the receiver of the biological materials or data from human subjects **does not** have a cognizant IRB to provide an exemption determination, the following information may be requested during the review process so that NIST can evaluate whether an exemption under the Common Rule applies (*see* 15 C.F.R. § 27.101(b), (c) and (d)):

(1) The name(s) of the institution(s) where the exempt research will be conducted.
(2) The name(s) of the institution(s) providing the biological materials or data from human subjects.
(3) A copy of the protocol for the research to be conducted; and/or the biological materials or data from human subjects to be collected/provided, not pre-existing samples (*i.e.,* will proposed research collect only information without personal identifiable information, will biological materials or data be de-identified and when and by whom was the de-identification performed, how were the materials or data originally collected).
(4) For pre-existing biological materials or data from human subjects, provide copies of the consent forms used for collection and a description of how the materials or data were originally collected and stripped of personal identifiers. If copies of consent forms are not available, explain.
(5) Any additional clarifying documentation that NIST may deem necessary in order to make a determination whether the activity/task or use of biological materials or data from human subjects is exempt under the Common Rule.

d. Research review with an IRB. If the application appears to NIST to include research activities (exempt or non-exempt) involving human subjects, and the proposed performer of the activity has a cognizant IRB registered with OHRP, and linked to their Federalwide Assurance, the following information may be requested during the review process:

(1) The name(s) of the institution(s) where the research will be conducted.
(2) The name(s) and institution(s) of the cognizant IRB(s), and the IRB registration number(s).
(3) The FWA number of the applicant linked to the cognizant IRB(s);
(4) The FWAs associated with all organizations engaged in the planned research activity/task, linked to the cognizant IRB.
(5) If the IRB review(s) is pending, the estimated start date for research involving human subjects.
(6) The IRB approval date (if currently approved for exempt or non-exempt research).
(7) If any of the engaged organizations has applied for or will apply for an FWA or IRB registration, those details should be clearly provided for each engaged organization.

If the application includes research activities involving human subjects to be performed in the first year of an award, additional documentation may be requested by NIST during pre-award review for those performers, and may include the following for those research activities:

(1) A signed (by the study principal investigator) copy of each applicable final IRB-approved protocol.
(2) A signed and dated approval letter from the cognizant IRB(s) that includes the name of the institution housing each applicable IRB, provides the start and end dates for the approval of the research activities, and any IRB-required interim reporting or continuing review requirements.
(3) A copy of any IRB-required application information, such as documentation of approval of special clearances (*i.e.,* biohazard, HIPAA, etc.) conflict-of-interest letters, or special training requirements.
(4) A brief description of what portions of the IRB submitted protocol are specifically included in the application submitted to NIST, if the protocol includes tasks not included in the application, or if the protocol is supported by multiple funding sources. For protocols with multiple funding sources, NIST will not approve the study without a non-duplication-of-funding letter indicating that no other federal funds will be used to support the tasks proposed under the proposed research or ongoing project
(5) If a new protocol will only be submitted to an IRB if an award from NIST is issued, a draft of the proposed protocol.
(6) Any additional clarifying documentation that NIST may request during the review process to perform the NIST administrative review of research involving human subjects. (*See* 15 C.F.R. § 27.112 (Review by Institution)).

This clause reflects the existing NIST policy and requirements for Research Involving Human Subjects. Should the policy be revised prior to award, a clause reflecting the policy current at time of award may be incorporated into the award.

If the policy is revised after award, a clause reflecting the updated policy may be incorporated into the award.

For more information regarding research projects involving human subjects, contact Anne Andrews, Director, NIST Human Subjects Protection Office (e-mail: anne.andrews@nist.gov; phone: (301) 975-5445).

h. Collaborations Making Use of Federal Facilities. All applications should include a description of any work proposed to be performed using Federal facilities.

If an applicant proposes use of NIST facilities, the statement of work should include a statement of this intention and a description of the facilities. Any use of NIST facilities must be approved by appropriate NIST management and is at the sole discretion of NIST. Prior to beginning the merit review process, NIST will verify the availability of the facilities and approval of the proposed usage. Any unapproved facility use will be stricken from the application prior to the merit review. Examples of some facilities that may be

available for collaborations are listed on the following NIST Web site: https://www.nist.gov/labs-major-programs/user-facilities.

3. Reporting

a. Reporting Requirements. The following reporting requirements described in Section A.01 Reporting Requirements of the Department of Commerce Financial Assistance Standard Terms and Conditions dated October 9, 2018, http://www.osec.doc.gov/oam/grants_management/policy/default.htm, apply to awards in this program:

(1) Financial Reports. Each award recipient will be required to submit an SF-425, Federal Financial Report on a quarterly basis for the periods ending March 31, June 30, September 30 and December 31 of each year. Reports will be due within 30 days after the end of the reporting period to the NIST Grants Officer, NIST Grants Specialist, and Federal Program Officer named in the award documents. A final financial report is due within 90 days after the end of the project period.

(2) Performance (Technical) Reports. Each award recipient will be required to submit a technical progress report to the NIST Grants Officer, NIST Grants Specialist and the NIST Federal Program Officer on a quarterly basis for the periods ending March 31, June 30, September 30 and December 31 of each year. Reports will be due within 30 days after the end of the reporting period. Technical progress reports shall conform to the requirements in 2 C.F.R. § 200.328 (http://go.usa.gov/xkVgP) and Department of Commerce Financial Assistance Standard Terms and Conditions, Section A.01. A final technical progress report shall be submitted within 90 days after the expiration date of the award, and publication citation information as well as links to publicly available data shall be submitted as soon as they become available.

(3) Patent and Property Reports. From time to time, and in accordance with the Uniform Administrative Requirements and other terms and conditions governing the award, the recipient may be required to submit property and patent reports.

(4) Recipient Integrity and Performance Matters. In accordance with section 872 of Public Law 110-417 (as amended; *see* 41 U.S.C. 2313), if the total value of a recipient's currently active grants, cooperative agreements, and procurement contracts from all Federal awarding agencies exceeds $10,000,000 for any period of time during the period of performance of an award made under this NOFO, then the recipient shall be subject to the requirements specified in Appendix XII to 2 C.F.R. Part 200, http://go.usa.gov/cTBwC, for maintaining the currency of information

reported to SAM that is made available in FAPIIS about certain civil, criminal, or administrative proceedings involving the recipient.

b. Audit Requirements. The Department of Commerce Financial Assistance Standard Terms and Conditions, Section D.01, and 2 C.F.R. Part 200 Subpart F, adopted by the Department of Commerce through 2 C.F.R. § 1327.101, require any non-Federal entity (i.e., including non-profit institutions of higher education and non-profit organizations) that expends Federal awards of $750,000 or more in the recipient's fiscal year to conduct a single or program-specific audit in accordance with the requirements set out in the Subpart. Additionally, unless otherwise specified in the terms and conditions of the award, entities that are not subject to Subpart F of 2 C.F.R. Part 200 (e.g., for-profit commercial entities) that expend $750,000 or more in DOC funds during their fiscal year must submit to the Grants Officer either: (i) a financial related audit of each DOC award or subaward in accordance with Generally Accepted Government Auditing Standards; or (ii) a project specific audit for each award or subaward in accordance with the requirements contained in 2 C.F.R. § 200.507. Applicants are reminded that NIST, the Department of Commerce Office of Inspector General, or another authorized Federal agency may conduct an audit of an award at any time.

c. Federal Funding Accountability and Transparency Act of 2006. In accordance with 2 C.F.R. Part 170, all recipients of a Federal award made on or after October 1, 2010, are required to comply with reporting requirements under the Federal Funding Accountability and Transparency Act of 2006 (Public Law No. 109-282). In general, all recipients are responsible for reporting sub-awards of $25,000 or more. In addition, recipients that meet certain criteria are responsible for reporting executive compensation. Applicants must ensure they have the necessary processes and systems in place to comply with the reporting requirements should they receive funding. Also see the Federal Register notice published September 14, 2010, at 75 FR 55663 available here http://go.usa.gov/hKnQ.

VII. Federal Awarding Agency Contacts

Questions should be directed to the following contact persons:

Subject Area	Point of Contact
Programmatic and Technical Questions	Robin Materese Phone: 301-975-4158 E-mail: sicurricula.questions@nist.gov Website: www.nist.gov/director/pao/funding-opportunity-develop-and-distribute-high-school-curricula-materials

Subject Area	Point of Contact
Technical Assistance with Grants.gov Submissions	Leon Sampson Phone: 301-975-3086 Fax: 301-975-6368 E-mail: grants@nist.gov Or Grants.gov Phone: 800-518-4726 E-mail: support@grants.gov
Grant Rules and Regulations	Nuria Martinez Phone: 301-975-6215 Fax: 301-975-6368 E-mail: nuria.martinez@nist.gov

VIII. Other Information

1. Personal and Business Information

The applicant acknowledges and understands that information and data contained in applications for financial assistance, as well as information and data contained in financial, performance and other reports submitted by applicants, may be used by the Department of Commerce in conducting reviews and evaluations of its financial assistance programs. For this purpose, applicant information and data may be accessed, reviewed and evaluated by Department of Commerce employees, other Federal employees, and also by Federal agents and contractors, and/or by non-Federal personnel, all of whom enter into appropriate conflict of interest and confidentiality agreements covering the use of such information. As may be provided in the terms and conditions of a specific financial assistance award, applicants are expected to support program reviews and evaluations by submitting required financial and performance information and data in an accurate and timely manner, and by cooperating with Department of Commerce and external program evaluators. In accordance with 2 C.F.R. § 200.303(e), applicants are reminded that they must take reasonable measures to safeguard protected personally identifiable information and other confidential or sensitive personal or business information created or obtained in connection with a Department of Commerce financial assistance award.

In addition, Department of Commerce regulations implementing the Freedom of Information Act (FOIA), 5 U.S.C. Sec. 552, are found at 15 C.F.R. Part 4, Public Information. These regulations set forth rules for the Department regarding making requested materials, information, and records publicly available under the FOIA. Applications submitted in response to this Notice of Funding Opportunity

may be subject to requests for release under the FOIA. If an application contains information or data that the applicant deems to be confidential commercial information that should be exempt from disclosure under FOIA, that information should be identified, bracketed, and marked as Privileged, Confidential, Commercial or Financial Information. In accordance with 15 CFR § 4.9, the Department of Commerce will protect from disclosure confidential business information contained in financial assistance applications and other documentation provided by applicants to the extent permitted by law.

2. Public Website, Frequently Asked Questions (FAQs) and Webinar

NIST has created a public website (www.nist.gov/director/pao/funding-opportunity-develop-and-distribute-high-school-curricula-materials) that provides information pertaining to this Funding Opportunity. NIST anticipates that a "Frequently Asked Questions" section as well as other resource materials will be maintained and updated as needed to provide additional guidance and clarifying information that may arise related to this Funding Opportunity.

Applicants must submit all questions in writing to sicurricula.questions@nist.gov. Questions submitted to NIST may be posted on the public website as part of a FAQ document. Alternatively, applicants may ask questions during an informational webinar as described in the next paragraph.

NIST plans to hold an informational webinar on the Project to Develop and Distribute High School Curricula Materials that Reflect the Redefinition of the International System of Units (SI) NOFO. Scheduling and registration information for the webinar will be posted on the public website for this competition. The webinar will provide information on the project, this NOFO, general guidance on preparing applications, and offer opportunities for the public to ask questions about the project. Proprietary technical discussions about specific proposal ideas will not be permitted, and NIST will not critique or provide feedback on any proposal ideas brought forth during the webinar or at any time before the conclusion of this competition. There is no cost to attend the webinar, **but participants must register in advance**.

Participation in the webinar is not required for the submission of an application, and attendance/participation will not be considered as part of the application review and selection process. The webinar will be recorded, and a link to the recording will be available for public access on the public website for this competition.