

FORM 1

PROJECT ABSTRACT

The Project Abstract includes key numbers and a brief summary of the project's objectives, activities, timeline, and main topics to be covered.

1. Name of applicant organization (Bidder)—the fiscal agent partner: The University of Washington
2. DUNS number: 605799469
3. Name that corresponds to DUNS number in DUNS system: University of Washington
4. Address: 4333 Brooklyn Ave NE, Box 359472, Seattle WA 98195-9472
5. Title of project: Modeling Our World
6. Project director contact information (if there are co-directors, list information for all):
Name and title: Robin Angotti, Director, Associate Professor; Rejoice Mudzimiri, Co-Director, Assistant Professor
Organization and academic unit (if applicable-e.g. University name, College of Education or ESD ###): University of Washington Bothell, School of STEM and School of Educational Studies
Address: 18115 Campus Way NE, Campus Box 358538, Bothell WA 98011
Phone: 425-352-3605; 425-352-3204
Email: riderr@uw.edu; rejoicem@uw.edu
7. Project duration (planned start and end dates): 7/1/2016 – 6/30/2017
8. Professional development track(s) (Endorsements; Since Time Immemorial; and/or Digital Library): Track 1 Endorsements; and Track 3 Digital Library
9. Content focus (list all core academic subject areas the project will focus on, e.g. mathematics): Mathematics
10. Grade level focus: (e.g. middle school, high school, 6th-12th grades with primary focus on high school, etc.). 6-12 grades with focus on Mathematical Modeling
11. Educators served (add clarifying detail as necessary; numbers must be consistent with numbers on Forms 2 and 3):
 - a. Number of high-need school districts to be served by project: (7)
 - b. Number of other school districts to be served by project: (3)
 - c. Number of tribal, public charter, and nonprofit private schools to be served by project (0)
 - d. Number of teacher participants to be served by project: (24)
 - e. Hours of face-to-face professional development to be provided to each teacher participant: (96)
 - f. Hours of online professional development to be provided to each teacher participant: (0)
 - g. Number of highly qualified paraprofessional participants to be served by project: (0)
 - h. Hours of face-to-face professional development to be provided to each highly qualified paraprofessional participant: (0)
 - i. Hours of online professional development to be provided to each highly qualified paraprofessional participant: (0)
 - j. Number of principal/assistant principal participants to be served by project: (8)
 - k. Hours of face-to-face professional development to be provided to each principal/assistant principal participant: (24)

I. Hours of online professional development to be provided to each principal/assistant principal participant:

(0)

12. Total funding requested (must be consistent with budget form): \$ 198,226

13. Federally approved indirect cost rate: (26 %) (do not round)

14. Federally approved indirect cost base (e.g. total direct cost, modified total direct cost, salaries): \$122,243

15. Project Summary (500 words or less summarizing project objectives, activities, timeline, and main topics to be covered):

Modeling Our World (MOW) is a professional development project centered on deepening participants' knowledge of mathematical modeling in grades 6-12 which is situated within all the domains of mathematics as well having cross-disciplinary applications. This reflects a belief that knowledge of mathematics should go beyond specific concepts and be culturally relevant to the surrounding world. Project objectives are to enhance participants' mathematics knowledge of modeling techniques with innovative pedagogy, use of Smarter Balance Assessment materials, use of technological tools, and with a special focus on those who are still learning English. The project specifically addresses four professional development objectives:

- 1) *Increase ALL students' opportunity to engage with authentic, rich, and culturally relevant mathematical tasks that lead to increased student motivation and engagement and ultimately to improved student learning and application;*
- 2) *Increase teachers' use of technological tools and pedagogical strategies to foster mathematics-related communication and language development of English Language Learners;*
- 3) *Increase teachers' use of Smarter Balance Library resources and formative assessment model to monitor and assess mathematical learning progress, and*
- 4) *Expand principals' skills for observing and supporting mathematical learning in inquiry-based, technology-rich mathematics classrooms.*

Our design to reach these objectives is grounded in a model of professional development where mathematics content, pedagogy, assessment and technology are integrated with a focus on student learning. Because these professional development objectives are interrelated, MOW accomplishes them through an integrated work plan involving a year-long professional development program involving a two week workshop in Summer 2016 and three follow-up days during the academic year that serve a total of 24 teachers and 8 principals.

A particular focus of MOW is supporting mathematics learning for ELL students. This group includes a disproportionately high portion of students who are not reaching proficiency levels in mathematics. A curricular emphasis on conceptual understanding makes it imperative that ELL students be exposed to problems that higher cognitive demand than can be learned through rote memorization. Mathematical modeling is especially well poised to be successful in closing the opportunity gap for ELL students since it exposes students to important mathematics and lends itself to communication and collaboration among peers. Studies show that high concentrations of ELL students, when immersed in classrooms where they are engaged in small group work involving authentic problem solving, showed significant gains on mathematics achievement, not only in computation, but also problem solving and language acquisition. Thus, the focus of this professional development is on rich, authentic, culturally relevant problems through which participants can be

immersed in the mathematics content. Simultaneously, participants will be learning pedagogical strategies including the use of technology as a tool for modeling problems.

In addition to a focus on content and pedagogy, this proposal also integrates the four step formative assessment process of the SBAS. In the formative assessment process, teachers use an iterative process to clarify intended learning, elicit evidence, interpret that evidence and act on the evidence to improve students learning outcomes. Formative assessment will be interwoven throughout the professional development activities in this project.