NOTES FOR A PROPOSAL TO A LOCAL COMPANY, for support for a Modeling Workshop. (contributed by Jane Jackson. Oct. 2024)

TIPS:

Electric utilities are most likely to contribute. Tech companies and health care companies that have local plants secondarily. Banks, construction companies. If they're part of a national corporation, they might have a foundation; google them.

If possible, contact the local grants coordinator, or the company's HR Director, and politely inquire if they'd like to support STEM teacher professional development. Network.

If you're at a university, ask your Development Director to help; he/she works with your university foundation; ask if they have a staff member who oversees corporate contributions, and also if they have a grant writer. Get advice from them.

If you're not at a university, contact your Community Foundation, and ask them for suggestions on companies and family foundations.

Getting local publicity can bring in unexpected gifts from local companies whose CEOs love chemistry or physics, or from alumni.

Thank you notes matter – from whomever the contribution funds, and from you.

PROPOSAL SECTIONS:

[Introduce yourself; state your mission briefly; and ask for a dollar amount.]

PROJECT TIE TO CORPORATE PRIORITIES.

Does the company have a vision statement on its website, about its community service? If so, address it.

(For example, an electric utility:

Though there are many advantages to physical science education in high schools, [your state] has a chronic shortage of qualified teachers proficient with the material. Teaching the physical sciences requires expertise in the subject and an understanding of how to effectively communicate complex topics. In the current educational landscape, a teacher with training in another discipline, such as biology or engineering, is often tasked to lead a physical science class, despite the lack of training. Modeling Instruction rectifies this gap. Thus, the program aligns with ---'s vision to:

* Provide professional development for teachers to build STEM education for K--12 students.
* Help teachers better prepare students for higher education through enrichment activities and access to technology.
* Help high school students develop job-readiness and employment skills.

This project meets the aforesaid stated objectives by:

* Improving the quality of math and science education through development of highly effective teachers and a "train the trainer" program for physics and chemistry teachers.
* Preparing teachers to better equip students for higher education by encouraging student success in the physical sciences through access to technology.

* Developing job readiness and employment skills for students through teacher development.
* Assisting educators to implement programs that highlight wise use of electricity as an important resource .)

PROJECT DESCRIPTION:

Modeling Instruction in Physics and Chemistry started in 1990 at Arizona State University as a means of closing the gap in STEM content knowledge of Arizona teachers. It has since spread nationwide. Through a guided-inquiry approach to teaching science and organized instruction around a coherent storyline of model development (https://vimeo.com/channels/modelingphysics), Modeling Instruction provides content instruction while immersing students in the process of doing science. Research shows that students in Modeling Instruction classrooms perform significantly better on measures of conceptual knowledge when compared to similar students in traditional classrooms.

Modeling Workshops promote learning, self-confidence, and success for students through high quality multi-week professional development workshops/ courses. These workshops strengthen the pool of teachers of physics and chemistry, and thus improve STEM education.

[Describe your Modeling Workshop format. Briefly describe your qualifications to administer the grant.]

During the academic year, teachers can participate in on-line communities of practice to discuss classroom implementation issues and continue to build expertise in teaching. The Modeling Instruction team's goal is to empower teachers with content knowledge, pedagogy, and skills in classroom technology to teach physics and/or chemistry effectively.

PROJECT METRICS:

We expect to enroll an estimated 20 local high school teachers, most of whom teach in local Title I schools (i.e., low-income students). Assuming each teacher teaches between 150 and 175 students each year , staff estimate the total number of individuals served to be over 3,000 students directly in the first year.

Specific metrics that will be captured include: 1) number and demographics of teacher participants; 2) names and types of schools represented (i.e., public, charter, independent, etc.); 3) evidence of course-related knowledge acquisition (as measured by pre- and post-course testing); and 4) teacher satisfaction (as gleaned through detailed course evaluations).

INTENDED USE OF FUNDS FROM THE BUSINESS:
As outlined in the attached budget, funds will be used for program support, including wages for a peer co-leader. Peer co-leaders help lead instruction of courses. Participants state that co-leaders are essential for a broader perspective on how to teach effectively to different clientele and to keep the peer leader's workload manageable.

OTHER SOURCES OF FUNDS:

CAN THE BUSINESS CONTRIBUTE DIRECTLY?
The project welcomes guest speakers during Modeling Workshops. To schedule, contact …..

SIMILAR ORGANIZATIONS?
No other organization in the state provides similar services. As the only program of its type in the state, our work contributes crucially to regional economic and cultural health by strengthening the K-12 education continuum in STEM.

[The following paragraphs give more detail about Modeling Instruction. Use in a proposal to school districts; probably omit them, in a proposal to businesses.]

Modeling Instruction was developed in the 1980s at Arizona State University. It corrects weaknesses of the traditional lecture-demonstration method, including fragmentation of knowledge, student passivity, and persistence of naive beliefs about the physical world. Courses are coherent, since they are organized around a small number of scientific models. Scientific thinking skills and workplace skills are emphasized, including math modeling and technology-enabled data collection and analysis.

Modeling Instruction has proven success with students who have not traditionally done well in physics, while enhancing the performance of all students. Experienced modelers report increased enrollments, parental satisfaction, and enhanced achievement in college courses, across the curriculum!

Modeling Instruction is designated by the U.S. Department of Education as an Exemplary K-12 science and a Promising K-12 Technology program. It received the 2014 Excellence in Physics Education Award of the American Physical Society, the largest professional society of physicists worldwide.

Modeling Instruction is harmonious with new state science standards. In fact, Modeling Instruction success nationally motivated the National Research Council's (NRC) *Framework for K-12 Science Education*, the research foundation of the Next Generation Science Standards (NGSS), upon which the new state standards are based. This type of professional development is ideal for in-service high school science teachers. Indeed, a nationwide survey showed that "on average, high school teachers who have completed 90 hours of professional development in Modeling Instruction (the typical three-week summer workshop) feel significantly more motivated and better prepared for NGSS than high school teachers who are non-Modelers.