Competitive Preference Priority 1 – Alaska Native Regional Nonprofit Organizations

CITC is the regional nonprofit organization for the Cook Inlet region and, as such, is eligible for **2** Competitive Preference Priority Points. Please find a Letter of Tribal Authorization from Cook Inlet Region, Inc., our regional for-profit organization, documenting our claim, attached.

a) Need For Project

A history of chronic educational underachievement among Alaska Native students, as measured in high drop-out rates and low achievement rates, has troubled and defied Alaskan educators for decades.[2] Anchorage, Alaska's largest city, is home to approximately one quarter of the world-wide population of Alaska Native students[3], who have exhibited this same underachievement. A detailed analysis reveals a disparity between Our Youth's performance and that of their peers in all core subject areas that begins to manifest in the early years of elementary school, has become entrenched by middle school, and culminates in the lowest graduation and highest dropout rates of any ethnicity in high school. The magnitude of the disparity is significant, as the accompanying tables[4] displaying last year's data illustrate.

Standards Based Assessment Proficiency Scores[1], Anchorage 2011

Grade 4	Reading	Writing	Math	Science
Caucasian students	87.9%	88.3%	87.7%	70.0%
AI/AN students	62.0%	64.3%	63.8%	29.3%
Disparity	*-25.9%*	*-24.0%*	*-23.9%*	*-40.7%*

[1] Alaska Department of Education & Early Development, accessed 5/9/12.

[2] Alaska Natives Commission. (1994). Final report. Vols. I, II, III. Anchorage: Alaska Natives Commission.

[3] U.S. Census 2010.

[4] ***PLEASE NOTE:*** Per Almita Reed on April 5th in the Technical Assistance Webinar, verbal communication, *charts and tables may be **single spaced***.

Already, 25% fewer fourth grade Alaska Native students enrolled in an Anchorage school met proficiency standards in core subject areas than their Caucasian classmates – and an astounding *40%* disparity exists with science proficiency!

As the accompanying tables show, this disparity persists four years later, at 8th grade, and is reflected in High School Graduation Qualifying Exam proficiency scores. No doubt, the same issues underlying low proficiency scores contribute to the lowest high school graduation rate of any ethnicity in the Anchorage School District and the highest annualized dropout rate between 7th-12th grades. The strong relationship between high school dropout and its impact on a broad array of social indicators – lifetime earnings, unemployment, poverty, health, incarceration, etc. – is well-documented.[7]

Standards Based Assessment Proficiency Scores[5], Anchorage 2011

Grade 8	Reading	Writing	Math	Science
Caucasian Students	90.7%	87.3%	77.9%	77.8%
AI/AN students	70.7%	60.3%	49.1%	38.5%
Disparity	*-20.0%*	*-27.0%*	*-28.8%*	*-39.3%*

Grade 10	Reading	Writing	Math
Caucasian Students	91.9%	82.5%	85.5%
AI/AN students	73.1%	55.4%	59.3%
Disparity	*-18.8%*	*-27.1%*	*-26.2%*

Anchorage School District, 2011[6]

	Dropout Rate	Graduation Rate
Caucasian students	3.12%	78.76%
AI/AN students	8.46%	50.88%

[5] Dept. Education: http://www.eed.state.ak.us/tls/assessment/AsmtVer2011/AsmtVerSupd.cfm

[6] Anchorage School District. (2011). Anchorage school district profile of performance 2010-2011.

[7] Faircloth, S & Tippeconnic, J. (2010). The dropout/graduation crisis among American Indian and Alaska Native students: Failure to respond places the future of Native peoples at risk. .Los Angeles, CA: The Civil Rights Project/Proyecto Derechos Civiles at UCLA.

In 2001, the First Alaskan's Foundation[8] published the *Alaska Native Education Study*, which remains to this day a seminal analysis of barriers to Alaska Native student success. Informed by substantial secondary research, key informant interviews of 1,000 Alaska Native people, a household survey, focus group discussion, and penetrating insight on the part of the researchers, this study identified five key areas that needed to be addressed simultaneously to meaningfully improve student academic achievement: (1) fostering intercultural harmony, (2) improving teacher preparation, (3) developing instructional curricula and strategies, (4) including Native parents in the educational process and (5) adopting a new paradigm for evaluation of Native progress and success.

In the 11 years since the *Alaska Native Education Study* was published, Cook Inlet Tribal Council Inc. (CITC), in partnership with the Anchorage School District (ASD) and other key community agencies, has established a comprehensive, mature service system founded on evidence-based practices that address the barriers to success the *Alaska Native Education Study* identified. And it has been working.

This partnership, "Partners for Success," which involves CITC teachers providing instruction in ASD classrooms using culturally relevant curricula in a "school-within-a-school" model, has demonstrated that we can make a difference. Ten years of on-going program evaluation – and program adaptation in response to evaluation findings – has documented that Alaska Native students enrolling in CITC's educational programming experience better educational outcomes than Alaska Native students who do not participate in CITC programs.

[8] McDowell Group. (2001). Alaska Native education study: A statewide study of Alaska Native values and opinions regarding education in Alaska. Anchorage, AK: First Alaskans Foundation.

CITC's success with STEM (Science, Technology, Engineering, and Math) education is of particular note. Beginning in 2006, CITC created, field tested, and established the Indigenous Knowledge Math and Science curriculum in Anchorage's Bartlett High School and, more recently, extending into West High School, Anchorage's largest high school. As the accompanying table illustrates, CITC-enrolled Alaska Native 10th grade students passed the mathematics portion of the State High School Graduation Qualifying Exam at a higher rate than Alaska Native 10th grade students enrolled in ASD, generally, in five of the past six years.

Percent Passing Math HSGQE 10th Grade, 2006-2011

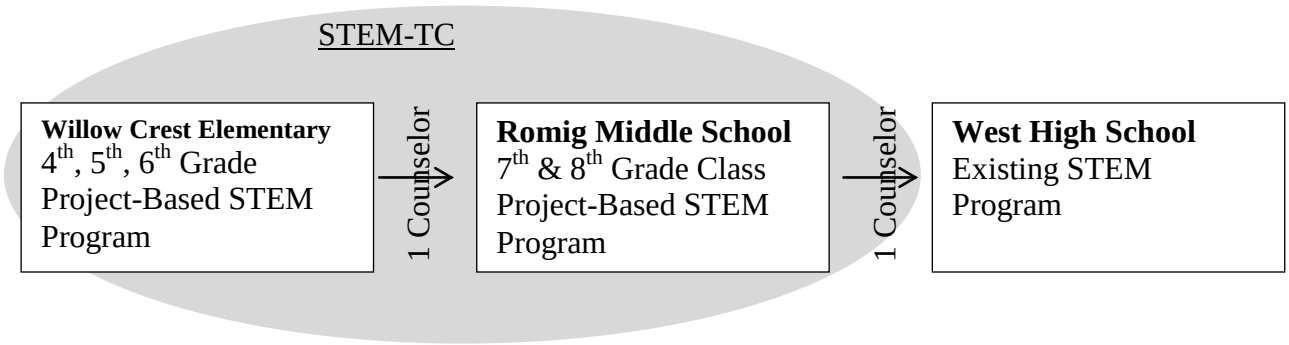
Year	ASD Total	ASD AN/AI	CITC AN/AI
2006	80%	64%	70%
2007	82%	72%	78%
2008	81%	66%	76%
2009	82%	65%	67%
2010	79%	61%	69%
2011	76%	59%	56%

CITC has demonstrated success in increasing Alaska Native high school students' core academic proficiencies – particularly STEM proficiencies. CITC now proposes extending the success of our high school school-within-a-school, culturally based, STEM proficiency building to serve Alaska Native students in Anchorage elementary and middle schools.

b) Quality Of The Project Design

Please find a 1) Project Overview, 2) Goals and Objectives, description of 3) Methods, and discussion of how the 4) Project Addresses Needs of the Target Population, below –

1) Project Overview: CITC proposes STEM Techno-Culture (STEM TC), an elementary and middle school program that complements our existing high school program to provide seamless culturally based STEM skill-enhancing education for Alaska Native children in grades 3-8 in two Anchorage schools with high rates of Alaska Native enrollment.



STEM-TC will pilot the use of multi-grade elementary (4th, 5th, and 6th grade) and middle school (7th and 8th grade) classes using project-based curricula drawing on Alaska Native cultures that are amenable to strong STEM (Science, Technology, Engineering, and Math) instruction. Counselors (1 middle school, 1 high school) will assist students and their families as they transition between elementary and middle and middle and high school, ensuring students and families are aware of and connected to services and programs and providing a regular check-in with students to facilitate their successful transition throughout the year. West High School, which receives Romig Middle School's rising 9th grade students, has operated CITC's Partners for Success program, which utilizes the Indigenous Math and Science curriculum, since 2003 and has demonstrated a history of success in improving students' STEM skills.

Through a unique partnership with the Anchorage School District, CITC is provided with classroom space and other facility supports so that our own teachers can instruct Alaska Native and American Indian students. STEM-TC elementary and middle school programs will be structured in a way that is similar to small Alaskan village schools. There will be two teachers per school, both highly qualified, certified K-8 instructors. One teacher will specialize in language arts and one in STEM; project-based learning will serve as the basis for connecting them. The two teachers will team teach cohorts of 30 multi-grade students. There will be two

class rooms, and students will flow between them: one classroom largely for project, and the other for lecture-based instruction and quieter study time. CITC will be responsible for assigning grades, preparing students for standardized tests, and all other responsibilities typically held by School District teachers. Students will have opportunities to interact with other school programs such as band, foreign language, or other subjects not offered within the STEM-TC.

2) Goals and Objectives: STEM-TC's goal and objectives are as follows –

Goal: Increase Alaska Native students' academic proficiency.

Objective 1: Provide project-based culturally competent instruction to 180 Alaska Native 4th-8th grade students over 3 years.

	4th	5th	6th	7th	8th	9th	10th	Total
Year 1	10	10	10	15	15			60
Year 2	10	10	10	15	15	15		75
Year 3	10	10	10	15	15	15	15	90
Total	30	30	30	45	45	30	15	225
	Instruction							
				Counseling				

Objective 2: 85% of enrolled students will achieve academic proficiency on State of Alaska Standards Based Proficiency (SBA) Assessments by Year 3.

Objective 3: Student attendance will meet or exceed 95%.

Objective 4: 100% of enrolled students will engage in STEM-skill developing project-based learning emphasizing Alaska Native culture.

Objective 5: 90% of enrolled students will attain grade-level expectations.

Objective 6: Enrolled students will perceive the class to be a caring and respectful climate with high expectations.

Objective 7: 78% of enrolled students will achieve academic proficiency on national Terra Nova tests by Year 3.

Objective 8: Draft Alaska Native culturally informed project-based lesson plans that support STEM skills for multi-aged 4-6 grade elementary and 7-8 grade middle school by the end of Year 2.

Objective 9: Provide advocacy services to students and families of 7th and 9th grade students as they transition from one level of school to another in Years 2 and 3.

NOTE: Measures for each objective can be found in section e) Quality of Project Evaluation.

3) Methods: STEM-TC incorporates five methods into its program design that we believe will be key to its success: a) Multi-Grade Classrooms, b) Project-Based Learning, c) Culturally Based Education, d) Digital Gaming, and e) Social and Emotional Learning.

a) Multi-Grade Classrooms: Multi-grade and single-grade classroom instruction has cycled in and out of "vogue" among educational theorists and teachers over the past 100 years, first (and, in many cases, still) because it was necessary in small, rural communities, then later for pedagogical reasons. Extensive research[9] has consistently demonstrated that multi-grade classes provide positive benefits in students' socio-emotional development (leadership skills, self-esteem, pro-social behavior, reduced aggression, etc.) and shown that multi-grade classes *can* demonstrate positive benefits in language and mathematics gains. Those most likely to experience increased achievement, in fact, are students who

[9] See: George, P. & Lounsbury, J. (2000). Making big schools feel small: Multiage grouping, looping, and schools-within-a-school. Westerville, OH: National Middle School Association.; Miller, B. (1991). Teaching and learning in the multigrade classroom: Student performance and instructional routines. Las Cruces, NM: ERIC Clearinghouse on Rural Education and Small Schools.; Kinsey, S. J. (2001). Multiage grouping and academic achievement. Champaign, IL: ERIC Clearinghouse on Elementary and Early Childhood Education.

are somehow disadvantaged. Multi-grade teaching offers several advantages to STEM-TC: emphasizing teams, cooperative group work, integrated curricula, and student interaction – qualities which lend themselves to the project- and culturally-based learning STEM-TC will employ – as well as establishing instruction that accommodates differentiated skill levels as the norm, rather than the exception. It is also worth noting, that STEM-TC's multi-grade classroom may mitigate some of the difficulties experienced by students transitioning to urban life from Alaska's small villages.

b) Project-Based Learning: STEM-TC elementary and middle school classes will employ project-based learning, which uses open-ended real-world problems to spur students to encounter central concepts and principles as they engage the problem. Projects are selected that are long-term, interdisciplinary, and require essential skills to address. With project-based learning, students constantly pose and refine questions and then design and construct simple or complex investigations which require them to gather, analyze, and interpret data to report findings. Problem-solving, incorporating feedback, long-range planning, collaboration, reflection and other "21st Century Skills" are cultivated in this manner[10]. Project-based learning offers several advantages to STEM-TC, including the ability to build projects around culturally relevant issues, the ability to focus on STEM-related projects[11], and a natural "fit" with multi-grade groups.

[10] Trilling, B. & Fadel, C. (2009). 21st century skills: Learning for life in our times. San Francisco, CA: Jossey-Bass.

[11] Yetkiner, Z., Anderoglu, H., & Capraro, R. (2008). *Research summary: Project-based learning in middle grades mathematics.* Retrieved 5/8/12 from http://www.nmsa.org/Research/ResearchSummaries/ProjectBasedLearninginMath/tabid/1570/Default.aspx

The following table illustrates three examples of how Alaska Native culture, game design, and STEM skill building can be realized in project-based lesson planning –

STEM-TC	Beginning	Intermediate	Advanced
Traditional Alaska Native Transportation	Learning about different types; comparing past transportation to present; simple construction projects	Understanding technology historically; connecting past to current design; complex construction & engineering projects	Understanding the physics behind the designs; engineering and building new prototypes
Alaska Native Subsistence	Traditional foods and hunting gathering methods; nutritional value of subsistence food; field trips to experience traditional ways	Exploring how the traditional foods have changed and what has caused the changes; risks to existing food sources; problem solving to secure existing sources	Biology and chemistry; dissection of traditional foods; anatomy of fish and animals; chemistry of food processing; events that changed the "history of food"
Video Game Design & Development	Experience and engagement in games; using games to supplement education, identifying different types of games; using interactive games and immediate feedback on learning progress	Designing games from pre-existing design platforms (GameStar Mechanic), understanding the technological advances of "game history; working with open-ended games to develop production skills	Building games using innovation, creativity design principles, creating new ideas for building culture into games; writing code; understanding the business and market of game development

c) Culturally Based Education: The Northwest Regional Laboratory study, *A Review of the Research Literature on the Influences of Culturally Based Education on the Academic Performance of Native American Students*[12], stresses the importance of family and

[12] Demmert, W. & Towner, J. (2003). A review of the research literature on the influences of culturally based eduation on the academic performance of Native American students. Portland, OR: Northwest Regional Educational Laboratory.

culture in education and advises that high quality culturally based education programs include six critical elements:

1. Recognition and use of Native American languages;

2. Pedagogy that stresses traditional cultural characteristics, and adult-child interactions;

3. Pedagogy in which teaching strategies are congruent with the traditional culture and ways of knowing and learning;

4. Curriculum that is based on traditional culture and that recognizes the importance of Native spirituality;

5. Strong Native community participation (including parents, elders and other community resources) in educating children and in the planning and operation of school activities; and,

6. Knowledge and practice of the social and political mores of the community.

It has been argued that many Native American and Alaska Native students disengage from mathematics and science learning in elementary school due to a discrepancy between their own culture and the cultural values embedded in school-based mathematics programs.[13] For these students the cost of participation means rejecting their own culture and values to participate in the dominant view of mathematics—especially as

[13] Cajete, G. (1994). Look to the mountain: An ecology of indigenous education. Durango, CO: Kivaki Press.; Ezeife, A.N. (2003). Using the environment in mathematics and science teaching: An African and Aboriginal perspective. International Review of Education, 49, 319-342; Aikenhead, G. (2002). The educo-politics of curriculum development. Canadian Journal of Science, Mathematics and Technology Education, 2, 49-57.

students become young adults and begin to assume their mature role in community. Often times these costs are seen as too great and students choose not to participate. Doolittle[14] cautions that, in learning mathematics, "as something is gained, something might be lost too. We have some idea of the benefit, but do we know anything at all about the cost?" (p.19).

The last decade has seen a growing body of culturally based educational curricula emerging from Alaskan educators in an effort to reconcile culture and education and CITC has been among this effort. CITC's Indigenous Math and Science curriculum, developed through U.S. Department of Education funding in 2006, is used by CITC teachers in Anchorage's Bartlett and West high schools and has demonstrated increases in student standardized testing scores. STEM-TC, which will emphasize STEM skill development, will benefit from culturally based curricula, which are particularly well-suited to project-based learning.

As the following table illustrates, national STEM standards[15], Alaska Grade Level Expectations, and cultural standards are complimentary to one another. The project-based learning curriculum will be designed to meet multiple rigorous standards.

[14] Doolittle, E. (2006). Mathematics as medicine. In P. Liljedahl (Ed.) Proceedings of the Canadian Mathematics Education Study Group. Burnaby, B.C.

[15] STEM National Standards Used for SECME 09 Summer Institute

	National STEM Standards	Alaska Performance Standards/Grade Level Expectations	Alaska Content Standards: Cultural Standards
Elementary School	Scientific Inquiry, light, heat, electricity, organisms and environments, objects in the sky, tech design, personal health	**Math**: Fractions, percents, mathematical operations, number theory, measurements, geometric shapes, position/direction **Science**: Weather, diversity of living organisms, universe, impact of innovation	Knowledge of diversity within Alaska, learn from oral and written history information, acquire insights from a broad range of cultures, learn about who they are and where they are from
Middle School	Scientific Inquiry, matter, motion, Forces, energy, earth & solar system, tech design, personal health, science & tech in society, nature & history of science	**Math:** Rational numbers, real numbers, order of operations, prime factorization, complex measurement, problem solving, computing area **Science**: conducting research, chemical properties of different matter, motion and forces, diversity of living organisms; geochemical forces	Recount their genealogy & family history, understand ecology and geography of Alaska's bioregions, understand the dynamics of cultural systems that change over time and are impacted by external forces; document culture with technology

d) Digital Gaming: STEM-TC will incorporate an activity that supports the development of STEM learning and serves as a motivator toward academic achievement: on-line game design. That 21st century youth find computer games compelling and a place to invest their time and energy is no great insight. That their interest in computer games can be harnessed to motivate them to engage and master the most critical of educational skills is. GameStar Mechanic is a game and on-line community, supported by The John D. and Catherine T. MacArthur Foundation, for children aged 7-14 that a) teaches game design principles through play, b) enables students to design their own original games, and c) facilitates players collaborating, publishing, and reviewing games. Gamestar Mechanic is designed to tap into kids' natural passion for playing and making games to build critical skills and as a motivation to learn. Through the game design process, students learn about how systems work and how they can be modified or changed. Students learn to think

analytically and holistically, to experiment and test theories, and to consider other people as part of the systems they create and inhabit. Because of its emphasis on game design rather than computer programming, Gamestar is a great entry-level tool for students wanting to learn to create game applications. Once they have mastered game design's core concepts and vocabulary, it will be easy for them to scaffold into more advanced programming-oriented game design tools that range from Scratch, Gamemaker, and Game Salad to full programming environments like Flash and Java. CITC has already begun incorporating game design in our educational programs and, while it is too soon for meaningful outcome data, anecdotal experience of teachers and students is promising. STEM-TC will benefit from digital gaming as an intrinsically motivating method to stimulate learning that is well-suited to project-based learning and is able to include and reflect cultural content.

e) Social and Emotional Learning: In 2007, CITC secured a 5-year Substance Abuse and Mental Health Services Administration (SAMHSA) tribal Substance Abuse Framework State Incentive Grant (SPF SIG) to develop and implement a comprehensive prevention plan for Alaska Native youth in Anchorage. One component of this multi-faceted, multi-agency plan has involved partnering with the Anchorage School District to provide professional development for teachers in social and emotional learning, using the Devereux Student Strength Assessment[16] (DESSA) and training to increase their knowledge regarding lessons and strategies to promote social and emotional learning

[16] Ball, A. (2009). The Devereax student strengths assessment and its relationship to academic achievement. Accessed 5/14/12: http://www.devereux.org/site/DocServer/AnchorageCapstoneSummary.pdf?docID=9721

development and to shift teachers' own attitudes and beliefs about social and emotional competencies as being teachable, learnable skills for every student. Using the nationally normed DESSA, teachers can effectively assess students' social and emotional strengths and need areas. Individual and class composite results are provided that teachers then use formatively to tailor targeted instruction focusing individual and collective strengths to remediate need areas.

Preliminary research results[17] have shown significant improvement in academic scores (based on standardized test scores and on teacher-given grades) for students whose social and emotional learning skills increase, regardless of socio-economic status. Also, our preliminary research shows additional gains for Alaska Native boys, beyond that of the non-Alaska Native student population, when their social and emotional learning skills were identified by their teachers on the DESSA. STEM-TC teachers will benefit from the same professional development trainings available to Anchorage School District teachers – in this case, trainings developed through a CITC partnership – which are expected to benefit students enrolled in the program.

4) Project Addresses Needs Of Target Population: STEM-TC has been designed to address the needs of Anchorage's Alaska Native students by building on CITC's successful history of work with the Anchorage School District and success in enhancing STEM skills among the high school population. STEM-TC will squarely address the disparity in core academic proficiencies (most notably in science) between Alaska Native students and their peers that are evident as early as 4th grade and persist throughout students' academic career. STEM-TC employs educational strategies, described above, that are well-suited to one another and will operate in

[17] Anchorage School District program data, 2012.

elementary and middle schools with high Alaska Native populations that feed into one another and, ultimately, into Bartlett High School, where CITC's existing high school program is strong.

c) Quality Of The Management Plan

i) Timely Completion of Objectives: STEM-TC's objectives will be realized in a timely manner and within budget due to 1) CITC's capacity and history of success, 2) Quality staffing plan, and 3) realistic timeline, as described below -

1) CITC Capacity: Cook Inlet Tribal Council, Inc. (CITC) is the regional non-profit serving the Alaska Native and American Indian population of Anchorage, in which approximately 40% of Alaska's total Native population resides. With a leadership and staff that are strongly reflective of our service population (our 17-member Board of Directors, President/CEO, Chief Operating Officer, Chief Financial Officer, and approximately 60% of our nearly 300 total staff are Alaska Native or American Indian), CITC provides key services to meet the needs of Native people living in Alaska's largest urban setting, including a diverse array of workforce development, healthy family, recovery, and educational services. CITC began working in Anchorage School District classrooms more than 10 years ago, providing in-class instruction at the high school, middle school, and elementary levels and has demonstrated particular success in improving student STEM (Science, Technology, Engineering, and Math) related skills. STEM-TC will build on our long-standing and effective relationship with the Anchorage School District.

In addition to CITC's programmatic expertise in providing culturally appropriate educational services in Anchorage schools, CITC has developed a sound administrative infrastructure capable of responsibly managing federal funds: CITC is currently administering 29 state and federal grants and has had more than 10 years' unqualified annual audits.

2) Staffing Plan: STEM-TC will place 2-Teacher teams in 1 elementary school and 1 middle school and, beginning in Year 2, place a Counselor in the middle school and high school that graduating 6th and 8th grade participants will attend. Staff will be dually supervised by CITC Education System Services Manager, Amy Maitland, who oversees daily education program operations, and the school Principal in which program staff serve. CITC has used this dual supervisory model successfully for the past 10 years. Program staff will participate in Anchorage School District in-services and training opportunities as well as STEM-TC in-services. A detail of all staff supported through STEM-TC (including administrative positions) can be found in the accompanying budget and budget narrative. Program staffing is as follows –

Staff	FTE	Role	Qualifications
Kristin English, COO	.15	Overall supervision of ESS programs, oversees budget, quality assurance, program objectives, coordinates with community stakeholders	MBA; 7 years' executive experience at CITC; experience strategizing service provision with ASD & stakeholders
Amy Maitland, ESS Manager	.20	Supervises staff, daily coordination with Anchorage School District	MSW; GCDF; 7 years' experience in CITC ESS Department
- to be hired - Teacher	4.0	Provides in-class multi-age (4th-6th and 7th – 8th grade) instruction using project-based curriculum	BA; K-8 Alaska Teaching Certificate w/Elementary endorsement; Experience with Alaska Native populations
- to be hired - Curriculum Developer	2.0	Year One and Two Only: Write project-based STEM-supporting multi-age curricula grounded in Alaska Native cultures	BA; K-8 Alaska Teaching Certificate w/Elementary endorsement; Experience with Alaska Native populations
- to be hired - Cultural Expert	.75	Provide expertise on Alaska Native cultures, work with curriculum developers and teachers	2 years' experience teaching or providing instruction; expertise in Alaska Native cultures
- to be hired - Counselors	1.0 -- 2.0 in Year 3	Provide advocacy and counseling to middle and high school students	BA in education or counseling; Experience with Alaska Native populations and ASD policies

Clara Martinez, External Evaluator	Contract	Provides process and outcome evaluation, assists with revision of program objectives and program reporting, provides staff in-service instruction.	PhD in Education; MA in Curriculum and Teacher Education; 12 years program evaluation experience; Native American (Yuqui); Member, American Evaluation Association

3) Project Timeline: The following timeline illustrates how the milestones necessary to complete STEM-TC's objectives will be accomplished. Please see Section d) Adequacy of Resources, iii) Adequacy of Budget, later in this document, regarding our ability to complete project objectives within budget.

Key Activities	Milestones	Responsible Staff	Timeline
Year 1			
Establish program deployment team	Select staff to oversee project start up	CITC Chief Operating Officer	Within 14 days of award
Contract w/ evaluator	Negotiate, create & execute contracts	CITC Chief Operating Officer	Within 30 days
Confirm collaborations	Establish working relationships with ASD and schools	Chief Operating Officer, ESS Manager	30 days, on-going
Hire Staff	Hire Curriculum Developers and Cultural Expert	ESS Manager & Human Resources	Within 45 days
Convene Advisory Group	Convene Advisory Group of key stakeholders to review program	CITC Chief Operating Officer	Tri-Annually
Quarterly On-Sites	Conduct quarterly on-site evaluation activities	External Evaluator	Quarterly
Hire Teachers	Hire Teachers	ESS Manager & Human Resources	July 2013
In-Service Training	Pre-service training: Project-Based Learning, STEM & Culture training	All Program Staff	July 2013
Implement program	Provide 4th-8th grade instruction	Program Staff	August 2013
Evaluate goals & objectives & report	Exact, sort and analyze GPRA, local assessments and other data	ESS Manager and External Evaluator	End of Year One, annually
Develop/ Implement sustainability plan	Devise strategy, work with area stakeholders (ASD, UAA, tribal representatives, advisory committee) to research and purse sustainable revenue sources	Chief Operating Officer and CITC Institutional Advancement Staff	End of Year One, then annually
Incorporate evaluation	Modify, execute, and follow-up on proposed changes in program	Chief Operating Officer, ESS	30 days after second/third

findings into program.	processes, goals, and objectives & adjust P&P's to reflect changes in programming	Manager, Evaluator, Advisory Group	award
Year 2			
Hire Staff	Hire Teachers and Counselors	ESS Manager & Human Resources	July 2014
In-Service Training	Pre-service training: Project-Based Learning, STEM & Culture training	All Program Staff	July 2014
Implement program	Provide 4th-8th grade instruction, 7th and 9th grade advocacy/counseling	Program Staff	August 2014
Year 3			
Hire Staff	Hire Teachers and Counselors	ESS Manager & Human Resources	July 2015
In-Service Training	Pre-service training: Project-Based Learning, STEM & Culture training	All Program Staff	July 2015
Implement program	Provide 4th-8th grade instruction, 7th–10th grade advocacy/counseling	Program Staff	August 2015

ii) Feedback and Continuous Improvement: STEM-TC will benefit from a robust program evaluation, as described fully in Section e) Quality of Project Evaluation, later in this document.

STEM-TC will benefit from three main feedback and continuous improvement mechanisms:

1) External Program Evaluation: CITC will contract with Clara Martinez, PhD, to provide program evaluation services for STEM-TC. Dr. Martinez has provided evaluation services for CITC's Educational System Services Department for the past two years and is familiar with the array of services provided and their relationship to, and integration with, services external to CITC (Anchorage School District, etc.). Dr. Martinez will conduct quarterly site visits which will include staff in-services to provide feedback and training regarding issues identified in the on-going program evaluation.

2) Education Advisory Group: CITC is committed to broad community involvement in our service programs to ensure their high quality through feedback, improve community stakeholder buy-in, and increase the likelihood that effective interventions

are able to be sustained. CITC is currently in the process of forming an Education Advisory Group comprised of key community stakeholders to provide program recommendations for all CITC education programs, including STEM-TC. The Education Advisory Group will be comprised of key CITC members (Chief Operating Officer, Educational System Services Manager), Anchorage School District representatives (a School Board member, Principal, Teacher, and Title Seven representative), and community (two parent representatives, a high school student, and a college student). Additional representatives may be added as it becomes clear that additional, specific perspectives are needed. The CITC Education Advisory Group will meet three times per year to review program processes, outcomes, design, and relationship to other educational initiatives in Anchorage.

3) School and Parent Feedback: STEM-TC staff will receive on-going feedback from the school Principal, who will be their co-supervisor with CITC's ESS Manager, and will be in continuous contact with parents. Parent involvement will include conferences, family events, and phone calls and home visits as needed.

d) Adequacy Of Resources

i) Cost/Participant Ratio & Results and Benefits: STEM-TC will provide direct instruction to 30 elementary students and 30 middle school students per year and will provide advocacy and support for students transitioning from elementary to middle school and from middle school to high school, as described in Section b) Quality of the Project Design, above.

While students will be encouraged to continue in the program for multiple years, program attrition due to transience or other causes is difficult to predict, making a determination of the discrete number of individuals served impossible. As illustrated in the accompanying table, the total program capacity is 225 students over the life of the grant, making the per-participant cost approximately [redacted] per participant.

Number of Students								
	4th	**5th**	**6th**	**7th**	**8th**	**9th**	**10th**	**Total**
Year 1	10	10	10	15	15			60
Year 2	10	10	10	15	15	15		75
Year 3	10	10	10	15	15	15	15	90
Total	30	30	30	45	45	30	15	225
	Instruction							
				Counseling				

The benefit of this program will be greater mastery of academic material, which will be reflected in improved student proficiency as measured by standardized tests and individual grade point averages.

ii) Partner Commitment: Please find a Letter of Support from the Anchorage School District (ASD) accompanying this proposal. CITC has provided in-class instruction within ASD schools at the elementary, middle, and high school level and has been active in ASD schools for more than 10 years. CITC and ASD are practiced collaborators. STEM-TC is a reflection of our on-going collaboration with ASD to achieve high educational outcomes for Anchorage's Alaska Native students.

ASD's commitment includes classroom space, the same array of support for CITC teachers available for ASD teachers and access to ASD records for CITC-enrolled students.

iii) Adequacy of Budget: CITC has been providing educational programming since 1983, and has been providing programming in Bartlett High School continuously since 2003. STEM-TC's budget is informed by our current actual expenses for program costs for salaries and fringe, facility costs, MIS pool, program evaluation, and assorted costs in 2011-2012.

STEM-TC calls for a significant departure from ASD's typical elementary and middle school curricula. This departure is supported by a teacher/student ratio, a dedicated curriculum developer, a culture expert, and counselors to facilitate students' transition that are adequate to the intent to provide robust support.

Please find a budget narrative accompanying this proposal.

e) Quality Of Project Evaluation

CITC has contracted with Clara Martinez, Ph.D. to serve as an external program evaluator of CITC's Education Department programs since 2008. Dr. Martinez has extensive experience working with Native American populations and is familiar with CITC's education programs and the Anchorage School District. Dr. Martinez has extensive experience evaluating and reporting for Federal Education and Native American programs (including previous Alaska Native Education grant reporting), will monitor program sites quarterly, attend Grant Program meetings and be in contact via e-mail and telephone as needed. Please find Dr. Martinez' resume accompanying this proposal.

1. **Methods of Evaluation are Thorough, Feasible, and Appropriate:** The methods by which STEM-TC will be evaluated are feasible and appropriate to the project and include quantitative and qualitative methods. The table below identifies the evaluation instruments and timeline in which they will be used for monitoring progress:

Evaluation Instrument/Methodology	Quarter 1	Quarter 2	Quarter 3	Quarter 4
1. CITC-ASD Student Enrollment/ Grade report	X	X	X	X
2. Achievement of Grade Level Expectations	X	X	X	X
3. Standards Based Assessment (SBA)		X		X
4. Terra Nova Proficiency				X
5. Climate & Connectedness Survey				X

6. Quarterly Site Visits by Evaluator	X	X	X	X
7. Grant Performance Report				X (annual requirement)
8. Comprehensive Review of Program, Yearly Grant Performance Report compiled				

The methods employed in the STEM-TC evaluation model will yield sufficient quantitative and qualitative data to evaluate the effectiveness of the program implementation strategies as follows:

1. The ASD student enrollment and grade reports as accessed by the CITC MIS will provide information regarding numbers of students enrolled, grade reports of students receiving academic credit, relevant to test scores, attendance and number of semesters a student is enrolled in the program;

2. The State of Alaska yearly criterion referenced test— Standards Based Assessment (SBA) will be utilized to measure CITC student academic achievement in Reading, Writing, and Math proficiency compared to non-CITC AI/AN students in grades 4-8. Students in 4th and 8th grade take a SBA in Science, as well;

3. The Anchorage School District administers the Terra Nova standardized achievement test to 5th and 7th grade students. CITC will utilize the Terra Nova as a measure of student proficiency compared to non-CITC AI/AN students;

4.The Anchorage School District administers a Climate and Connectedness Survey designed by the American Institutes for Research to solicit students' perceptions regarding interactions between students and between students and teachers, the educational climate, students' and adults' expectations, feelings of safety and being cared for. Staff are similarly surveyed. This data will be available for STEM-TC classes.

5. The Evaluator will make quarterly site visits to work with the principle program personnel to monitor, encourage, and help trouble shoot programmatic issues which arise as the program is instituted and demonstrated;

6. The data will be used to prepare quarterly Grant Performance reports for the Program Director to ensure continuous feedback and quality control;

7. The yearly Comprehensive Review of the program will entail the documentation of all quantitative and qualitative measures of program success and improvement to examine the effectiveness of models and methods and program implementation. The Evaluator will also compile and organize the semester data into the OIE Continuation and Yearly Report formats for submission.

ii) Methods of Evaluation include Objective Measures: While STEM-TC's evaluation includes quarterly site visits that will yield qualitative data, the program objectives are built to be objectively measurable. The measures below build on the Objectives identified previously in Section B. The tables provided break down overall Objectives by class by year and illustrate how student proficiency and perceptions of a healthy class climate are expected to grow each year.

Objective 1: Provide culturally competent instruction to 180 Alaska Native 4th-8th grade students over 3 years.

	4th	5th	6th	7th	8th	Total Participants
Year 1	10	10	10	15	15	60
Year 2	10	10	10	15	15	60
Year 3	10	10	10	15	15	60
Total	30	30	30	45	45	180

Measure: Class enrollment records.

Objective 2: 85% of enrolled students will achieve academic proficiency on State of Alaska Standards Based Proficiency (SBA) Assessments by Year 3.

SBA Reading, Writing & Math Proficiency

	4th	5th	6th	7th	8th	Total Participants
Year 1	75%	75%	80%	-	-	77%
Year 2	80%	80%	80%	85%	-	81%
Year 3	85%	85%	85%	85%	85%	85%
Total	80%	80%	82%	85%	85%	

SBA Science Proficiency

	4th	8th	Total Participants
Year 1	60%	-	60%
Year 2	70%	-	70%
Year 3	80%	85%	83%

Measure: State of Alaska Standards Based Proficiency (SBA) Assessments.

Objective 3: Student attendance will meet or exceed 95%.

Measure: Attendance records.

Objective 4: 100% of enrolled students will engage in STEM-skill developing project-based learning emphasizing Alaska Native culture.

Measure: Enrollment records, grades, assessment and involvement in projects.

Objective 5: 90% of enrolled students will attain grade-level expectations.

Measure: Anchorage School District Grade Level Expectations.

Objective 6: Enrolled students will perceive the class to be a caring and respectful climate with high expectations.

Measure: Climate and Connectedness Survey.

Student Survey: Respectful Climate & High Expectations

	4th	5th	7th	8th	Total Participants
Year 1	4.5	4.5	-	-	4.5
Year 2	4.6	4.6	4.6	-	4.6
Year 3	4.7	4.7	4.7	4.7	4.7
Total	2.8	2.8	2.9	2.9	Range = 1-5

Climate Survey: Caring Others & S.E. Learning

	4th	5th	7th	8th	Total Participants
Year 1	2.7	2.7	-	-	2.7
Year 2	2.8	2.8	2.8	-	2.8
Year 3	2.9	2.9	2.9	2.9	2.9
Total	2.8	2.8	2.9	2.9	Range = 1-3

Objective 7: 78% of enrolled students will achieve academic proficiency on national Terra Nova tests by Year 3.

Measure: Terra Nova.

TerraNova Proficiency

	5th	7th	Total Participants
Year 1	65%	-	65%
Year 2	70%	75%	73%
Year 3	75%	80%	78%

Objective 8: Draft Alaska Native culturally informed project-based lesson plans that support STEM skills for multi-aged 4-6 grade elementary and 7-8 grade middle school by the end of Year 2.

Measure: Completed lesson plans.

Objective 9: Provide advocacy services to students and families of 7th and 9th grade students as they transition from one level of school to another in Years 2 and 3.

Measure: Academic records.