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Genoa Central School District

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Q7 Grant Level Proposal

Medium - $7,500 to $20,000

Q8 PROPOSAL DESCRIPTION (MAX 3000 Characters) - provide a narrative regarding the need for the proposed program/project, specific goals to be achieved, and how if funded the program is likely to achieve those goals.

The rationale behind this project is due to the overall attitude of the Genoa Central (GC) Schools. Our teachers truly have a heart for teaching and want to see our students' academic performance excel in all areas. For the past two years, these teachers have worked to collaboratively integrate technology in teaching math, language arts and science to Kindergarten through sixth grade. They now understand that computer science is not about the students learning how to use the keyboard and mouse, it is for the purpose of offering teaching problem solving and how to develop solutions. The time has come for us to purchase equipment for each teacher and the student in class. The most important part of the K-4 computer science experience is its ability to encourage and support creative expression and problem solving each day in the classroom. This project will truly allow us to expand our computer science program at all levels. The elementary students that are getting a taste for coding are truly hungry for Robotics. We have found that we need to offer more concrete, foundational experiences that will serve as building blocks for their robotics training in middle school. Currently, our middle school is building a robotics team to compete in VEX League. The robots that we have for our teams were donated or purchased with funds that no longer exist. We do not have a funding source to purchase more robots or coding devices. In an effort to gain support from the community, we have planned an open house for December 2018. Community members are encouraged to visit the computer lab, code with their students and bring items for the makerspace. If awarded this grant, we would purchase additional materials, to build up our robotics program. Our plan is to ensure that our students have a very concrete grasp of abstract concepts such as motor design, power sources, balance, and mechanization. As well as the power of code help design innovative solutions to real world problems. While our students enjoy participating and competing in competitions. We have discovered that students to need experiences a more hands-on approach in order to fully comprehend the coding. The purchase of the proposed materials would also allow us to include about forty times the number of students who are currently involved in coding.The GC students/teachers have moved beyond using unplugged activities and borrowed equipment, they are eager for full integration on a daily basis!The program initiative will focus on two goals: technology workshops for teachers/students and curriculum development with integration of computer science in the classroom. Our GC mission statement says that we will graduate our Dragons through the integration of dynamic learning. As part of that, we have established this initiative and set the following goals to be accomplished: -Provide technical training for teachers throughout the district. -Develop technology-assisted curriculum in math and science.

Q9 PROPOSAL TIMELINE (MAX 1500 Characters) - list major activities of your proposal with approximate target dates

By using coding materials, we are working toward addressing several content areas in the Arkansas Computer Science standards as well as, the College and Career Readiness Standards. The content areas addressed are: Educational Technology, Science, Mathematics, and English Language Arts. If awarded this grant, we would immediately/implement according to the following timeline: Dec. 2018 Post out award decision on GC Social Media Jan. 2019 Purchase materials Jan. 2019 Provide workshops for middle school Jan. 2019 Begin recruiting students to participate in coding competitions Feb. 2019 Develop a plan for shared usage as well as storage for all coding materials Feb. 2019 Install any software on laptop/desktop computers Feb. 2019 Train middle and high school teachers on the new materials Feb. - Mar. 2019 Provide classroom support to middle and high school teachers on the new materials Mar. 2019 Train elementary teachers on the new materials Mar. 2019 Provide classroom support to elementary school teachers on the new materials Apr. 2019 Host a community event to showcase our students' robotics projects and innovations using the coding tools May 2019 Year end celebration for our students to acknowledge their growth and contributions to our Computer Science Program Jun. 2019 ISTE Conference and bring back more instructional ideas for computer science Jul. - Aug 2019 Computer science PD provided on site SY19-10 Continue to share and attend robotics competition

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Q10 PROPOSAL EXPECTED RESULTS (MAX 1500 Characters) - Describe the student outcomes, or changes, that will result if this proposal is funded.

This grant will bring modern technology in K-12 classrooms to engage more students. With a comprehensive set of K-12 Computer Science Standards, our teachers just need tools to help engage the students and design standards-based curriculum. Objectives that will be taught through the use of these coding materials include: -using models to examine real world connections -using technology to generate knowledge and new ideas -defining problems and investigate solutions -understanding spatial relationships and the way objects move -solving problems involving measurement and intervals of time -reasoning abstractly and quantitatively -using technology and media strategically and capably -orally presenting ideas and models to an audience using relevant evidence to support their reasoning Expected changes: Increase student performance in standardized tests and district benchmarks because of their use of technology -More teachers collaborating with colleagues within the department grade-level to plan and design lessons -More trained teachers and students on the use and the maintenance of the technology -More motivated students in learning STEM There are also social and behavioral expectations such as: -engaging cooperatively to respectfully agree and disagree -cooperation -exhibiting kindness and respect to others -responsibility for self, others and materials

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Q11 PROPOSAL EXPECTED IMPACT (MAX 1500 Characters) - Describe the estimated number of students, teachers, and/or community members that will be impacted and how they will be impacted if this proposal is funded.

Genoa Central School District values all K-12 students (1,102 students) having exposure to computer programming opportunities. Our computer science program is designed to arouse interest in coding. The program is drawing interest in our community by hosting K-12 “hour of code” and celebrating a Week of Code. These events are raising awareness of the computer science standards and our expectations for the students. During these events, over one thousand students participated and 75 parents joined us for the fun! We provided opportunities to utilize a highly interactive technology tools. We used unplugged activities, web-based coding programs and equipment on loan from an educational cooperative. But, why stop now? We have aspirations of expanding our efforts. Imagine, coding opening the doors not only for computer science but leading our students one step ahead of the learning curve in school and in life." The funds requested through this grant would cover the necessary hardware and accessories to implement a K-12 coding program. In order to maximize the usage of the equipment for both students and teachers, we plan to create a check out system for each grade level. By purchasing materials in this way, we save money and ensure the possibility of a greater number of learning opportunities. There is no end to the possibilities, as students create different adventures, games and lines of code.

Q12 INNOVATIVE ASPECT (MAX 1500 Characters) - Describe why this proposal is creative and should receive funding as an out of the box way to support student growth/achievement.

You ask about teaching outside a box, do we dare ask, why does there have to be a box.? Why does there have to even be the four walls of the classroom? The Genoa Central (GC) teachers have worked hard to learn about coding and change the dynamics of the classroom. Our teachers have found that there is no end to the possibilities, as students create different a deeper level of inquiry and understanding through coding. At GC, we truly believe in a non-intimidating and gradual learning environment for all. The primary goal is to develop our lower elementary students’ basic coding literacy by incorporating computer science concepts as early as pre-K and Kindergarten. As they grow, we continue to develop their The 21st-century technology skills by engaging middle school students in a collaborative and creative learning environment that is hands-on. To facilitate collaboration, communication, creativity, critical thinking, and problem solving, the curriculum is enriched with basic programming concepts. As students advance, they begin using intuitive drag and drop block-based computer programming incorporating advanced concepts like variables, functions, loops, logic and conditional statements. We encourage students to not only advance in their coding adventures, but we also provide a makerspace where they can enjoy cooperative planning and activities in all subject areas. Our technology program is designed to unlock future academic and career opportunities for every student.

Q13 TRANSFORMATIVE POTENTIAL (MAX 1500 Characters) - Describe how this proposal if funded and implemented beyond your program has the ability to raise student achievement across the state.

We anticipate using these materials for years to come.Teaching our children to be problem solvers and to build solutions to meet their needs translates to every aspect of life be it educational, professional or personal growth. Our goals for implementation of the new materials is that no matter where the classroom our students will have the following: Accessibility for all our students, we anticipate that these materials will be used by all students, further enhancing and fostering language growth, critical thinking and collaboration. We have 52 general ed classrooms in our elementary and middle schools and 3 SPED classrooms, we look forward to the materials being used by all teachers and students on a rotational basis. Visibility - We want our parents/community members to know that we are developing STEM pursuits among our students; for that reason, we will continue to hold community events, inviting guests to see and experience what our students are learning. As well as keeping those not in attendance aware through social media. Knowledge of STEM - We want to use these new learning materials to promote STEM and STEM careers among our students. We want to encourage them to think, collaborate, problem solve, and test their ideas like engineers and scientists. Our mission statement says that we will graduate our Dragons through the integration of dynamic learning. When these students leave here with an education in computer science they will be college/career ready!

Q14 FOLLOW UP and/or MARKETING/OUTREACH (MAX 1500 Characters) - Describe how your organization will follow up on this program after completed and/or how it will be marketed to and awareness raised within the community if the proposal is funded.

Students' learning needs are not always met through "traditional pedagogy". Coding tools engage more students in learning and with a kinesthetic approach. While also preparing them for a technological dependent workforce. However, without adequate funds, our school is not able to afford coding resources and training opportunities. This grant will bring innovative technology and help to engage students in learning computer science. Thus aiding teachers to be more effective and create a relevant learning environment. It is essential that teachers be trained to incorporate computer science in their classes. Over the last two years, GC has not only hired an instructional technology specialist, but also invited the area Ed Co-op computer science specialist to provide workshops focusing on coding and computer science. Once the teachers are trained on the equipment, they will be able to increase interest and excitement around coding. GC has hosted and will continue to host coding events for the community. The students demonstrate their coding projects community members. Our long term goal is to have computer science in every classroom and coding as outreach initiatives for more student participation. The coding materials are periodically inventoried for wear and completeness of kits. GC will continue to write grants and reach out to the local community for additional funding to sustain our endeavour to teach computer science in our district.

Q15 Budget Proposal

Genoa Central Budget Proposal - Sheet1 (1).pdf(39.5KB)

Grade Level	Educational Tool	Quantity	Unit Price	Total	ISTE Conference in Philadelphia, PA	June 23 - 26, 2019
K	Codapillars with expansion kit	4	$152.00	$608.00	Estimated Airfare: Round trip from TXK to PHL	$710.00
	Expansion kit	1	$33.00	$33.00	Hotel: Embassy Suites	$1,675.00
1	Codeable Mice Set(s)	5	$42.00	$210.00	Meals: $64/day X 6 =	$384.00
	Codeable Mice	5	$25.00	$125.00	Shuttle/Bags $25/bags one way and $40/shuttle	$90.00
2	Botley Activity Set	2	$62.00	$124.00	Registration Fee:	$550.00
	Botley	6	$47.00	$282.00	Other Transportation:	$150.00
	Lego We-Do	10	$195.00	$1,950	Total conference cost:	$3,559.00
3	Dash	8	$149.00	$1,192.00		
	Kindle Fires	8	$52.00	$416.00	Expected Outside Funding	
	Kindle Fire Cases	8	$21.00	$168.00	The district budget for PD	$550
4	Gravity Maze	2	$33.00	$66.00		
	Kano Computer Kit	2	$150.00	$300.00	Est. of current equipment	$1,200
5	Gravity Maze	2	$31.00	$62.00		
	Code Car	8	$46.00	$368.00		
6	Microbit with Expansion Kit	30	$52.00	$1,500.00		
7	Lego Mindstorm	6	$415.00	$2,490.00		
8	Gravity Maze	2	$31.00	$62.00		
9-10	VEX Robotics	7	$332.00	$2,324.00		
11-12	Raspberry Pi	4	$182.00	$728		
	Raspberry Pi Starter Kit	4	$52.00	$208.00		
Extra	Storage tubs 8/per pack	2	$232.00	$464.00		
	Multiport chargers	4	$33.00	$132.00		
	Rechargeable Batteries with charger	3	$20.00	$60.00		
	Extra Rechargeable Batteries	1	$20.00	$20.00		
	HP - 14" Touch-Screen Chromebook	7	$356.00	$2,492		
	ISTE Conference	1	$3,569.00	$3,559.00		
	Grand Total:			$19,943.00		