<table>
<thead>
<tr>
<th>Purpose Code</th>
<th>Object Code</th>
<th>Salaries 100</th>
<th>Retirement Fringe Benefits 200</th>
<th>Purchased Services 400</th>
<th>Supplies 500</th>
<th>Capital Outlay 600</th>
<th>Other 800</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Instruction</td>
<td>100</td>
<td>77,555.00</td>
<td>0.00</td>
<td>0.00</td>
<td>8,550.00</td>
<td>70,107.00</td>
<td>0.00</td>
<td>156,212.00</td>
</tr>
<tr>
<td>Support Services</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
</tr>
<tr>
<td>Governance/Admin</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
</tr>
<tr>
<td>Prof Development</td>
<td>1,750.00</td>
<td>0.00</td>
<td>30,300.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>32,050.00</td>
</tr>
<tr>
<td>Family/Community</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
</tr>
<tr>
<td>Safety</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
</tr>
<tr>
<td>Facilities</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
</tr>
<tr>
<td>Transportation</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
</tr>
<tr>
<td>Indirect Cost</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
</tr>
<tr>
<td>Total</td>
<td>79,305.00</td>
<td>0.00</td>
<td>30,300.00</td>
<td>8,550.00</td>
<td>70,107.00</td>
<td>0.00</td>
<td>0.00</td>
<td>188,262.00</td>
</tr>
</tbody>
</table>

Adjusted Allocation 0.00

Remaining -188,262.00
Please respond to the prompts or questions in the areas listed below in a narrative form.

A) APPLICANT INFORMATION - General Information

1. Project Title:
   Project Nucleus

2. Project Tweet: Please limit your responses to 140 characters.
   Project Nucleus creates a STEM teaching/learning command center to grow student interns, mentorships, and collaborative K-12 STEM research.
   
   This is an ultra-concise introduction to the project.

3. Estimate of total students at each grade level to be directly impacted each year.
   
   This is the number of students that will receive services or other benefits as a direct result of implementing this project. This does not include students that may be impacted if the project is replicated or scaled up in the future. It excludes students who have merely a tangential or indirect benefit (such as students having use of improved facilities, equipment etc. for other uses than those intended as a part of the project). The Grant Year is the year in which funds are received from the Ohio Department of Education. Years 1 through 5 are the sustainability years during which the project must be fiscally and programmatically sustained.

<table>
<thead>
<tr>
<th>Grant Year</th>
<th>0 Pre-K Special Education</th>
<th>1 Pre-K Special Education</th>
<th>2 Pre-K Special Education</th>
<th>3 Pre-K Special Education</th>
</tr>
</thead>
<tbody>
<tr>
<td>Year 1</td>
<td>115 K</td>
<td>115 1</td>
<td>118 2</td>
<td>104 3</td>
</tr>
<tr>
<td></td>
<td>124 4</td>
<td>124 5</td>
<td>148 6</td>
<td>147 7</td>
</tr>
<tr>
<td></td>
<td>154 9</td>
<td>178 10</td>
<td>181 11</td>
<td>176 12</td>
</tr>
<tr>
<td>Year 2</td>
<td>115 K</td>
<td>115 1</td>
<td>115 2</td>
<td>118 3</td>
</tr>
<tr>
<td></td>
<td>104 4</td>
<td>124 5</td>
<td>124 6</td>
<td>148 7</td>
</tr>
<tr>
<td></td>
<td>176 9</td>
<td>154 10</td>
<td>178 11</td>
<td>181 12</td>
</tr>
<tr>
<td>Year 3</td>
<td>115 K</td>
<td>115 1</td>
<td>115 2</td>
<td>115 3</td>
</tr>
<tr>
<td></td>
<td>118 4</td>
<td>104 5</td>
<td>124 6</td>
<td>124 7</td>
</tr>
<tr>
<td></td>
<td>147 9</td>
<td>176 10</td>
<td>154 11</td>
<td>178 12</td>
</tr>
<tr>
<td>Year 4</td>
<td>115 K</td>
<td>115 1</td>
<td>115 2</td>
<td>115 3</td>
</tr>
<tr>
<td></td>
<td>115 4</td>
<td>118 5</td>
<td>104 6</td>
<td>124 7</td>
</tr>
<tr>
<td></td>
<td>148 9</td>
<td>147 10</td>
<td>176 11</td>
<td>154 12</td>
</tr>
<tr>
<td>Year 5</td>
<td>115 K</td>
<td>115 1</td>
<td>115 2</td>
<td>115 3</td>
</tr>
<tr>
<td></td>
<td>115 4</td>
<td>115 5</td>
<td>118 6</td>
<td>104 7</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>124 8</td>
</tr>
</tbody>
</table>
4. Explanation of any additional students to be impacted throughout the life of the project.
This includes any students impacted indirectly and estimates of students who might be impacted through replication or an increase in the scope of the original project.

Project Nucleus will train Chagrin Falls HS students as Nucleus Interns. Interns will provide remediation/support to K-12 students in STEM areas. Via our K-12 wireless environment & 1:1 Chromebooks, Nucleus Interns will lead projects & support K-12 students - supervising independent study, Invention Convention projects, whole class STEM-related problem-solving, lab review, etc. All K-12 students will benefit from remote/in-person access to Nucleus Interns & from Project-Based Learning units created by our PBL-trained K-12 teachers. The developed Nucleus Intern training will occur each summer with additional students. Through Project Nucleus, we will work w/ Case Western Reserve University, the Cleveland Clinic, & NASA to identify STEM mentors & create a STEM Capstone Research Project. The established Mentorship program & STEM Capstone Research module will continue to grow & the created Nucleus command center will be used for STEM programming via PD Days & summer enrichment.

5. Lead applicant primary contact: - Provide the following information:
First and last name of contact for lead applicant
Rebecca Quinn
Organizational name of lead applicant
Chagrin Falls Exempted Village Schools
Address of lead applicant
400 East Washington Ave.
Phone Number of lead applicant
4402472432
Email Address of lead applicant
becky.quinn@chagrinschools.org

Community School Applicants: After your application has been submitted and is in Authorized Representative Approved status an email will be sent to your sponsoring entity automatically informing the sponsor of your application.

6. Are you submitting your application as a consortium? - Select one checkbox below
☐ Yes
☐ No

If you are applying as consortium, please list all consortium members by name on the "Consortium Member" page by clicking on the link below. If an educational service center is applying as the lead applicant for a consortium, the first consortium member entered must be a client district of the educational service center.
Add Consortium Members

7. Are you partnering with anyone to plan, implement, or evaluate your project? - Select one checkbox below
☐ Yes
☐ No

If you are partnering with anyone, please list all partners (vendors, service providers, sponsors, management companies, schools, districts, ESCs, IHEs) by name on the "Partnering Member" page by clicking on the link below.
Add Partnering Members

B) PROJECT DESCRIPTION - Overall description of project and alignment with goals

8. Describe the innovative project: - Provide the following information

The response should provide a clear and concise description of the project and its major components. The following questions will address specific outcomes and measures of success.

a. The current state or problem to be solved; and

Project Nucleus will address K-12 district weakness in student Science/Math on state & AP assessments, access to K-12 student remediation in STEM areas, currently minimal opportunities for STEM-related 7-12 mentorships, & inconsistent K-12 STEM Research opportunities. Science/Math scores continue to be the lowest subtests on state testing in our district (see uploaded 2013-14 & 2014-15 CFEVSD ODE Report Card Overviews) in 5th & 8th grade, & most recently on the 2014-15 Algebra I & Physical Science EOC's. As of 2014-15 data, science AP exam scores continue to be the lowest scores - 48 of the 158 AP Exams in AP Science courses we offer (AP Physics I, AP Chemistry, AP Biology, AP Environmental Science) were scores of a 1 or 2 - meaning that 30.3% of AP exams in Science were scores of a 1 or 2, whereas 82.1% of all AP Exams last year were scores of a 3 or higher. No K-12 systemic approach to tiered STEM Research or PBL exists & our existing AP Capstone program exists only in ELA.
b. The proposed innovation and how it relates to solving the problem or improving on the current state.

Project Nucleus will create a physical command center space (The Nucleus) which will provide ongoing in-person & virtual access to STEM teachers & trained Nucleus Student Interns & a content-specific space for 7-12 students to engage in targeted independent STEM-related research. The district has already seen success in this model via The Write Place (see uploaded Write Place article), which currently exists on the 7-12 Campus for writing. The Write Place is a physical space on the 7-12 Chagrin Falls Campus established in 2013, which supports K-12 virtual & in-person student remediation, intervention, & enrichment in writing from trained Writing Interns & 7-12 ELA staff. Our current 1:1 Chromebook environment enables individual students &/or classes of students to seek writing support from The Write Place 24:7, 7 days/week. The trained Student Writing Interns-to-date have helped 1,241 individual via in-person support & 787 students via the Online Writing Lab. Our proposed Nucleus Center & trained Nucleus Student Interns will replicate and grow this success in STEM areas. Dr. John Hattie’s Ranking on Teaching Effects: Influences & effect sizes related to student achievement (2009) - (see uploaded Hattie Ranking: Teaching Effects) cites that "Providing formative evaluation", "Comprehensive interventions for learning disabled students", "Reciprocal teaching", "Feedback", & "Spacing vs. mass practice" have the greatest effect size on student achievement. Project Nucleus authoritatively employs all of these teaching practices to improve teaching & learning. The Nucleus will function as a command center for: interactive STEM research, work refinement - for all students to act upon formative evaluation to refine STEM work in a supported environment, comprehensive interventions to be employed in an individual &/or small-group setting, &/or for spaced individualized ongoing practice during the identified Tiger Time or WIN periods (existing intervention/enrichment periods) w/in Chagrin Falls HS & Chagrin Falls MS, via the support of a STEM teacher &/or Nucleus Student Intern. Nucleus Student Interns will engage in reciprocal teaching & foster this model when working with small groups in The Nucleus - virtually or in-person. Student work within The Nucleus will support work within our existing Competency-Based Education project (see uploaded CBE Grant Application), helping to personalize student learning & maximize the potential of all students in STEM fields. Project Nucleus will articulate a Nucleus Student Intern Training Program which to be implemented in June 2017 w/ a minimum of 10 CFHS students & will be repeated every June (sustained via reallocation of funds currently used for Compass Learning licenses as an intervention for struggling STEM students, which would not be renewed if this project is funded). The personalized support available 24 hrs/day, 7 days/wk will improve student learning in STEM areas, to be evidenced in improved state test scores & AP Science course exam scores by the last year of Project Nucleus implementation. Project Nucleus also addresses the lack of STEM Research & access to Project-Based Learning (PBL) via the PD provided by a Case Western Reserve University Gelfand STEM Center consultant on STEM Integration & via PBL training via contracted PBL Coaches from Yellow Springs School District. Through this training & the grant-funded creation of a STEM Capstone Research Module and identified PBL units per all grade levels by the May 2017, STEM Research and PBL will begin as of 2017-18. Similarly, Project Nucleus promotes collaboration between the Cleveland Clinic, the Gelfand STEM Center, & NASA to identify a STEM Mentorship Program, a list of Mentors from each organization, and a mentor recruitment and vetting system to be employed each year. The implementation of the STEM Capstone Research Module, PBL units across K-12, & the STEM Mentorship Program will occur by the 2017-18 school year.

9. Select which (up to four) of the goals your project will address. For each of the selected goals please provide the requested information to demonstrate your innovative process. - (Check all that apply)

a. Student achievement

i. List the desired outcomes.

Examples: fewer students retained at 3rd grade, increase in graduation rate, increased proficiency rate in a content area, etc.

Project Nucleus would greatly improve student achievement in the following ways: Creation of The Nucleus space as a command center for STEM research, intervention, collaboration, & enrichment Existence of a minimum of 10 trained Nucleus Student Interns by fall 2017 (there are 0 now) A minimum of 50 examples of the provision of in-person &/or virtual Nucleus Student Intern support per intern by the end of the 2017-18 school year Improved state test scores in STEM areas by (or before) the last year of Project Nucleus grant implementation Improved in the AP Exam scores in AP Science courses Increase in the number of students engaged in STEM Mentorships each year Increase in the number of students graduating with the completion of a STEM Capstone Research Project Inclusion of all K-12 students in at least 1 PBL unit each school year by the end of the 2017-18 school year Increase in the number of students engaging in STEM-related AP Research study, as part of the AP Capstone program

ii. What assumptions must be true for this outcome to be realized?

Examples: early diagnosis and intervention are needed to support all children learning to read on grade level; project-based learning results in higher levels of student engagement and learning, etc.

The following assumptions must be true for this outcome to be realized: That the Teaching practices evidenced in Hattie’s research (see uploaded Hattie Ranking: Teaching Effects) have the greatest impact upon teaching and learning The provision of personalized intervention and support available in person and virtually 24 hrs/day, 7 days/wk in STEM areas will improve student learning Increased access to personalized STEM intervention will be reflected in state test and/or AP Science exam scores Project-Based Learning will increase student engagement and learning in STEM areas Increased opportunities via the articulation of a formalized STEM Mentorship Program with a plan for ongoing Mentor refresh will increase the number of students engaged in STEM Mentorships Increased opportunities via the creation of a STEM Capstone Research Project Module and the offering of AP Research within the Science Dept. will increase the number of students graduating with completion of STEM Research

iii. Describe any early efforts you have made to test these assumptions (pilot implementation, etc), or how these are well-supported by the literature.

Project Nucleus will create a physical command center space (The Nucleus) to provide ongoing in-person & virtual access to STEM teachers & trained Nucleus Student Interns & a content-specific space for 7-12 students to engage in targeted independent STEM-related research. The district has already seen success in this model via The Write Place (see uploaded Write Place article), which currently exists on the 7-12 Campus for writing. The Write Place is a physical space on the 7-12 Chagrin Falls Campus established in 2013, which supports K-12 virtual & in-person student remediation, intervention, & enrichment in writing from trained Student Writing Interns & 7-12 ELA staff. Our current 1:1 Chromebook environment enables individual students &/or classes of students to seek writing support from The Write Place 24:7, 7 days/week. The trained Student Writing Interns-to-date have helped 1,241 individual via in-person support & 787 students via the Online Writing Lab. Our proposed Nucleus Center & trained Nucleus Student Interns will replicate & grow this success in STEM areas. The impact of the trained Nucleus Student Interns has the potential to improve K-12 STEM learning. Dr. John Hattie's Ranking
Examples: lowered facility cost as a result of transition to more efficient systems of heating and lighting, etc.; or cost savings due to transition from textbook to digital resources for teaching.

ii. What assumptions must be true for this outcome to be realized?
Example: transition to “green energy” solutions produce financial efficiencies, etc.; or available digital resources are equivalent to or better than previously purchased textbooks.

iii. Describe any early efforts you have made to test these assumptions (pilot implementation, etc), or how these are well-supported by the literature.

iv. Please enter the Net Cost Savings from your FIT.

v. List and describe the budget line items where spending reductions will occur.

vi. How are you prepared to alter the course of your project if assumptions prove false or outcomes are not realized?

c. Utilization of a greater share of resources in the classroom

i. List the desired outcomes.

Example: change the ratio of leadership time spent in response to discipline issues to the time available for curricular leadership.

The project will provide a greater share of K-12 STEM support via Nucleus Student Interns to virtually guide projects/lessons, support programs - i.e. Invention Convention, & monitor Independent Study. Interns will enhance K-6 student support quantity (starting w/ training of 10 Nucleus Student Interns, K-6 student support will increase from an avg. ratio of 1 Sci. teacher: 23 students to 1 Sci. teacher/Nucleus Intern: 18 students) & provide STEM support in K-6 instruction. Interns will provide ongoing STEM coaching of 7-12 students. Expansion of AP Research to Science will triple AP Capstone staff, w/ potential to triple next year’s 12 AP Research students to 36+ by 2018-19. This expansion & STEM Capstone Research Module creation will improve STEM research quality & increase the yearly # of summer STEM research students (now < 20) to eventual inclusion of all 9-12 students (approx. 650). The Mentorship Program has potential to yield 10 x’s the existing # of STEM Mentorships.

ii. What assumptions must be true for this outcome to be realized?

Examples: improvements to school and classroom climate will result in fewer disciplinary instances allowing leadership to devote more time to curricular oversight.

For these outcomes to be realized, the following assumptions must be true: Nucleus Student Interns will be utilized by K-6 classes and students that in the way Writing interns currently have via virtual interactivity via 1:1 Chromebooks, that Nucleus Student Interns will be utilized by 7-12 students in the same way that Writing Interns currently have been via in-person sessions on the 7-12 Campus, that The Nucleus space will successfully serve as a shared 7-12 command center to provide K-12 access to STEM resources (Nucleus Student Interns & virtual lessons) to support study, collaboration, intervention, enrichment & research relative to STEM learning in the way that The Write Place succeeds as a shared 7-12 command center to physically house K-12 supports relative to ELA, that The Nucleus space will serve as a command center for virtual K-6 collaboration, intervention, enrichment, and research relative to STEM learning in the way that The Write Place provides virtual services.

iii. Describe any early efforts you have made to test these assumptions (pilot implementation, etc), or how these are well-supported by the literature.

Project Nucleus will create a physical command center space (The Nucleus) to provide ongoing in-person & virtual access to STEM teachers & trained Nucleus Student Interns & a content-specific space for 7-12 students to engage in targeted independent STEM-related research. The district has already seen success in this model via The Write Place (see uploaded Write Place article), which currently exists on the 7-12 Campus for writing. The Write Place is a physical space on the 7-12 Chagrin Falls Campus established in 2013, which supports K-12 virtual & in-person student remediation, intervention, & enrichment in writing from trained Student Writing Interns & 7-12 ELA staff. Our current 1:1 Chromebook environment enables individual students &/or classes of students to seek writing support from The Write Place 24-7, 7 days/week. The trained Student Writing Interns to-date have helped 1,241 individual via in-person support & 787 students via the Online Writing Lab. The Nucleus Center & trained Nucleus Student Interns will replicate & grow this success in STEM areas. The shared & far-reaching impact of trained Nucleus Student Interns has the potential to improve K-12 STEM learning. Dr. John Hattie’s Ranking on Teaching Effects: Influences & effect sizes related to student achievement (2009) - (see uploaded Hattie Ranking: Teaching Effects) cites that “Providing formative evaluation”, “Comprehensive interventions for learning disabled students”, “Reciprocial teaching”, “Feedback”, & “Spaced vs. mass practice” have the greatest effect size on student achievement. Project Nucleus thoughtfully employs these teaching practices to improve teaching & learning. The Nucleus will be a command center for: interactive STEM research, work refinement - for all students to act upon formative evaluation to refine STEM work in a supported environment, comprehensive interventions to be employed in an individual &/or small-group setting, &/or for spaced individualized ongoing practice via the identified Tiger Time or WIN periods (existing intervention/enrichment periods) w/in Chagrin Falls HS & Chagrin Falls MS, via the support of a STEM teacher &/or Nucleus Student Intern. Nucleus Student Interns will engage in reciprocal teaching & foster this model when working w/ small groups in The Nucleus - virtually or in-person. Student work in The Nucleus supports work w/in our existing Competency-Based Education project (see uploaded CBE Grant Application), to personalize student learning & maximize potential of all students in STEM fields. Project Nucleus will articulate a Nucleus Student Intern Training Program to be implemented in June 2017 w/ a minimum of 10 CFHS students & repeated each June (sustained via reallocation of funds used for Compass Learning licenses as an intervention for struggling STEM students, which would not be renewed if this project is funded). The personalized 24/7 support will improve STEM student learning, to be evidenced in improved state test scores & AP Science exam scores by the last year of Project Nucleus. The Nucleus space affords ongoing opportunity for interactivity between students & Mentors and/or professionals in the field to support student research & our STEM Mentorships. It also allows Nucleus Student Interns the opportunity to model STEM-related concepts for classes of students. Project Nucleus’ shared K-12 training on STEM integration & Project-Based Learning will yield benefits for students each year via interdisciplinary STEM Capstone Research support & K-12 PBL units. Research indicates PBL’s value in utilization of a greater share of resources (see uploaded Research Summary - Value of PBL): "When teachers are trained in PBL methods, they devote more class time to teaching 21st century skills; their students perform at least as well on standardized tests as students engaged in traditional instruction.” (Hixson, Ravitz,
iv. Please provide the most recent instructional spending percentage (from the annual Ohio School Report Card) and discuss any impact you anticipate as a result of this project.

Note: this is the preferred indicator for this goal.

The 2014-15 ODE Report Card reflects the districts instructional spending percentage as 68.5%, which places our district as #79 out of 276 districts. Project Nucleus emphasizes the value of students as instructional resources. While trained Nucleus Student Interns will not be taking the place of our teaching staff, they will be providing 24/7 virtual and in-person interventions and support in STEM fields. We anticipate that the establishment of a Nucleus Student Intern Training program that if offered each summer and the goals of starting with a minimum of 10 Interns and each Intern evidencing a minimum of 50 examples of STEM support, will minimize the need for STEM teacher-provided intervention during the existing intervention/enrichment periods on the 7-12 Campus and/or minimize the need for remedial coursework in STEM areas. It may also eliminate the number of 7-12 students who may need to repeat STEM-related courses due to failure of the course.

v. List any additional indicators that you will use to monitor progress toward your desired outcome. Provide baseline data if available.

These should be specific outcomes, not just the accomplishment of tasks. Example: fewer instances of playground fighting.

Project Nucleus progress relative to our goals in utilizing a greater share of resources in our classrooms will include: an increase in the number of trained Nucleus Student Interns by June 2017 (we currently have 0 and our goal is a minimum of 10), an increase in the number of examples of STEM-support provided virtually and/or in-person evidenced by each Nucleus Student Intern (this program currently does not exist, so we are starting with a baseline of 0 and our goal is a minimum of 50 examples during the 2017-18 school year per Intern), The number of students engaging in a minimum of 1 PBL unit (or more) resulting from the sharing of interdisciplinary PBL units as a result of Project Nucleus funded PBL training, will increase from a handful of existing examples which vary in structure and rigor to all K-12 students experiencing at least 1 PBL unit by the end of the 2017-18 school year.

vi. How are you prepared to alter the course of your project if assumptions prove false or outcomes are not realized?

If assumptions prove false or outcomes are not realized, we are prepared to alter our project in the following ways: Devote additional time to recruitment of Chagrin Falls High School students to become Nucleus Student Interns Administer surveys to K-12 teachers and 7-12 students to determine what needs for support they have relative to use of Nucleus Student Interns Enhance the Nucleus Student Intern Training Program to reflect the survey-identified needs Provide additional coaching support to Nucleus Student Interns who have not met the target goal of at least 50 examples of STEM support per school year Provide additional targeted PBL training to teachers who are not implementing at least 1 PBL unit per year through their addition to the planned yearly PBL and STEM integration training designed for new teachers each summer Use Title IIA funds for additional 1:1 PBL Coaching during the summer from Yellow Springs PBL Coaches and/or to send targeted teachers to Yellow Springs Schools to observe PBL in action To see guidance from Yellow Springs School District Superintendent, Mario Basora in effective PBL implementation, as he has already expressed willingness to support our district work Seek additional feedback and guidance from the Cleveland Clinic, STEM Gelfand Center, and NASA, who have expressed interest in supporting our project (see uploaded Letter of Support for each organization); use feedback and guidance to determine a plan to refine training and/or coaching provided and to more successfully market and recruit students for the STEM mentorships and the Nucleus Intern program Contact administrators of the Keep Engaging Youth in Science (KEYS) Program created in collaboration with the University of Arizona (which has inspired our STEM Mentorship Program and STEM Capstone Research Project) for additional feedback/guidance - see overview YouTube of KEYS here: https://youtu.be/mPX8Oy1m-s (see uploaded KEYS document)

d. Implementing a shared services delivery model

i. List the desired outcomes.

Examples: increase in quality and quantity of employment applications to districts; greater efficiency in delivery of transportation services, etc.

The project will improve K-12 STEM support & grow K-6 staff capacity via Nucleus Student Interns to virtually guide projects/lessons, support programs - i.e. Invention Convention, & monitor Independent Study. Interns will enhance K-6 student support quantity (starting w/training of 10 Nucleus Student Interns, K-6 student support will increase from an avg. ratio of 1 Sci. teacher: 23 students to 1 Sci. teacher/Nucleus Intern: 18 students) & provide STEM support in K-6 instruction. Interns will provide ongoing STEM coaching of 7-12 students. Expansion of AP Research to Science will triple AP Capstone staff, w/ potential to triple next year’s 12 AP Research students to 36+ by 2018-19. This expansion & STEM Capstone Research Module creation will improve STEM research quality & increase the yearly # of summer STEM research students (now <20) to eventual inclusion of all 9-12 students (approx. 650). The Mentorship Program has potential to yield 10 x’s the existing # of STEM Mentorships.

ii. What assumptions must be true for this outcome to be realized?

Example: neighboring districts have overlapping needs in administrative areas that can be combined to create efficiencies.

For these outcomes to be realized, the following assumptions must be true: Nucleus Student Interns will have the same positive impact upon K-6 classes and students that Writing Interns currently have had via virtual interactivity via 1:1 Chromebooks, that Nucleus Student Interns will have the same positive impact upon 7-12 students that Writing Interns currently have had via in-person sessions on the 7-12 Campus, that The Nucleus space will successfully serve as a shared 7-12 command center to physically house study, collaboration, intervention, enrichment and research relative to STEM learning in the way that The Write Place successfully serves as a shared 7-12 command center to physically house study, collaboration, intervention, enrichment, and research relative to ELA, that The Nucleus space will serve as a command center for virtual K-6 collaboration, intervention, enrichment, and research relative to STEM learning in the way that The Write Place provides virtual services.

iii. Describe any early efforts you have made to test these assumptions (pilot implementation, data analysis etc), or how these are well-supported by the literature.

Project Nucleus will create a physical command center space (The Nucleus) to provide ongoing in-person & virtual access to STEM teachers & trained Nucleus Student Interns & a -content-specific space for 7-12 students to engage in targeted independent STEM-related research. The district has already seen success in this model via The Write Place (see uploaded Write Place article), which currently exists on the 7-12 Campus for writing. The Write Place is a physical space on the 7-12 Chagrin Falls Campus established in 2013, which supports K-12 virtual & in-person student remediation, intervention, & enrichment in writing from trained Student Writing Interns & 7-12 ELA staff. Our current 1:1 Chromebook environment enables individual students &/or classes of students to seek writing support from The
Write Place 24-7, 7 days/week. The trained Student Writing Interns to-date have helped 1,241 individual via in-person support & 787 students via the Online Writing Lab. Our proposed Nucleus Center & trained Nucleus Student Interns will replicate & grow this success in STEM areas. The shared and far-reaching impact of the trained Nucleus Student Interns has the potential to improve K-12 STEM learning. Dr. John Hattie’s Ranking on Teaching Effects: Influences and effect sizes related to student achievement (2009) - (see uploaded Hattie Ranking: Teaching Effects) cites that “Providing formative evaluation”, “Comprehensive interventions for learning disabled students”, “Reciprocal teaching”, “Feedback”, & “Spaced vs. mass practice” have the greatest effect size on student achievement. Project Nucleus thoughtfully employs these teaching practices to improve teaching & learning. The Nucleus will be a command center for interactive STEM research, work refinement - for all students to act upon formative evaluation to refine STEM work in a supported environment, comprehensive interventions to be employed in an individual &/or small-group setting, &/or for spaced individualized ongoing practice via the identified Tiger Time or WIN periods (existing intervention/enrichment periods) w/in Chagrin Falls HS & Chagrin Falls MS, via the support of a STEM teacher &/or Nucleus Student Intern. Nucleus Students Interns will engage in reciprocal teaching & foster this model when working with small groups in The Nucleus - virtually or in-person. Student work in The Nucleus will support work w/in our existing Competency-Based Education project (see uploaded CBE Grant Application), to personalize student learning & maximize potential of all students in STEM fields. Project Nucleus will articulate a Nucleus Student Intern Training Program to be implemented in June 2017 w/ a minimum of 10 CFHS students & repeated each June (sustained via reallocation of funds used for Compass Learning licenses as an intervention for struggling STEM students, which would not be renewed if this project is funded). The personalized support available 24/7 will improve student learning in STEM areas, to be evidenced in improved state test scores & AP Science course exam scores by the last year of Project Nucleus implementation. The Nucleus space affords ongoing opportunity for interactivity between students & Mentors and/or professionals in the field to support student research &our STEM Mentorships. It also allows Nucleus Student Interns the opportunity to model STEM-related concepts for classes of students. The Project Nucleus shared K-12 training on STEM integration & Project-Based Learning will yield benefits for students each year via interdisciplinary STEM Capstone Research support & K-12 PBL units. Research indicates PBL’s value in shared service delivery (see uploaded Research Summer - Value of PBL): “When teachers are trained in PBL methods, they devote more class time to teaching 21st century skills; their students perform at least as well on standardized tests as students engaged in traditional instruction.” (Hixson, Ravitz, & Whisman, 2012).

iv. List the specific indicators that you will use to monitor progress toward your desired outcomes.

**These should be measurable changes, not the accomplishment of tasks.**

**Example: consolidation of transportation services between two districts.

Project Nucleus progress relative to our goals in implementing a shared service delivery model will include: the number of trained Nucleus Student Interns by June 2017 (currently 0 and our goal is a minimum of 10), the number of examples of STEM-support provided virtually and/or in-person evidenced by each Nucleus Student Intern (currently 0 - our goal is a minimum of 50 examples during the 2017-18 school year per Intern). The number of students engaging in a minimum of 1 PBL unit (or more) resulting from the sharing of interdisciplinary PBL units as a result of Project Nucleus funded PBL training, will increase to all students by the 2017-18 school year. Through sharing with the Cleveland Clinic, STEM Gelfand Center, and NASA of their best-practice approaches in STEM research and mentorships (see uploaded Letters of Support), we will create a STEM Mentorship Program and STEM Capstone Research Module. These will be tangible creations that will evidence our sharing and collaboration.

v. List and describe pertinent data points that you will use to evaluate the success of your efforts, providing baseline data to be used for future comparison.

**Example: change in the number of school buses or miles travelled.

Project Nucleus progress relative to our goals in utilizing a greater share of resources in our classrooms will include: an increase in the number of trained Nucleus Student Interns by June 2017 - we currently have 0 (baseline) and our goal is a minimum of 10, an increase in the number of examples of STEM-support provided virtually and/or in-person evidenced by each Nucleus Student Intern (this program currently does not exist, so we are starting with a baseline of 0 and our goal is a minimum of 50 examples by the end of the 2017-18 school year per Intern). The number of students engaging in a minimum of 1 PBL unit (or more) resulting from the sharing of interdisciplinary PBL units as a result of Project Nucleus funded PBL training, will increase from a handful of existing examples which vary in structure and rigor to all K-12 students experiencing at least 1 PBL unit by the end of the 2017-18 school year.

vi. How are you prepared to alter the course of your project if assumptions prove false or outcomes are not realized?

If assumptions prove false or outcomes are not realized, we are prepared to alter our project in the following ways: Devote additional time to recruitment of Chagrin Falls High School students to become Nucleus Student Interns Administer surveys to K-12 teachers and 7-12 students to determine what needs they have relative to use of Nucleus Student Interns Enhance the Nucleus Student Intern Training Program to reflect the survey-identified needs Provide additional coaching support to Nucleus Student Interns who have not met the target goal of at least 50 examples of STEM support per school year Provide additional targeted PBL training to teachers who are not implementing at least 1 PBL unit per year through their addition to the planned yearly PBL and STEM integration training designed for new teachers each summer Use Title IIA funds to provide targeted support from Yellow Springs PBL Coaches during the summer &/or provide opportunities for identified teachers to visit Yellow Springs Schools to observe PBL in action Seek guidance from Mario Basora, Superintendent of Yellow Springs Schools, who has already expressed willingness to support our PBL work Seek additional feedback and guidance from the Cleveland Clinic, STEM Gelfand Center, and NASA, who have expressed interest in supporting our project (see uploaded Letter of Support for each organization); use feedback and guidance to determine a plan to refine training and/or coaching provided and to more successfully market and recruit students for the STEM mentorships and the Nucleus Student Intern program Contact administrators of the Keep Engaging Youth in Science (KEYS) Program created in collaboration with the University of Arizona (which has inspired our STEM Mentorship Program and STEM Capstone Research Project) for additional feedback/guidance - see overview YouTube of KEYS here: https://youtu.be/mPXd8Oy1m-s (see uploaded KEYS document)

10. Which of the following best describes the proposed project? - (Select one)

- a. New - Never before implemented
- b. Existing - Never implemented in your community school or school district but proven successful in other educational environments
- c. Replication - Expansion or new implementation of a previous Straight A Project
C) BUDGET AND SUSTAINABILITY

11. Financial Information: All applicants must enter or upload the following supporting information. The information in these documents must correspond to your responses in questions 12-19.

a. Enter a project budget in CCIP (by clicking the link below)

Enter Budget

b. If applicable, upload the Consortium Budget Worksheet (by clicking the Upload Documents link below)

Upload Documents

The project budget is entered directly in CCIP. For consortia, this project budget must reflect the information provided by the applicant in the Consortium Budget Worksheet. Directions for the Financial Impact Table are located on the first tab of the workbook. Applicants must submit one Financial Impact Table with each application. For consortium applications, please add additional sheets instead of submitting separate Financial Impact Tables.

188,262.00 12. What is the amount of this grant request?

13. Provide a brief narrative explanation of the overall budget. Responses should provide a rationale and evidence for each of the budget items and associated costs outlined in the project budget. In no case should the total projected expenses in the budget narrative exceed the total project costs in the budget grid.

See uploaded Project Nucleus Budget Overview The Nucleus DRAFT Rendering for more details Salaries: $79,305 Supports: 1) provision of Substitutes for all K-12 teacher to engage in 4 days of Project-Based Learning (PBL) Training (see uploaded YSSD PD Overview w/ grade &/or dept, 2) compensation @ the daily rate for identified teachers to work w/ The Cleveland Clinic, NASA, and the CWRU Gelfand STEM Center (see uploaded Letters of Support) STEM Capstone during summer (June) 2016 - finalize the STEM Capstone Research Module, the STEM Mentorship Program, & the Nucleus Student Intern Training Program, 3) compensation @ hourly rate to identified teachers in provide Nucleus Student Intern training in June 2016, & 4) payment of 2 Science teachers @ daily rate to attend 5-day June 2016 AP Capstone (Research) Summer Institute Purchased Services: $30,300 Supports: 1) 5 days teacher training - STEM Integration via Gelfand Center - 2016-17 school year, 2) 20 total days of PBL training via Yellow Springs PBL Coaches to all K-12 teachers during 2016-17 school year, 3) June 2016 AP Capstone (Research) training via CollegeBoard for 2 teachers, and 4) travel & accommodations - 2 teachers attending June 2016 AP Capstone (Research) training Supplies: $8,550 Supports: 1) Pasco sets of Science sensors for The Nucleus, 2) set of 10 iPads & charging box for use in The Nucleus Capital Outlay: $70,107 Supports: 1) 5 flat screen monitors & installation of 2 on wall, 2) 3 rolling flat screen stands for remaining 3 flat screens - used against white board, movable as needed w/ 3 Air Squirrels for wireless projection, 3) 3 flip-top white board tables, 4) 1 green screen kit for video production, 5) audio/video conferencing equipment & installation, replacement of existing countertop in lab area, 6) 24 movable adjustable height seats, 6) 3 adjustable height phenolic lab tables on casters, 7) 2 booth seating areas w/ walls to insulate sound + installation, 8) 3 lockable storage cabinets

14. Please provide an estimate of the total costs associated with maintaining this program through each of the five years following the initial grant implementation year (sustainability costs). This is the sum of expenditures from Section A of the Financial Impact Table.

<table>
<thead>
<tr>
<th>Year</th>
<th>Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>2,890.00</td>
</tr>
<tr>
<td>2</td>
<td>2,890.00</td>
</tr>
<tr>
<td>3</td>
<td>2,890.00</td>
</tr>
<tr>
<td>4</td>
<td>3,400.00</td>
</tr>
<tr>
<td>5</td>
<td>11,440.00</td>
</tr>
</tbody>
</table>

15. Please provide a narrative explanation of sustainability costs.

Sustainability costs include any ongoing spending related to the grant project after June 30, 2017. Examples of sustainability costs include annual professional development, staffing costs, equipment maintenance, and software license agreements. To every extent possible, rationale for the specific amounts given should be outlined. The costs outlined in this narrative section should be consistent and verified by the financial documentation submitted and explained in the Financial Impact Table. If the project does not have sustainability costs, applicants should explain why.

While the initial grant-funded Project-Based Learning (PBL) training provided to district teachers, the creation of a STEM Research Module, the development of a Mentorship Program and process, and creation of a Nucleus Student Intern Training Program will be grant-funded, we recognize that the yearly provision of Nucleus Student Intern Training with new cohorts of students each year and the ongoing training of new teachers relative to STEM-integration and Project-Based Learning yield sustainability costs. We have thoughtfully and intentionally planned for a yearly cost for identified teachers to fill these roles. This is the cost for 2 district teachers to implement Nucelus Intern Student Training each summer with new cohorts of CFHS students (2 teachers x 4 days x 6 hours/day x $42.50/hr. = $2040) + the cost of 1 identified teacher trained in STEM integration and PBL via Yellow Springs PBL Coaches to provide 20 hours of teacher training to new teachers each school year after initial training occurs in 2016-17 (1 teacher x 20 hrs x $42.50/hr. = $850) = $2890. This plan will ensure that the Nucelus Student Intern program continues to grow each year and that our initial learning relative to STEM integration and PBL continues to thrive with each passing school year. Project Nucleus invests in our staff and students to provide learning opportunities and remediation that is more individualized, personalized, and meaningful than currently used canned remediation electronic licenses. The remaining Operational savings of $4600 (non-renewal of
Compass Learning licenses for 7-12 Campus) - $2890 (cost of yearly training to support Project Nucleus) = $1710 / per year in FY 2018-2022 as a result of Project Nucleus will be used to support the cost of the Project Nucleus identified Supplies refresh ($1710 x 5 years - $8550).

0 16. What percentage of these costs will be met through cost savings achieved through implementation of the program?

Total cost savings from section B of the Financial Impact Table divided by total sustainability cost from section A of the Financial Impact Table. If the calculated amount is greater than 100, enter 100 here.

17. Please explain how these cost savings will be derived from the program. Applicants who selected spending reductions in the five-year forecast as a goal must identify those expected savings in questions 16 and 17. All spending reductions must be verifiable, permanent, and credible. Explanation of savings must be specific as to staff counts; salary/benefits; equipment costs, etc.

100 18. What percentage of sustainability costs will be met through reallocation of savings from elsewhere in the general budget?

Total reallocation from section C of the Financial Impact Table divided by total sustainability cost from section A of the Financial Impact Table

Note: the responses to questions 16 and 18 must total 100%

19. Please explain the source of these reallocated funds. Reallocation of funds implies that a reduction has been made elsewhere in the budget. Straight A encourages projects to determine up front what can be replaced in order to ensure the life of the innovative project.

D) IMPLEMENTATION

20. Please provide a brief description of the team or individuals responsible for the implementation of this project, including other consortium members or partners.

This response should include a list of qualifications for the applicant and others associated with the grant. Please list key personnel only. If the application is for a consortium or a partnership, the lead should provide information on its ability to manage the grant in an effective and efficient manner. Include the partner/consortium members’ qualifications, skills and experience with innovative project implementation and projects of similar scope.

Enter Implementation Team Key Personnel information by clicking the link below:

Add Implementation Team

For Questions 21-23 please describe each phase of your project including its timeline, and scope of work.

A complete response to these questions will demonstrate awareness of the context in which the project will be implemented and the time it will take to implement the project with fidelity. A strong plan for implementing, communicating and coordinating the project should be apparent, including coordination and communication in and amongst members of the consortium or partnership (if applicable). Not every specific action step need be included, but the outline of the major steps should demonstrate a thoughtful plan for achieving the goals of the project. The timeline should reflect significant and important milestones in an appropriate time frame.

21. Planning

a. Date Range July 2016 - August 2016

b. Scope of activities - include all specific completion benchmarks.

July 2016 - August 2016: Planning for renovation of existing space to transform into The Nucleus with Director of Curriculum, Director of Strategic Initiatives. Chagrin Falls HS Principal, and Director of Communication occurs Board Presentation on the Project Nucleus Scope of Work provided during July 2016 Board of Education Meeting District's Director of Communications creates a press release overview for local media introducing Project Nucleus Director of Strategic Initiatives presents Project Nucleus overview to the Business Advisory Council Initial collaborative meeting with the Cleveland Clinic, Case Western Reserve University's (CWRU) Gelfand STEM Center, and NASA representatives (see uploaded Letters of Support from these organizations) to begin planning for STEM Capstone Research Project Module and STEM Mentorship Program occurs Planning meetings with CWRU Gelfand STEM Center Consultant on STEM Integration PD occur to articulate training plan for the 2016-17 school year Planning meetings with Yellow Springs School District Superintendent, Mario Basora and Yellow Springs PBL Coaches identified to provide our teachers with PBL training to craft Project-Based Learning Training plan for the 2016-17 school year occur - preliminary planning regarding the provision of this training via Yellow Springs have already occurred between Chagrin Falls administration and Yellow Springs Superintendent, Mario Basora - (see uploaded Yellow Springs Article - PBL to learn more about the K-12 PBL training in Yellow Springs and the district’s related success)

22. Implementation(grant funded start-up activities)

a. Date Range August 2016 - June 2017
### E) SUBSTANTIAL IMPACT AND LASTING VALUE

23. Programmatic Sustainability (years following implementation, including institutionalization of program, evaluation and communication of program outcomes)

<table>
<thead>
<tr>
<th>a. Date Range</th>
<th>July 2017 - June 2022</th>
</tr>
</thead>
</table>

| b. Scope of activities | include all specific completion benchmarks |

| Summer 2017, Summer 2018, Summer 2019, Summer 2020, Summer 2021, Summer 2022 | Project Nucleus progress relative to the identified goals will be reported to the Chagrin Falls Board of Education. The yearly progress of Project Nucleus will also be reported to the District Leadership Team at least once per school year, through the 2021-22 school year. The process, scope of work, and potential improvements will be an ongoing investigation to ensure the program continues to grow and further meet the specific needs of the students in Chagrin Falls Exempted Village School District. The annual reviews & iterations of the initiative will also be work to be responsive to the changing nature of our economy & the scientific community. Consistent & continued participation in regional & national STEM conferences, regular communication w/ parents & community stakeholders in STEM fields, & thorough study of new instructional research related to science pedagogy will assist in keeping Project Nucleus as an ideal learning experience for students. Because the first year of this project (2016-17) is our district's year of curricular review in K-12 Science and Research, the ongoing review & refinement of the work started with Project Nucleus will continue on a 5-6 year cycle. Through our continued collaboration w/ the CWRU Gelfand STEM center, The Cleveland Clinic, NASA, and the CollegeBoard (see uploaded Letters of Support from these organizations), we will refine and update our STEM Mentorship and STEM Capstone Research Module within this 5-6 year period, as needed and we will continue to explore additional STEM-related AP courses &/or CCP courses to most appropriately prepare our students. Through the relationship forged w/ Yellow Springs Schools via this grant project, we will have a local in-state sister-district with whom we can collaborate - both in-person and virtually. Their in-state proximity provides a very sustainable way for us to seek needed PBL support. |

| August: Superintendent - Project Nucleus Scope of Work Intro. to K-12 staff at District Opening Day, to Inner Council (Parent Support Organization leaders) Project Nucleus article published - SuperNews District newsletter The Nucleus renovation begins Supplies, Capi­ tal Outlay materials ordered 2nd mtg. Cleveland Clinic, CWRU, and NASA representatives to begin planning for STEM Capstone Research Project Module & STEM Mentorship Program September: Yellow Springs SD (YSSD) Project-Based Learning (PBL) training Part I 9/30/16 PD Day - STEM integration training K-6 / 7-12 teachers October: YSSD PBL training Part 2 November: Finalize STEM Capstone Research Project outline w/ Cleveland Clinic, CWRU, & NASA reps Develop Curriculum Outlines - Nucleus Intern Training & STEM Capstone Research Project Module 11/0/16 PD Day - 1/2 day STEM Integration training K-6 / 7-12 teachers / 1/2 day YSSD PBL training K-6 /7-12 teachers December: Propose new classes to Bd. of Education - Nucleus Intern & STEM Research Capstone courses 3rd meeting w/ Cleveland Clinic, CWRU, & NASA reps. to refine STEM Mentorship Program, ID Mentor list, establish process for yearly recruiting/vetting January: Nucleus Student Intern offering shared w/ current 10-11th grade students, STEM Research Module - current 8th-11th graders: both shared via HS Newsletter & Scheduling Meetings w/ families 1/30/17 PD Day - STEM Integration training 1/2 day K-6 / 7-12 teachers Students schedule - 2017-18 school yr & register as Nucleus Student Intern February: Presentation to Board - STEM Mentorship Prog. STEM Mentorship Night for students in grades 9-11 & families 2/17/17 PD Day - STEM Integration training 1 day K-6, 7-12, YSSD PBL Training Part 4 - 1/2 day K-6, 7-12 - ID of K-12 PBL Projects May-June 2017: STEM teachers attend AP Research Summer Institute Nucleus Intern Training created 2017-18 Nucleus Student Interns trained The Nucleus finished STEM Research Module and STEM Mentorship Finalized |

### 24. Describe the expected changes to the instructional and/or organizational practices in your institution.

The response should illustrate the critical instructional and/or organizational changes that will result from implementation of the grant and the impact of these changes. These changes can include permanent changes to current district processes, new processes that will be incorporated or the removal of redundant processes. The response may also outline the expected change in behaviors of individuals (changes to classroom practice, collaboration across district boundaries, changes to a typical work day for specific staff members, etc.). The expected changes should be realistic and significant in moving the institution forward.

**Please enter your response below:**

Project Nucleus will promote the use of project based learning & community organization/business engagement in realistic & meaningful learning experiences across the district. It will provide high school students the opportunity to develop leadership qualities as they serve as tutors for fellow students throughout the school district & it will empower them as problem solvers with amazing opportunities to research, identify, & implement solutions to problems in a mentored environment with resources from the field of their study. These changes will develop a culture that promotes the growth mindset as students leading & receiving support will both see the benefits of hard work and collaboration. It will also tighten the bond between the district & the community as businesses & organizations will have direct relationships & teaching opportunities with students. Students will become empowered with research skills, increased knowledge on their field of study, & more prepared for college and their careers, which will require the utilization of problem solving, collaboration, & critical thinking skills developed through Project Nucleus. The Project-Based Learning and STEM Integration training will have a long-lasting impact upon teaching & learning across our district. While the tangible products of the grant project (STEM Research Capstone Project Modules, the STEM Mentorship Program, and the Nucleus Student Intern Training Program) will continue to be used & replicated, the interdisciplinary approach to instruction & research will be reflected in all of our new K-12 work. Development of The Nucleus will help students & teachers to see the transformation of teaching & learning roles & promote partnership of departments in supporting students. The project will promote student agency in seeking support relative to STEM content research via the Nucleus and/or writing support via The Write Place. Students will become selective consumers of support and guidance.

25. Please provide the name and contact information for the person and/or organization who will oversee the evaluation of this project.

Projects may be evaluated either internally or externally. However, evaluation must be ongoing throughout the entire period of sustainability and have the capacity to provide the Ohio Department of Education with clear metrics related to each selected goal.
26. Describe the overall plan for evaluation, including plans for data collection, underlying research rationale, measurement timelines and methods of analysis.

This plan should include the methodology for measuring all of the project outcomes. Applicants should make sure to outline quantitative approaches to assess progress and measure the overall impact of the project proposal. The response should provide a clear outline of the methods, process, timelines and data requirements for the final analysis of the project’s progress, success or shortfall. The applicant should provide information on how the lessons learned from the project can and will be shared with other education providers in Ohio. Note: A complete and comprehensive version of the evaluation plan must be submitted to ODE by all selected projects.

As the Project Nucleus lead evaluator, the Director of Curriculum will begin the project evaluation process by first compiling baseline data relative to student test scores. She has already gathered this data in preparation for this grant proposal. First, the compilation test data occurred and includes: 5th and 8th grade OAA and AIR Science Test scores, AIR Physical Science End of Course Test scores, ACT Science subtest scores, and AP Biology, AP Chemistry, AP Physics, AP Environmental Science Exam score. Science/Math scores continue to be the lowest subtests on state testing in our district (see uploaded 2013-14 & 2014-15 CFVSD ODE Report Card Overviews) in 5th & 8th grade, & most recently on the 2014-15 Algebra I & Physical Science EOC’s. As of 2014-15 data, science AP exam scores continue to be the lowest scores - 48 of the 158 AP Exams in AP Science courses we offer (AP Physics I, AP Chemistry, AP Biology, AP Environmental Science) were scores of a 1 or 2 - meaning that 30.3% of AP exams in Science were scores of a 1 or 2, whereas 82.1% of all AP Exams last year were scores of a 3 or higher. Project evaluation initial data compilation by the Director of Curriculum relative to STEM learning and research opportunities was started in preparation for this grant proposal and will continue into the 2016-17 school year. It will include the collection of baseline data relative to the number of students engaged in STEM-related mentorships each year (less than 5), the number of students engaged in STEM-related AP Research (currently none) and/or other STEM-related research projects, the number of minutes available to HS students for Science intervention outside of the science class period in K-6 and 7-12. The baseline data relative to STEM programming has already been collect: no K-12 systemic approach to tiered STEM Research currently exists & our existing AP Capstone program exists only in ELA. The baseline data relative to existing resources for 7-12 Science intervention included 0 Student Interns in STEM fields and only the use of Compass Learning and the renewal cost of Compass Learning student licenses purchased for Chagrin Falls High Schools and Chagrin Falls Middle School used for Science Intervention has already been collected for grant proposal purposes - a cost $4600 per year. By the start of the 2017-18 school year, we will evidence a minimum of 10 trained Nucleus Student Interns, a list of at least 15 STEM Mentors, & 2 STEM teachers who are credentialed in AP Research. By the end of the 2017-18 school year, at least 25 students will have piloted the STEM Research Capstone Module, all K-12 students will be participated in at least 1 Project-Based Learning Unit, & each Nucleus Student Intern will evidence a minimum of 50 examples of STEM support (virtual &/or in-person). Progress toward these goals will be presented via a Project Nucleus Update to the Board of Education presentation in Summer 2018. Continued progress toward these goals & toward the aforementioned improvement of STEM-related state & AP test scores to be evidenced by the 2021-22 school year will be compiled in collaboration with the Chagrin Falls High School Principal and will be reported to the Board of Education during these update reports in Summer 2019, Summer 2020, Summer 2021, and Summer 2022, as well as to the District Leadership Team at least once per school year. The yearly Project Nucleus Progress Update to the Board of Education presentations will be posted to our district webpage & will be accessible to the public. As a member of the Innovative Learning Network (ILN), Chagrin Falls Schools is well-positioned to share lessons learned and resources created as a result of Project Nucleus via the ongoing ILN meetings throughout each school year. Each of these meetings encourages participating districts to share district success and challenges in a very collegial professional learning community environment.

27. Please describe the likelihood that this project, if successful, can be scaled-up, expanded and/or replicated. Include a description of potential replications both within the district or collaborative group, as well as an estimation of the probability that this solution will prove useful to others. Discuss the possibility of publications, etc., to make others aware of what has been learned in this project.

The response should provide an explanation of the time and effort it would take to implement the project in another district, as well as any plans to share lessons learned with other districts. To every extent possible, applicants should outline how this project can become part of a model so that other districts across the state can take advantage of the learnings from this proposed innovative project. If there is a plan to increase the scale and scope of the project within the district or consortium, it should be noted here.

The Project Nucleus scope of work was based upon evidenced success of a similar project within our district in the area of writing. In 2013, The Write Place (see uploaded Write Place article) was created as a writing center to provide a supported space for students to refine writing across content areas. While this initially included a computer lab and was staffed by a rotating schedule of ELA teachers, it evolved as our district moved into a 1:1 Chromebook environment and Chagrin Falls High School students were trained as Writing Interns. This grew student support beyond the walls of The Write Place and beyond the school day. Thus, ELA teachers & Student Writing Interns work in-person and virtually to refine student writing across the district throughout the school year. The trained Student Writing Interns to-date have helped 1,241 individual via in-person support & 787 students via the Online Writing Lab. Our proposed Nucleus Center & trained Nucleus Student Interns will replicate and grow this success in STEM areas. The concrete nature of not only the Nucleus Student Intern Training, the STEM Capstone research Module, the STEM Mentorship Program, and examples of PBL units across K-12 would serve as powerful replication tools for other districts &/or schools across the state and/or country. Our creation of The Nucleus and implementation of these project facets within a single school year, coupled with our district's willingness to share these created resources suggests that seeding our initial project would have the potential to grow similar projects across the state. Our district currently welcomes visits relative to our Ohio Schools to Watch status (Chagrin Falls Middle), our 1:1 Chromebook Initiative, our use of Responsive Classroom, and our participation in the ILN & the Competency-Based Education Grant project. We have a history of sharing & collaborating with others & would be willing to present our work on a local, state, or national level.

By virtue of applying for the Straight A Fund, all applicants agree to participate in the overall evaluation of the Straight A Fund for the duration of the evaluation time frame. The Governing Board of the Straight A Fund reserves the right to conduct an evaluation of the project and request additional information in the form of data, surveys, interviews, focus groups and other related data on behalf of the General Assembly, Governor and other interested parties for an overall evaluation of the Straight A Fund.
PROGRAM ASSURANCES: I agree, on behalf of this applicant and any or all identified consortium members or partners, that all supporting documents contain information approved by a relevant executive board or its equivalent and to abide by all assurances outlined in the Straight A Assurances (available in the document library section of the CCP).
No consortium contacts added yet. Please add a new consortium contact using the form below.
No partners added yet. Please add a new partner by using the form below.
<table>
<thead>
<tr>
<th>First Name</th>
<th>Last Name</th>
<th>Title</th>
<th>Responsibilities</th>
<th>Qualifications</th>
<th>Prior Relevant Experience</th>
<th>Education</th>
<th>% FTE on Project</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rebecca</td>
<td>Quinn</td>
<td>Director of Curriculum / Gifted Coordinator - Chagrin Falls Exempted Village Schools</td>
<td>Rebecca will oversee the scope of work and budget for Project Nucleus. She will organize and help to facilitate the teacher professional development within the project in collaboration with Principals, the District Leadership Team, the Building Leadership Teams, and Teacher-Based Teams. This includes the grant-funded training related to STEM Integration (CWRU), Project-Based Learning (via the Buck Institute), and AP Research Summer Institute Training (CollegeBoard). Rebecca will facilitate collaboration with identified representatives from the Cleveland Clinic, CWRU Gelfand STEM Center, and NASA to 1) identify a list of mentors from each organization, establish a STEM Mentorship program, create a process for mentor training, and identify a Mentor recruiting and vetting mechanism to be employed each year, 2) identify a STEM Research Project Module to implement with students in the 2017-18 school year. She will also work with identified teachers within Chagrin Falls High School to create a Nucleus Student Intern Training Program. She will work with Principals, teachers, and counselors to recruit Nucleus Student Interns and STEM Mentorship placements each year. She will work</td>
<td>Rebecca has taught Science and Social Studies at the middle school level and K-8 Gifted students. Additionally, she has been a school district administrator in the following roles, since 2001: 2001-2004 - Rock Hill School District Three (Rock Hill, SC); Served as the Saluda Trail Middle School Assistant Principal 2004-2010 - Cleveland Heights/University Heights Public Schools: Served as Gifted Coordinator, K-12 (5 years) Served as Director of Gifted/Enrichment, Arts and Middle Level Education (1 year) 2010-2013 - Willoughby-Eastlake City Schools: Served as Director of Curriculum, K-12 (3 years) Jennings Foundation grant writer and manager Race to the Top grant writer/manager, Title IIA grant fund manager 2013-present - Chagrin Falls Exempted Village Schools: Serve as current Director of Curriculum and Gifted Coordinator, K-12</td>
<td>Rebecca has written and successfully implemented a myriad of grants since 2005. During her tenure within Cleveland Heights-University Heights Schools, she authored a Knowledgeworks grant to fund summer enrichment programming and implemented it successfully, wrote and implemented 2 Ohio Department of Education Gifted Education Javits' Projects Grants, and wrote and implemented a Jennings Foundation Grant in the area of approaches to collaborative, inquiry-based science. During her tenure within Willoughby-Eastlake City Schools, she authored and implemented a Jennings Foundation Grant in the area of Science, with the purpose of training teachers to engage students in problem-based hands-on Science instruction. She also authored and implemented the district's Race to the Top Grant and oversaw the district's Title IIA</td>
<td>Masters in Ed. Leadership - St. Joseph's Univ. BS in Elem. w/ Gifted Ed. - Kent State Univ. Superintendent's Licensure Prog. - Cleveland State</td>
<td>10</td>
<td></td>
</tr>
</tbody>
</table>
closely with the Superintendent, Central Office Administration, Principals, and the Director of Communication to ensure that consistent and clear communication about the work within Project Nucleus.

Grant Funds, Rebecca continued her work in identifying areas of need and seeking grant funding to support meaningful projects when she joined the Chagrin Falls Exempted Village Schools in 2013. She took over as the Race to the Top grant manager when she joined the district. She then went on to write a grant to local support organizations to provide partial teacher scholarships in partnership with Ashland University for 11 staff members to earn their Gifted Endorsement. She recently wrote and received a QFI Grant for the purpose in growing Arabic instruction within Chagrin Falls High School, which she will oversee. She also wrote and received an ODE Competency-Based Education Grant for the REALIZE U Project. She will continue to oversee grant implementation and management. Rebecca sees how the work within the Competency-Based Education Grant would truly be complemented by the work described within Project Nucleus.
Christopher Woofter currently is the Director of Operations and Strategic Initiatives. This is a new role for the district that encompasses the responsibility of daily operations under Food Services, Transportation, Custodial, Grounds, and Maintenance. Additionally this role includes Employment, Human Resources, Strategic Planning and coordination of the new Ohio Teacher Evaluation System. Mr. Woofter served as the principal of the Chagrin Falls Intermediate School for two school years from 2011 - 2013. Prior to that, he served as an administrator in Nordonia City Schools. In total he has fourteen years of administrative experience at the building level. In the role of principal, Mr. Woofter served on many projects and initiatives involving school planning with school based teams. In addition, Christopher has served as an Adjunct Professor for The University of Akron for Project GRAD, a special learning initiative funded by the Bill and Melinda Gates foundation as well as recently teaching graduate classes for prospective principals. Mr. Woofter has presented at the Capitol Conference for the Ohio School Board Association on district technology implementation. He currently participates on the district Professional Development Committee helping to plan and evaluate professional development within the Chagrin Schools as well as leading with the district Technology Committee. Mr. Woofter has served as World Language Committee Chair and attended the National Chinese Language Conference in Washington D.C. He has also traveled to China in partnership with Chagrin’s sister school; Huipu Education Group. This past year, Mr. Woofter Master's in Ed. Admin. & a BS in Elem. Ed. from Univ. of Akron; Completed the School Improvement Program at Yale University.

Christopher Woofter
Director of Strategic Initiatives

Christopher will work with the district's Director of Technology and the district's Director of Curriculum to plan and implement purchase of project-funded technology and equipment to create The Nucleus. He will direct any construction/installation of equipment needed within The Nucleus. He will also work with the Director of Curriculum to communicate Project Nucleus project updates to the Business Advisory Council, which he facilitates.
was selected by the United States Department of Education to serve as federal grant evaluator for Race to the Top grant reviews.

Michael Daugherty
Director of Technology
Mr. Daugherty will be responsible for selecting the devices, networking equipment, and all other facets of technology as it relates to this project. He will work with the district’s Director of Curriculum and the district’s Director of Strategic Initiatives to plan and implement purchase of project-funded technology. He will work with the district’s Director of Curriculum and the HS Principal to assist with purchase and training of staff on grant-funded equipment within The Nucleus.

Michael has worked within the district for several years, collaborating with Central Office administrators, Principals, and K-12 teachers. He has led training initiatives (i.e. Google Certification) and widespread tech installation (i.e. 1:1 Chromebooks).

Michael received the #BestEdTech Technology Coordinator Innovator Award from OETC in January 2014. The #BestEdTech Awards were established to recognize the educational technology innovations of schools, colleges, programs, teachers, administrators, students and tech coordinators from around the state, particularly on social media. Michael and the 6th grade teacher team won this award this year for their successful implementation of a Google 1:1 Collaborative Environment initially in the 2014015 school year. These Awards were distributed by Ohio Board of Regents Assistant Deputy Chancellor of Educational Technology. Michael also wrote a Straight A Fund Grant which was awarded to grow our 1:1 Chromebook environment. He feels as if Project Nucleus’ use of our 1:1 Chromebooks to extend STEM support to students 24:7 across grades K-
| Steven Ast | Chagrin Falls High School Principal | Steven will oversee the instructional implementation, selection process for potential interns, and the day to day operation of the Nucleus as principal at Chagrin Falls High School. He will work with Mrs. Quinn, the high school science department, and the district administrative team on the planning of the professional development activities, scheduling of students, development of science enrichment days throughout the district, and with key stakeholders to promote the growth of the program. | Steven Ast has been principal of Chagrin Falls High School for five years and was assistant principal there for a year prior. He served as an administrative intern for one year at Normandy High School and taught as a social studies teacher at Mayfield High School. He has served on the Ohio Association of Secondary School Administrators Instructional Leadership Conference planning committee for the past two years. | During Steven’s tenure, he has leveraged collaboration with teachers and members of the district administration team, to accomplish the following at Chagrin Falls High School: increased its technology integration by instituting a 1:1 Chromebook initiative, implemented a new master schedule featuring Tiger Time (intervention and enrichment time) twice a week, supported the development of a writing internship program, developed an effective Response to Intervention program, increased college planning events and activities for students and their families, and increased the course offerings to reflect the needs of students preparation for college and career readiness. These efforts were all the result of strategic joint activity between teachers, administration, and stakeholders, which evidences this district’s ability to thoughtfully plan | Masters of Educ. - University of Akron BS in Business Admin. - Ashland University Principal & Supt. license coursework - Cleve. State Univ. |
new programs to increase student learning and engagement.