Business Plan for LEAN Tech Academy

What is a Business Plan?

A business plan is a key tool in which every charter school operator should invest. The Business Plan communicates the school's objectives to the Board, staff, funders, outside consultants and anyone else who may need to understand what the school is about.

The charter application itself is a major part of the Business Plan. The Business Plan is how the operation works and how things get done.

Who Should Be Involved in Writing the Plan?

In the case of LEAN, the Founding Board, Governing Board, the CEO/ Board President will be heavily involved. Input will be gathered from as many of LEAN's stakeholders as possible; including parents, staff, chartering authorities, potential investors and consultants.

Value of a Business Plan.

Our Business Plan will be updated yearly or as needed. We feel this is one of the most critical elements for the success of LEAN Tech Academy. The plan is a road map, in that, the more closely followed the faster we will reach our destination and expected outcomes.

Internal Business Plan.

An Internal Business Plan is written as a guide for the internal workings of LEAN Tech Academy and is written with great detail or specificity. Some of this specificity will be dealing with the organization of LEAN Tech Academy to accomplish its plans.

External Business Plan.

An External Business Plan is used to raise funds and solicit support and needs to have a sales pitch spin to it in order to entice the user to invest and/or support LEAN Tech Academy.

LEAN'S OUTLINE OF ITS BUSINESS PLAN

The Business Plan will need to cover key areas as outlined. An overly complex or long Business Plan is not necessarily better. Although the Charter Application is a separate document LEAN will be able to utilize some of the information for the Business Plan. However, our charter application is static whereas our business plan should be revised early. A business plan is more detailed and focuses more on operations whereas the charter application is more about academics.

This outline closely follows the charter application in key areas:

- 1. Executive Summary
- 2. Mission Statement
- 3. The School
 - a. Description
 - b. Services
 - c. Instructional focus goal
 - d. Governance/Administration
- Marketing Plan
 - a. Marketing analysis
 - i. Potential students
 - ii. Profile of students
 - iii. Is the school viable based on research
 - iv. How to focus on target market so its serviceable
 - v. Make sure there is a real demand for the school
 - vi. Primary and secondary data {Primary can be surveys, interviews and observations}. Secondary is already compiled data.
 - b. Competitive analysis
 - c. Market strategy
 - i. Fundraising
 - Appendix 21.1 "Mardi Gras Adult Prom" March 27, 2015
 - 2. Appendix 21.2 "Fundraising Plan Application Years 0 and 1"
 - ii. Grants
 - 1. Appendix 21.3 21st Century Community Learning Centers"
 - 2. Appendix 21.4 "Step by Step Guidelines for Writing a Proposal" Jim Sheehan Fishertechnik STEM lab products - Studica, Inc.
 - iii. Marketing Plan
 - iv. Lending Institutions Letters of Financial Opportunities
 - Appendix 21.5 "Reinvestment Fund, Inc." and "WSFS"
- 5. Management Plan
 - a. Form of school organization
 - b. Board of Directors
 - c. Administrative and Organizational Structure
 - d. Resumes of key personnel
 - e. Staffing plan/number of employees
 - f. Key partners
 - g. Use consultants
 - h. Make sure someone is responsible for each area
 - i. Make sure all skilled areas are filled or can be covered

- j. Organizational chart
- k. Make sure marketing, operations and finance are covered
- I. Responsibilities and expectations
- m. Managing partner relationships

6. Operations Plan

- a. Logistics
 - i. School schedule
 - ii. Arrival time
 - iii. Traffic flow between classes
 - iv. Will teachers and students rotate
 - v. Lunch schedule
 - vi. Gym schedule
 - vii. Library schedule
 - viii. Dismissal
 - ix. Extended day activities
 - x. Holiday observed
 - xi. Travel to and from school
 - xii. Transportation options
- b. Administration
- c. Physical Plan
- d. Security

7. Facility Plan

- a. Needs Assessment
 - i. Square footage
 - ii. Outdoor parking
 - iii. Geographic focus proximity to other institutions
- b. Short-Term Facility Plan
- c. Long-Term Facility Plan
- d. Site Description
- e. Contingency Plan

8. Financial Plan

- a. Accounting system in place
- b. Review on a regular basis
- c. Operating Budget
- d. Balance Sheet
- e. Capital Budget
- f. Always have documentation
- g. Financial health of LEAN

- h. Prepared by financial consultant and approved by the Governing Board
- i. Cash flow forms

9. Professional Support Services

- a. Financial Specialist, Accountant or Chief Executive Officer
- b. Attorney
- c. Insurance Agent
- d. Educational Support Series

10. Administration

- a. Answering the telephone
- b. Receiving visitors
- c. Tracking attendance
- d. Filing report with authorities

11. Physical Plant

- a. Plan
- b. Repairs/maintenance
- c. Installing furniture/equipment
- d. Construction/renovations

LEAN Tech Academy Business Plan Narrative

LTA will be located in New Castle County. LEAN Tech Academy consults with its Advisory Board member, Stephen J. Dobraniecki, a commercial realtor with Emory Hill, Inc., frequently regarding suitable and affordable properties for year one and succeeding years to accommodate our increase in enrollment each year. The Board has identified several geographic locations in New Castle County which represent a diverse socio-economic population and potentially underserved students who are interested in a strong college and career ready curriculum. The school will utilize operating funds provided by the Delaware Department of Education (DDOE) and annual local revenues, per formula calculations, to pay the occupancy costs and maintain the facility.

LEAN's plan for managing the financial operations of the school in accordance with the State Budget and Accounting Manual and Title 29, Chapter 69 will be outlined in the LTA Accounting and Policies and Procedures Manual upon approval of the charter application. This manual will specify which individuals will have direct responsibility in each of these operations and also includes internal controls for budgeting and financial management. The contracted Financial Specialist, A & E Business Solutions, LLC, will manage the financial operations including budgeting, financial services, payroll, accounts payables, accounts receivables and will assist with staffing under the direction of the CEO. During the startup year of operation, our charter

school Finance Specialist will work directly with LTA's School Leader and CEO to develop a projected budget for each fiscal year, for review and approval by the Governing Board.

LTA intends to hire its teachers as state employees, and will offer compensation packages, retirement, and benefits through the State of Delaware. Teachers and staff will be paid similar to other school district pay scales in New Castle County, based on years of experience and education levels, by DDOE and Carl Perkins Grants for its CTE curriculum.

The school will take advantage of the state purchasing system in order to maximize its buying power. The school may independently contract for certain goods and services as needed and appropriate. The CEO along with the Financial Specialist will regularly analyze enrollment, expenditures, and financial management practices, and will report this information to the Board on a monthly basis. To ensure financial solvency, particularly during the planning years and first four years of operation, the Board intends to aggressively implement a fundraising plan, and to apply for operating and capital loans to supplement available resources for school operations. Additional annual local revenues, per formula calculations, to pay the operating, payroll, transportation and occupancy costs will be budgeted properly and utilized to ensure that fiscal viability is maintained. LTA will search for a national celebrity as its sponsor and spokesperson for its matchless high school fitness and nutrition curriculum. LTA will partner with community and global businesses, educational institutions, organizations, churches and community civic associations. LTA will seek financial guidance from Namaste School in Chicago. It will replicate its list of financial benefactors where applicable to help enrich and finance its health and fitness projects and programs. Many of these stakeholders will donate to LTA financially, give in-kind contributions to the school and participate through community events, open houses, Board opportunities etc. LTA will rely on its fundraising and awareness arm of the school, Ethel LEAN Holmes-Ward Foundation, Inc., for additional financial support as needed. LEAN Tech Academy earned its 501(c) 3 IRS tax exempt status in September of 2014. When approved, we will be able to hit the grown running raising and securing funding for our programs.

LTA will follow the 14 Del. C §508 regarding transporting students to school. LTA will receive from the State a payment equal to 75% of the average cost per student of transportation within the vocational district where the charter school is located. LTA will publicly bid for the best student transportation contract. LTA will cooperate with the State to ensure that the implementation of this charter does not result in inefficient use of state appropriations for public school transportation. LEAN shall submit bus routes to the State Board for its approval.



December 16, 2014

Patsy Pipkin-Perry LEAN Tech Academy

Re: Letter of Interest: LEAN Tech Academy

Dear Ms. Pipkin-Perry:

Thank you for contacting The Reinvestment Fund, Inc. regarding your need for financing for the development of LEAN Tech Academy. TRF understands that LEAN Tech Academy is seeking approval to open in fall 2016 in New Castle County, Delaware. TRF has had a preliminary conservation about the school's plan for opening, and we would be pleased to receive a full application for financing from the school.

As you may be aware, TRF is a national leader in the financing of neighborhood revitalization and over the past 16 years charter school facility financing has become a core part of TRF's lending activity. To date, TRF has closed approximately \$298 million in loans to 80 charter schools in Pennsylvania, Delaware, Maryland, New Jersey, and Washington, D.C. Loan funds are available to finance facility projects, including acquisition, renovation, construction and leasehold improvements.

We look forward to working with you on this project to improve education opportunities for families in Delaware.

Sincerely,

Molly Melloh

Loan Officer



WSFS Bank Center 500 Delaware Avenue Wilmington, Delaware 19801 302-792-6000 www.wsfsbank.com

December 04, 2014

Patsy Pipkin-Perry President LEAN Tech Academy P.O. Box 5962 Wilmington, DE 19714

Dear Ms. Pipkin-Perry:

On behalf of the Associates of WSFS Bank, I would like to thank you for considering us as a sponsor to LEAN Tech Academy as we truly value the work that you do and appreciate the opportunity to support the advancement of your mission.

WSFS Bank understands that corporate giving is vital to every community and your request was very carefully considered. While we recognize the importance of your organization, our resources are extremely limited and it is with deep regret that we will be unable to assist this year.

We would very much like you to consider applying for a contribution again in the future and would be most grateful if you would keep us informed of your upcoming programs and events.

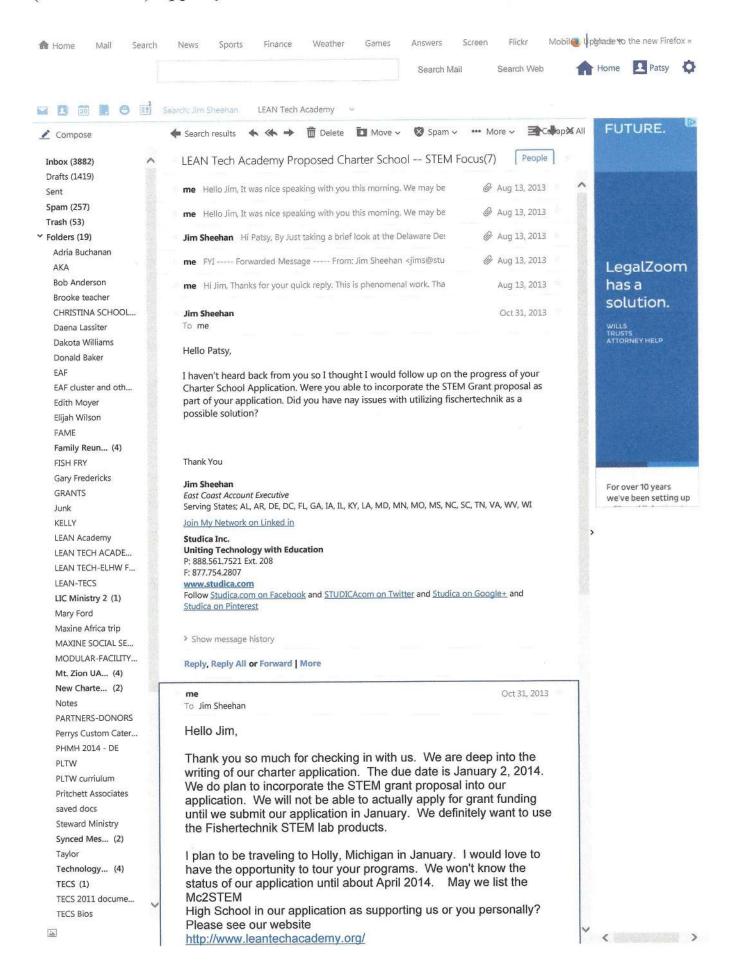
We wish you continued success with all of your future endeavors.

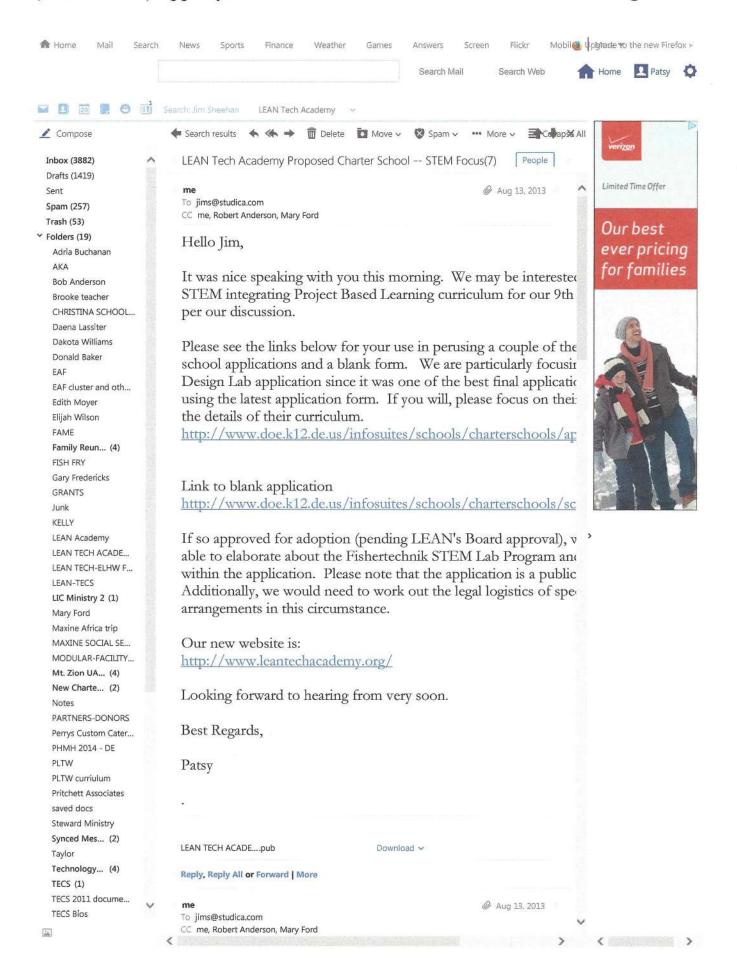
Sincerely,

Vernita L. Dorsey Vice President

Director of Community Strategy

VDorsey@wsfsbank.com





https://us-mg5.mail.yahoo.com/neo/launch?.rand=bnktkfr3qq5p0 12/20/2014

STEP BY STEP GUIDELINES FOR WRITING A GRANT PROPOSAL

With the current emphasis on increasing STEM education efforts, and the need to address the new Common Core Standards which have gone into effect in most states, it is imperative that schools act aggressively to secure the funding required to help them reach these goals. While a little research and patience are required, there are in fact numerous avenues of funding available to schools who wish to implement new projects that will serve these efforts—such as the **fischertechnik STEM Lab Program**—in their classrooms.

Some of the sources which are available to schools include foundation or public sources, such as Carl D. Perkins Funds, and Title II Funds (aka "Improving Teacher Quality State Grants"), as well as from numerous corporate sponsors such as Wells Fargo, Lockheed-Martin and Verizon. If you can just set aside an afternoon or two to perform a few careful web searches, using select keywords and terms such as "Grants", "STEM Grants", "STEM Funding" "Education Grants" and so on (as well as searching for grants specific to your state or region), you should discover a wealth of results. Skim the sites and listings to see which sources on first glance seem like your school may qualify to receive them. Once you have located a few sources of funding which you believe you may be eligible for, carefully read their program solicitation and requirements in more detail to see if your school will in fact meet the criteria to qualify.

After you have decided upon a few sources to pursue that you feel you have the best chance of obtaining funding from, your next step is to apply for the actual funds. In most cases, this will require you to prepare a **Grant Proposal**. What follows is a run-down of the important steps in preparing your grant proposal:

- 1) Download the grant application and any related documents from the funding source website.
- Completely read the application and other documents, making note of any and all requirements spelled out, including:
 - a) Format related requirements—page limit, font size, margin settings, line spacing, etc.
 - b) Copies required—how many copies of the proposal will you need to submit?
 - c) Priority requirements specified.
 - d) Any dates/deadlines/time frames for submitting any and all parts of your application.
 - e) Required signatures—who must sign off on this?
 - f) Review any criteria for assessment which you will need to address in your proposal. Many grant applications will include a rubrics with this criteria spelled out.
- 3) Do your **research** and assemble all the information you will need, including:
 - a) Specifics on which students this is targeted to address (i.e. your demographics—Male? Female? Age? etc.), as well as achievement related data for this target group.

- b) Information and findings that help to support the use of the program or products you wish to implement. An example would be to provide research that supports the use of hands on, project based learning as being highly important for a successful STEM Education program being used to support your schools interest in the fischertechnik STEM Lab Program.
- c) Any other useful information you can find, such as statistics on student performance, and other relevant data to help support your project/program choice.
- 4) Create a Project Narrative—i.e., describe what you want to do, what you seek to accomplish, and do so in a manner that you inspire the funding source to give you the money for your project. Essentially, you will need to 'sell' them on the merits of what you seek funding for. This should include:
 - Any pertinent data from your research in step 3, such as demographics, etc., to help support your argument for funding.
 - b) A narrative that addresses any and all criteria as spelled out in the RFP/RFA scoring rubric. (RFP = Request for Proposal, RFA = Request for Application) Please note that if the rubric and the RFA/RFP differ at all (as in one mentions a criteria point not addressed in the other), the advice of the experts is to try to address both.
 - c) Cover Page, Table of Contents, headings, lists, tables, etc. The bottom line is that you need to make sure the document clearly spells out the specifics of what you are trying to accomplish. We will touch upon this in more detail later in this document.
 - d) Make sure all relevant parties who have a stake in the outcome are included in this process.
- 5) Create a narrative budget. Like the project narrative, this should also tell a story and act as another way to inspire your funding source to provide the grant to you. It will spell out how the money you seek will be specifically allocated based upon what you wish to undertake, and will again keep an eye to the requirements as spelled out in the application. As in all parts of the proposal, it is extremely important that you double check all figures provided for accuracy.
- 6) Check Your Work! This should go without saying, but when applying for a grant, mistakes and formatting issues will count against you, as will of course a weak narrative. With this in mind, please take the time to go through the following steps: a) Check your spelling and check your grammar
 - b) Check the formatting for consistency and that it meets the specified requirements.
 - c) Make any revisions and corrections.
 - d) After reviewing the document yourself, have another qualified person involved in the grant process perform their own review. Have them carefully check the above areas, as well as paying special attention to the narrative elements. If the narrative needs to be stronger, take the time to revise as is necessary.
 - e) Once any corrections and/or revisions have been made, share the completed application with any other parties involved in the grant process for their review as well. As in the above

step, if further corrections or revisions are suggested, please address them before proceeding. Your final version of the application should be polished, mistake free, and make a compelling argument for why your school should be granted these funds.

7) Complete and file the application. Make sure that any and all required parties have provided their signatures. Also make sure not only that you have submitted the application before the indicated deadline, but that you have made sure to allow enough time for it to arrive at the destination before that deadline date. Don't make the mistake of assuming it is enough to simply have it postmarked on the deadline, it must be in the hands of the decision makers at this time.

More on Creating Your Proposal

IMPORTANT—One very important point we must address is that whatever solution you are seeking funding for—whether it is the fischertechnik STEM Lab Program, National Instruments myDAQ hardware, Adobe software, or any other commercially available solution, you will want to minimize any mention of brands or trade names, and avoid focusing on the product by name. Instead, describe what the solution (aka, product) you seek funding for will actually do to benefit your school. As you will see in the following pages, you will describe the solution in more generic terms throughout your narrative, until you get to the area addressing specifics of your proposed solution.

The proposal itself will normally feature several consistent elements. This will include the following:

Cover Page—the first page of the proposal. This page should include:

- a) The title of your project (for example, "Using Project Based STEM Education to Increase Students Technical Literacy and Career Readiness")
- b) The complete name and address for the funding source/foundation/RFP/RFA which you are seeking the grant from
- c) Your school or districts complete name, address and contact information. This should also include the name of the primary contact person at your school/district, along with phone and fax numbers and an email address.

Table of Contents—the second page of the proposal. Most word processing programs will feature heading and function options to help you create this page and make it easy to navigate by clicking on the various headings.

Cover Letter—this will act as a summary page, and in general it should be no longer than a single page in length. Like a standard cover letter, this will have the date, the name and address of the funding organization/foundation, etc., and a salutation at the top of the page. After this you should provide the summary which will start by introducing your school/district. Next, it should state the problem you wish to address (for example to increase STEM literacy and skills among students and enhance their ability to pursue a STEM related career path and course of study), state the solution you seek to get

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funding for (such as introducing a project-based, STEM education program), and **state how much money you will need** from the organization to help to fund this solution. Follow this with your complimentary close and your name and contact information.

If you are unsure of how the cover letter portion should look, please feel free to review one of the numerous cover letter templates which are readily available on the internet.

Proposal—this is where you get into the meat of the document. Ideally, you will address the following areas:

What is the Problem? First, you need to answer this core question, which is "why do you need this funding?" It is best to quickly and clearly state the problem which you wish to address with the funds you are seeking.

For example, you might state the percentage of students in your district currently pursuing STEM related programs, and compare that to the percentage based on currently projected needs for workers proficient in STEM related fields in your state or region, as well as on a national level. You could also state how the US as a whole is falling behind other countries in the percentage of students pursuing STEM related studies and careers, and that this percentage needs to increase to insure that we as a nation can continue to provide the necessary technological innovations. You could also argue how helping students to engage in STEM activities that motivate them to pursue STEM career paths help to insure their own job readiness, the health of our economy as a whole, and as a result help to provide for our national security.

Why Does This Problem Need to Be Addressed? --You would then provide some context on why this is important. This is a good place to use statistics and research examples. Following on the example above, you could provide percentages for students in your district pursuing STEM programs compared to percentages in other districts, across the state, nationally or even internationally. You could then go on to point out how it is widely regarded that STEM success in college is based upon students becoming involved in STEM education programs in at least Middle or High School. You could also offer projections for growth in STEM based careers compared with the much slower growth projected in non-STEM related fields. Again, as there is a wealth of information to support these ideas, use statistics and cite specific examples from research. Introduce the general solution you would like to implement to address this problem, such as offering your students a comprehensive, project based STEM education class that will engage and motivate them, and also help them to make the connections between the concepts being studied and their real-world applications. At this point you are still remaining general, and not yet naming a specific product or solution (such as the fischertechnik STEM Lab Program), but will do so later in the narrative.

Charts, Comparisons and other Proof— While you will use statistics throughout this proposal, it's also useful to include visual elements, such as charts or graphs, that clearly and concisely help to illustrate the argument you are making. Whichever method you choose, you should provide examples that help to justify the solution you wish to implement and receive funding for.

What Will the Solution Need to Address? – This is where you should detail the specific things any proposed solution will need to target to help address this problem.

What will the solution be?—for example, a hands-on, project-based STEM education class designed to meet current Common Core Standards that will use real-world scenarios to engage students, and also seek to promote creativity, teamwork, critical thinking and problem-solving. Who is it meant to help? --for example, middle school students in your district.

How long with this solution/project be?—in this example we will say that the program will be a daily single period STEM education class that integrates science with math, reading, writing and other skill areas, and which is designed to cover 90 fifty-minute periods, or approximately 75 total hours of instruction.

Are there any parameters/constraints to this solution? —will you need to provide a specific number of teachers to assist with this, will they require any professional development, travel for training (as well as associated expenses such as lodging), etc.

What Specifically Is Your Proposed Solution? —at this point you can now discuss your proposed solution in specifics. Mention all the 'W's—what will it do, who is it directed towards, who is involved and when will it occur.

For example, you could now clearly state that the solution you wish to implement is called the *fischertechnik Middle School STEM Lab Program*, a hands-on, project based learning program that contains classroom curriculum used in conjunction with the fischertechnik construction system, and which was specifically designed to meet a variety of academic standards, including current Common Core Standards. You could go on to say that you propose offering it to a total of 'X' number of seventh and eighth grade students at 'X' number of middle schools within your district. If the program is to be implemented in phases or is expected to expand in scope, you should mention that as well. Mention how many teachers/schools/administrators will be involved and provide details. And makes sure to discuss when you plan to begin this proposed solution once you receive your funding.

If you were designing your own program or solution, you would also want to state who specifically was involved in creating it. In the case of the fischertechnik STEM Lab example, you could discuss how the curriculum was especially created by noted educator Tom White, who has been involved in teaching STEM since the 1970s, as well as designing programs for educational institutions and industry.

What Are Your Goals? —define the outcomes that you wish to achieve with this project. The clearer you specify the goals you hope to reach, the better. This is where you want to really engage the reader, your potential funding source, by enthusiastically conveying how this program/project can help your students and how it will help to provide a more enriching academic experience. Ideally, you should outline several specific goals, but usually no more than half a dozen.

Objectives—In relation to this, you will also want to outline your specific objectives—those measureable things you will do that will each have a timeline attached, and which will support you in

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reaching your goals. You would also note which specific people will be involved in meeting each objective. In your narrative, you will dedicate a paragraph or so to each. Some examples of objectives would include things such as "needs assessment", "purchase of the fischertechnik STEM Lab Program kits", or "program evaluation".

Next you should provide very specific details on any components you are planning on purchasing to use for your program. In the case of the **fischertechnik STEM Lab Program** example we have been referring to throughout, you would use something similar to the following:

What is the fischertechnik STEM Lab Program?

The fischertechnik STEM Lab Program offers an ideal integration of project-based learning and standards-based curriculum. Created to promote inquiry, design and problem solving, this program was especially developed for use with the fischertechnik construction system. It was purposefully created to meet Common Core Standards for Math, Reading and Writing as well as the National Science Education Standards, and standards of ISTE, ITEEA. The program features cross-curricular content that helps students to understand the relationship of the subjects they study, and to answer the questions "Why do I need to know this?" and "Where will I ever use this?"

The fischertechnik STEM Lab Program provides for a hands-on learning experience through the use of project-based curriculum that allows for deep exploration of a problem. The projects contained in the fischertechnik STEM Lab Program were designed to allow different student groups to develop several distinct solutions to the same problem. The problem presents the student with an opportunity to plan, organize and conduct research. Enabling activities help to provide students with needed skills and knowledge "just in time". Students utilize their research in the design, prototyping, testing, evaluation, and redesign of a solution. Furthermore, as the students proceed through the various project themes, different skill areas and subjects are addressed, each area being more complex than the one before. Each day of activities in these sub-projects provides building blocks of learning which the students will use in completing a large scale project at the end which requires them to see the big picture and how everything fits together.

As was noted previously, the curriculum for the fischertechnik STEM Lab Program was designed especially around the flexible and innovative fischertechnik construction system, which students use to build the various models and prototypes called for in the projects. This system is unique, as unlike most other construction systems which simply stack, it was designed with an engineering mindset, and features a core component that allows attachment from all six sides. Pieces are designed to slide and lock into place for added stability. The wide range of different parts included in each fischertechnik STEM Lab kit allow for the building of highly unique and specific designs, and thus almost limitless creative possibilities. It is also worth mentioning that fischertechnik was a pioneer in the area of programmable robotic models, introducing their original robotics sets for use with the pre-Macintosh era Apple computers. Today, the

fischertechnik system is still highly prized for allowing the creation of sophisticated automation simulations and prototypes.

Use of the project-based fischertechnik STEM Lab Program can help to provide students with the preparation necessary for successful entry into college programs. Studies have shown college students who have participated in STEM programs in middle and high school earn higher GPAs, have better retention and are better prepared for the rigors of college study.

Features and Benefits of the fischertechnik STEM Lab Program:

- The fischertechnik STEM Lab Program was purposefully created to meet Common Core Standards for Math, Reading and Writing as well as the National Science Education Standards, and standards of ISTE, ITEEA.
- The fischertechnik STEM Lab Program is a project-based learning program, created especially to promote essential skill areas such as teamwork, inquiry, design, and problem solving.
- The fischertechnik STEM Lab Program is a turn-key or customizable solution, and each set includes all the physical and instructional materials you will need to provide an effective, and engaging standards focused STEM class.
- The fischertechnik STEM Lab Program is available in both Middle School and High School modules, both of which feature complete, day by day curriculum, and assessment materials.
- The fischertechnik STEM Lab Program utilizes the unique fischertechnik construction system, which is used worldwide in primary, secondary and higher educational settings for exploring STEM related concepts, as well as by numerous companies for industrial simulation and training purposes.

Curriculum Materials:

The curriculum for the fischertechnik STEM Lab Program is available in two different modules—one for middle school, and one for high school:

- The fischertechnik Middle School STEM Lab is designed to provide material for 90 days of a standard, 50 minute class period, or approximately 75 classroom hours.
- The fischertechnik High School STEM Lab is designed to provide material for 180 days of a standard 50 minute class period, or approximately 150 classroom hours.
- The curriculum for each module can be followed day-by-day to offer a turn-key solution, or it can be customized to fit your needs.
- The curriculum for both modules is broken down into a series of project themes, where different skills and subjects are addressed, each of which is subsequently more complex than the one before.

- Each day of activities in these sub-projects provides building blocks of learning which the students will use in completing a large scale project at the end which requires them to see the big picture and how everything fits together.
- Each project theme clearly spells out—for both students and teachers— o The purpose of the specific project o The concepts to be addressed
 - An outline of exactly what will be covered in the project
 - An essential question, which will require students to understand all the parts of the project to answer O A real-world scenario
 - A daily plan, which provides the expectations for the project as a whole and a guideline of what needs to be accomplished in each step
 - Standards for each project theme Assessment guidelines and rubrics

Components:

Every fischertechnik STEM Lab Set contains all the fischertechnik parts and components which will be required during the course of the various projects, including the robotic interface and the programming software.

- Each fischertechnik Middle School STEM Lab set contains an assortment of 1313
 fischertechnik components, including various wheels, blocks, panels pulleys, axles, O-rings,
 wires, plugs, worm gears, clamps, cranks, 6-9V motors, a photo resistor, girders, a motor
 reducing gearbox, 2 encoder motors, an ultra sonic distance sensor, a color sensor, an I-R
 track sensor, rack and pinions, ball lamps, switches, flexible tracks, mounting plates, a solar
 module, a solar-micromotor, and more.
- Each fischertechnik High School STEM Lab contains an assortment of 1639 fischertechnik components, including various wheels, blocks, panels pulleys, axles, O-rings, wires, plugs, worm gears, clamps, cranks, 6-9V motors, a photo resistor, girders, a motor reducing gearbox, 2 encoder motors, an ultra sonic distance sensor, a color sensor, an I-R track sensor, rack and pinions, ball lamps, switches, flexible tracks, mounting plates, a compressor, pneumatic and compressor cylinders, 3/2 way solenoid valves, and more.
- Each individual fischertechnik Middle School STEM Lab set is designed to provide sufficient material for use by a team of two students.
- Each individual fischertechnik High School STEM Lab set is designed to provide sufficient material for use by a team of two to four students.

Hardware Platform:

The programmable robotic interface used with the fischertechnik system is the **ROBO TX Controller**. The ROBO TX Controller features include the following:

- 32-bit ARM 9 processor (200 MHz)
- Storage capacity: 8 MB RAM, 2 MB flash
- Weight only 90g
- 8 Universal inputs: Digital, analog 0-9V DC, analog 0-5kO
- 4 fast counting inputs: Digital, frequency up to 1kHz
- 4 motor outputs, 9V, 250mA: Speed infinitely variable, short circuit proof, alternatively 8 individual outputs
- Integrated Bluetooth radio interface (2.4 GHz, range about 10 m).
- 2 expansion connections: I2C and RS 485 for coupling of additional ROBO TX controllers
- Display: 128x64 pixel, monochrome
- USB interface: USB 2.0 (1.1 compatible), max. 12 MB, including mini-USB socket connector
- Programmable with "ROBO Pro Software" included on curriculum disc
- While designed to be used with ROBO Pro software, it is also possible to program the ROBO TX Controller with LabVIEW, Java, Basic and C languages.
- Includes USB connection cable.

Software Platform:

ROBO Pro programming software is included with each fischertechnik STEM Lab Program set for use with the ROBO TX Controller. The graphic programming language ROBO Pro provides all the key elements of a modern programming language, such as arrays, functions, recursions, objects, asynchronous events and quasiparallel processing, making it a useful tool even for professional programmers. The software is designed to enable the user to quickly begin programming through the use of simple flow charts consisting of various software building blocks. Programs are translated directly into machine language for efficient execution of even the most complex programs. ROBO Pro makes it easy to write teach-in programs or exchange data with other Windows software. ROBO Pro software is compatible with Windows XP, Vista and 7.

Evaluation of Program/Project—in this section you should outline the process and procedure you will follow to evaluate how successful you have been in reaching your goals and meeting your objectives. This can involve the collection of academic performance related data prior to beginning the program, at various points after, and on up to the completion. It could also include such things as having the students take part in career assessment exercises, such as completing the Strong Interest Inventory prior to taking, and upon completing this program.

Budget for the Proposed Program/Project—this section should include a budget narrative and a budget chart. The budget narrative will document exactly what needs to be paid for, whether it be the purchase of a physical item, such as the fischertechnik STEM Lab sets, as well as any required training, shipping, additional personnel, etc. As with all parts of the grant process, but perhaps more so than anywhere else, it is very important that you are accurate with all information, and realistic about all costs. The

budget chart should simply and clearly provide a line for each item or activity you seek funding for, the per unit cost of each, the subtotal for each, and of course a grand total.

Budget Chart example:

Item	Quantity	Cost Per Unit	Sub Total
fischertechnik Middle School STEM Lab			
fischertechnik High School STEM Lab			
TOTAL FUNDING REQUESTED			\$

Additional Information

Here are a few sites with additional information on the grant writing process, which you may find helpful:

Ten Simple Rules for Getting Grants—Authors Philip E. Bourne and Leo M. Chalupa—a concise and helpful guide through this process. In general, the rules presented here are generic, transcending funding institutions and national boundaries:

http://www.ploscompbiol.org/article/info:doi/10.1371/journal.pcbi.0020012

Free Webinar—Grant Writing 101: Guidelines for Writing Competitive Grants --from the '4Buku.com' website, here is a webinar you can download or view. While not education specific, you may still find this helpful if you are unfamiliar with navigating this process: http://www.4buku.com/free-webinar-grant-writing-101-pdf.html

A Guide for Proposal Writing from the National Science Foundation —While the information applies specifically to seeking NSF grants, you might find the information contained here useful in preparing proposals for other funding sources as well: http://www.nsf.gov/pubs/2004/nsf04016/nsf04016.pdf

After School Alliance STEM Funding Brief: as there is no such thing as too much information, here is a link to a downloadable PDF guide to provide insights regarding STEM funding for afterschool programs: http://www.afterschoolalliance.org/STEM-Funding-Brief-10182012.pdf

Grant Proposal Research Sources for STEM Programs and Activities

One of the most important areas of the grant proposal process is conducting the research needed to put together your project narrative. While in no way exhaustive, we have compiled a selection of very

informative sources which you can use as a starting point for this research. This grouping focuses on the areas of STEM education and Project Based Learning, and should provide you with a wealth of useful information to use in any proposal seeking funding for STEM focused projects, such as outfitting your school with the **fischertechnik STEM Lab Program**.

National Academies Press -- The following are links to just a few of the books which can be purchased in printed form, or downloaded for free in PDF format, from the National Academies Press website. The three links below are for publications specifically focused on improving STEM education:

Successful K-12 STEM Education: Identifying Effective Approaches in Science, Technology, Engineering, and Mathematics -- Authors: Committee on Highly Successful Schools or Programs in K-12 STEM Education; National Research Council: http://www.nap.edu/catalog.php?record id=13158

Abridged description (from the National Academies Press website): "Successful K-12 STEM Education defines a framework for understanding "success" in K-12 STEM education. The book focuses its analysis on the science and mathematics parts of STEM and outlines criteria for identifying effective STEM schools and programs. Because a school's success should be defined by and measured relative to its goals, the book identifies three important goals that share certain elements, including learning STEM content and practices, developing positive dispositions toward STEM, and preparing students to be lifelong learners. A successful STEM program would increase the number of students who ultimately pursue advanced degrees and careers in STEM fields, enhance the STEM-capable workforce, and boost STEM literacy for all students. It is also critical to broaden the participation of women and minorities in STEM fields."

Monitoring Progress Toward Successful K-12 STEM Education: A Nation Advancing? — Authors:
Committee on the Evaluation Framework for Successful K-12 STEM Education; Board on Science
Education; Board on Testing and Assessment; Division of Behavioral and Social Sciences and Education;
National Research Council: http://www.nap.edu/catalog.php?record_id=13509

Abridged description (from the National Academies Press website): "Following a 2011 report by the National Research Council (NRC) on successful K-12 education in science, technology, engineering, and mathematics (STEM), Congress asked the National Science Foundation to identify methods for tracking progress toward the report's recommendations. In response, the NRC convened the Committee on an Evaluation Framework for Successful K-12 STEM Education to take on this assignment. The committee developed 14 indicators linked to the 2011 report's recommendations. By providing a focused set of key indicators related to students' access to quality learning, educator's capacity, and policy and funding initiatives in STEM, the committee addresses the need for research and data that can be used to monitor progress in K-12 STEM education and make informed decisions about improving it. Monitoring Progress Toward Successful K-12 STEM Education: A Nation Advancing? summarizes the 14 indicators and tracks progress towards the initial report's recommendations. Promising Practices in Undergraduate Science, Technology, Engineering, and Mathematics Education: Summary of Two Workshops -- Authors: Natalie Nielsen, Rapporteur; Planning Committee on Evidence on Selected Innovations in Undergraduate STEM Education; National Research Council: http://www.nap.edu/catalog.php?record id=13099#description

Abridged description (from the **National Academies Press** website): "The National Research Council (NRC) convened two public workshops to examine the impact and effectiveness of selected STEM undergraduate education innovations. This volume summarizes the workshops, which addressed such topics as the link between learning goals and evidence; promising practices at the individual faculty and

institutional levels; classroom-based promising practices; and professional development for graduate students, new faculty, and veteran faculty. The workshops concluded with a broader examination of the barriers and opportunities associated with systemic change."

<u>A Compendium of Best Practice K-12 STEM Education Programs</u>—Bayer Corporation US—discusses various K-12 Best Practice Programs, and includes contact information and listings for numerous STEM focused groups and organizations: http://www.bayerus.com/msms/web_docs/Compendium.pdf

STEM Education Coalition – this organization, representing all sectors of the technological workforce, works to support STEM programs for teachers and students at the U. S. Department of Education, the National Science Foundation, and other agencies that offer STEM related programs. http://www.stemedcoalition.org/; STEM Resources: http://www.stemedcoalition.org/reports/

Journal of STEM Education: Innovations and Research -- The Journal of STEM Education: Innovations and Research is a half yearly, peer-reviewed publication for educators in Science, Technology, Engineering, and Mathematics (STEM) education. The journal emphasizes real-world case studies that focus on issues that are relevant and important to STEM practitioners. http://ojs.jstem.org/index.php?journal=JSTEM

National Science Board-here is a link to a PDF version of their "STEM Education Recommendations to the Obama Administration", July 30, 2009:

http://www.nsf.gov/nsb/publications/2009/01 10 stem rec obama.pdf

Why is STEM Education Important? —Gathering Genius/NV STEM Coalition: http://www.nvstem.org/about-us/why-stem/

STEM Education Matters: Resources, Stats and Infographics —Author: Katrina Stevens, LessonCast.org http://lessoncast.org/2011/12/17/why-stem-education-matters-resources-and-statistics/

The STEM Dilemma—a very useful infographic document highlighting our need as a country to maintain a steady pipeline of STEM-capable graduates:

http://awesome.good.is/transparency/web/1107/stemeducation/flash.html

STEM Connector—billed as a one stop shop for STEM related information, this site offers many useful resources: http://www.stemconnector.org/

STEM Education Caucus – bipartisan Congressional caucus currently chaired by Dan Lipinski (D) and Roscoe Bartlett (R) http://stemedcaucus2.org/

Per the caucus: "Effective Science, Technology, Engineering and Mathematics (STEM) Education is critical. Today, an understanding of scientific and mathematical principles, a working knowledge of computer hardware and software, and the problem solving skills developed by

courses in STEM are necessary for most jobs. Therefore, STEM education is an enormous and pressing need.

Science, Technology, Engineering and Mathematics (STEM) Education is responsible for providing our country with three kinds of intellectual capital:

- Scientists and engineers who will continue the research and development that is central to the economic growth of our country
- Technologically proficient workers who are capable of dealing with the demands of a science based, high technology workforce; and
- Scientifically literate voters and citizens who make intelligent decisions about public policy and who understand the world around them."

The State of STEM and Jobs - Author Brian Kelly, US News and World Report, September 21, 2012. An overview of the first national 'STEM Education and Employment Conference' in Dallas, TX, and some of the conclusions arrived at during this summit:

http://www.usnews.com/news/articles/2012/09/21/thestate-of-stem-and-jobs

Related Video: U.S. News STEM Conference Links Education and Jobs - http://www.usnews.com/news/articles/2012/09/24/us-news-stem-conference-links-education-and-jobs

US News and World Report STEM Education Blog: http://www.usnews.com/news/blogs/stemeducation

ASTRA/ Alliance for Science and Technology Research in America: among other things, a great source for up-to-the-minute STEM news, especially regarding STEM funding: http://www.aboutastra.org/

State Innovation Vital Signs 2013—report cards to provide state specific information that can be useful in crafting your grant proposal, and which help to illustrate the importance of scientific research to state and local economies, job growth, innovation, our standard of living, and national security: http://www.usinnovation.org/State-stem-ed-reports

Leaders & Laggards: A State-by-State Report Card on Public Postsecondary Education —"There is a **growing skepticism** among employers about whether those lucky enough to graduate have acquired the skills and knowledge necessary for success in the 21st century economy." Includes downloadable PDF version of the entire report: http://icw.uschamber.com/reportcard/

Change the Equation STEM Vital Signs—yet another yardstick for measuring the health of the K-12 learning enterprise, state by state: http://vitalsigns.changetheequation.org/

What is Project Based Learning? --Per Wikipedia: "Project-based learning, or PBL, is a collaborative education style facilitated by teachers, aimed at increasing student's retention of content in a way that is directly engaging, through projects applicable to life outside of the classroom. Project Based Learning was promoted by <a href="https://doi.org/10.1007/jhc.2007/

of that time. Project-based learning is an instructional method that provides students with complex tasks based on challenging questions or problems that involve the students' problem solving, decision making, investigative skills, and reflection that includes teacher facilitation, but not direction. PBL is focused on questions that drive students to encounter the central concepts and principles of a subject in a hands-on method. Students form their own investigation of a guiding question, allowing students to develop valuable research skills as students engage in design, problem solving, decision making, and investigative activities. Through Project-based learning, students learn from these experiences and apply them to the world outside their classroom. PBL emphasizes creative thinking skills by allowing students to find that there are many ways to solve a problem." See more at http://en.wikipedia.org/wiki/Projectbased_learning

Seven Essentials for Project-Based Learning—by John Larmer and John R. Mergendoller http://www.ascd.org/publications/educational-leadership/sept10/vol68/num01/Seven Essentials for Project-Based Learning.aspx

When is PBL More Effective? A Meta-synthesis of Meta-analyses Comparing PBL to Conventional

<u>Classrooms</u>— Author: Johannes Strobel, Purdue University, Indiana, USA, and Angela van Barneveld, Concordia University, Montreal, Canada. To quote: "Findings indicated that PBL (Project Based Learning) was superior when it comes to long-term retention, skill development and satisfaction of students and teachers..." http://docs.lib.purdue.edu/ijpbl/vol3/iss1/4/

Project-Based Learning Research Review – Author: Vanessa Vega, Edutopia/What Works in Education website sponsored by the George Lucas Educational Foundation. http://www.edutopia.org/pblresearch-learning-outcomes#definition

Project-Based Learning: What Experts Say—Author: Suzie Boss, Edutopia/What Works in Education website sponsored by the George Lucas Educational Foundation. http://www.edutopia.org/projectbased-learning-experts

Grant Sources

Here are just a few sources we have come across which offer funding for STEM related programs. We list these for your information only, and we cannot guarantee approval by these sources of any grant requests. To the best of our knowledge, this information is current, but in some cases a resource may be listed which is no longer available. We ask that you carefully read all requirements, dates, and other specifications to determine if your school or proposed program would be eligible for such funding before deciding to move forward with preparing any proposal.

Keep in mind also that this is but a starting point. Many major corporations and manufacturers who depend on STEM literate workers have their own programs in place as well. If your school is located in a community where such corporations employ workers, you may want to contact them directly to see if

they offer any sorts of grants or assistance. Likewise, such corporations may be able to provide you with a list of the skill set they seek from potential employees, and you may be able to use

U.S. Department of Education Programs: as we are only skimming the surface of what is available in the list below, here is a link to the actual D.O.E. webpage where you can download a PDF guide to all current programs in place, not only for STEM of course, but for countless other areas as well: http://www2.ed.gov/programs/gtep/index.html

Grants.gov: Grants.gov is your source to FIND and APPLY for federal grants: http://www.grants.gov/

Carl D. Perkins Career and Technical Education Act (aka the Perkins Act): The "Title II" section is specifically targeted to provide funding for the administration and implementation of tech prep programs. Each year, Congress appropriates roughly \$104 million in Title II funds. http://cte.ed.gov/stategrants/index.cfm

National Science Foundation Funding: many different types of funding are available here for STEM related educational research: http://www.nsf.gov/funding/

Gaining Early Awareness and Readiness for Undergraduate Programs (GEAR UP): GEAR UP is a discretionary grant program designed to increase the number of low-income students who are prepared to enter and succeed in postsecondary education. It provides 6 year grants to states and partnerships to offer services at high-poverty middle & high schools: http://www2.ed.gov/programs/gearup/index.html

21st Century Community Learning Centers: This program supports the creation of community learning centers that provide academic enrichment opportunities during non-school hours for children, particularly students who attend high-poverty and low-performing schools. This award is made to State Education Agencies (SEAs), so local educational agencies and non-profits should apply directly to their SEA for sub-grants: http://www2.ed.gov/programs/21stcclc/index.html

Innovative Program Grants: This is a state-administered formula grant program designed to improve student academic achievement and the quality of education for all students. The parameters are rather broad, but to receive funding, programs must be: (1) tied to promoting challenging academic achievement standards; (2) used to improve student academic achievement; and (3) part of an overall education reform strategy. This award is made to State Education Agencies (SEAs), so local educational agencies and non-profits should apply directly to their SEA for sub-grants: http://www2.ed.gov/programs/innovative/index.html

Magnet School Assistance Program: administered through local educational agencies for public schools. The program supports capacity development—the ability of a school to help all its students meet more challenging standards—through professional development and other activities that will enable the continued operation of the magnet schools at a high performance level after funding ends. The program also supports the implementation of courses of instruction in magnet schools that strengthen students' knowledge of academic subjects and their grasp of tangible and marketable vocational skills: http://www2.ed.gov/programs/magnet/index.html

Mathematics and Science Partnerships: The program supports projects to improve math and science education through partnerships, which include, at a minimum, a high-need Local Educational Agency (LEA) and the mathematics, science, or engineering department of an Institute of Higher Education (IHE). Partnerships between high-need school districts and the science, technology, engineering, and mathematics (STEM) faculty in institutions of higher education are at the core of these improvement efforts. Other partners may include state education agencies, public charter schools or other public schools, businesses, and nonprofit or for-profit organizations concerned with mathematics and science education. Awards are made to State Education Agencies (SEAs). Partnerships of local education agencies (LEAs) and institutions of higher education (IHEs) may apply to states for sub-grants:

http://www2.ed.gov/programs/mathsci/index.html

Small, Rural School Achievement Program: The purpose of this program is to provide financial assistance to rural districts to assist them in meeting their state's definition of adequate yearly progress (AYP). Applicants do not compete but rather are entitled to funds if they meet basic eligibility requirements. Eligibility is restricted by statute. Awards are issued annually directly to eligible LEAs on a formula basis: http://www2.ed.gov/programs/reapsrsa/index.html

Asbury-Warren Foundation: The Foundation primarily funds educational and religious organizations in Appalachia: http://asburywarren.org/; http://asburywarren.org/)

Motorola: supports non-profit educational programs that create access to 21st century technology and help students learn the accompanying skills they need to succeed: http://responsibility.motorola.com/index.php/community/education-1/

Berkshire Taconic Community Foundation: provides funding for communities in Berkshire County, MA; Columbia and northeast Dutchess County, NY; and northwest Litchfield County, CT. Please see listing on site for specific education focused opportunities:

http://www.berkshiretaconic.org/Grantseekers/index.shtml

Duke Energy Foundation Annual Grants: supports K-12 education focused on science, technology, engineering and math (STEM) within specific counties of NC, SC, OH, KY, IN, and FL: http://www.dukeenergy.com/community/foundation/areas-of-focus.asp

Vulcan Materials Company Foundation: The Foundation gives consideration to proposals designed to help maintain students' curiosity and excitement about the worlds of math and science and to understand the relevance of math and science to society, and is also supportive of efforts to link these subjects to their application in the workplace:

http://www.vulcanmaterials.com/sustainability/community/vulcan-foundation#education

Bridgestone Americas Trust Fund: supports a wide variety of important charities in the United States, particularly in those markets it calls home. While contributions are made to nearly a hundred organizations each year, the Trust Fund focuses on organizations with missions supporting education, the environment/conservation, and programs for children

http://www.bridgestonefirestone.com/community/trustfund/index.html

Toshiba America Foundation: with the belief that science and mathematics are exciting fields in which all students can succeed with the proper tools and instruction, Toshiba America Foundation (TAF) grants fund the projects ideas and materials teachers need to innovate in their math and science classrooms. Deadlines differ based upon grade level: http://www.toshiba.com/taf/about.jsp

S.D. Bechtel, Jr. Foundation: the foundation's STEM Education Program seeks to strengthen educational systems to develop STEM-literate Californians and an innovative and competitive workforce: http://www.sdbjrfoundation.org/program-areas/science-technology-engineering-and-math-stemeducation/

Tellabs Foundation: support local and national education initiatives, with a focus on engineering, science, mathematics and technology: http://www.tellabs.com/about/foundation_guidelines.shtml

Carnegie Corporation of New York: educational funding centered on creating pathways to educational and economic opportunity by generating systemic change across a K-16 continuum, with particular emphasis on secondary and higher education: http://carnegie.org/grants/grantseekers/

Brinker International, Inc.: one of the world's leading casual dining restaurant companies (Chili's, Maggiano's, Romano's Macaroni Grill), they believe in giving back to the communities in which they live and work: http://www.brinker.com/contact/charitable_requests.asp#gui

Verizon Foundation Education Grants: support schools and 501c3 organizations focused on improving student achievement in Science, Technology, Engineering and Math. Applications are reviewed on a continuous calendar year basis from January through October. Please allow up to 90 days for a final decision. Please note that as of January 2013, all applications are considered on an invitation-only basis. Please visit site for complete details:

http://www.verizonfoundation.org/grants/guidelines/#Eligibility%20Details

Westinghouse N-Visioning a Brighter Future Grant Program for STEM—specifically for schools and teachers who want to use hands-on projects to help students learn more about STEM. Deadline is November 15, 2013. Download PDF for more details:

http://www.westinghousenuclear.com/docs/n vision grant.pdf

Boeing Local Grants (Various)—focused on the development of school leadership, teachers, programs, and curricula that focus on advancing students' capacity for lifelong learning, and their overall educational outcomes, especially in subjects that can prepare them for STEM fields.

Philadelphia, PA –deadline is September 1, 2012:

http://www.boeing.com/companyoffices/aboutus/community/assets/PennLocalGuidelines.pdf

Washington, D.C. area—deadline is August 1, 2013:

http://www.boeing.com/companyoffices/aboutus/community/assets/dc_local_guidelines.pdf

Oklahoma—deadline is May 15, 2013:

http://www.boeing.com/companyoffices/aboutus/community/assets/OkNvLocalGuidelines.pdf

South Carolina—deadline is May 15, 2013:

http://www.boeing.com/companyoffices/aboutus/community/assets/SCarolinaLocalGuidelines.pdf

Florida—deadline is April 30, 2013: http://www.k-

12schoolgrants.com/corporategrants/Boeing Florida Local Grant 2013/schoolgrant 18.aspx

Missouri—deadline is April 30, 2013: http://www.k-12schoolgrants.com/State/Missouri/prefix MO.aspx

Lockheed Martin Corporation Grants –for educational purposes, they focus on funding public elementary/secondary schools delivering standards-based science, technology, engineering and math (STEM) education to students in K-16. Among other stipulations is that schools must be operated or located in an area where Lockheed Martin has employees or business interests. Currently accepting applications year round: http://www.lockheedmartin.com/us/who-weare/community/philanthropy/funding-guidelines.html

American Honda Foundation: supports youth education with a specific focus on STEM related subjects. Public school districts, public and private elementary and secondary schools and 501c3 classified nonprofit organizations are all eligible to apply:

http://corporate.honda.com/america/philanthropy.aspx?id=ahf

Wells Fargo Community Investment—guidelines will vary by state—click on your state to see what options are available: https://www.wellsfargo.com/about/charitable/index.jhtml

Bill & Melinda Gates Foundation: in terms of education within the United States, their primary focus is on ensuring that all students graduate from high school prepared for college and have an opportunity to earn a postsecondary degree with labor-market value: http://www.gatesfoundation.org/What-webo/US-Program/College-Ready-Education

DeMatteis Family Foundation: supports institutions involved in education, primarily within the New York Metropolitan area: http://foundationcenter.org/grantmaker/dematteis/about.html

Ewing Marion Kauffman Foundation—offers educational grants primarily to organizations within the Kansas City metropolitan area: http://www.kauffman.org/about-foundation/funding-guidelines.aspx

Charles Stewart Mott Foundation: supports education efforts in the Flint, MI area that strengthen educational opportunities for K-12 students:

http://www.mott.org/FundingInterests/programs/flintarea/artsculted

Applied Materials Education Grants—recognizing that many communities and schools lack the resources and programs required to prepare their students for meaningful careers, Applied Materials offer the majority of their K-12 education grants to neighborhoods with the greatest need: http://www.appliedmaterials.com/about/cr/community/grants

Alfred P. Sloan Foundation—supports broad-based education related to science, technology and economic performance. This site also offers guidance for writing a successful grant proposal, as well as complete details on the process: http://www.sloan.org/apply-for-grants/

Coca-Cola Foundation: supports education via scholarships, school drop-out prevention, access to education programs, and other education initiatives, per local business unit priorities. Applications are accepted without any prior invitations, and must be submitted online:

http://www.cocacolacompany.com/stories/community-requests-guidelines-application

Halliburton Foundation: Established in 1965, the Halliburton Foundation makes direct donations to U.S.based elementary and secondary schools and colleges and universities: http://www.halliburton.com/aboutus/Default.aspx?navid=992&pageid=2347

Dominion Foundation: STEM education is one of the four overall focus areas of funding for this foundation. Dominion provides grants to schools located within the states where they operate or where they have significant facilities or business interests:

https://www.dom.com/about/community/charitable-giving-and-the-dominion-foundation.jsp

Hall Family Foundation: seeks to promote excellence and access to a quality education for those within the Kansas City area. The foundation prefer to support organizations, programs and projects that address the educational needs of urban school children with a particular interest in systemic reform/improvement efforts, closing achievement gaps and building human capital: http://www.hallfamilyfoundation.org/grants-strategy.aspx

Inasmuch Foundation: education is one of their three funding priorities. Focuses on assisting organizations in Oklahoma and Colorado Springs, CO: http://www.inasmuchfoundation.org/

M J Murdock Charitable Trust: The Trust considers educational projects offered in both formal and informal settings. The Trust's founder believed in science and technology as one of the most important sources of knowledge and inventiveness, knowledge that he believed to be strategic to resolving many issues. In most cases, grants are awarded for the benefit of the people living and contributing in the Pacific Northwest --Alaska, Idaho, Montana, Oregon, and Washington: http://www.murdock-trust.org/

Lilly Endowment: the Endowment is interested in and supports a variety of programs and initiatives that enhance the quality of educational experiences for Indiana residents and help them find meaningful and rewarding employment in the state: http://www.lillyendowment.org/education.html

William and Flora Hewlett Foundation: makes grants to improve education by expanding the reach of openly available educational resources, improving California education policies, and by supporting "deeper learning" – a combination of the fundamental knowledge and practical basic skills all students will need to succeed: http://www.hewlett.org/programs/education-program

We also suggest you visit **STEMGrants.com** and sign up to receive their free downloadable guide to STEM funding opportunities. As of March, 2013, the 2012 version is still the most current posted, but an updated version is expected shortly: http://stemgrants.com/guide-to-stem-grants/

Addendum: a list of select STEM Organizations:

American Association for the Advancement of Science

www.aaas.org

American Association of Engineering Societies

www.aaes.org

American Chemical Society

www.chemistry.org

American Chemistry Council

www.americanchemistry.com

American Indian Council of Architects and Engineers

www.aicae.org

American Indian Science and Engineering Society

www.aises.org

American Institute of Biological Sciences

www.aiche.org

American Institute of Chemical Engineers

www.ams.org

American Mathematical Society

www.asee.org

American Society for Engineering Education

www.asae.org

American Society of Agricultural Engineers

www.asce.org

American Society of Civil Engineers

www.awc-hq.org

Association for Women in Computing

www.awis.org

Association for Women in Science

Association of Women in Mathematics

www.aaip.org

Association of American Indian Physicians

www.awm-math.org

Council for Chemical Research

www.ccrhq.org

Extraordinary Women in Engineering Project

www.engineeringwomen.org

National Academy of Engineering

www.nae.edu

National Academy of Science

www.nasonline.org

National Action Council for Minorities in Engineering

www.nacme.org

National Society for Black Engineers, Inc.

www.nsbp.org

National Society of Black Physicists

www.nspe.org

National Society of Professional Engineers

www.ntaonline.org

National Technical Association, Inc.

Society for the Advancement of Chicanos and Native Americans

in Science

www.sacnas.org

LEAN Tech Academy

Society of Hispanic Professional Engineers www.shpe.org

Society of Mexican American Engineers and Scientists <u>www.maes-natl.org</u>

Society for Science and the Public www.societyforscience.org

Society of Women Engineers www.swe.org

The Mathematical Association of America www.maa.org

The National Alliance of State Science and Mathematics Coalition www.nassmc.org

Women in Engineering Programs and Advocates Network www.wepan.org Women in

Technology International www.witi.com

Addendum: STEM Focused Educational Organizations:

Education Trust www.edtrust.org

Local Systemic Change Network Isc-net.terc.edu

Math and Science Partnership Network www.mspnet.org

National Association of Research and Science Teaching <u>www.narst.org</u>

National Council of Teachers in Mathematics www.nctm.org

National Science and Technology Education Partnership www.nationalstep.org

National Science Resources Center www.nsrconline.org

National Science Teachers Association www.nsta.org

The International Society for Technology in Education www.iste.org

Triangle Coalition for Science and Technology Education <u>www.trianglecoalition.org</u>

21st Century Community Learning Centers Program Guidelines and Application for Funding 2011-12 Program Year

Program Description

This program supports the creation of community learning centers that provide academic enrichment opportunities during non-school hours for children, particularly students who attend high-poverty and low-performing schools. The program helps students meet state and local student standards in core academic subjects, such as reading, math and science; offers students a broad array of enrichment activities that can complement their regular academic programs; and offers literacy and other educational services to the families of participating children.

Who May Apply: Local education agencies (LEAs), for-profit and nonprofit organizations such as family centers, city or county government agencies, faith-based organizations, higher education institutions, for-profit corporations and consortia of two or more of such agencies, organizations or entities may apply to PDE for grants.

For this program, eligible entity means a local educational agency, community-based organization, another public or private entity, or a consortium of two or more of such agencies, organizations, or entities. PDE must give priority to applications that are jointly submitted by a local educational agency and a community-based organization or other public or private entity.

Consistent with this definition of eligible entities, faith-based organizations are eligible to participate in the 21st Century Community Learning Centers (21st CCLC) program. Regulations are available governing the participation of faith-based organizations in Federal programs for which they are eligible are available.

Types of Projects

Each eligible entity that receives an award from the state may use the funds to carry out a broad array of outof-school activities (including those held during summer recess periods) to advance student achievement. These activities include:

- Remedial education activities and academic enrichment learning programs, including those which
 provide additional assistance to students to improve academic achievement;
- Mathematics and science education activities (STEM Activities);
- Arts and music education activities;
- Entrepreneurial education programs;
- Tutoring services, including those provided by senior citizen volunteers, and mentoring programs;
- Programs that provide after-school activities for limited English proficient (LEP) students and that emphasize language skills and academic achievement;
- · Recreational activities (includes physical activity, nutrition education and nutritional snacks);
- Telecommunications and technology education programs;
- Expanded library service hours;
- Programs that promote parental involvement and family literacy;
- Programs that provide assistance to students who have been truant, suspended, or expelled to allow them to improve their academic achievement;
- Drug and violence prevention programs;

Counseling programs;

Character education programs; and

Service Learning

Amount of Funding Available:

Approximately \$20,000,000

Grant Awards:

Minimum \$50,000; Maximum \$500,000 (per year for three years)

Period of Availability for Year 1:

December 1, 2011 - September 30, 2012

Years 2 and 3 funding will be contingent upon approved federal appropriations for those fiscal years, as well as the grant recipient's compliance with all program and fiscal requirements.

Period of Availability for Year 2:

October 1, 2012 - September 30, 2013

Period of Availability for Year 3:

October 1, 2013 - September 30, 2014

Grant Requirements:

Prior to Grant Award:

All potential applicants must complete the following steps:

- Notify PDE via email or fax of the grantees intent to submit an application. Include the legal name of entity, and either the AUN (school districts/charter schools/IUs) or EIN# (all other organizations) for the lead organization. **Due Date: October 28, 2011**
- ☐ If your agency is <u>not</u> a school district, charter school or IU, you will need to register for access to the eGrant Application (http://egrants.ed.state.pa.us). Click on "21st Century CCLC" at the top left and then select the "Sign up your Agency" link and complete the online form.
- If your agency is a school district, charter school or IU, ensure that all fiscal and program reports for other grants have been submitted in a timely manner. A history of failure to submit required reports for other grants may impact your ability to receive this grant.
- Consult with eligible nonpublic entities located within the attendance area of LEA applicants regarding participation in the proposed 21st Century CLC program.
- ☐ Complete and submit the online application prior to 5:00 p.m. on November 8, 2011.
- Print and mail three (3) copies of the submitted application to: PA Department of Education, Division of Federal Programs, 333 Market Street, 7th floor, Harrisburg, PA 17126-0333 (Attn: 21st Century CCLC Grant Program) Printed applications must be received no later than November 14, 2011, in order to proceed to the peer review. Applicants who fail to meet this deadline will be disqualified.

After Grant Award:

Successful grant recipients will be required to comply with the following grant requirements:

Grantee must report program data annually via the 21st CCLC Profile Performance Information Collections System (PPICS), an online performance reporting system. The site address is ppics.learningpt.org/ppics/public.asp Grantee also agrees to provide program data, as requested, for any state evaluation purposes, at the discretion of PDE. The Pennsylvania Department of Education online report — State Report http://www.aiu3.net/evaluations and click on 21st CCLC.

Grantees agree to send a minimum of two representatives to two national conference and two
state/regional conferences related to the 21st CCLC program each program year.
Grantee will have a system in place to be able to report student attendance data, as requested by PDE.
Failure to maintain 85% attendance from participants for 30 consecutive days may result in reductions
to the allocation for the remainder of the grant period.
Grantee will submit all program and fiscal reports by the established due dates. Failure to submit fiscal
reports by deadlines two or more consecutive times will result in on-site fiscal monitoring visits by PDE
to determine if adequate fiscal controls are in place at the grantee level.
Grantees must have an independent, third-party evaluator to conduct the local level evaluation of the
success of the grant program. Evaluators should not be employed by or have a personal connection to
the organization receiving the grant.
Grantees are prohibited to use 21st Century CCLC funds for paying for any activities related to religious
worship, instruction or proselytization; or equipment/supplies to be used for any of these activities.
Every participating student must be afforded a minimum of 12-15 hours of consistent programming
each week. Programs should serve the same students on a daily basis. All students served must be
provided a minimum of 36 weeks of after-school programming per project year, not including summer
programming.

NOTE: All Applicant LEAs must satisfy all potential and apparent violations of PDE procedures regarding required progress or completion reports or other requisite reporting, such as its submission of appropriate fiscal reports and mid-year progress reports, in keeping with its responsibilities for receipt of federal and state funding. [LEAs that cannot successfully resolve their having been placed on programmatic "hold" and/or having been found to be currently ineligible to receive state or federal funding are not eligible to compete for a subgrant award under the 21st Century Community Learning Centers program].

STATE COMPETITIVE GRANTS TO LOCAL ENTITIES

1: What organizations are eligible to apply for 21st CCLC funds?

Any public or private organization is eligible to apply for a 21st CCLC grant. Examples of agencies and organizations eligible under the 21st CCLC program include, but are not limited to: non-profit agencies, city or county government agencies, faith-based organizations, institutions of higher education, and for-profit corporations.

The statute encourages eligible organizations applying for funds to collaborate with the schools the children attend. The statute also allows a consortium of two or more agencies, organizations or entities to apply. In consortium proposals, one agency with experience in the fiscal administration of federal grants will be the fiscal agent for the grant.

As mandated by federal law (P.L. 107-110, §4204[i]), **funding priority** will be given to applications that meet both of the following conditions:

- 1. The applicant proposes to serve students who attend school districts that have been identified for improvement by the Pennsylvania Department of Education **and**
- 2. The application has been submitted jointly by at least one LEA receiving funds under Title I,

LEAN Tech Academy Fundraising Plan Application Years 0 and 1

State Contact:

Brook.hughes@doe.k12.de.us (Charter School Finance Officer)

(302) 735-4000

Delaware does not provide funding for year zero. Charter schools must apply for these grants on their own. Charter schools will receive their funding from the state in July of year one based upon their student enrollment count of May 1st of the year in which the school opens and in subsequent years. School district funding begins in the fall of each the year after the September 30th count. Districts are billed by LEAN Tech Academy. School district funding in totality may not reach LEAN Tech Academy until November of the current school year.

Overview

The United States Department of Education (US ED) changed the application process for startup funds for new charter schools. In years past, the Department applied for and sub-granted those funds to charter schools.

In the future, if the school wants to be considered for start-up funds, it must apply to the US ED directly. The grant process is competitive. Thus applicants will not be able to include federal start-funds in the projects years one to three budgets required for the Delaware Department of Education application to open a charter school.

Foundation Resources

The Welfare Grant

The Bill and Melinda Gates Foundation (206)709-3100

The Longwood Foundation (302) 654-2477

www.grant.govFederal Grants and Federal Competitive Grant for school start-up1-800-518-4726www.ed.gov

<u>The Bill and Melinda Gates Foundation</u> believes that a funding education is a worthy investment. Its mission is driven by guiding principles that include increasing "opportunity and equity for those most in need," to include charter schools. Past projects funded include \$33

million to the New Schools Venture Fund to administer the creation of charter schools through nonprofit management companies. The belief is that strong and effective charter schools provide young people with a good educational foundation. The foundation also believes that startups need specific help and ongoing support to succeed.

Fundraising Goals/Loans

Need	Year 0	Year 1
Capital/School Building	\$100,000	\$390,000
Technology	75,000	190,000
Special Programs	100,610	109,875
TOTAL	\$ 275,610	\$ 689,875

Contributed Income: Sources

Individual Gifts	Year 0	Year 1
Major Gifts and Donations	\$ 110,000	\$ 275,000
➤ Board of Directors Initial Assessment	4,000	1,650
➤ Annual Gifts	2,200	2,200
Foundation/Grants	\$ 400,000	\$1,150,500
Special Events	\$ 17,625	\$ 28,125
TOTAL CONTRIBUTED INCOME	\$ 533,825	\$1,457,475

Contributed Income: Individual Gifts

Major Gifts and Donations

		Major Gift Table and Years 0 & 1	
Gift Level	# of Gifts	# of Prospects	Amount
\$100,000	1	5	\$ 100,000
\$ 50,000	2	10	\$ 100,000
\$ 25,000	3	15	75,000
\$ 10,000	4	20	\$ 40,000
\$ 5,000	7	35	\$ 35,000
\$ 3,000	5	20	\$ 15,000
\$ 1,000	10	50	\$ 10,000
\$ 500	20	100	\$ 10,000
TOTAL	52	255	\$385,000

Board of Directors Giving

To establish a culture of giving, and a demonstration of commitment, the Board of Directors will be asked to make a personal contribution on an annual basis. Board member solitations will be made by the Board Chair, who will craft a solitation letter and be responsible for appropriate individual follow-up. The goal is to achieve 100% participation, including from the parent and teacher board members who will be appointed in Year 1. The parent and teacher appointments will be asked to give at a level that is meaningful to them and it is anticipated these gifts will be not more than \$50 each.

Year 0: 8 Board Me	embers	
Gift Level	# of Gifts	Amount
\$500	8	\$4,000
Year 1: 10 Board M	lembers (Including one parent	and one teacher)
Gift Level	# of Gifts	Amount
\$250	3	\$ 750
\$150	5	\$ 750
\$100	1	\$ 100
\$ 50	1	\$ 50
TOTAL	17	\$5,650

Annual Gifts

Being a 501 (c) 3 nonprofit school conveniently places LEAN Tech Academy in a position to solicit donations via the United Way annual giving campaign.

Contributed Income: Foundations/Grants

The Board of Directors and LEAN Tech Academy will build relationships with key regional foundation representatives in anticipation of submitting formal proposals for funding. Year 0 will be dedicated mostly to establishing networks and building relationships, so that; the school' regional presence will be established; foundation interests and giving inclinations will be gauged; and more accurate fundraising targets will be established. At this time, potential regional funders will have identified as follows:

Fou	ndation/Grant	Prospects
	Year 0	Year 1
Longwood Foundation	\$100,000	\$ 100,000
Welfare Foundation	\$ 50,000	\$ 50,000
Marmont Foundation		\$ 25,000
Chreslea Foundation	\$ 50,000	\$ 50,000

TOTAL	\$400,000	\$1,150,500
Others	\$ 50,000	\$ 200,000
Grant		
State Technology	0	\$ 10,500
School 21st Century		
Communities in	0	\$ 300,000
Gateway Foundation	0	\$ 10,000
(AFCEA) – STEM		
Association		
Electronics		
Communications and	,	
Armed Forces	\$ 25,000	\$ 25,000
Education – STEM		20,000
U.S. Department of	\$ 25,000	\$ 25,000
Corporation STEM		20,000
Lockheed Martin	0	\$ 50,000
Fund STEM		Ψ 50,000
National Space Grant	0	\$ 50,000
HEALTH		
Prevention –		
Control and	U .	φ 25,000
Centers for Disease	0	\$ 25,000
Foundation	U	φ 10,000
ING Direct Kids	0	\$ 10,000
Community Foundation		
Delaware	U	\$ 50,000
Crystal Trust	0	
Citizens Bank	3/7/2	\$ 10,000 \$ 10,000
Foundation	0	¢ 10,000
Bill and Melinda	\$100,000	\$ 100,000
DuPont Foundation	A 400000	100,000
The Chichester	0	\$ 50,000

Contributed Income: Special Events

The Board of Directors intends to hold a major launch event in year 1, leveraging members' personal and professional contacts and the school's community relationships built over the initial founding months. A Special Event Committee will be formed to plan and execute the event. Direct solitations at the \$250 level will be made to select attendees in support of the school' launch. Moving forward, the Board of Directors will consider holding a similar fundraising event on a yearly basis.

In order to include parents in fundraising and give them the opportunity to demonstrate their support, a school *Florida Fruit Sale, Seafood Feast, Senior Adult Prom, Golf Tournament and Yankee Candle Sale* will be planned in Year 1.

	Year 0 Launch I	Event	
# of Attendees	Gift Level	# of Gifts	Amount
Florida Fruit Sale			
Florida Fruit Sale	\$25	100	\$ 2,500
SeaFood Feast	\$10	200	\$ 2,000
Senior Adult Prom	\$50	200	\$10,000
Golf Tournament	\$125	25	\$ 3,125
TOTAL		525	\$17,625
		Year 1 Events	= 1-0/2-100 Te
Florida Fruit Sale	\$25	200	\$ 5,000
Seafood Feast	\$10	250	\$ 2,500
Senior Adult Prom	\$50	250	\$12,500
Golf Tournament	\$125	35	\$ 4,375
Yankee Candle Sale	\$25	150	\$ 3,750
TOTAL		885	\$ 28,125

FUNDRAISING CALENDAR Years 0 & 1

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Develop & Send Solitation					X	X	X									X	X	X								

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