

STEM Grant Writing: The Top 10 Tips to Building a Successful Grant Proposal

Successful STEM Grant Writing: THE NEED FOR FUNDING

With continual funding cuts and a significant drop in student STEM retention, there has never been a greater need for an increase in research, classroom hours and learning opportunities devoted entirely to the STEM fields. According to the U.S. Department of Education, “The United States is falling behind internationally, ranking 29th in math and 22nd in science among industrialized nations” (U.S. Department, para 3).

In order to solve funding problems and increase STEM education opportunities, many teachers and organizations are turning to outside funding: STEM grants. These grants are no longer reserved for exceptionally large projects and institutions, but rather, they have adapted to current needs and have become a necessity for anyone looking to expand more educational opportunities such as STEM in their communities. Luckily, there are many funding opportunities out there – both nationally and locally.

In order to secure funding through grants the following 10 steps can help guide you on the path to a successful grant application.

1. START EARLY Applying for STEM grants is no easy task, but it is not impossible. Depending on the individual grant, you may be looking at a simple one page summary for a project of \$5,000 or less. As you increase in scope and ambition, however, anticipate a lot more planning, collaboration, permission, applications and the time associated with all of these. A large-scale grant for the National Science Foundation, for example, may take hundreds of man-hours and require the coordination of many people and organizations. Therefore, before you start any project, you need to first ensure that you have the proper amount of time and commitment required to see it through. Review the grant application process carefully and gain a good understanding of the time and effort that will be required before starting.

2. PLAN YOUR PROJECT Regardless of where you are located, rest assured there is funding out there to help you meet your STEM grant goals. From local, state and national grants, you'll be able to find a multitude of potential funders. Remember, you are facing competition from others also seeking funds. To secure a grant, your project needs to stand out from the stack of proposals each funder receives annually.

In order to achieve this, you need to be able to answer some key questions.

- **NEEDS:** How do you know that your community needs your STEM project? Answer this question with facts. Get the hard data and build a detailed needs assessment that provides a compelling story to your grant reviewers.
- **DESIRE:** Define your goals with measurable, distinct purpose. What do you want to achieve? How will you determine that your project has fit the needs of your community?
- **DEADLINES:** To meet your objectives, how will you actually proceed? How do you know this is the correct method?
- **BUDGET:** Detail all of the project's expenses. How much funding are you seeking, and is your own organization providing help? Providing matching funds in your budget is often a requirement of many grants. These matching contributions can be in cash or other resources including facilities, labor, or equipment. Check the guidelines and be creative. Your own time producing and managing the grant can very well qualify for an in-kind contribution that qualifies as matching funds.
- **REPUTATION:** Are you the right group to receive the grant? Detail previous successes with similar projects and highlight the qualifications of your personnel and program, clearly identifying the skills and resources that your organization has to make the grant project a success. Granting organizations review the capabilities of applicants carefully to ensure that granted money will be used effectively.
- **FUTURE:** Plan for and explain how your project is sustainable. Granting agencies do not want to fund a program that will evaporate as soon as the initial implementation is completed. Once your funds have been depleted, how will the project continue? Is it self-sustaining? What happens after the grant period has ended?



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A project that has been completely planned out – that can answer every question – has a better chance of receiving funding than one that doesn't – the proof is in the details. With a solid foundation, it's that much easier to build a foolproof STEM grant proposal.

3. GET PERMISSION It might seem obvious, but there are many cases in which well-intentioned educators or program managers have gone through all the required work to apply and receive a grant, and have been successful, only to find out that their administration does not support the project and the grant funding ends up being refused. One of the most essential parts of any project is to receive the permission of your administrators. You don't want to go through countless hours of work only to have a proposal or successful grant refused for some unplanned administrative conflict. This is particularly key when it comes to other people's involvement in your project. If your proposal relies on the help of other staff or a larger working area, it's crucial that you achieve the proper authorization and support before proceeding.

Many of the grants you will be applying for require the authorization of an administrator – through either their signature or written consent – something that will be easier to achieve if they are already aware of your goals. Involve your administration in your project, ask for their input and get them as excited for the possibilities as you are. This will help your proposal build credibility, an essential quality of any successful grant.

This is one of the advantages of investing the time up front to fully plan a project. You already have the answers to the questions they're going to ask, and your completed plan shows how dedicated and devoted you are to furthering STEM activities in your community. With your administration on your side, you're one step closer to drafting your STEM grant.

4. BROADEN YOUR AUDIENCE Now that you've completely planned your project and you have the necessary support of your administration your next step should be to start seeking funding, right? It's this mistake that many beginning grant seekers make – they haven't taken the time to expand the impact of the grant and how it might affect a much broader audience. It's a simple step, but one that is often overlooked.

If you're only looking for money for your classroom, think about how you can expand that. Exactly who is your program going to reach? Will you be sharing your information and research at conferences? Will your entire school be utilizing your efforts or just a single grade level? Will the funding go towards the education of future students? Brainstorm every potential outlet and avenue for your project. Not only will it help you better understand your STEM grant prospects, but it will allow for more flexibility in the grant's applications you'll be able to choose from.

By reaching a wider audience, you're also showing funders the greater possibilities and potential of your project – allowing you to ask for more funding or to apply for larger grants. When you're drafting your request, show the expansiveness of your proposal – the number of individuals it has the potential to impact. This enables the granting organization to better understand the number of people their STEM funding will influence, an opportunity which makes your proposal all the more attractive. The higher the impact, the more likely you are to find funding. Take the Walmart Foundation, for instance. The funding portion of their website details the grants they offer, ranging anywhere from over \$250,000 to as low as \$250, from National Giving Programs to Community Grant Programs (Walmart Stores, 2016, Apply Section, entries 1-3) – and that's just one organization.

There are a large variety of funding opportunities out there, and through a strong plan and dedicated research, you'll be able to find the funding perfect for your STEM goals.

5. FIND YOUR FUNDERS It seems a little obvious, but one of the hardest parts of applying for STEM grants is finding who to approach for funding. Luckily, PCS Edventures has done a lot of the work for you, and compiled an extensive list of both state and national STEM grant providers. You can check out this list of opportunities here: <http://www.edventures.com/pages/funding>.

Your next task is to narrow down your results. This is where your detailed plan comes into action. Highlight your budget and your goals, and start eliminating funders who don't fit your needs. It will take time, but build a varied list of potential candidates who aim to support projects like yours. With the multitude of possible sources of funding out there, it's easier to find a STEM grant to fit your needs than changing your needs to fit a funder. Make sure to fully research who is providing the money, and learn about their organization – about the grant guidelines and about who's on the board. Most organizations will have their grant information online, and a simple web search will help you hone in on the right choices.

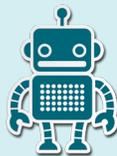
There are many, varied grant options out there. Philip Perry, of STEMJobs, details a few: The National Science Foundation lists a multitude of potential funding opportunities on their website. If you teach math in elementary school, you can receive up to \$6,000 dollars from The National Council of Mathematics. The Lemelson-MIT InvenTeam challenge awards up to \$10,000 dollars. The Toyota Tapestry Grants for Science Teachers award also offers \$10,000 dollar grants (Perry, 2015). The right funding for your STEM project is out there, it's just about knowing where to look and about knowing the right questions to ask.

A great starting place is to research projects similar to yours. You'll be able to see who helped finance their proposal, and you'll learn more about the unique projects out there – and how yours matches up. Once you've developed a list of potential funders, it's time to start researching and drafting your STEM grant proposal.

6. FOLLOW DIRECTIONS Every funder is going to have a unique set of grant guidelines and requirements. It is essential that when you are writing your proposal, you follow these directions completely. From needed information to desired formatting, an overlooked requirement or a small mistake is grounds enough to have your project rejected.

Ultimately, it's their money, and you have to follow the directions they give. When questions arise, take the time to find the answers – if you can't find them online, call and ask. It's important to double-check your adherence to all guidelines. Sometimes grant applications are disqualified for simply not following directions closely.

Take the time, be thorough and double-check your work.



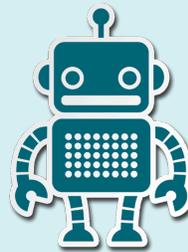
Take the UK's Natural Environment Research Council (NERC) for example. Every year, they reject four percent of applicants over font transgressions alone. They state that applications should be, according to their current guidelines (2016) "in Arial 11 or other sans serif typeface of

equivalent size to Arial 11" (p. 11). Your application could be the most influential, the most amazing proposal to cross a funder's desk in the last 50 years, but by not following directions specific to each STEM grant application, you could be rejected before the reviewers have moved past the first page.

Take the time, be thorough and double-check your work. Once you understand the parameters your proposal will need to fit, it's time to go to start convincing.

7. TELL YOUR STORY Every grant foundation is going to ask for both a cover letter and a project abstract – this is your opportunity to dazzle them. These sections of your application are where you need to convince the reviewer to choose you. It also offers you an opportunity for creativity. What can you say that is different from every other application? Be unique, be creative and tell your story the best way you can.

Your cover letter needs to bring your project to life. It needs to be engaging, well written, and it needs to find ways to accentuate every aspect of your request. Karen Dutro and Suzanne E. Coffman of GuideStar's article "Grant Writing 102" says, "Tell a good story. Make your need compelling. ... If your population isn't what they are looking for, tell them what they should be looking at in your community" (Dutro and Coffman, 2006, Words of Wisdom, Entry 1).



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The project abstract needs to be persuasive. It's a summary of your budget, needs, goals and objectives, all within a few paragraphs. This will be the reviewer's reference point – the document they visit for quick information and answers. Show the funders a very short timeline of what, how and when something is going to happen, and how it will closely follow the budget. Utilize plain language – the person reading the material may not have the same understanding of math and science you have. If done correctly, both of these documents will get the funder as excited about your STEM activities as you are.

8. ANSWER THE QUESTION One of the easiest ways to ensure your application makes it to the top of the pile is by fully answering the questions asked of your STEM grant. Dutro and Coffman's article also features an excerpt from Alan J. Lipsky of R & L Consulting (2006), "the best resource is a potential funder's own guidelines. ... A literal reading and interpretation of grant guidelines is one of the most important practical measures you can take" (Dutro and Coffman, Words of Wisdom section, Entry 2). It seems a little obvious, but it's easy to get lost in the jargon and technicalities of each guideline. Read carefully and for clarity, and make sure you are answering the question they are asking.

Your answers need to be concise. You aren't helping your chances by filling your proposal with lofty, flowery language that beats around the bush. Get to the point quickly by using direct verbs and an active voice. This adds a level of urgency to your proposal, and also makes it easier for the reviewer to get down to the facts. In these answers, it is essential that you use simple language, especially when it comes to your STEM research. As mentioned above, your funder will not have the same background as you, and technical language may not do much more than confuse your reader, allowing them to disconnect from your proposal. Your answers need to be clear, concise and they need to keep your reader's attention.

9. KNOW YOUR AUDIENCE When you're drafting your grant request, one of the most important things you can do is to understand who will be receiving your proposal – you do

this by fully researching the organization. From formatting to guideline requests, you need to follow their directions to the letter. This may seem like a waste of time, but you need to understand that it is someone's job to review hundreds, possibly thousands of proposals, so make it as easy for them as possible by providing your information in the format they can process the easiest.

By following the grant guidelines, by completely answering questions and by offering concise and accurate answers, you are showing a high level of professionalism and respect to the person reviewing your grant. In order to help yourself, you need to help your reviewer by making their job easier. Inside of their strict parameters, be unique, be creative and be compelling.

Utilize statistics, graphs, charts and pictures to fully illustrate an idea. Your reviewer may not know where your city is, so show them on a map. Within their guidelines, do what you can to make your proposal memorable, all without flooding them with flowery language and abstract concepts.

Be smart, be clear, be concise and most importantly, be courteous to the organization by adhering to their guidelines and by respecting their time.

10. MAKE A STRONG CASE When you've written a grant proposal, you should be able to step away knowing that you've done everything in your power to present your strongest case possible. This is achieved by revising and editing your STEM grant multiple times. If there are weak sections, go back and reinforce them. Trace the weak aspects back to your initial plan and re-evaluate the steps you took in an effort to find better answers and make better choices. This is your chance to look at your STEM grant as a whole and view it in a non-biased manner in order to highlight any potential problems.

Review your proposal and revise any areas that may need refining and improvement. Seek outside editing help, and utilize all of your professional and personal avenues. Edit your content fluidly and without remorse. It's your project and you've devoted a major part of your time to it, so the last thing you want is to have it rejected due to grammar or syntax errors. From your colleagues to online editing tools, double-check that your STEM grant is making the strongest case possible.

At the end of the day, it's up to the funders to choose your proposal, but for every moment leading up to the day you send your grant off, it's up to you to make sure your STEM grant is presented in the best light possible.

You don't need to be an expert to write STEM grants. Through dedication, hard work and by utilizing these 10 tips, you're well on your way to achieving all of your STEM goals.

For more information about STEM grants, STEM research and all things PCS, visit our website at <http://edventures.com/>

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