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| **Problem: A Call for Grant Proposals—What Can We Do?** |

Introduction

Your experience with Biomedical Science has expanded and you have a greater understanding of the broad spectrum of topics and careers related to Biomedical Science due to your participation in the Principles of the Biomedical Sciences course. Scientific research is a vital component of the Biomedical Sciences and grant funds are needed for this research to continue.

Infectious disease is the leading cause of death worldwide today. Even in the U.S., it is one of the top five leading causes of death. Many of the pathogens causing these diseases are becoming resistant to current drugs and, in rare cases, completely immune to known treatments. Antibiotic resistance has made it imperative that research and development continue in the area of pharmacology.

In 1971, during the State of the Union Address, President Richard Nixon asked for $100 million to fight the “war on cancer.” Over 25 years later, cancer remains the second or third leading cause of death in the U.S. with 1.2 million Americans diagnosed with it each year. The good news is more people are living longer than ever before after the initial diagnosis of cancer. This is because research has resulted in better treatments. That said, cancer is still the leading cause of death in children between the ages of one and fourteen in the U.S. and ten percent of all medical dollars are spent on cancer. Much more progress is needed.

The leading cause of death in the U.S. is heart-related disease. Ten million people in the U.S. suffer from heart failure every year. Although more of them survive today than even ten years ago, the numbers indicate heart disease is still a major issue. These are just a few examples of issues the medical community deals with on a daily basis. Research is essential for continued progress in solving these problems, and research is dependent upon grants.

The National Institutes of Health (NIH), the Center for Disease Control (CDC), and the National Institute of Allergy and Infectious Disease (NIAD) are just three of the hundreds of agencies that conduct biomedical research along with countless private companies and industries. All of these entities fund researchers through the grant process.

In this project, you are part of a biomedical research team applying for grant funds to research and provide a positive impact on a specific disease or medical condition. For this project, you will complete an abbreviated version of an actual medical grant. Choose a topic your team finds interesting and would like to know much more about. Imagine yourself as a real medical specialist trying to find a cure or treatment for a disease. Your research is dependent upon your grant proposal being chosen for continued funding. Your team’s work will be presented in both written and oral form to an advisory panel.

Procedure

As a result of this Project you will:

* Complete in-depth research on a disease or medical condition.
* Present the research in the form of a written grant proposal following the Grant Proposal Guidelines.
* Make an oral presentation of the grant proposal.
* Evaluate each team presentation using the evaluation rubric.
* Evaluate your own team presentation using the evaluation rubric.

**PBL rubric checklist**

**Problem:**   
You are part of a biomedical research team applying for grant funds to research and create an innovation with a positive impact on a specific disease or medical condition. You must create a visual presentation as well as a written grant proposal document.

**Directions:**  
The document below should help guide your research. DO NOT forget to cite all of your sources; paste the links into a word document to keep them organized. Clear your innovation with Mrs. Riter before you begin. Make sure your innovation does not exist already!! Get creative!! Think outside the box (that is how most innovations are created)!!

You must work on all of these guiding questions as a team. This is not a “divide and conquer” assignment!! I will be checking for individual understanding of each topic and making sure you are communicating as a team. Brainstorm ideas about each question. Each day your group must send an email with the PBL daily progress document to me at [amy.riter@adams12.org](mailto:amy.riter@adams12.org) (even if I am not present).

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| Guiding Questions that need to be addressed. Please expand upon these questions!! Experts involved in this process include a medical researcher, a biomedical engineer, a materials scientist, an economist and a grant writer. |
| * What is the disorder and target group for treatment? What are the symptoms of the disorder? Why is the innovation needed?  What treatments already exist?  How will the innovation help? * How does the innovation work?  Using the model you have created, explain how the innovation works. What are the long and short term predictions about the innovation? * What are some concerns about the design of the innovation? * What types of materials will be used to make your innovation?  Why were those materials chosen? What are the physical characteristics of the materials? What are the chemical characteristics of the materials? * How much money is needed for research? How much will the innovation cost?  How was this amount determined? Who will manufacture your innovation? * Make your proposal succinct. * Write an abstract. Cite your sources. * Visual presentation |