

## APPLICATIONS OF FUNCTIONS

**Background:** There are many types of functions; linear, exponential, logarithmic, trigonometric, and the greatest integer function, to name a few. There are also many fields in which these and other functions are used. Fields such as research sciences, information technologies, engineering, accounting, or economics come to mind quickly, but there are many other places that mathematics is used as well. In this project you are going to research the use of functions.

**Task:** To complete this assignment you must research different functions and their applications. Choose a function or a group of related functions as your focus. Then produce a historical development of the uses of the function(s). The major components of the paper need to be a) the history of the function(s), b) the background of the fields in which they are used, and, most importantly, c) the mathematics involved in the application.

### **Procedures:**

1. Research a variety of applications of a variety of functions. Use the attached form to keep track of the applications that you have researched.
2. Choose one of the applications to focus on and research the history of the discovery and use of the function(s) that is/are used in that application. Make a timeline that reflects what you found in your research.
3. Research the field in which the function(s) is/are applied. Write a one to two page paper describing the field and any background information that you find relevant or interesting.
4. Research the mathematics in the application. Create materials that present the material in such a way that the rest of the class can understand the math involved.
5. Create a 10-15 minute presentation that combines all of the information that you have collected.

[Created by Nicole Leone, Newtown High School]

**Assessment:**

To receive a score of 88% on this project you must meet the following criteria. For each criterion you may receive up to 2 additional points if you were exceedingly insightful, thorough, creative, organized, prepared, etc. However, for each criterion that you do not meet you may lose up to 8 points.

<b>Criterion</b>	<b>Teacher Assessment</b>	<b>Self Assessment</b>
1. You researched a variety of applications (at least 4)		
2. You made a thorough timeline detailing the historical development of the use of the relevant function(s)		
3. You wrote a description of the field in which the function(s) is/are used (1-2 pages double spaced)		
4. You accurately explained the mathematics involved in the application and presented it in a way that is clear		
5. Your presentation incorporates all of the research that you have gathered in a clear, professional manner		
6. Your work is thorough, well written, accurate, and original; plagiarism will result in a 0		

**Project Deadlines**

Table of at least 4 applications	Thursday, April 12, 2001
Timeline	Monday, April 30, 2001
Description of the field the application is used in	Monday, May 7, 2001
Explanation of the mathematics involved in the application	Friday, May 18, 2001
Presentation	Friday, May 25, 2001