Name:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Date:\_\_\_\_\_\_\_\_\_\_\_

Mr. Kaufman Geometry

**Designing a Town**

You have been hired to design the layout for a new town in upstate New York. A town must have a few important buildings to function properly. The town is being designed on a grid where each unit on the grid is one kilometer (km).You must create a proposal map that features all of these important buildings:

* Library
* City Hall
* Elementary School
* High School
* Fire Department
* Police Department
* Power Plant
* Shopping Center
* Park
* Hospital
* **Create a location of your own to add! \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**
* **Create a second location of your own to add! \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

These locations can’t be jammed up against each other and your employers have certain requirements that must be fulfilled:

* The High School needs to be less than 10km away from the Elementary School.
* The City Hall needs to be in the middle of the Shopping Center and the Park.
* The Power Plant needs to be at least 5km away from any structures for security.
* The Library must be 3km or closer to the Elementary School.
* The Schools need to be the same distance away from the Police and the Fire Department.
* **Create a requirement of your own to make the city work. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**
* **Create a second requirement of your own to make the city work. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

**You must submit:**

* **A proposal map on a grid with every location plotted and all of the requirements fulfilled.**
* **A sheet of mathematical evidence that shows that your map meets every requirement.**
* **This worksheet with the checklists completed.**

|  |  |  |  |
| --- | --- | --- | --- |
| **Categories You Will Be Graded On:** | **Excellent (4-5 Points)** | **Fair (2-3 Points)** | **Not Quite There (1 Point)** |
| Use of all city buildings. | The student has used all of the buildings. | The student has used some, but not all of the buildings. | The students uses only 3-4 of the buildings. |
| Fulfillment of all building requirements. | The student has fulfilled all requirements for the position of the buildings. | The student has missed 1-2 requirements. | The student is missing more than two requirements. |
| Mathematical evidence for all requirements. | The student has produced all of their work on a separate sheet of paper that shows that all requirements are fulfilled. | The student has shown some work but skipped some steps or some work is incorrect. | Little or no work is shown. |
| Accuracy | The student has used all of the correct formulas. | The student has used some of the correct formulas. | The student has not used the correct formulas. |
| Creativity | The student has put thought into their two new buildings and requirements and designed an imaginative city plan. | The student has put some thought into their new buildings and requirements. | The student has put little effort into the project. |

**Final Grade: \_\_\_\_\_\_\_\_\_\_\_ out of 25**