Group Members: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**Predicting A Catastrophe (version 1)**Check out the data below; it shows the population of a country and how many people it can feed based on their agricultural production for each year.

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| --- | --- | --- |
| **Year** | **Population**  (number of people) | **Food Production**  (number of people) |
| 1975 | 2,993,876 | 6,400,000 |
| 1980 | 3,365,441 | 7,000,000 |
| 1985 | 3,799,550 | 7,100,000 |
| 1990 | 4,312,246 | 8,100,000 |
| 1995 | 4,274,819 | 9,400,000 |
| 2000 | 4,564,297 | 7,500,000 |
| 2005 | 5,658,379 | 9,600,000 |
| 2010 | 6,458,720 | 10,000,000 |
| 2015 | 7,237,025 | 10,400,000 |
| 2016 | 7,396,190 | 10,700,000 |
| 2017 | 7,557,212 | 10,800,000 |
| 2018 | 7,719,729 | 10,500,000 |

Take some time to look at the data and graph it on the grid provided. What do you notice?

What do you wonder?

Can you show this relationship in another way?

Do you think the model you have created accurately represents the data? Why or why not?

**Student Self-Assessment**

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| --- | --- |
| **Curricular Competency Reasoning and Modelling** | **Task Specific Evidence** |
| I analyzed the data to look for a pattern | * I considered how the data changed with respect to time. * I noticed that one relation increased faster. * I was able to use the term ‘rate of change’ when describing the data. |
| I considered multiple ways to show the data | * I considered describing the data in words, an equation and/or a graph. * I was flexible in my thinking and listened to my group members’ ideas. |
| I created multiple models to show the data | * I have a function, equation and/or graph that represents the data. * I have a model that is scaled to fit the data. * I considered the domain to reflect this real-world scenario. |
| I made a prediction based on my model | * I have a model that was scaled appropriately to make a prediction. * I recognized the intersection of the functions was a solution to the problem. * I was able to describe the limitations of my model. |
| **Core Competency Reflection:**   1. What parts of this activity did you find interesting? Surprising? 2. What did you find went well in this activity? 3. What did you find challenging? 4. Was it helpful to work in a group? Why or why not. 5. What would you do differently in a future activity to improve? | |