

The Euler School Modeling Problem

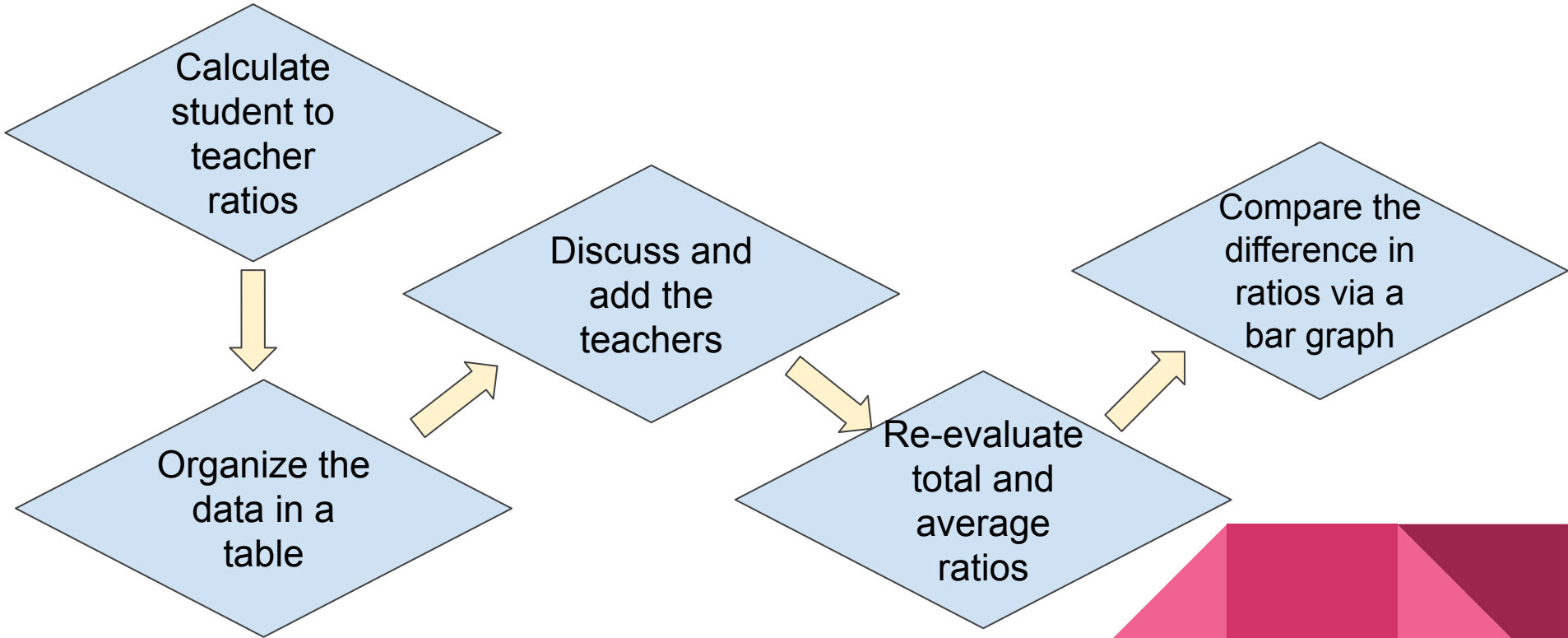
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Problem

The new class entering the Euler High School will have 140 more students than the current graduating Senior class. To accommodate for this, a new wing is being built, and 7 new teachers are being hired. What department(s) should get these new teachers?



Our Approach



Assumptions and Hypotheses

- Teachers would be used for all grades
- Lower student to teacher ratio was better
- 5% dropout rate would not drastically affect model

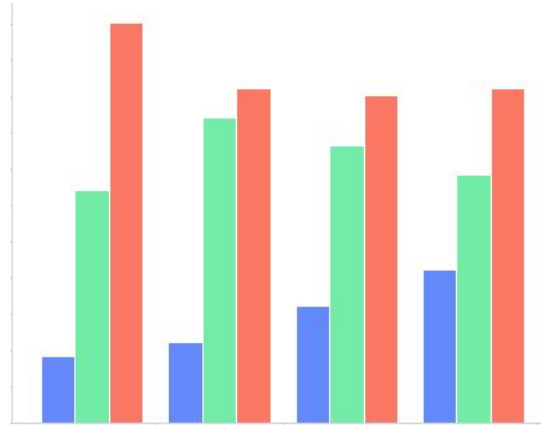


Problem Analysis



When deciding on an approach we considered the following...

1. Use of data given
2. Quantifying need
3. Visible success
4. Change over time



Model Design

- First, we found the ratios for only the tenth graders
- Later, we calculated the ratios for the 11th and 12th graders
- We also calculated the ratios for the total students taking the class and the average of the 10th, 11th, and 12th grade ratios

Student:Teacher Ratios

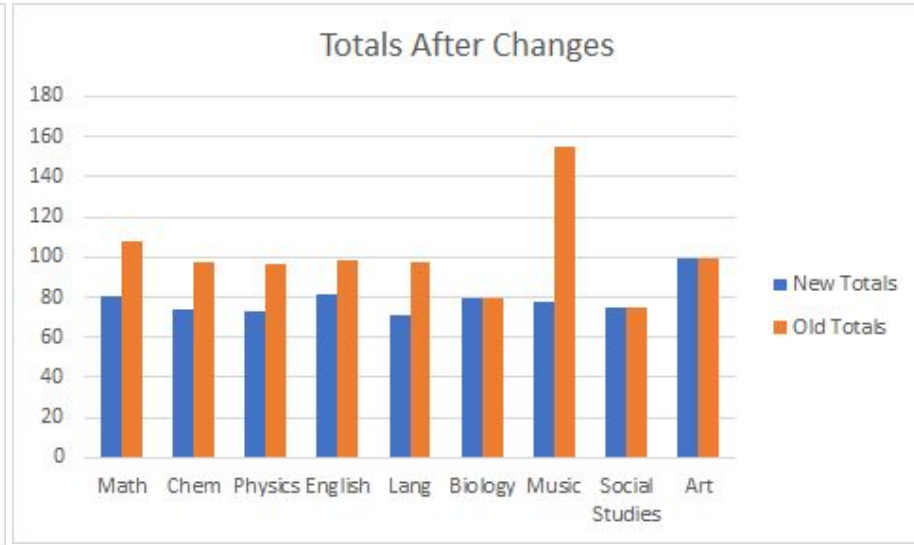
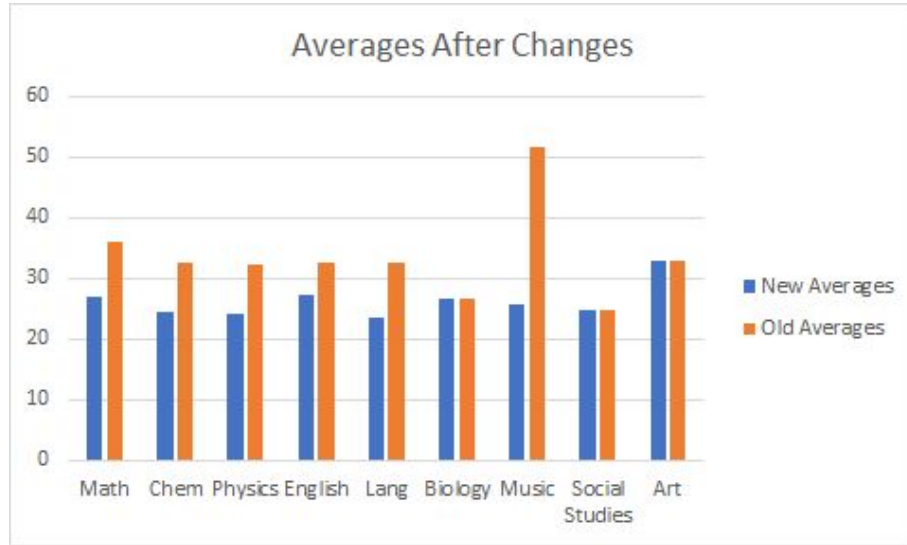
	10th Grade	11th Grade	12th Grade	Total Ratio	Average
Math	30.6	33.5	43.6	107.7	35.90
Chem	19.6	42	36.3	97.9	32.63
Physics	16.6	19.3	61	96.9	32.30
English	36.6	31.0	30.4	98.0	32.67
Lang	37.0	26.7	33.7	97.4	32.47
Biology	49.5	23.8	6.5	79.8	26.60
Music	50.0	56	49	155.0	51.70
Social Studies	36.6	26.2	11.8	74.6	24.90
Art	31.0	33	35	99.0	33.00

Model Justification and Discussion

- Looked at student-to-teacher ratio
- Averaged this ratio for all of the grades
- Combined all student-teacher ratio averages
- With the added teachers, there was a decrease in the student:teacher ratio
- **Predictions**



Solution



Strengths and Weaknesses of Model

- Student-to-teacher ratio would generally stay the same because it was averaged across classes
 - If there was a large increase or decrease in interest of class interest, that would affect the ratio
- Didn't include 5% dropout rate nor increased incoming class sizes
- Don't know number of students in each grade





Thank you for listening!

Are there any questions?