Lab Framework   17B

Text: Cord Applied Math

Unit number and title: Unit 17 Graphing Data

   Short Description: Plot school enrollment from 1907 to 1997 and see changes in school enrollment during those time periods.

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Lab Title
A Century of School Enrollment

LAB PLAN

TEACHER: Teacher Prep/ Lesson Plan

- **Lab Objective**

  Graph data as points on a graph.

  Graph prices

  Find the slope of a graphed line

  Interpret data from data

- **Statement of pre-requisite skills needed** (i.e., vocabulary, measurement techniques, formulas, etc.)

  Problem solving, estimating, using charts, graphs, tables, plotting information

- **Vocabulary**

  Origin, quadrant, range, slope, x-axis, y-axis

- **Materials List**

  Printed copy of school enrollment from 1907 to 1997 (attached to this file)

  Pencils

  Graph paper

  Ruler

- **GLEs (State Standards) addressed**

  Math:

  1.2 Understand and apply concepts and procedures from data

  2.2.1 Select and use relevant information to construct solutions

  3.1.1 Analyze, compare, and integrate mathematical information from multiple sources.

  3.3.2 Evaluate reasonableness of results.

  Reading:

  2.1 Demonstrate evidence of reading comprehension.

  2.2 Understand and apply knowledge of text components to comprehend text/data.

  Writing:

  1.2 Gathers, analyzes, synthesizes, and organizes information from a variety of sources.

  2.2 Writes for different purposes

  3.3.1 Uses legible handwriting

  3.3.2 Spells accurately in final draft.

- **Leadership Skills**

  Student works cooperatively in teams to reach common goal.

  Student will demonstrate social responsibility in classroom (teamwork, appropriate voice volume.)

  Students will complete task on time.

  Students will be involved in using critical thinking skills to make predictions.

- **SCAN Skills/Workplace Skills**

  Students will demonstrate employability skills by attending class and being on time.

  Communicate with others using respect and appropriate language for classroom.

  Students will complete tasks and leave work area clean.

- **Set-up information**

- **Lab organization**(-Grouping/leadership opportunities/cooperative learning expectations; -**Timeline required**)

  One class period

  Cooperative learning working in groups of 3

  Communication and math skills

- **Teacher Assessment of student learning** (scoring guide, rubric)

  All students participate in activity

  Students communicate their conclusions from data

  Students make prediction on future growth

- **Summary of learning** (to be finished after student completes lab)

  -discuss real world application of learning from lab

  -opportunity for students to share/present learning

  --reflect on prices in the past and prices in their future

- **Optional activities**

- **Career Applications**

  Technology—able to plot information in excel and label graphs

  City planner---predict city growth needs for schools, highways, government workers.

  Marketing/research—ethnic population of city and desires for different products.

LAB TITLE: A Century of School Enrollment

STUDENT INSTRUCTIONS:

- **Statement of problem addressed by lab**
  Do school districts need to know population growth for their city?

- **Grouping instructions and roles**
  Students get into groups of 3
  Reader—reads information from years 1907-1997
  Recorder—plots information on graph paper
  Quality control—verifies accuracy of data on graph

- **Procedures** – steps to follow/instructions
  Reader—reads student enrollment from 1907-1997
  Recorder—plots prices on graph paper
  Quality control—verifies accuracy of data on graph
        --draws lines to connect data on graph

- **Outcome instructions**
  Students will visually see the slope of increases in student enrollment during decades
  Students can make connections to their life and state their thoughts in sentence format.
  Ask for volunteers from the class to express their thoughts or surprises from this activity.

- **Assessment instructions** (peer-teacher)
  Teacher observes students as they work on task.
  Teacher collects papers from groups and checks for completeness of task.

Lab Data Collection

Student:_____ Date: _____

Unit: 17 Graphing Data

Lab Title: A Century of School Enrollment

Criteria: Write the problem/objective in statement form
      Do school districts need to know population growth for their city?

Data Collection: <mark>(school enrollment on last page of this file)</mark>

    See school enrollment information to create a graph with school information from 1907-1997. Make a prediction on school enrollment for 2017 and plot it on your graph.

Calculations: Complete the given calculations to solve for an answer(s)

Use the school enrollment chart to answer the following questions.

1. How many students were enrolled in U.S. schools a decade ago (ten years)? _____

2. In which year were 28,300,000 students enrolled in U.S. schools? _____

3. Were more students enrolled in U.S. schools in 1977 or in 1987? _____

4. How many more students are enrolled in school IN 1997 than were enrolled in 1907? _____

5. In which year on the chart was the school enrollment closest to the 1997 figure? _____

6. In which year was U.S. school enrollment closet to 49,000,000? _____

7. Use the data above to figure out the average number of students enrolled in U.S. schools from 1907 to 1997.

   What is the average number? _____

Summary Statement: Explain your reasoning in your answer.
Do school districts need to know population growth for their city? Why?

Make a prediction on school enrollment for 2017 and plot it on your graph. Explain why your prediction would be correct. Why?

Other Assessment(s)
    Explore careers where population numbers affect the growth of your career.
    After finding information about the career, explain the need for this career with population growth or not.

School Enrollment figures

Using the information below, plot the Year and Number of Students enrolled in school.

THE YEAR	NUMBER OF STUDENTS KINDERGARTEN TO GRADE 12
1997	52,400,000 students
1987	45,500,000 students
1977	48,700,000 students
1967	49,900,000 students
1957	40,900,000 students
1947	28,500,000 students
1937	28,000,000 students
1927	28,300,000 students
1917	23,300,000 students
1907	19,400,000 students

This chart shows how many kids
across the United States
are heading back to school
this month. It also shows
the enrollments for
U.S. schools in past years.