SPIE Lesson Plan

Emiliano Figueroa

Objectives:

1 – Students will apply the principles of linear equations to real world situations by creating an equation that includes a fixed cost, and a per item cost

2 – Students will identify the slope of their equation and will describe its meaning in a practical context

3 - Students will develop more linear equations for homework and write about the various contexts in which these equations can be utilized.

Anticipatory Set

Students will copy from the board the slope intercept form y=mx+b. As a class we will review that each of the variables represents. X is the input, m is the slope, b is the fixed cost or y intercept, and y is the output or final cost. Students will graph 5 equations in the form y=mx+b for a warm-up. We will correct the problems as a class.

Guided Practice

I will then describe a fictional scenario where my company has a fixed cost and a per item cost. I will label the fixed cost as equaling "b." I will also describe an item as "x." I will tell students that the slope, "m" represents the potential cost of that item. "Y" is of course our total cost. Together we will graph this equation at a given cost "m," and we will graph it again at another cost "m." We will compare the two lines and discuss how costs diverge graphically as more items are purchased at a higher price.

Independent Practice

Students will then make up their own fictional company with a fixed cost and per item cost. They will create three equations and graph each equation. Students will discuss in pairs and to the class what the slope "m" represents and how that affects the graph of the line. Students will understand that the greater the slope "m" the steeper the line, which means that the faster total expenses rise for our given company. Students will finish up their graphs and equations for homework, creating a total of 5 different scenarios. These graphs will be their products

Assessment

Students will then take a short quiz. They will be given slope intercept equations and be required to label each variable according to what it is (fixed cost, price, etc). They will also be shown different graphs and will be required to label which graph represents a more rapid price increase and why.

Materials

White board
Markers
Poster board for graphs
Pencils
Paper

Karen Taylor
Lucille Whitehead Intermediate

Lesson Plan

Math : Averaging. While working in the Quality Assurance Lab at Mercer Foods, averaging results is an industry accepted method of reporting many quantitative thresholds.

Objective: Students will be able to take a set of data and find the arithmetic mean, or average.

Anticipatory Set: While explaining that many things use an average, or mean, I will give examples of spelling test grades, number of students per classroom, and number of siblings in each family.

Guided Practice: Using our class as a population, I will divide the students into groups of 5. As a group they will discuss and record the number of siblings each student has. I will call on one group to share their findings with me, and together we will go through the process of adding the results together then dividing it by 5. If a group has greater than or less than 5 students, I will explain that they must divide by the number of students in their group.

Independent Practice: We will record the number of siblings for each group and the students will find the average for each group of 5. We will record the averages and students will find the average of the averages.

Assessment: Students will be given a new set of data, and expected to find the average correctly.

Materials: Whiteboards, dry erase markers, erasers, paper, pencils.

Steven McEwen
Modesto High School

Lesson Plan

OBJECTIVES:

1. Students will be able to read market graphs for stocks traded on Wall Street.
2. Students will be able to make a diversified portfolio.
3. Students will be able to make a savings plan for retirement.

ACTIVITIES

1. Students will give opinions on a graph from the stock market. The teacher will then instruct the students on how to read the graph and determine if the stock should be purchased for their portfolio. 1 day
2. Students will work together in their Stock Market Game groups to research different market sectors. Each group will prepare power points to combine for an entire market recap. 2-4 days
3. Students will use a budget to plan the amount of money that they would have to invest each month to live on that budget after retirement. 1 day

ASSESSMENT

1. Students will have a stock portfolio as part of the Stock Market Game project.
2. Power point presentation that will be graded and shown to the class. Grade based on completeness and clearness of the presentation.
3. Financial plan of a dollar amount per month that they would need to invest each month to earn the money needed to retire.

Lesson Plan for Algebra II
Peiman Hojjatijou

Title: Exponential Growth

Standards:

11.1 Students understand the inverse relationship between exponents and logarithms and use this relationship to solve problems involving logarithms and exponents.

11.2 Students judge the validity of an argument according to whether the properties of real numbers, exponents, and logarithms have been applied correctly at each step.

12.0 Students know the laws of fractional exponents, understand exponential func-tions, and use these functions in problems involving exponential growth and decay

15.0 Students determine whether a specific algebraic statement involving rational expressions, radical expressions, or logarithmic or exponential functions is some-times true, always true, or never true.

Stage 1: Desired Results

Understandings

Students will work in groups of two and work on an exponential worksheet. They will compare different models and transformation of each graph. Students will create models of exponential growth and decay by writing word problems for each type. They will work in groups and answer each other's question. Then students will be assigned to find similar models in real life and in other careers. They will write a narrative about their experiences and share with others in class.

Objectives:

- Students will be able to recognize the concept of exponential growth through a constant doubling period or other periods
- Students will realize the suddenness of exponential growth and the astonishing numbers that occur from exponential growth
- Students will be able to keep track of the data, organize it on a spreadsheet, and graph it
- Students will be able to solve interest problems and exponential growth or decay problems
- Students will be able to create models that are exponential

Essential Questions	Knowledge & Skill
♦ How would you determine if a model is exponential growth or decay by looking at the function? ♦ How can you verify an exponential function from other functions by looking at the model or reading a word problem?	♦ Students will be able to recognize the concept of exponential growth through a constant doubling period or other periods ♦ Students will be able to create models that are exponential.

Stage 2: Assessment Evidence

Whiteboards will be used to check for understanding. Higher order questions will be asked at the end of the period. Students' group work will be monitored to make sure the concept is attained.

Performance Task Summary	Rubric Titles
Students will participate in class by taking notes, working in groups, creating models, answering questions, and asking questions.	

Self-Assessments	Other Evidence, Summarized
There will be a short PowerPoint presentation and then completing the worksheet. They will be working in groups and helping each other to have a better understanding of exponential growth models and graphs.	**Homework (Worksheet) will be checked towards the end of the period. By asking questions from non-volunteers, I can find out if they have attained enough knowledge and skill to start their project. They will be quizzed on this section after 2 days to show how well they mastered it. The result will show me their strengths and weaknesses. I can modify the lesson and go over few points the next day.**

Stage 3: Learning Activities

1) PowerPoint
2) Worksheet
3) Group activity
4) Project

5) This experience can be improved by meeting during summer and going over the result of our experience before the school starts. This will allow us to hear more feedback on our lesson plan and be able to modify it when we have time. Also, the orientation day should be longer for interns to ask questions and clarify all their doubts.