Lesson Plan

Text: *Financial Algebra* by Robert Gerver and Richard Sgroi
Unit number and title: Unit 1-4, Simple Moving Averages
Developed by: David Sandefur
Date:

Short Description:
Stock market professionals and statisticians needed to find a technique that brought prices into a more central range, while still representing the data that is true to the numbers. The smoothing technique is used to calculate SMA over a variety of time periods. Students will learn to calculate these moving averages and interpret their meanings to the stock market data.

LESSON PLAN

TEACHER: Teacher Prep/ Lesson Plan

- **Essential Question**
  How can stock data be smoothed?

- **Lesson Objectives**
  The student can:
  1. Understand how data is smoothed.
  2. Calculate simple moving averages using the arithmetic average formula.
  3. Calculate simple moving averages using the subtraction and addition method.
  4. Graph simple moving averages using a spreadsheet.

- **Statement of pre-requisite skills needed**
  Skills taught in:
  1. Basic math on how to calculate an average
  2. Unit 1-2, Stock Market Data
  3. Unit 1-3, Stock Market Data Charts

- **New Vocabulary:**

Smoothing Techniques	A statistical tool that allows an investor to reduce the impact of price fluctuations and to focus on patterns and trends; an example is the simple moving average (SMA)
Simple Moving Average (SMA)	A smoothing technique calculated by determining the arithmetic average or mean closing price over a give period of time
Arithmetic Average (Mean)	A measure of central tendency found by calculating the sum of numbers in a data set and then dividing by the number of elements in the data set
Lagging Indicator	Indicators that use past data. An example is simple moving averages which investors use when they want to identify and follow a trend in prices
Fast Moving Average	When a stock chart depicts moving averages for two different intervals, the graph with the shorter time interval is known as the

	fast moving average; as changes in closing prices occur on a day-to-day basis, the fact moving average will reflect those changes quicker than the slow moving average.
Slow Moving Average	When a stock chart depicts moving averages for two different intervals, the graph with the longer time interval is known as the slow moving average; as changes in closing prices occur on a day-to-day basis, the fast moving average will reflect those changes quicker than the slow moving average will.
Crossover	Occurs when one time interval moving average graph crosses over another moving average; this is a possible signal that a stock trend reversal might be near.

- **State Standards addressed:**
  Common Core Standards:
  Number and Quantity – Quantities N-Q

- **Set-up information (Remind students to follow these basic rules.)**
- Be Prepared to work
- No Teasing
- Proper Computer Usage

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

  1. Walk around
  2. Thumbs up or down
  3. Homework

  Formal Assessments:

  1. End of Unit test

- **Summary of learning**
  1. Introduce the vocabulary to the students.
     a. Give the vocabulary list without definitions
     b. Give the definitions to the vocabulary list
     c. Discussion about each term of the vocabulary
  2. Ask: How can stock data be smoothed?
     a. Simple moving average (SMA)
     b. Arithmetic average (Mean)
     c. What factors might contribute to the fluctuation of stock market prices?
     d. Simple Moving Averages Using the Arithmetic Average Formula
     e. Simple Moving Averages Using the Subtraction and Addition Method
     f. Graph Simple Moving Averages Using a Spreadsheet
     g. Crossovers
  3. Work on Examples to Strengthen skills
     a. Example 1, page 23
     b. Example 2, page 24
     c. Example 3, page 26
     d. Example 4, page 26

4. Check for Understanding
   a. Check Your Understanding 1, page 24
   b. Check Your Understanding 2, page 25
   c. Check Your Understanding 3, page 26
   d. Check Your Understanding 4, page 26
5. Extend Your Understanding
   a. Page 25
6. Assess with Applications

REACHING ALL LEARNERS – Differentiated Instruction for students with

Developing Knowledge	On-level Knowledge	Advanced Knowledge
☐ Needs help working Example 1, page 23 (Group work)	☐ Able to work Example 1, page 23 without assistance	☐ Able to create additional problems like Example 1, page 23
☐ Needs help working Example 2, page 24 (Group work)	☐ Able to work Example 2, page 24 without assistance	☐ Able to create additional problems like Example 2, page 24
☐ Needs help working Example 3, page 26 (Group work)	☐ Able to work Example 3, page 26 without assistance	☐ Able to create additional problems like Example 3, page 26
☐ Needs help working Example 4, page 26 (Group work)	☐ Able to work Example 4, page 26 without assistance	☐ Able to create additional problems like Example 4, page 26
☐	☐ Able to work the Check Your Understanding problems, pages 24-26	☐ Able to work and explain the Check Your Understanding problems, pages 24-26

- **Optional activities**
  Hands-on Labs

- **Career Applications**
  Bankers
  Stockbrokers
  Venture Capitalist
  Economists

- **Evaluation of Lesson Plan**
  What went well?

  What did not go as well as planned?

  What would I keep and what would I toss? Why?

How well did the students master the skills? Will we need to review this in order for them to remember the information long-term?