WAMC Lesson Plan

Name(s): Linda Yanik
Lesson Title: FA 4-3 Loan Calculations and Regression
Date:
Text: Financial Algebra (Cenage)   Lesson Length: 2 days

Domain: N-Q, A-SSE

Big Idea (Cluster): Summarize, Represent, and Interpret Data on Two Categorical and Quantitative Variables.

Common Core State Standards: S-ID 6a

Mathematical Practice(s): Represent data on two quantitative variables on a scatter plot and describe how the variables are related.

Content Objectives:	Language Objectives:
- Calculate the present value of a single deposit investment. - Calculate the present value of a periodic deposit investment.	- Interpret information from a graph. - Describe how to find the monthly payment of a loan using the provided formula. - Describe how to find the length of a loan using the provided formula. - Accommodations will be made for SpEd and ELL students.
Vocabulary: Students will need to understand the following terms: - Monthly payment calculator - Natural logarithm - Cubic function - Cubic regression equation	Connections Prior to Learning: - Substitution - Evaluating a function for a given value - Students' knowledge of loans from families/friends.
Questions to Develop Mathematical Thinking: - If you borrowed money to buy a car, how long would you be willing to pay for the loan? Why? - Is it possible to pay more in interest than you actually borrowed for your purchase? If so, what would be an example?	Common Misconceptions: Interest doesn't amount to much.

Assessment (Formative and Summative):

- Formative: Students answer questions from teacher and each other during class discussion and structured student math talks.   - Assignment of text questions.   - Summative: Short quiz over concepts.

Materials:

- Textbook   - Calculator

Instruction Plan:

Launch: Go through questions above.
Explore:

- How can you know if the monthly payment you are told to make is reasonable (i.e. calculated correctly)?
- If you know how much you need to borrow and how much you can afford to, how can you know how long it will take to repay the loan?
- Teacher will go through vocabulary list and how the terms relate to loans.
- Teacher will guide students through examples in the book.

When I observe students:
- Encourage correct use of vocabulary.
- Watch for correct use of parentheses when entering expressions into the calculator.

Questions to Develop Mathematical Thinking as you observe:
- Why did you write what you wrote?
- How did you go from this step to the next step?
- What does the number you found represent?
- Does your answer seem reasonable?

Answers:
- An answer may represent a monthly payment or a loan length.

Summarize:
- A basic understanding of how loan payments are calculated and how length of a loan is determined is useful to help you know you are being treated fairly by the lending institution.

Career Application(s):
- Loan officer.

21st Century Skills and Interdisciplinary Themes:

21st Century Interdisciplinary themes (Check those that apply to the above activity.)
☐ Global Awareness ☒ Financial/Economic/Business/Entrepreneurial Literacy ☐ Civic Literacy
☐ Health/Safety Literacy ☐ Environmental Literacy

21st Century Skills (Check those that students will demonstrate in the above activity.)

LEARNING AND INNOVATION	INFORMATION, MEDIA & TECHNOLOGY SKILLS	LIFE & CAREER SKILLS	Productivity and Accountability
Creativity and Innovation	Information Literacy	Flexibility and Adaptability	
☐ Think Creatively	☒ Access and Evaluate Information	☐ Adapt to Change	☐ Manage Projects
☐ Work Creatively with Others		☐ Be Flexible	☐ Produce Results
☐ Implement Innovations	☐ Use and manage Information	Initiative and Self-Direction	Leadership and Responsibility
Critical Thinking and Problem Solving	Media Literacy	☐ Manage Goals and Time	
☒ Reason Effectively	☐ Analyze Media	☒ Work Independently	☐ Guide and Lead Others
☐ Use Systems Thinking	☐ Create Media Products	☐ Be Self-Directed Learners	
☒ Make Judgments and Decisions	Information, Communications and Technology (ICT Literacy)	Social and Cross-Cultural	☐ Be Responsible to Others
☒ Solve Problems		☒ Interact Effectively with Others	
Communication and Collaboration	☒ Apply Technology Effectively	☐ Work Effectively in Diverse Teams	
☒ Communicate Clearly			
☐ Collaborate with Others			