



Service Learning Lesson Plan

Project Title: Real World Math

Grade Level: 9,10

Duration: 1-2

Main Subject Area: Math

Theme: Economic/Financial
Literacy

months

Objective/Description

Algebra classes learn about real-world applications of math, such as calculating mortgage payments, car payments, credit card payments, etc. Students then use their knowledge to provide a walk-in workshop for the community.

Common Core Content Standards

- **CCSS.Math.Content.HSA-SSE.B.3c** Use the properties of exponents to transform expressions for exponential functions. *For example the expression 1.15^t can be rewritten as $(1.15^{1/12})^{12t} \approx 1.012^{12t}$ to reveal the approximate equivalent monthly interest rate if the annual rate is 15%.*
- **CCSS.Math.Content.HSA-SSE.B.4** Derive the formula for the sum of a finite geometric series (when the common ratio is not 1), and use the formula to solve problems. *For example, calculate mortgage payments.*
- **CCSS.Math.Content.HSA-CED.A.2** Create equations in two or more variables to represent relationships between quantities; graph equations on coordinate axes with labels and scales.

Driving Question

How can high school algebra students apply their content knowledge to real-world situations that can help the community?

Investigation

Research, class instruction, interviewing civic leaders and/or professionals, surveying neighbors or peers

- Teach students about compound and simple interest and how to graph on the coordinate plane.
- Have students contact the loan officers of a local bank to serve as guest speakers.
- Discuss the information provided by the loan officer, and guide students to identify a need within the community for education about common financial issues, such as calculating mortgage, car, and credit card payments.

Preparation

Collaborative problem solving, planning, and task assignment by & with the students

- See “Planning Tools” at http://servicelearning.childreninc.org/?page_id=527.
- Direct students to research possible community partners (a community center, church congregation, or college business department) to assist with the project.
- Have students contact these potential community partners; also have them contact non-profit agencies, such as community liaisons like North Key, Brighton Center, and NKY Community Action Center, in order to connect with people who need help with these types of financial services.



- Give students an assignment to create workshop advertisements that will be distributed by the non-profit agencies.
- Divide students into two teams; have them work with community partners and agencies to create educational materials for the workshop or train to be workshop consultants.
- Have a class discussion about what is working well so far and what isn't; allow students to give each other feedback about issues that have arisen.
- Collaborate as a class to create a customer satisfaction survey that each workshop "customer" will receive.

Action

Service activities or methods used to address a social issue or community need

Host a free community workshop that will advise community members on how to calculate mortgage rates, credit card payments, car payments, etc.; provide educational materials and a customer satisfaction survey.

Reflection

Frequent assessment of students' growing knowledge and developing skills; refer to driving question

- See "Reflection/Evaluation" at http://servicelearning.childreninc.org/?page_id=483.
- After the talk by the bank officer, have students write a reflection about how they think math affects people's ability to thrive financially.
- During the preparation for the workshop, have students get in a circle and share what they are learning about how to teach financial literacy and how this knowledge might affect their lives in the future.
- Instruct students to review and tabulate results from all customer satisfaction surveys collected.
- Have students complete a student survey.
- Ask students to recommend changes to the event for the future based on personal assessments and results of satisfaction surveys.
- Have students create a PowerPoint presentation about the importance of financial literacy (and anything else they learned from doing the project) to be shown to the school's administrators and math teachers.

Demonstration of Knowledge

Assessment of students' knowledge/skills and project outcomes

- Present results from the workshop (including satisfaction survey data) to the principal and math teachers.
- Post pictures and results of the project on a tri-fold board for display in the school.

Community Partners

Includes anyone who offers expertise to the project or who benefits from the project

Loan officers from local banks; local community centers, churches, or colleges; local non-profit agencies such as North Key, Brighton Center, NKY Community Action



Outcome

Funds or goods generated, direct or indirect service provided, advocacy or education done
A free workshop and educational materials about “real-world” math

Secondary Subject Areas (All that apply are in bold)

- **English, Reading, Language Arts**
- World Languages
- Arts
- Mathematics
- Science
- Economics
- Geography
- History
- Government and Civics
- Global Awareness
- **Financial, Economic, Business, and Entrepreneurial Literacy**
- Civic Literacy
- Health Literacy
- Environmental Literacy

21st Century Skills (All that apply are in bold)

- **Career Readiness**
- **Creativity and Innovation**
- **Communication and Collaboration**
- **Critical Thinking and Problem Solving**
- Physical Education
- Initiative and Self-direction
- Flexibility and Adaptability
- **Consumerism**
- **Information Literacy**
- **Media Literacy**
- **Technology Literacy**
- Productivity and Accountability
- **Leadership and Responsibility**
- **Social and Cross-cultural Skills**