Financial Literacy Education & the Common Core State Standards (CCSS) in Mathematics

Boston Federal Reserve Bank
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Lisa S. Krueger
Common Core State Standards (CCSS)

- Developed by the National Governors Association and the Council of Chief State School Officers, NOT the federal government.

- A set of rigorous academic standards in mathematics and English language arts/literacy (ELA) that outline learning goals for what a student should know and be able to do at the end of each grade.

- Voluntarily adopted by 45 states and the District of Columbia.

- The CCSS are a “Disruptive policy change” - an opportunity to spur innovation and increase willingness/need to expend resources in order to align with these standards.

- Implementation of the CCSS, including assessments (e.g., Smarter Balance and PARCC), instructional materials, professional development and information technology (IT) spending, is expected to cost as much as $15 billion dollars over the next 5 years.*

Importance of Financial Literacy

Americans' ability to build a secure future for themselves and their families requires the navigation of an increasingly complex financial system. As we recover from the worst economic crisis in generations, it is more important than ever to be knowledgeable about the consequences of our financial decisions. … We recommit to improving financial literacy and ensuring all Americans have access to trustworthy financial services and products.

President Barack Obama Presidential Proclamation – National Financial Literacy Month, March 31, 2011
Importance of Financial Literacy

Recent economic challenges have highlighted the importance of teaching our kids to understand personal finance. The day-to-day relevance of economic concepts and financial responsibility will only continue to increase as the world is rapidly transformed by science and technology. Providing students with the practical tools they need to apply that knowledge will help them succeed financially by creating businesses, driving innovation, and achieving personal dreams. Working together, we can infuse our classrooms with the necessary foundational capabilities and make financial education a centerpiece of our public and private agenda.

Richard D. Fairbank, Founder and CEO of Capital One.
Importance of Financial Literacy

Financial literacy is strongly correlated with use of financial services, savings and retirement planning.

A compelling body of survey evidence from developed countries shows that households with low levels of financial literacy tend not to plan for retirement, borrow at higher interest rates, acquire fewer assets and participate less in the formal financial system relative to their more financially-literate counterparts.

Economic/Financial Literacy Education

- For the first time all 50 states and DC include economics in the K-12 standards.
- 24 states require that a high school course in economics be offered.
- 22 states require that students take a course in economics.
- 62% of students on free & reduced lunch are taking an economics course (58% of students overall).

Source: Survey of the States, 2014, CEE.
Economic/Financial Literacy Education

- 43 states include personal finance concepts in their standards.
- 35 states require that these standards are implemented.
- 19 states require that a high school course be offered.
- 17 states require that students take a course in personal finance in order to graduate.
- Only 6 states require testing of personal finance concepts.

Source: Survey of the States, 2014, CEE.
What is Financial Literacy?

The OECD INFE (International Network on Financial Education) has defined financial literacy as follows: ‘A combination of awareness, knowledge, skill, attitude and behaviour necessary to make sound financial decisions and ultimately achieve individual financial wellbeing.’

FLEC (The Financial Literacy Education Commission) of the US Treasury defines financial literacy as the ability to use knowledge and skills to manage financial resources effectively for a lifetime of financial well-being and defines financial education as the process by which people improve their understanding of financial products, services and concepts, so they are empowered to make informed choices, avoid pitfalls, know where to go for help and take other actions to improve their present and long-term financial well-being.
What is Financial Literacy?

The good news is that there is general agreement on what should be taught!

1. Treasury Core Competencies
2. JumpStart Coalition Standards
3. CEE National Standards
4. PISA Framework
5. NEFE HSFPP
What is Financial Literacy?

Treasury Core Competencies

<table>
<thead>
<tr>
<th>Core concept</th>
<th>Knowledge</th>
<th>Action/behavior</th>
</tr>
</thead>
<tbody>
<tr>
<td>Earning</td>
<td>Gross versus net pay</td>
<td>Understand your paycheck.</td>
</tr>
<tr>
<td></td>
<td>Benefits and taxes</td>
<td>Learn about potential benefits and taxes.</td>
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<tr>
<td></td>
<td>Education is important</td>
<td>Invest in your future.</td>
</tr>
<tr>
<td>Spending</td>
<td>The difference between needs and wants</td>
<td>Develop a spending plan.</td>
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<td></td>
<td></td>
<td>Track spending habits.</td>
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<td></td>
<td></td>
<td>Live within your means.</td>
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<td></td>
<td></td>
<td>Understand the social and environmental impacts of your spending decisions.</td>
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<tr>
<td>Saving</td>
<td>Saved money grows</td>
<td>Start saving early.</td>
</tr>
<tr>
<td></td>
<td>Know about transactional accounts (checking)</td>
<td>Pay yourself first.</td>
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<tr>
<td></td>
<td>Know about financial assets (savings accounts, bonds, stocks, mutual</td>
<td>Understand and establish a relationship with the financial system.</td>
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<tr>
<td></td>
<td>funds)</td>
<td>Comparison shop.</td>
</tr>
<tr>
<td></td>
<td>How to meet long-term goals and grow your wealth</td>
<td>Balance risk and return.</td>
</tr>
<tr>
<td>Borrowing</td>
<td>If you borrow now, you pay back more later. The cost of borrowing is</td>
<td>Save for retirement, child's education, and other needs.</td>
</tr>
<tr>
<td></td>
<td>based on how risky the lender thinks you are (credit score).</td>
<td>Plan for long-term goals.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Track savings and monitor what you own.</td>
</tr>
<tr>
<td>Protect</td>
<td>Act now to protect yourself from potential catastrophe later.</td>
<td>Avoid high cost borrowing.</td>
</tr>
<tr>
<td></td>
<td>Identity theft/fraud/scams</td>
<td>Understand how information in your credit score affects borrowing.</td>
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<tr>
<td></td>
<td></td>
<td>Plan and meet your payment obligations.</td>
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<td></td>
<td></td>
<td>Analyze renting versus owning a home.</td>
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</tbody>
</table>

Source: Federal Register / Vol. 75, No. 165 / Thursday, August 26, 2010 / Notices
What is Financial Literacy?

Jumpstart Standards

<table>
<thead>
<tr>
<th>Financial Responsibility and Decision Making</th>
</tr>
</thead>
<tbody>
<tr>
<td>Income and Careers</td>
</tr>
<tr>
<td>Planning and Money Management</td>
</tr>
<tr>
<td>Credit and Debt</td>
</tr>
<tr>
<td>Risk Management and Insurance</td>
</tr>
<tr>
<td>Saving and Investing</td>
</tr>
</tbody>
</table>
What is Financial Literacy?

CEE (Council for Economic Education)
National Standards for Financial Literacy

- Earning Income
- Buying Goods and Services
- Using Credit
- Saving
- Financial Investing
- Protecting and Insuring
What is Financial Literacy?

PISA (Programme for International Student Assessment) 2012 Financial Literacy Framework

- money and transactions
- planning and managing finances
- risk and reward
- financial landscape
What is Financial Literacy?

NEFE (National Endowment for Financial Education)

<table>
<thead>
<tr>
<th>Module Topics</th>
<th>Learning Outcomes</th>
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</thead>
<tbody>
<tr>
<td>1. Money Management</td>
<td>Manage your spending.</td>
</tr>
<tr>
<td>2. Borrowing</td>
<td>Control your credit and debt.</td>
</tr>
<tr>
<td>3. Earning Potential</td>
<td>Boost your earning capacity.</td>
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<tr>
<td>4. Investing</td>
<td>Make the most of your financial resources.</td>
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<tr>
<td>5. Financial Services</td>
<td>Choose financial services that are right for you.</td>
</tr>
<tr>
<td>6. Insurance</td>
<td>Protect your financial resources.</td>
</tr>
</tbody>
</table>

Source: www.HSFPP.org
What is Financial Literacy?

Since the Council for Economic Education published the new National Standards for Financial Literacy, there have been some questions about the existence of multiple sets of standards. Jump$tart is pleased to be working with CEE on a plan to coordinate efforts. As we execute our plan to collaborate, Jump$tart’s National Standards in K-12 Personal Finance Education remain available online and through the Federal Citizen Information Center. We look forward to bringing you updates on our progress in the near future.
Financial Literacy – Big Ideas

Money as You Learn was developed based on the recommendation of the President’s Advisory Council on Financial Capability. This is not a United States Government website and the content on this site does not represent official policies of the United States Government or the United States Department of Treasury.
Financial Literacy – Big Ideas

**WHAT ARE PERSONAL FINANCE BIG IDEAS?**

**ESSENTIAL PERSONAL FINANCE CONCEPTS THAT CAN BE INTEGRATED INTO TEACHING OF THE COMMON CORE**

Personal Finance Big Ideas are critical aspects of personal finance that can be appropriately integrated into teaching the Common Core State Standards and can lead to increases in young people’s financial capability.

**PERSONAL FINANCE BIG IDEAS:**

- **Generate action or fuller understanding.** For example, an understanding of compound interest can lead to the actions of savings and reducing debt.
- **Focus on important personal finance knowledge and skills** our students must acquire to be financially capable young adults.
- **Draw from the best existing guidance to the field.** Sources include the Council for Economic Education’s recently released National Standards for Personal Finance, the National Standards in K-12 Personal Finance Education Standards housed at Jump$tart, the Pisa Financial Literacy Assessment Framework, *Money as You Grow* and other resources.

<table>
<thead>
<tr>
<th>UNDERSTANDING THESE CONCEPTS</th>
<th>LEADS TO THESE ACTIONS</th>
<th>GRADE BAND COVERAGE</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Compound Interest</strong></td>
<td>Saving and understanding the importance of starting early</td>
<td>[ ] [ ] [ ] [ ]</td>
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<tr>
<td></td>
<td>Debt management</td>
<td>[ ] [ ] [ ] [ ]</td>
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<tr>
<td><strong>Opportunity Cost</strong></td>
<td>Effective decision-making</td>
<td>[ ] [ ] [ ] [ ]</td>
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<tr>
<td></td>
<td>Recognition of options foregone</td>
<td>[ ] [ ] [ ] [ ]</td>
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<tr>
<td><strong>Value of Education</strong></td>
<td>Investment in variety of human capital</td>
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<tr>
<td><strong>Risk</strong></td>
<td>Diversification of portfolio</td>
<td>[ ] [ ] [ ] [ ]</td>
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<tr>
<td></td>
<td>Understanding appropriate levels of protection</td>
<td>[ ] [ ] [ ] [ ]</td>
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<tr>
<td></td>
<td>Purchase of insurance products</td>
<td>[ ] [ ] [ ] [ ]</td>
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<tr>
<td><strong>What Is Money</strong></td>
<td>Ability to use money</td>
<td>[ ] [ ] [ ] [ ]</td>
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<tr>
<td></td>
<td>Understanding value of money</td>
<td>[ ] [ ] [ ] [ ]</td>
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<tr>
<td><strong>Time Value of Money</strong></td>
<td>More informed purchasing</td>
<td>[ ] [ ] [ ] [ ]</td>
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<tr>
<td></td>
<td>More appropriate investing</td>
<td>[ ] [ ] [ ] [ ]</td>
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<tr>
<td></td>
<td>Ability to use time horizon to plan</td>
<td>[ ] [ ] [ ] [ ]</td>
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<tr>
<td><strong>Cost/Benefit Analysis</strong></td>
<td>Better decision-making</td>
<td>[ ] [ ] [ ] [ ]</td>
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<tr>
<td><strong>Debt</strong></td>
<td>Its appropriate use in investment in education, housing, and purchasing</td>
<td>[ ] [ ] [ ] [ ]</td>
</tr>
<tr>
<td><strong>Setting Goals</strong></td>
<td>Purposeful, more achievable outcomes</td>
<td>[ ] [ ] [ ] [ ]</td>
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<tr>
<td><strong>Delayed Gratification</strong></td>
<td>Ability to consume things in the future that are unattainable in the present</td>
<td>[ ] [ ] [ ] [ ]</td>
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<tr>
<td><strong>Scarcity</strong></td>
<td>Acknowledging limitations and making choices</td>
<td>[ ] [ ] [ ] [ ]</td>
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<tr>
<td><strong>Inflation</strong></td>
<td>Ability to mitigate its effects with respect to investments, assumption of debt, and purchasing decisions</td>
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</tbody>
</table>
Financial Literacy & Math CCSS

Financial Literacy is an effective, rich and relevant context to teach and assess the math common core.

Source: http://www.moneyasyoulearn.org/ideas/
Financial Literacy & Math CCSS

Money as You Learn shows the areas for integration of personal finance and teaching of Common Core State Standards for Mathematics by grade band. All mathematics tasks were collaboratively developed with Illustrative Mathematics, which provides guidance to states, assessment consortia, testing companies, and curriculum developers by illustrating the range and types of mathematical work that students experience in a faithful implementation of the Common Core State Standards, and by publishing other tools that support implementation of the standards. The tasks are also available at http://illustrativemathematics.org and are tagged “financial literacy.”
Money as You Learn provides teachers with Common Core aligned texts, lessons, and tasks that connect the Common Core to real-life applications while also equipping students with the knowledge needed to make smart financial decisions.

MONEY AS YOU LEARN SHOWS:

- The specific mathematics standards for which tasks and lessons using personal finance content can engage students and strengthen learning;
- The Personal Finance Big Ideas appropriate for K-2 students starting on their path to be financially capable young people;
- Mathematical tasks, which can be sorted by Standard and by Personal Finance Big Ideas, that illustrate key shifts called for by the Standards, including application of knowledge in real-world settings.

To get started, use the sidebar to view tasks by Personal Finance Big Ideas or Common Core Standard.

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Money as You Learn shows:

- The specific mathematics standards for which tasks and lessons using personal finance content can engage students and strengthen learning;
- The Personal Finance Big Ideas appropriate for Grade 3-5 students as they make age-appropriate financial decisions and build the skills they will need in young adulthood;
- Mathematical tasks, sorted by Standard and by Personal Finance Big Ideas, that illustrate key shifts called for by the Standards, including application of knowledge in real-world settings.

To get started, use the sidebar to view tasks by Personal Finance Big Ideas or Common Core Standard.
6.EE.9: Use variables to represent 2 quantities, independent and dependent variables.
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**MONEY AS YOU LEARN SHOWS:**

- The specific mathematics standards for which tasks and lessons using personal finance content can engage students and strengthen learning;
- The **Personal Finance Big Ideas** appropriate appropriate to High School students preparing to make significant financial decisions such as paying for college, setting career goals, managing credit, or selecting a cell phone plan.
- Mathematical tasks, sorted by Standard and by Personal Finance Big Ideas, that illustrate key shifts called for by the Standards, including application of knowledge in real-world settings.

To get started, use the sidebar to view tasks by **Personal Finance Big Ideas** or **Common Core Standard**.

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A LIFETIME OF SAVINGS

PERSONAL FINANCE BIG IDEAS TAUGHT IN THIS TASK:
- Compound interest

TASK

For 70 years, Oseola McCarty earned a living washing and ironing other people’s clothing in Hattiesburg, Mississippi. Although she did not earn much money, she budgeted her money wisely, lived within her means, and began saving at a very young age. Before she died, she drew worldwide attention by donating $150,000 to the University of Southern Mississippi for a scholarship fund in her name. The fact that Ms. McCarty was able to save so much money and generously gave it away is an inspiration to many others. She was honored with the Presidential Citizens Medal for her generosity. How did she do it?

Let’s assume that she saved the same amount at the end of each year and invested it in a savings account earning 5% per year compounded annually. (When you contribute the same amount each year to an account it is called an annuity.) How much do you think Ms. McCarty would have to save each year in order to accumulate $150,000 over a 70-year period?

A. Before we figure it out, take a guess.
   - $100
   - $250
   - $500
   - $1,000
   - $2,000

B. Suppose Ms. McCarty saved $100 and then deposited it at the end of the year in an account that earns 5% interest, compounded annually.
   - How much will it be worth at the end of the second year? At the end of the third year? At the end of the 70th year?
   - Write an expression that represents the value of an investment of C dollars after 70 years. Assume as above that it is deposited at the end of the first year in an account that earns 5% interest, compounded annually.
Financial Literacy Assessment

Role of assessment

- Recall that only 6 states require testing of personal finance concepts, even though 43 states include personal finance concepts in their standards, 35 states require that these standards are implemented, 19 states require that a high school course be offered and 17 states require that students take a course in personal finance in order to graduate.

- Florida is the first state to formally adopt a comprehensive set of financial literacy standards (CEE).
Financial Literacy Assessment

Role of assessment

- Financial Literacy education will only work if districts and schools are accountable.

- Standardized assessments set clear expectations for students and teachers and also for content developers.

- Results can provide a baseline on which to measure progress, can inform future instruction and curriculum development, and can help target and tailor resources to the most at risk and vulnerable students.

- Do we need a comprehensive national assessment in financial literacy?