Math: Financial Literacy and Entrepreneurship
Course Philosophy/Description

This course provides students with the understanding between financial wants and needs and making good financial decisions while creating a budget, which not only will impact them immediately but also in the future. In addition, it will examine all banking options, from savings loans and credit unions, understanding checking accounts and how to reconcile them. Students will learn about the use of credit cards and how to check statements for billing errors. Sound financial planning and decision making will be taught and reinforced in order for the students to be able to make good sound financial decisions as they develop into adulthood and face the challenges of everyday life as an adult.

Students will become familiar with advertising, how it works and how it can be misleading. Discussion of various techniques and appeals that are used to sell products will help the students to understand how false advertising works, along with what can sell one product over another. This will lead the students into understanding what comparative shopping is, looking at alternative buying plans, consumer scams and how to report a consumer complaint. Students will gain knowledge of the federal privacy laws, understand the pros and cons of database files and how to protect themselves. Students will gain understanding of the importance of the why to keep records of purchases, obtain a credit report and being able to identify federal private resources for consumer complaint and help.

There is also an examination of careers and entrepreneurship as well as the education and skills required for the 21st century workforce. Students will be able to identify the difference between a career, job and occupation. They will research and learn about various career opportunities and what is needed to have that career. Students will develop their own entrepreneurship and understand how one is developed, established and sustained. They will understand the six basic skills that are critical to the management of any small business and the four stages of a business life cycle. Students will be able to understand how taxes work and the difference between gross and net income.

By the end of this course students will have a strong foundation of how to make good financial decisions, budget, understand how advertising can influence their purchasing, and how to protect themselves. They will also know the difference between various payment and banking options. Lastly, students will have the opportunity to learn about various potential careers and entrepreneurship. All of this will give them the support they need moving forward into adulthood.
ESL Framework

This ESL framework was designed to be used by bilingual, dual language, ESL and general education teachers. Bilingual and dual language programs use the home language and a second language for instruction. ESL teachers and general education or bilingual teachers may use this document to collaborate on unit and lesson planning to decide who will address certain components of the SLO and language objective. ESL teachers may use the appropriate leveled language objective to build lessons for ELLs which reflects what is covered in the general education program. In this way, whether it is a pull-out or push-in model, all teachers are working on the same Student Learning Objective connected to the New Jersey Student Learning Standards. The design of language objectives are based on the alignment of the World-Class Instructional Design Assessment (WIDA) Consortium’s English Language Development (ELD) standards with the New Jersey Student Learning Standards (NJSLS). WIDA’s ELD standards advance academic language development across content areas ultimately leading to academic achievement for English learners. As English learners are progressing through the six developmental linguistic stages, this framework will assist all teachers who work with English learners to appropriately identify the language needed to meet the requirements of the content standard. At the same time, the language objectives recognize the cognitive demand required to complete educational tasks. Even though listening and reading (receptive) skills differ from speaking and writing (expressive) skills across proficiency levels the cognitive function should not be diminished. For example, an Entering Level One student only has the linguistic ability to respond in single words in English with significant support from their home language. However, they could complete a Venn diagram with single words which demonstrates that they understand how the elements compare and contrast with each other or they could respond with the support of their home language (L1) with assistance from a teacher, para-professional, peer or a technology program.

http://www.state.nj.us/education/modelcurriculum/ela/ELLOverview.pdf
<table>
<thead>
<tr>
<th>Student Learning Objective</th>
<th>NJSLS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Determine whether starting a small business is right for them.</td>
<td>9.1.8.A.2</td>
</tr>
<tr>
<td>Improve their odds of success in starting a small business.</td>
<td>9.1.8.A.7</td>
</tr>
<tr>
<td>9.1.8.B.6</td>
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</tr>
<tr>
<td>List and define the six basic skills that are critical to the management of any small business.</td>
<td>9.1.8.C.3</td>
</tr>
<tr>
<td>Define common business vocabulary terms.</td>
<td>9.1.8.C.4</td>
</tr>
<tr>
<td>List and define three common types of credit that could help you finance a small business.</td>
<td>9.1.8.C.7</td>
</tr>
<tr>
<td>List and define the four stages of the business life cycle.</td>
<td>9.1.8.B.7</td>
</tr>
<tr>
<td>Explain the typical challenges of balancing their personal and business finances over time.</td>
<td>9.1.8.B.8</td>
</tr>
<tr>
<td>Relate this information to their own business growth.</td>
<td>9.1.8.F.3</td>
</tr>
<tr>
<td>Create and present your own business plan.</td>
<td>6.NS.B.3</td>
</tr>
<tr>
<td>Fluently add, subtract, multiply and divide multi-digit decimals.</td>
<td>6.RP.A.3</td>
</tr>
<tr>
<td>Create and complete tables of equivalent ratios to solve real world and mathematical problems using ratio and rate reasoning that include making tables of equivalent ratios, solving unit rate problems, and finding percent of a quantity as a rate per 100.</td>
<td>6.EE.B.6</td>
</tr>
<tr>
<td>Use ratio and rate reasoning to convert measurement units and to transform units appropriately when multiplying or dividing quantities.</td>
<td>6.EE.C.9</td>
</tr>
<tr>
<td>Use variables to represent numbers and write expressions when solving real world or mathematical problems.</td>
<td>7.NS.A.3</td>
</tr>
<tr>
<td>Write an equation using two variables (independent and dependent) to represent two quantities that change in relationship to one another in a real world problem.</td>
<td>7.EE.B.3</td>
</tr>
<tr>
<td>8.EE.B.5</td>
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</tbody>
</table>

Instruction: 9 weeks
| Analyze the relationship between the dependent and independent variables and relate the equation to a given graph and to its table of values. |   |
| Solve multi-step real life and mathematical problems with rational numbers in any form (fractions, decimals) by applying properties of operations and converting rational numbers between forms as needed. |   |
| Assess the reasonableness of answers using mental computation and estimation strategies. |   |
| Graph proportional relationships, interpreting slope as unit rate, and compare two proportional relationships, each represented in different ways. |   |
Research about Teaching and Learning Mathematics

Structure teaching of mathematical concepts and skills around problems to be solved (Checkly, 1997; Wood & Sellars, 1996; Wood & Sellars, 1997)

Encourage students to work cooperatively with others (Johnson & Johnson, 1975; Davidson, 1990)

Use group problem-solving to stimulate students to apply their mathematical thinking skills (Artzt & Armour-Thomas, 1992)

Students interact in ways that support and challenge one another’s strategic thinking (Artzt, Armour-Thomas, & Curcio, 2008)

Activities structured in ways allowing students to explore, explain, extend, and evaluate their progress (National Research Council, 1999)

There are three critical components to effective mathematics instruction (Shellard & Moyer, 2002):

- Teaching for conceptual understanding
- Developing children’s procedural literacy
- Promoting strategic competence through meaningful problem-solving investigations

Teachers should be:

- Demonstrating acceptance and recognition of students’ divergent ideas
- Challenging students to think deeply about the problems they are solving, extending thinking beyond the solutions and algorithms required to solve the problem
- Influencing learning by asking challenging and interesting questions to accelerate students’ innate inquisitiveness and foster them to examine concepts further
- Projecting a positive attitude about mathematics and about students’ ability to “do” mathematics

Students should be:

- Actively engaging in “doing” mathematics
- Solving challenging problems
- Investigating meaningful real-world problems
- Making interdisciplinary connections
- Developing an understanding of mathematical knowledge required to “do” mathematics and connect the language of mathematical ideas with numerical representations
- Sharing mathematical ideas, discussing mathematics with one another, refining and critiquing each other’s ideas and understandings
- Communicating in pairs, small group, or whole group presentations
- Using multiple representations to communicate mathematical ideas
- Using connections between pictures, oral language, written symbols, manipulative models, and real-world situations
- Using technological resources and other 21st century skills to support and enhance mathematical understanding
Mathematics is not a stagnate field of textbook problems; rather, it is a dynamic way of constructing meaning about the world around us, generating knowledge and understanding about the real world every day. Students should be metaphorically rolling up their sleeves and “doing mathematics” themselves, not watching others do mathematics for them or in front of them. (Protheroe, 2007)

**Balanced Mathematics Instructional Model**

Balanced math consists of three different learning opportunities; guided math, shared math, and independent math. Ensuring a balance of all three approaches will build conceptual understanding, problem solving, computational fluency, and procedural fluency. Building conceptual understanding is the focal point of developing mathematical proficiency. Students should frequently work on rigorous tasks, talk about the math, explain their thinking, justify their answer or process, build models with graphs or charts or manipulatives, and use technology.

When balanced math is used in the classroom it provides students opportunities to:

- solve problems
- make connections between math concepts and real-life situations
- communicate mathematical ideas (orally, visually and in writing)
- choose appropriate materials to solve problems
- reflect and monitor their own understanding of the math concepts
- practice strategies to build procedural and conceptual confidence

Teacher builds conceptual understanding by modeling through demonstration, explicit instruction, and think alouds, as well as guiding students as they practice math strategies and apply problem solving strategies. (whole group or small group instruction)

Students practice math strategies independently to build procedural and computational fluency. Teacher assesses learning and reteaches as necessary. (whole group instruction, small group instruction, or centers)

Teacher and students practice mathematics processes together through interactive activities, problem solving, and discussion. (whole group or small group instruction)
### Effective Pedagogical Routines/Instructional Strategies

<table>
<thead>
<tr>
<th>Collaborative Problem Solving</th>
<th>Analyze Student Work</th>
</tr>
</thead>
<tbody>
<tr>
<td>Connect Previous Knowledge to New Learning</td>
<td>Identify Student’s Mathematical Understanding</td>
</tr>
<tr>
<td>Making Thinking Visible</td>
<td>Identify Student’s Mathematical Misunderstandings</td>
</tr>
<tr>
<td>Develop and Demonstrate Mathematical Practices</td>
<td>Interviews</td>
</tr>
<tr>
<td>Inquiry-Oriented and Exploratory Approach</td>
<td>Role Playing</td>
</tr>
<tr>
<td>Multiple Solution Paths and Strategies</td>
<td>Diagrams, Charts, Tables, and Graphs</td>
</tr>
<tr>
<td>Use of Multiple Representations</td>
<td>Anticipate Likely and Possible Student Responses</td>
</tr>
<tr>
<td>Explain the Rationale of your Math Work</td>
<td>Collect Different Student Approaches</td>
</tr>
<tr>
<td>Quick Writes</td>
<td>Multiple Response Strategies</td>
</tr>
<tr>
<td>Pair/Trio Sharing</td>
<td>Asking Assessing and Advancing Questions</td>
</tr>
<tr>
<td>Turn and Talk</td>
<td>Revoicing</td>
</tr>
<tr>
<td>Charting</td>
<td>Marking</td>
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<tr>
<td>Gallery Walks</td>
<td>Recapping</td>
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<tr>
<td>Small Group and Whole Class Discussions</td>
<td>Challenging</td>
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<tr>
<td>Student Modeling</td>
<td>Pressing for Accuracy and Reasoning</td>
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<tr>
<td></td>
<td>Maintain the Cognitive Demand</td>
</tr>
</tbody>
</table>
# Educational Technology

## Standards

8.1.8.A.1, 8.1.8.A.3, 8.1.8.E.1, 8.2.8.C.8

### Technology Operations and Concepts
- Demonstrate knowledge of a real world problem using digital tools

**Example:** Using an excel spreadsheet, students will be able to create their financial cost analysis and budget for their business.

- Use and/or develop a simulation that provides an environment to solve a real world problem or theory.

**Example:** Students can go to [https://www.ngpf.org/curriculum/](https://www.ngpf.org/curriculum/) to reinforce concepts of what they are learning.

### Research and Information Fluency
- Effectively use a variety of search tools and filters in professional public databases to find information to solve a real world problem.

**Example:** Students can search through Google and other interactive sites for appropriate information pertaining to how to start their own business.

### Digital Citizenship
- Demonstrate an understanding of the need to practice cyber safety, cyber security, and cyber ethics when using technologies and social media.

**Example:** Post a cyber-safety chart in the classroom so students are reminded of proper behavior when they are using the computers to complete assignments such as using the internet to research for their career choice.
Career Ready Practices

Career Ready Practices describe the career-ready skills that all educators in all content areas should seek to develop in their students. They are practices that have been linked to increase college, career, and life success. Career Ready Practices should be taught and reinforced in all career exploration and preparation programs with increasingly higher levels of complexity and expectation as a student advances through a program of study.

- **CRP2. Apply appropriate academic and technical skills.**
  Career-ready individuals readily access and use the knowledge and skills acquired through experience and education to be more productive. They make connections between abstract concepts with real-world applications, and they make correct insights about when it is appropriate to apply the use of an academic skill in a workplace situation.
  
  **Example:** Students will work on creating a business idea and plan.

- **CRP3. Attend to personal health and financial well-being.**
  Career-ready individuals understand the relationship between personal health, workplace performance and personal—well-being; they act on that understanding to regularly practice healthy diet, exercise, and mental health activities. Career-ready individuals also take regular action to contribute to their personal financial well-being, understanding that personal financial security provides the peace of mind required to contribute more fully to their own career success.
  
  **Example:** Students will learn about what they will need in order to have and maintain a successful small business.

- **CRP4. Communicate clearly and effectively and with reason.**
  Career-ready individuals communicate thoughts, ideas, and action plans with clarity, whether using written, verbal, and/or visual methods. They communicate in the workplace with clarity and purpose to make maximum use of their own and others’ time. They are excellent writers; they master conventions, word choice, and organization, and use effective tone and presentation skills to articulate ideas. They are skilled at interacting with others; they are active listeners and speak clearly and with purpose. Career-ready individuals think about the audience for their communication and prepare accordingly to ensure the desired outcome.
  
  **Example:** Students will present their business proposals and how they would advertise and get investors.
Career Ready Practices

- **CRP8. Utilize critical thinking to make sense of problems and persevere in solving them.**
  Career-ready individuals readily recognize problems in the workplace, understand the nature of the problem, and devise effective plans to solve the problem. They are aware of problems when they occur and take action quickly to address the problem; they thoughtfully investigate the root cause of the problem prior to introducing solutions. They carefully consider the options to solve the problem. Once a solution is agreed upon, they follow through to ensure the problem is solved, whether through their own actions or the actions of others.

  **Example:** Students will understand the meaning of a problem and look for ways into solving their problems by analyzing what has been presented to them. Plans for solution will not only have meaning, but they will be understanding how their decision can impact their future. Students will self-monitor, evaluate and critique their process and progress as they are working and make changes as necessary.

- **CRP10. Plan education and career paths aligned to personal goals.**
  Career-ready individuals take personal ownership of their own education and career goals, and they regularly act on a plan to attain these goals. They understand their own career interests, preferences, goals and requirements. They have perspective regarding the pathways available to them and the time, effort, experience and other requirements to pursue each, including a path of entrepreneurship. They recognize the value of each step in the education and experimental process and they recognize that nearly all career paths require ongoing education and experience. They seek counselors, mentors and other experts to assist in the planning and execution of career and personal goals.

  **Example:** Students will create a business proposal based upon their interests. They will also listen to small business owners and ask questions to help them with their plans.
WIDA Proficiency Levels

At the given level of English language proficiency, English language learners will process, understand, produce or use:

<table>
<thead>
<tr>
<th>Level</th>
<th>Characteristics</th>
</tr>
</thead>
</table>
| **6- Reaching** | - Specialized or technical language reflective of the content areas at grade level  
- A variety of sentence lengths of varying linguistic complexity in extended oral or written discourse as required by the specified grade level  
- Oral or written communication in English comparable to proficient English peers |
| **5- Bridging** | - Specialized or technical language of the content areas  
- A variety of sentence lengths of varying linguistic complexity in extended oral or written discourse, including stories, essays or reports  
- Oral or written language approaching comparability to that of proficient English peers when presented with grade level material. |
| **4- Expanding** | - Specific and some technical language of the content areas  
- A variety of sentence lengths of varying linguistic complexity in oral discourse or multiple, related sentences or paragraphs  
- Oral or written language with minimal phonological, syntactic or semantic errors that may impede the communication, but retain much of its meaning, when presented with oral or written connected discourse, with sensory, graphic or interactive support |
| **3- Developing** | - General and some specific language of the content areas  
- Expanded sentences in oral interaction or written paragraphs  
- Oral or written language with phonological, syntactic or semantic errors that may impede the communication, but retain much of its meaning, when presented with oral or written, narrative or expository descriptions with sensory, graphic or interactive support |
| **2- Beginning** | - General language related to the content area  
- Phrases or short sentences  
- Oral or written language with phonological, syntactic, or semantic errors that often impede the communication when presented with one to multiple-step commands, directions, or a series of statements with sensory, graphic or interactive support |
| **1- Entering** | - Pictorial or graphic representation of the language of the content areas  
- Words, phrases or chunks of language when presented with one-step commands directions, WH-, choice or yes/no questions, or statements with sensory, graphic or interactive support |
# Language Development Supports For English Language Learners

## To Increase Comprehension and Communication Skills

### Environment

- Welcoming and stress-free
- Respectful of linguistic and cultural diversity
- Honors students’ background knowledge
- Sets clear and high expectations
- Includes routines and norms
- Is thinking-focused vs. answer-seeking
- Offers multiple modalities to engage in content learning and to demonstrate understanding
- Includes explicit instruction of specific language targets
- Provides participation techniques to include all learners
- Integrates learning centers and games in a meaningful way
- Provides opportunities to practice and refine receptive and productive skills in English as a new language
- Integrates meaning and purposeful tasks/activities that:
  - Are accessible by all students through multiple entry points
  - Are relevant to students’ lives and cultural experiences
  - Build on prior mathematical learning
  - Demonstrate high cognitive demand
  - Offer multiple strategies for solutions
  - Allow for a language learning experience in addition to content

<table>
<thead>
<tr>
<th>Sensory Supports*</th>
<th>Graphic Supports*</th>
<th>Interactive Supports*</th>
<th>Verbal and Textual Supports</th>
</tr>
</thead>
<tbody>
<tr>
<td>Real-life objects (realia) or concrete objects</td>
<td>Graphs</td>
<td>In a whole group</td>
<td>Labeling</td>
</tr>
<tr>
<td>Physical models</td>
<td>Charts</td>
<td>In a small group</td>
<td>Students’ native language</td>
</tr>
<tr>
<td>Manipulatives</td>
<td>Timelines</td>
<td>With a partner such as Turn-and-Talk</td>
<td>Modeling</td>
</tr>
<tr>
<td>Pictures &amp; photographs</td>
<td>Number lines</td>
<td>In pairs as a group (first, two pairs work independently, then they form a group of four)</td>
<td>Repetitions</td>
</tr>
<tr>
<td>Visual representations or models such as diagrams or drawings</td>
<td>Graphic organizers</td>
<td>In triads</td>
<td>Paraphrasing</td>
</tr>
<tr>
<td>Videos &amp; films</td>
<td>Graphing paper</td>
<td>Cooperative learning structures such as Think-Pair-Share</td>
<td>Summarizing</td>
</tr>
<tr>
<td>Newspapers or magazines</td>
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<td>Interactive websites or software</td>
<td>Guiding questions</td>
</tr>
<tr>
<td>Gestures</td>
<td></td>
<td>With a mentor or coach</td>
<td>Clarifying questions</td>
</tr>
<tr>
<td>Physical movements</td>
<td></td>
<td></td>
<td>Probing questions</td>
</tr>
<tr>
<td>Music &amp; songs</td>
<td></td>
<td></td>
<td>Leveled questions such as What? When? Where? How? Why?</td>
</tr>
</tbody>
</table>

# Building Equity in Your Teaching Practice

How do the essential questions highlight the connection between the big ideas of the unit and equity in your teaching practice?

<table>
<thead>
<tr>
<th>CONTENT INTEGRATION</th>
<th>KNOWLEDGE CONSTRUCTION</th>
<th>PREJUDICE REDUCTION</th>
<th>EQUITABLE PEDAGOGY</th>
<th>EMPOWERING SCHOOL CULTURE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Teachers use examples and content from a variety of cultures &amp; groups.</td>
<td>Teachers help students understand how knowledge is created and influenced by cultural assumptions, perspectives &amp; biases.</td>
<td>Teachers implement lessons and activities to assert positive images of ethnic groups &amp; improve intergroup relations.</td>
<td>Teachers modify techniques and methods to facilitate the academic achievement of students from diverse backgrounds.</td>
<td>Using the other four dimensions to create a safe and healthy educational environment for all.</td>
</tr>
</tbody>
</table>

This unit / lesson is connected to other topics explored with students. This unit / lesson provides context to the history of privilege and oppression. This unit / lesson helps students question and unpack biases & stereotypes. The instruction has been modified to meet the needs of each student. There are opportunities for students to connect with the community.  

There are multiple viewpoints reflected in the content of this unit / lesson. This unit / lesson addresses power relationships. This unit / lesson helps students examine, research and question information and sources. Students feel respected and their cultural identities are valued. My classroom is welcoming and supportive for all students.  

The materials and resources are reflective of the diverse identities and experiences of students. This unit / lesson helps students to develop research and critical thinking skills. The curriculum encourages discussion and understanding about the groups of people being represented. Additional supports have been provided for students to become successful independent learners. I am aware of and sensitive to the needs of my students and their families.  

The content affirms students, as well as exposes them to experiences other than their own. This curriculum creates windows and mirrors* for students. This unit / lesson challenges dominant perspectives. Opportunities are provided for student to reflect on their learning and provide feedback. There are effective parent communication systems established. Parents can talk to me about issues as they arise in my classroom.

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Culturally Relevant Pedagogy Examples

- **Integrate Relevant Word Problems: Contextualize equations using word problems that reference student interests and cultures.**
  
  **Example:** Create and use word problems and situations that students can relate to, have prior knowledge of and includes their interest. These can include current events and/or relevant real-world situations. Using content that students can relate to adds meaning, value and connection. The following link provides you with a variety of word problems that are current, relevant to real-world and student interests: [https://www.yummymath.com/](https://www.yummymath.com/)

- **Everyone has a Voice: Create a classroom environment where students know that their contributions are expected and valued.**
  
  **Example:** Establish norms for sharing that promote discourse and a growth mindset for learning. All students are capable of expressing critical financial thinking and contributing to the classroom community. Students learn new ways of looking at problem solving by working with and listening to each other.

- **Use Learning Stations: Provide a range of material by setting up learning stations.**
  
  **Example:** Reinforce understandings of concepts and skills by promoting learning through student interests, modalities, experiences and/or prior knowledge. Encourage the students to make content choices based upon their strengths, needs, values and experiences. Providing students with opportunities to learn about taxes, advertising and consumer protection as it can be applied to their own life will give them a sense of ownership to their learning and understanding.

- **Present New Concepts Using Student Vocabulary: Use student diction to capture attention and build understanding before using academic terms.**
  
  **Example:** Teach vocabulary in various modalities to increase students’ retention. Use multi-modal activities, analogies, realia, visual cues, graphic representations, gestures, pictures, practice and cognates. Inform students that some vocabulary words have multiple meanings. Have students create the Word Wall with their definitions and examples to foster ownership. Work with students to create a sorting and matching game using vocabulary words from within the unit. Students can work in teams or individually to play these games. This will allow students to familiarize themselves with the vocabulary words within the unit.
SOCIAL AND EMOTIONAL LEARNING (SEL) COMPETENCIES

**SELF-AWARENESS**

The ability to accurately recognize one’s own emotions, thoughts, and values and how they influence behavior. The ability to accurately assess one’s strengths and limitations, with a well-grounded sense of confidence, optimism, and a “growth mindset.”

- Identifying Emotions
- Accurate Self-perception
- Recognizing Strengths
- Self-confidence
- Self-efficacy

**SOCIAL AWARENESS**

The ability to take the perspective of and empathize with others, including those from diverse backgrounds and cultures. The ability to understand social and ethical norms for behavior and to recognize family, school, and community resources and supports.

- Perspective-taking
- Empathy
- Appreciating diversity
- Respect for others

**RESPONSIBLE DECISION-MAKING**

The ability to make constructive choices about personal behavior and social interactions based on ethical standards, safety concerns, and social norms. The realistic evaluation of consequences of various actions, and a consideration of the well-being of oneself and others.

- Identifying problems
- Analyzing situations
- Solving problems
- Evaluating
- Reflecting
- Ethical responsibility

**SELF-MANAGEMENT**

The ability to successfully regulate one’s emotions, thoughts, and behaviors in different situations — effectively managing stress, controlling impulses, and motivating oneself. The ability to set and work toward personal and academic goals.

- Impulse control
- Stress management
- Self-discipline
- Self-motivation
- Goal setting
- Organizational skills

**RELATIONSHIP SKILLS**

The ability to establish and maintain healthy and rewarding relationships with diverse individuals and groups. The ability to communicate clearly, listen well, cooperate with others, resist inappropriate social pressure, negotiate conflict constructively, and seek and offer help when needed.

- Communication
- Social engagement
- Relationship building
- Teamwork
<table>
<thead>
<tr>
<th>SEL Competency</th>
<th>Examples</th>
<th>Content Specific Activity &amp; Approach to SEL</th>
</tr>
</thead>
</table>
| ✓ Self-Awareness  
  Self-Management  
  Social-Awareness  
  Relationship Skills  
  Responsible Decision-Making | Example practices that address Self-Awareness:  
  • Clearly state classroom rules  
  • Provide students with specific feedback regarding academics and behavior  
  • Offer different ways to demonstrate understanding  
  • Create opportunities for students to self-advocate  
  • Check for student understanding / feelings about performance  
  • Check for emotional wellbeing  
  • Facilitate understanding of student strengths and challenges | During the first week of school, establish shared classroom rules, expectations and consequences so that students can see the impact of their own actions and behaviors on outcomes.  
  Ask students to identify their own personal interests, strengths, and weaknesses in careers and setting goals.  
  Encourage students to use mathematical representations to elaborate their understanding of equations.  (For example: Students will create a budget to determine their expenses and profits.) |
| ✓ Self-Management  
  Social-Awareness  
  Relationship Skills  
  Responsible Decision-Making | Example practices that address Self-Management:  
  • Encourage students to take pride/ownership in work and behavior  
  • Encourage students to reflect and adapt to classroom situations  
  • Assist students with being ready in the classroom  
  • Assist students with managing their own emotional states | Teach self-management techniques such as belly breathing, yoga positions, counting to ten, self-talk, relaxation exercises or mental rehearsal to help students develop concrete techniques for managing their own stress or anxiety.  
  Students will create goals based off of their perceived math strengths and weaknesses to assist them with their future career choices. They can be taught to self-assess progress toward their learning goals, which is a powerful strategy that promotes academic growth.  
  Teach students to respect other’s thoughts and opinions no matter how different than
<table>
<thead>
<tr>
<th>Self-Awareness</th>
<th>Example practices that address Social-Awareness:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Self-Management</td>
<td>• Encourage students to reflect on the perspective of others</td>
</tr>
<tr>
<td>✓ <strong>Social-Awareness</strong></td>
<td>• Assign appropriate groups</td>
</tr>
<tr>
<td>Relationship Skills</td>
<td>• Help students to think about social strengths</td>
</tr>
<tr>
<td>Responsible Decision-Making</td>
<td>• Provide specific feedback on social skills</td>
</tr>
<tr>
<td></td>
<td>• Model positive social awareness through metacognition activities</td>
</tr>
</tbody>
</table>

Routinely ask students to talk about the kinds of problems and puzzles they like to solve and why. This will allow the students to begin to see the ways in which other students have similar or different preferences and learn from each other about why other concepts and problem-solving approaches are interesting.

Model and routinely promote a rule or norm of treating others the way you would want to be treated.

Build respect for diversity in the classroom by having students share their different perspectives on situations or solution strategies. (Teachers: They can engage students in purposeful sharing of ideas, reasoning and approaches using varied representations. Students: They can seek to understand the approaches used by peers by asking clarifying questions, trying out others’ strategies and describing the approaches used by others.)

<table>
<thead>
<tr>
<th>Self-Awareness</th>
<th>Example practices that address Relationship Skills:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Self-Management</td>
<td>• Engage families and community members</td>
</tr>
<tr>
<td>Social-Awareness</td>
<td>• Model effective questioning and responding to students</td>
</tr>
<tr>
<td>✓ <strong>Relationship Skills</strong></td>
<td>• Plan for project-based learning</td>
</tr>
<tr>
<td>Responsible Decision-Making</td>
<td></td>
</tr>
</tbody>
</table>

Teach lessons on how to ask a peer or teacher for help. Brainstorm with students the most effective ways to request help.

Discuss and practice ways to say “thank you.” Also teach students how to apologize sincerely when frustrated, especially when students express frustration inappropriately.
• Assist students with discovering individual strengths
• Model and promote respecting differences
• Model and promote active listening
• Help students develop communication skills
• Demonstrate value for a diversity of opinions

Develop speaking and listening skills (e.g., how to ask questions, how to listen well, and how to effectively seek help when one doesn’t understand academic content) and the ability to collaborate to solve problems.

**Self-Awareness**
**Self-Management**
**Social-Awareness**
**Relationship Skills**

**✓ Responsible Decision-Making**

**Example practices that address Responsible Decision-Making:**

- Support collaborative decision making for academics and behavior
- Foster student-centered discipline
- Assist students in step-by-step conflict resolution process
- Foster student independence
- Model fair and appropriate decision making
- Teach good citizenship

Allow the students to select their own strategy and/or tool to solve the problem. *(For example: Students can use graphing and online calculators, listening and/or talking to people and tutorials to help them determine their gross profit percent and break even percent.)*

Teacher models and sets the expectations for the students to consistently assume responsibility for following procedures for independent and/or cooperative group work and for the students to hold themselves accountable for contributing productively to their own learning.

Teacher models organization and homework study skills for the students to be able to independently make more positively productive decisions. *(For example: Show students how to set up their binders, creation of interactive notebooks, and develop study skills)*
# Differentiated Instruction

**Accommodate Based on Students Individual Needs: Strategies**

<table>
<thead>
<tr>
<th><strong>Time/General</strong></th>
<th><strong>Processing</strong></th>
<th><strong>Comprehension</strong></th>
<th><strong>Recall</strong></th>
<th><strong>Assistive Technology</strong></th>
<th><strong>Tests/Quizzes/Grading</strong></th>
<th><strong>Behavior/Attention</strong></th>
<th><strong>Organization</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>Extra time for assigned tasks</td>
<td>Extra Response time</td>
<td>Precise processes for balanced math instructional model</td>
<td>Teacher-made checklist</td>
<td>Computer/whiteboard</td>
<td>Extended time</td>
<td>Consistent daily structured routine</td>
<td>Individual daily planner</td>
</tr>
<tr>
<td>Adjust length of assignment</td>
<td>Have students verbalize steps</td>
<td>Short manageable tasks</td>
<td>Use visual graphic organizers</td>
<td>Tape recorder</td>
<td>Study guides</td>
<td>Simple and clear classroom rules</td>
<td>Display a written agenda</td>
</tr>
<tr>
<td>Timeline with due dates for reports and projects</td>
<td>Repeat, clarify or reword directions</td>
<td>Brief and concrete directions</td>
<td>Reference resources to promote independence</td>
<td>Video Tape</td>
<td>Shortened tests</td>
<td>Provide immediate feedback</td>
<td>Note-taking assistance</td>
</tr>
<tr>
<td>Communication system between home and school</td>
<td>Mini-breaks between tasks</td>
<td>Provide a warning for transitions</td>
<td>Visual and verbal reminders</td>
<td></td>
<td>Provide a warning for transitions</td>
<td>Small group instruction</td>
<td>Color code materials</td>
</tr>
<tr>
<td>Provide lecture notes/outline</td>
<td>Provide a warning for transitions</td>
<td>Partnering</td>
<td>Graphic organizers</td>
<td></td>
<td>Read directions aloud</td>
<td>Emphasize multi-sensory learning</td>
<td></td>
</tr>
</tbody>
</table>
Differentiated Instruction
Accommodate Based on Content Specific Needs: Strategies

- Anchor charts to model strategies and use of formulas
- Reference sheets that list formulas, step-by-step procedures and model strategies
- Conceptual word wall that contains definition, translation, pictures and/or examples
- Graphic organizers (Examples include: Venn diagram, Four Square, K-W-L)
- Translation dictionary
- Teacher modeling
- Four-function calculator to assist with computations
- Online calculators
- Students can utilize math journals to write notes, copy solution steps, and translate terms and key vocabulary
- Highlight and label the solution steps for multi-step problems in different colors
- Utilize technological programs which provide verbal and visual instruction in native and/or second language
- Horizontal and vertical number line for locating positive and negative numbers
- Place value chart to assist with division and multiplication and decimals
- Divisibility rules to assist with division
- List of prime and composite numbers to assist with division
- Multiplication chart to assist with division
- Videos to reinforce skills and thinking with computation
Interdisciplinary Connections

*Model interdisciplinary thinking to expose students to other disciplines.*

**Art Connection:** (1.5.8.Cr.2c)
- Students can create a print advertisement for their small business.

- Students will write a business proposal for their small business plan.
What is the purpose of Enrichment?

- The purpose of enrichment is to provide extended learning opportunities and challenges to students who have already mastered, or can quickly master, the basic curriculum. Enrichment gives the student more time to study concepts with greater depth, breadth, and complexity.  
- Enrichment also provides opportunities for students to pursue learning in their own areas of interest and strengths.  
- Enrichment keeps advanced students engaged and supports their accelerated academic needs.  
- Enrichment provides the most appropriate answer to the question, “What do you do when the student already knows it?”

Enrichment is…

- Planned and purposeful  
- Different, or differentiated, work – not just more work  
- Responsive to students’ needs and situations  
- A promotion of high-level thinking skills and making connections within content  
- The ability to apply different or multiple strategies to the content  
- The ability to synthesize concepts and make real world and cross-curricular connections  
- Elevated contextual complexity  
- Sometimes independent activities, sometimes direct instruction  
- Inquiry based or open ended assignments and projects  
- Using supplementary materials in addition to the normal range of resources  
- Choices for students  
- Tiered/Multi-level activities with flexible groups (may change daily or weekly)

Enrichment is not…

- Just for gifted students (some gifted students may need intervention in some areas just as some other students may need frequent enrichment)  
- Worksheets that are more of the same (busywork)  
- Random assignments, games, or puzzles not connected to the content areas or areas of student interest  
- Extra homework  
- A package that is the same for everyone  
- Thinking skills taught in isolation  
- Unstructured free time
Assessments

*Suggested Formative/Summative Classroom Assessments*

- Describe Learning Vertically
- Identify Key Building Blocks
- Make Connections (between and among key building blocks)
- Short/Extended Constructed Response Items
- Multiple-Choice Items (where multiple answer choices may be correct)
- Drag and Drop Items
- Use of Equation Editor
- Quizzes
- Journal Entries/Reflections/Quick-Writes
- Accountable talk
- Projects
- Portfolio
- Observation
- Graphic Organizers/Concept Mapping
- Presentations
- Role Playing
- Teacher-Student and Student-Student Conferencing
- Homework
New Jersey Student Learning Standards

9.1.8.A.2 Relate how career choices, education choices, skills, entrepreneurship, and economic conditions affect income.

9.1.8.A.7 Explain the purpose of the payroll deduction process, taxable income, and employee benefits.

9.1.8.B.6 Evaluate the relationship of cultural traditions and historical influences on financial practice.

9.1.8.B.7 Construct a budget to save for long-term, short-term, and charitable goals.

9.1.8.B.8 Develop a system for keeping and using financial records.

9.1.8.C.3 Compare and contrast credit cards and debit cards and the advantages and disadvantages of using each.

9.1.8.C.4 Demonstrate an understanding of the terminology associated with different types of credit (e.g., credit cards, installment loans, mortgages) and compare the interest rates associated with each.

9.1.8.C.7 Determine potential consequences of using “easy access” credit (e.g., using a line of credit vs. obtaining a loan for a specific purpose).

9.1.8.F.3 Relate the impact of business, government, and consumer fiscal responsibility to the economy and to personal finance.

6.NS.B.3 Fluently add, subtract, multiply, and divide multi-digit decimals using the standard algorithm for each operation.

6.RP.A.3 Use ratio and rate reasoning to solve real-world and mathematical problems, e.g., by reasoning about tables of equivalent ratios, tape diagrams, double number line diagrams, or equations.

   a) Make tables of equivalent ratios relating quantities with whole number measurements, find missing values in the tables, and plot the pairs of values on the coordinate plane. Use tables to compare ratios.

   b) Solve unit rate problems including those involving unit pricing and constant speed. For example, if it took 7 hours to mow 4 lawns, then at that rate, how many lawns could be mowed in 35 hours? At what rate were lawns being mowed?
New Jersey Student Learning Standards

<table>
<thead>
<tr>
<th>Standards</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>c)</td>
<td>Find a percent of a quantity as a rate per 100 (e.g., 30% of a quantity means 30/100 times the quantity); solve problems involving finding the whole, given a part and the percent.</td>
</tr>
<tr>
<td>d)</td>
<td>Use ratio reasoning to convert measurement units; manipulate and transform units appropriately when multiplying or dividing quantities.</td>
</tr>
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</table>

**6.EE.B.6** Use variables to represent numbers and write expressions when solving a real-world or mathematical problem; understand that a variable can represent an unknown number, or, depending on the purpose at hand, any number in a specified set.  

**6.EE.C.9** Use variables to represent two quantities in a real-world problem that change in relationship to one another; write an equation to express one quantity, thought of as the dependent variable, in terms of the other quantity, thought of as the independent variable. Analyze the relationship between the dependent and independent variables using graphs and tables, and relate these to the equation. For example, in a problem involving motion at constant speed, list and graph ordered pairs of distances and times, and write the equation \( d = 65t \) to represent the relationship between distance and time.  

**7.NS.A.3** Solve real-world and mathematical problems involving the four operations with rational numbers.  

**7.EE.B.3** Solve multi-step real-life and mathematical problems posed with positive and negative rational numbers in any form (whole numbers, fractions, and decimals), using tools strategically. Apply properties of operations to calculate with numbers in any form; convert between forms as appropriate; and assess the reasonableness of answers using mental computation and estimation strategies. For example: If a woman making $25 an hour gets a 10% raise, she will make an additional \( \frac{1}{10} \) of her salary an hour, or $2.50, for a new salary of $27.50. If you want to place a towel bar 9 3/4 inches long in the center of a door that is 27 1/2 inches wide, you will need to place the bar about 9 inches from each edge; this estimate can be used as a check on the exact computation.  

**8.EE.B.5** Graph proportional relationships, interpreting the unit rate as the slope of the graph. Compare two different proportional relationships represented in different ways. For example, compare a distance-time graph to a distance-time equation to determine which of two moving objects has greater speed.
## Mathematical Practices

1. Make sense of problems and persevere in solving them.

2. Reason abstractly and quantitatively.

3. Construct viable arguments and critique the reasoning of others.

4. Model with mathematics.

5. Use appropriate tools strategically.

6. Attend to precision.

7. Look for and make use of structure.

8. Look for and express regularity in repeated reasoning.
**Unit Focus:**
- Understanding entrepreneurship
- How to start and maintain a small business

**New Jersey Student Learning Standard(s):**
9.1.8.A.2 Relate how career choices, education choices, skills, entrepreneurship, and economic conditions affect income.

9.1.8.A.7 Explain the purpose of the payroll deduction process, taxable income, and employee benefits.

9.1.8.B.6 Evaluate the relationship of cultural traditions and historical influences on financial practice.

**Student Learning Objectives:** Determine whether starting a small business is right for them. Improve their odds of success in starting a small business.

<table>
<thead>
<tr>
<th>Skills, Strategies &amp; Concepts</th>
<th>Essential Understandings/Questions (Accountable Talk)</th>
<th>Tasks/Activities</th>
</tr>
</thead>
<tbody>
<tr>
<td>Coming up with a strong business idea is at the core of entrepreneurship.</td>
<td>What is an entrepreneur?</td>
<td>Starting a Small Business</td>
</tr>
<tr>
<td>Starting and managing your own business can take more time, energy, and talent than most jobs ever do.</td>
<td>What makes a good business idea stand out?</td>
<td>Entrepreneurship</td>
</tr>
<tr>
<td>It may require a significant investment of your own money and it might be risky. But it may prove much more rewarding, too.</td>
<td>What is the purpose of a business plan?</td>
<td><a href="https://www.ngpf.org/curriculum/mini-units/">https://www.ngpf.org/curriculum/mini-units/</a></td>
</tr>
</tbody>
</table>
Running your own business can give you the satisfaction of using your talents and doing work you enjoy. If you’re a good money manager, it can be financially rewarding, as well.

The purpose of a business plan is to serve as a map for the present and a vision of the future.

A business plan typically includes several key components that list specific information about your company, your goals, your financing and other important information.

A business plan can help you attract investors.

There are many available resources to help you write a business plan—the U.S. Small Business Administration (SBA) or local Small Business Development Center are two examples.

Almost every business needs at least some money to get started.

Many small business owners look for additional funding at various times after their businesses are up and running.

There are two types of business financing—debt and equity financing.

There are many ways to get the money to start a small business, including family and friends, personal savings, financial institutions, and the U.S. Small Business Administration (SBA).

If you were to start a small business, where would you go for financing?

What would you need to show an investor before they invested in your small business?
New Jersey Student Learning Standard(s):
9.1.8.C.3 Compare and contrast credit cards and debit cards and the advantages and disadvantages of using each.

9.1.8.C.4 Demonstrate an understanding of the terminology associated with different types of credit (e.g., credit cards, installment loans, mortgages) and compare the interest rates associated with each.

9.1.8.C.7 Determine potential consequences of using “easy access” credit (e.g., using a line of credit vs. obtaining a loan for a specific purpose).

**Student Learning Objectives:** List and define the six basic skills that are critical to the management of any small business. Define common business vocabulary terms. List and define three common types of credit that could help you finance a small business.

<table>
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<tr>
<th>Skills, Strategies &amp; Concepts</th>
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</thead>
<tbody>
<tr>
<td>There are thousands of small businesses—some make products, some sell services, some are retail, some sell to consumers. No matter what type of business you have, there are six basic skills you’ll use every day:</td>
<td>How do small business owners pay themselves?</td>
<td>Managing a Small Business</td>
</tr>
<tr>
<td>• Planning</td>
<td>Describe how managing a business budget differs from a personal spending plan.</td>
<td></td>
</tr>
<tr>
<td>• Buying</td>
<td>What are some ways you can maximize cash flow (the money coming in and out of a business) or control expenses for a small business?</td>
<td></td>
</tr>
<tr>
<td>• Producing</td>
<td>What do you think a Profit and Loss Statement describes?</td>
<td></td>
</tr>
<tr>
<td>• Selling</td>
<td>Who would want to look at your Profit and Loss Statement?</td>
<td></td>
</tr>
<tr>
<td>• Tracking</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Managing</td>
<td></td>
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</tbody>
</table>

Having business credit can be a very helpful tool to successfully manage your business.

The U.S. Small Business Administration (SBA) is a source for business loans and lines of credit.
There are three basic money management tools you need:
- Business banking relationship
- Bookkeeping system
- Monthly management reports.

The Profit and Loss Statement (P&L) is a monthly financial report that’s critical to any business.

The P&L helps you track the performance of your business by showing financial results—how much money the business brought in, how much it spent, and how much money you earned or lost.
New Jersey Student Learning Standard(s):
9.1.8.B.7 Construct a budget to save for long-term, short-term, and charitable goals.

9.1.8.B.8 Develop a system for keeping and using financial records.

9.1.8.F.3 Relate the impact of business, government, and consumer fiscal responsibility to the economy and to personal finance.

6.NS.B.3 Fluently add, subtract, multiply, and divide multi-digit decimals using the standard algorithm for each operation.

6.RP.A.3 Use ratio and rate reasoning to solve real-world and mathematical problems, e.g., by reasoning about tables of equivalent ratios, tape diagrams, double number line diagrams, or equations.
  a) Make tables of equivalent ratios relating quantities with whole number measurements, find missing values in the tables, and plot the pairs of values on the coordinate plane. Use tables to compare ratios.
  b) Solve unit rate problems including those involving unit pricing and constant speed. For example, if it took 7 hours to mow 4 lawns, then at that rate, how many lawns could be mowed in 35 hours? At what rate were lawns being mowed?
  c) Find a percent of a quantity as a rate per 100 (e.g., 30% of a quantity means 30/100 times the quantity); solve problems involving finding the whole, given a part and the percent.
  d) Use ratio reasoning to convert measurement units; manipulate and transform units appropriately when multiplying or dividing quantities.

6.EE.B.6 Use variables to represent numbers and write expressions when solving a real-world or mathematical problem; understand that a variable can represent an unknown number, or, depending on the purpose at hand, any number in a specified set.

6.EE.C.9 Use variables to represent two quantities in a real-world problem that change in relationship to one another; write an equation to express one quantity, thought of as the dependent variable, in terms of the other quantity, thought of as the independent variable. Analyze the relationship between the dependent and independent variables using graphs and tables, and relate these to the equation. For example, in a problem involving motion at constant speed, list and graph ordered pairs of distances and times, and write the equation \( d = 65t \) to represent the relationship between distance and time.

7.NS.A.3 Solve real-world and mathematical problems involving the four operations with rational numbers.
7.EE.B.3 Solve multi-step real-life and mathematical problems posed with positive and negative rational numbers in any form (whole numbers, fractions, and decimals), using tools strategically. Apply properties of operations to calculate with numbers in any form; convert between forms as appropriate; and assess the reasonableness of answers using mental computation and estimation strategies. For example: If a woman making $25 an hour gets a 10% raise, she will make an additional 1/10 of her salary an hour, or $2.50, for a new salary of $27.50. If you want to place a towel bar 9 3/4 inches long in the center of a door that is 27 1/2 inches wide, you will need to place the bar about 9 inches from each edge; this estimate can be used as a check on the exact computation.

8.EE.B.5 Graph proportional relationships, interpreting the unit rate as the slope of the graph. Compare two different proportional relationships represented in different ways. For example, compare a distance-time graph to a distance-time equation to determine which of two moving objects has greater speed.

**Student Learning Objectives:** List and define the four stages of the business life cycle. Explain the typical challenges of balancing their personal and business finances over time. Relate this information to their own business growth. Create and present your own business plan. Fluently add, subtract, multiply and divide multi-digit decimals. Create and complete tables of equivalent ratios to solve real world and mathematical problems using ratio and rate reasoning that include making tables of equivalent ratios, solving unit rate problems, and finding percent of a quantity as a rate per 100. Use ratio and rate reasoning to convert measurement units and to transform units appropriately when multiplying or dividing quantities. Use variables to represent numbers and write expressions when solving real world or mathematical problems. Write an equation using two variables (independent and dependent) to represent two quantities that change in relationship to one another in a real world problem. Analyze the relationship between the dependent and independent variables and relate the equation to a given graph and to its table of values. Solve multi-step real life and mathematical problems with rational numbers in any form (fractions, decimals) by applying properties of operations and converting rational numbers between forms as needed. Assess the reasonableness of answers using mental computation and estimation strategies. Graph proportional relationships, interpreting slope as unit rate, and compare two proportional relationships, each represented in different ways.

<table>
<thead>
<tr>
<th>Skills, Strategies &amp; Concepts</th>
<th>Essential Understandings/Questions (Accountable Talk)</th>
<th>Tasks/Activities</th>
</tr>
</thead>
</table>
| Every business typically goes through a four-stage life cycle.  
  - Start up  
  - Growth  
  - Maturity  
  - Transition | What are the four stages of the business life cycle and what happens during each stage?  
  What is cash flow and why is it important? | Growing a Small Business  
  Create: A Business Idea  
  Analyze: 4 Elevator Pitches |
Balancing your personal and business finances can be challenging. If you overstretch your personal finances to support your business, or mix your personal and business finances inappropriately, you may expose yourself to personal financial liability and loss.

The process of borrowing money for your business is similar to borrowing for yourself. However, the reasons can be different.

Borrowing money for your business can help you expand or improve your business and its profitability.

Having business credit can definitely be helpful, but remember: you’ll pay a price in interest.

If your business has good cash flow, you may not need to borrow as much or as often.

Lenders or investors will want to see a detailed business plan when you apply for a loan.

Solving real world and mathematical problems involving unit rate (including unit price and constant speed).

Calculate a percent of a quantity and solve problems by finding the whole when given the part and the percent.

A variable can represent an unknown number or any number in a set of numbers.

What options do you have before you borrow money?

What types of loans or lines of credit do you have in current business and what do you use them for?

What kinds of marketing do the small businesses in your community use?

What kinds of marketing do you use?

Which marketing tactics do you think are the most successful?

Can you name some marketing strategies that aren’t “traditional” strategies? Why do you think these will work?

What are the consequences of not having a marketing strategy?

In what ways do you think a banker can help you as a business advisor?

What people do you know that could help you grow your small business?

What kinds of problems can I solve by using ratios?

Why are tables important in solving real world mathematical problems?

Analyze: Advertising Campaigns
Analyze: Sample Business Plans
Project: Pitch Your Business Idea
Research: Great Innovators and Innovations
What Will Your Expenses Be?
Project: Students develop a small business plan and present it to the class.
Students write expressions to represent and solve various real-world situations.

**Examples:**
Maria has three more than twice as many crayons as Elizabeth. Write an algebraic expression to represent the number of crayons that Maria has.

**Solution:** $2c + 3$ represents the number of crayons that Elizabeth currently has.

An amusement park charges $28 to enter and $0.35 per ticket. Write an algebraic expression to represent the total amount spent.

**Solution:** $28 + 0.35t$ where $t$ represents the number of tickets purchased.

Students should be able to write an equation from a word problem and understand how the coefficient of the dependent variable is related to the graph and/or a table of values.

Two quantities that change in relationship to one another may be represented with an equation that has two variables, with a graph, and with a table of values.

Students will write an equation with two variables that represents how two quantities are related to one another.

The purpose of this standard is for students to understand the relationship between two variables, which begins with the distinction between dependent and independent variables.

<table>
<thead>
<tr>
<th>What are percentages?</th>
</tr>
</thead>
<tbody>
<tr>
<td>Why do we use letters to represent numbers in mathematics?</td>
</tr>
<tr>
<td>How can variables be used to describe patterns?</td>
</tr>
<tr>
<td>How can algebraic expressions be used to model real-world situations?</td>
</tr>
<tr>
<td>How can proportional relationships be described using the equation $y = kx$?</td>
</tr>
<tr>
<td>How can proportional relationships be represented using rules, tables, and graphs?</td>
</tr>
<tr>
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<tr>
<td>How can proportional relationships be represented using rules, tables, and graphs?</td>
</tr>
<tr>
<td>How can the graph of $y = kx$ be interpreted for different contexts?</td>
</tr>
<tr>
<td>How can algebraic expressions be used to model real-world situations?</td>
</tr>
<tr>
<td>How can we solve simple algebraic equations, and how do we interpret the meaning of the solutions?</td>
</tr>
</tbody>
</table>
The independent variable is the variable that can be changed; the dependent variable is the variable that is affected by the change in the independent variable.

Students recognize that the independent variable is graphed on the x-axis; the dependent variable is graphed on the y-axis.

Apply the convention of order of operations to add, subtract, multiply and divide rational numbers.

Solve real world problems involving the four operations with rational numbers.

Rational numbers can take different forms.

Explain the connection between different forms of equivalent rational numbers.

Justify the reasonableness of solutions using mental computation and estimation.

**Students are able to:**
- Solve multi-step real-life problems using rational numbers in any form.
- Solve multi-step mathematical problems using rational numbers in any form.
- Convert between decimals and fractions and apply properties of operations when calculating with rational numbers.
- Estimate to determine the reasonableness of answers.

Quantitative relationships can be represented in different ways.

What is the difference between the dependent variable and the independent variable?

How is the dependent variable affected?

Many real world situations can be modeled and solved using operations with positive and negative rational numbers.

How can mathematical relationships be represented as expressions or equations?

What are the properties of operations?

What strategies can be used to represent real situations using algebraic expressions and equations?

How do you translate real-word problems to algebraic expressions?

How can we find a slope given a graph?

What does the slope mean in the context of the problem?

How are unit rate, slope, and rate of change related?

What are multiple ways to compare two different proportional relationships?
ways.

Graph proportional relationships in the coordinate plane.

Interpret unit rate of a proportional relationship as the slope of a graph that intersects the origin.

Compare two different proportional relationships that are represented in different ways (table of values, equation, graph, verbal description).
<table>
<thead>
<tr>
<th>Unit 4 Vocabulary</th>
</tr>
</thead>
<tbody>
<tr>
<td>Add</td>
</tr>
<tr>
<td>Adjustable Rate Loan</td>
</tr>
<tr>
<td>Asset</td>
</tr>
<tr>
<td>Break-even Point</td>
</tr>
<tr>
<td>Business</td>
</tr>
<tr>
<td>Capital</td>
</tr>
<tr>
<td>Collateral</td>
</tr>
<tr>
<td>Consumer</td>
</tr>
<tr>
<td>Debt Financing</td>
</tr>
<tr>
<td>Difference</td>
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<td>Divide</td>
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<td>Double Number Line</td>
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<td>Entrepreneur</td>
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<td>Equation</td>
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<td>Equity Financing</td>
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<td>Expense</td>
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<td>Expression</td>
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<td>Fixed Costs</td>
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<td>Inventory</td>
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<td>Management</td>
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<td>Market Analysis</td>
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<td>Marketing</td>
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<td>Merchandise</td>
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<td>Multi-digit Number</td>
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<td>Multiply</td>
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<td>Number Line</td>
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<td>Operating Expenses</td>
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<td>Overhead</td>
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<td>Percent</td>
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<td>Personal Guarantee</td>
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# References & Suggested Instructional Websites

<table>
<thead>
<tr>
<th>Resource</th>
<th>Website</th>
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<tbody>
<tr>
<td>NextGen Personal Finance</td>
<td>[<a href="https://www.ngpf.org/curriculum/">https://www.ngpf.org/curriculum/</a>]</td>
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<tr>
<td>InCharge Debt Solutions – Financial Literacy for High School Students</td>
<td>[<a href="https://www.incharge.org/financial-literacy/resources-for-teachers/high-school/">https://www.incharge.org/financial-literacy/resources-for-teachers/high-school/</a>]</td>
</tr>
<tr>
<td>University of Arizona - Take Charge Today</td>
<td>[<a href="https://takechargetoday.arizona.edu/">https://takechargetoday.arizona.edu/</a>] (create an account for free access)</td>
</tr>
</tbody>
</table>
**Field Trip Ideas**

**NATIONAL MUSEUM OF MATHEMATICS** (New York, NY) - Mathematics illuminates the patterns and structures all around us. Our dynamic exhibits, gallery, and programs will stimulate inquiry, spark curiosity, and reveal the wonders of mathematics. MoMath has innovative exhibits that will engage folks from 105 to 5 years old (and sometimes younger), but with a special emphasis on activities for 4th through 8th graders. **Requires approval from Unit Superintendent**

http://momath.org/

**MUSEUM OF AMERICAN FINANCE** (New York, NY) – For more than 20 years, educators from around the country have been bringing students to the Museum to help them understand how finance impacts their daily lives. The Museum offers discounted admission for pre-booked groups of eight or more, as well as a variety of classes for students in middle school through college.

http://www.moaf.org/index