

**OCEAN COUNTY MATHEMATICS CURRICULUM  
SOUTHERN REGIONAL SCHOOL DISTRICT**

**Content Area: Mathematics**

**Course Title: Consumer Math: Personal Finance, Banking & Investments**

**Grade Level: 12**

**Unit Plan 1  
Career Research and Planning**

**Pacing Guide  
11-15 days**

**Unit Plan 2  
Banking and Interest Rates**

**Pacing Guide  
11-15 days**

**Unit Plan 3  
Credit Cards**

**Pacing Guide  
11-15 days**

**Unit Plan 4  
Automotive: Research, Insurance  
and Finances**

**Pacing Guide  
11-15 days**

**Unit Plan 5  
Stock Market and Investments**

**Pacing Guide  
11-15 days**

**Unit Plan 6  
Living on Your Own**

**Pacing Guide  
11-15 days**

**Unit Plan 7  
Home Purchasing**

**Pacing Guide  
11-15 Days**

**Unit Plan 8  
Vacationing & Travel**

**Pacing Guide  
11-15 Days**

**Unit Plan 9  
Number Sense, Concepts and Applications**

**Pacing Guide  
15-25 Days**

**Unit Plan 10  
Spatial Sense and Geometry**

**Pacing Guide  
15-25 Days**

**Unit Plan 11  
Patterns, Functions and Algebra**

**Pacing Guide  
15-25 Days**

**Unit Plan 12  
Data Analysis, Probability, Statistics and  
Discrete Math**

**Pacing Guide  
15-25 Days**

**Date Created: February 2012**

**Board Approved on: March 14, 2012**

**OCEAN COUNTY MATHEMATICS CURRICULUM  
SOUTHERN REGIONAL SCHOOL DISTRICT  
Unit Overview**

**Content Area: Mathematics**

**Unit Title: Career Research & Planning**

**Target Course/Grade Level: Consumer Math: Personal Finance, Banking & Investments / 12**

**Unit Summary**

In this unit students will research both desired and preselected career choices. They will research such topics as education needed, job descriptions and outlook, salary & benefits and salary deductions & taxes paid. They will make use of the internet, word processing programs, excel programs and publishing/presenting programs.

**Primary interdisciplinary connections:**

Infused within the unit is connection to the 2009 NJCCCS for Mathematics, Language Arts Literacy and Technology.

**21<sup>st</sup> Century Themes:**

The unit will integrate the 21<sup>st</sup> Century Life and Career strand 9.1 strands A-D. These strands include: Critical thinking and problem solving, creativity and innovation, collaboration, teamwork and leadership, and cross cultural understanding and interpersonal communication.

**Technology connections:**

For further clarification refer to NJ Class Standard Introductions at <http://www.corestandards.org/the-standards/mathematics>

**Learning Targets**

**Content Standards**

**Educational achievement, career choice, and entrepreneurial skills all play a role in achieving a desired lifestyle.**

**9.2.12.A.1** Analyze the relationship between various careers and personal earning goals.

**9.2.12.A.2** Identify a career goal and develop a plan and timetable for achieving it, including educational/training requirements, costs, and possible debt.

**9.2.12.A.3** Analyze how the economic, social, and political conditions of a time period can affect starting a business and can affect a plan for establishing such an enterprise.

**9.2.12.A.4** Summarize the financial risks and benefits of entrepreneurship as a career choice.

**9.2.12.A.5** Evaluate current advances in technology that apply to a selected occupational career cluster.

**Taxes and the cost of employee benefits can affect the amount of disposable income.**

**9.2.12.A.9** Demonstrate how exemptions and deductions can reduce taxable income.

**9.2.12.A.10** Explain the relationship between government programs and services and taxation.

**The potential for building and using personal wealth includes responsibility to the broader community and an understanding of the legal rights and responsibilities of being a good citizen**

**9.2.12.F.1** Demonstrate an understanding of the interrelationships among attitudes, assumptions, and patterns of behavior regarding money, saving, investing, and work across cultures.

**Insurance is designed to protect the consumer against unintended losses.**

**9.2.12.G.7** Compare sources of health and disability coverage, including employee benefit plans, with options in another country.

**9.2.12.G.9** Explain how to self-insure and how to determine when self-insurance is appropriate.

**CONTENT STANDARDS LINK:** <http://www.corestandards.org/the-standards/mathematics/>

<p><b>Unit Essential Questions</b></p> <ul style="list-style-type: none"> <li>• What type of careers is good for your personality and desired lifestyle?</li> <li>• How do I decide what I want to be and how do I prepare for my career?</li> <li>• Why do I need a career plan? How do I communicate this information to post-secondary institutions and employers?</li> <li>• How can we best prepare for the workforce when we will likely change jobs multiple times and perhaps even careers?</li> </ul>	<p><b>Unit Enduring Understandings</b> <i>Students will understand that ...</i></p> <ul style="list-style-type: none"> <li>• Each job, career and profession has a set of preparation requirements, career exploration experiences and different opportunities for personal and professional growth and satisfaction.</li> <li>• An effective career plan is flexible, includes a variety of life experiences, skills and education, and can save time, energy and money.</li> <li>• In the 21st century, people will most likely have multiple careers and jobs.</li> <li>• Personal actions today and tomorrow may have an effect on future employment.</li> </ul>
<p><b>Unit Objectives</b> <i>Students will know...</i></p> <ul style="list-style-type: none"> <li>• How to analyze the relationship between various careers and personal earning goals.</li> <li>• How to identify a career goal and develop a plan and timetable for achieving it, including educational/training requirements, costs, and possible debt.</li> <li>• How to analyze how the economic, social, and political conditions of a time period can affect starting a business and can affect a plan for establishing such an enterprise.</li> <li>• How to summarize the financial risks and benefits of entrepreneurship as a career choice.</li> <li>• How to evaluate current advances in technology that apply to a selected occupational career cluster.</li> <li>• How to demonstrate how exemptions and deductions can reduce taxable income.</li> <li>• How to explain the relationship between government programs and services and taxation.</li> </ul>	<p><b>Unit Objectives</b> <i>Students will be able to...</i></p> <ul style="list-style-type: none"> <li>• Analyze the relationship between various careers and personal earning goals.</li> <li>• Identify a career goal and develop a plan and timetable for achieving it, including educational/training requirements, costs, and possible debt.</li> <li>• Analyze how the economic, social, and political conditions of a time period can affect starting a business and can affect a plan for establishing such an enterprise.</li> <li>• Summarize the financial risks and benefits of entrepreneurship as a career choice.</li> <li>• Evaluate current advances in technology that apply to a selected occupational career cluster.</li> <li>• Demonstrate how exemptions and deductions can reduce taxable income.</li> <li>• Explain the relationship between government programs and services and taxation.</li> </ul>

**OCEAN COUNTY MATHEMATICS CURRICULUM  
SOUTHERN REGIONAL SCHOOL DISTRICT  
Evidence of Learning**

**Formative Assessments**

For additional ideas please refer to NJ State DOE classroom application documents:

<http://www.corestandards.org/resources>

- Homework
- Teacher observation
- Class participation
- DO-NOW
- Notebook
- Open-Ended Writing Assignments

**Summative Assessments**

For additional ideas please refer to NJ State DOE Professional Education Port (PEP):

<http://www.state.nj.us/education/cccs/>

- Quizzes
- Unit Projects and Demonstrations
- Quarterly Tests

**Modifications (ELLs, Special Education, Gifted and Talented)**

- Teacher tutoring
- Peer tutoring
- Cooperative learning groups
- Modified assignments
- Differentiated instruction
- Native language texts and native language to English dictionary
- Follow all IEP modifications/504 plan

**Curriculum Development Resources/Instructional Materials/Equipment Needed Teacher Resources:**

- Textbook and Textbook Resources
- Computer with Internet Access
- Graphing Calculator and/or Scientific Calculator
- Teacher-made worksheets, warm-ups, explorations and WebQuests
- Computer software to support unit

**Teacher Notes:**

**OCEAN COUNTY MATHEMATICS CURRICULUM**  
**SOUTHERN REGIONAL SCHOOL DISTRICT**  
Unit Overview

**Content Area: Mathematics**

**Unit Title: Banking & Interest Rates**

**Target Course/Grade Level: Consumer Math: Personal Finance, Banking & Investments / 12**

**Unit Summary**

Students will use the internet to discover the meaning of banking terminology, how accounts associated with banks operate, interest earned on different types of accounts. They will also research how to be educated consumers and shop around for a bank that will best suit their requirements. Then they will work on other activities that will strengthen these skills. They will make use of the internet, word processing programs, excel programs and publishing/presenting programs.

**Primary interdisciplinary connections:**

Infused within the unit is connection to the 2009 NJCCCS for Mathematics, Language Arts Literacy and Technology.

**21<sup>st</sup> Century Themes:**

The unit will integrate the 21<sup>st</sup> Century Life and Career strand 9.1 strands A-D. These strands include: Critical thinking and problem solving, creativity and innovation, collaboration, teamwork and leadership, and cross cultural understanding and interpersonal communication.

**Technology connections:**

For further clarification refer to NJ Class Standard Introductions at <http://www.corestandards.org/the-standards/mathematics/>

**Learning Targets**

**Content Standards**

**Money management involves setting financial goals**

**9.2.12.B.1** Prioritize financial decisions by systematically considering alternatives and possible consequences.

**9.2.12.B.2** Compare strategies for saving and investing and the factors that influence how much should be saved or invested to meet financial goals.

**Money management requires understanding of cash flow systems and business practices**

**9.2.12.B.8** Describe and calculate interest and fees that are applied to various forms of spending, debt, and saving.

**9.2.12.B.10** Develop a plan that uses the services of various financial institutions to meet personal and family financial goals.

**Credit management includes making informed choices about sources of credit and requires an understanding of the cost of credit**

**9.2.12.C.1** Compare and contrast the financial benefits of different products and services offered by a variety of financial institutions.

**Information about investment options assists with financial planning**

**9.2.12.D.3** Justify the use of savings and investment options to meet targeted goals

**Appropriate application of basic economic principles leads to wiser decisions for individual, family, and business financial planning**

**9.2.12.D.7** Relate savings and investment results to achievement of financial goals.

**9.2.12.D.8** Differentiate among various investment products and savings vehicles and how to use them

most effectively.

**9.2.12.D.9** Assess the role of revenue-generating assets as mechanisms for accruing and managing wealth.

**9.2.12.D.12** Evaluate how taxes affect the rate of return on savings and investments.

**9.2.12.D.13** Analyze how savings, retirement plans, and other investment options help to shift current income for purposes of tax reporting and filing.

**The potential for building and using personal wealth includes responsibility to the broader community and an understanding of the legal rights and responsibilities of being a good citizen**

**9.2.12.F.1** Demonstrate an understanding of the interrelationships among attitudes, assumptions, and patterns of behavior regarding money, saving, investing, and work across cultures.

**CONTENT STANDARDS LINK:** <http://www.corestandards.org/the-standards/mathematics/>

**Unit Essential Questions**

- How can you make the most of your money?
- How well do financial institutions serve our needs?
- How do your saving and investment choices affect your future?

**Unit Enduring Understandings**

*Students will understand that...*

- That they can make the most of their money.
- Financial institutions serve our needs.
- Saving and investment choices affect your future.

**Unit Objectives**

*Students will know...*

- How to describe and calculate interest and fees that are applied to various forms of spending, debt, and saving.
- How to develop a plan that uses the services of various financial institutions to meet personal and family financial goals.
- How to describe and calculate interest and fees that are applied to various forms of spending, debt, and saving.
- How to develop a plan that uses the services of various financial institutions to meet personal and family financial goals.
- How to compare and contrast the financial benefits of different products and services offered by a variety of financial institutions.
- How to justify the use of savings and investment options to meet targeted.
- How to relate savings and investment results to achievement of financial goals.
- How to differentiate among various investment products and savings vehicles and how to use them most effectively.
- How to assess the role of revenue-generating assets as mechanisms for accruing and managing wealth.
- How to evaluate how taxes affect the rate of return on savings and investments.
- How to analyze how savings, retirement plans, and other investment options help to shift current income for purposes of tax reporting and filing.

**Unit Objectives**

*Students will be able to...*

- Describe and calculate interest and fees that are applied to various forms of spending, debt, and saving.
- Develop a plan that uses the services of various financial institutions to meet personal and family financial goals.
- Describe and calculate interest and fees that are applied to various forms of spending, debt, and saving.
- Develop a plan that uses the services of various financial institutions to meet personal and family financial goals.
- Compare and contrast the financial benefits of different products and services offered by a variety of financial institutions.
- Justify the use of savings and investment options to meet targeted.
- Relate savings and investment results to achievement of financial goals.
- Differentiate among various investment products and savings vehicles and how to use them most effectively.
- Assess the role of revenue-generating assets as mechanisms for accruing and managing wealth.
- Evaluate how taxes affect the rate of return on savings and investments.
- Analyze how savings, retirement plans, and other investment options help to shift current income for purposes of tax reporting and filing.

**OCEAN COUNTY MATHEMATICS CURRICULUM  
SOUTHERN REGIONAL SCHOOL DISTRICT  
Evidence of Learning**

**Formative Assessments**

For additional ideas please refer to NJ State DOE classroom application documents:

<http://www.corestandards.org/resources>

- Homework
- Teacher observation
- Class participation
- DO-NOW
- Notebook
- Open-Ended Writing Assignments

**Summative Assessments**

For additional ideas please refer to NJ State DOE Professional Education Port (PEP):

<http://www.state.nj.us/education/cccs/>

- Quizzes
- Unit Projects and Demonstrations
- Quarterly Tests

**Modifications (ELLs, Special Education, Gifted and Talented)**

- Teacher tutoring
- Peer tutoring
- Cooperative learning groups
- Modified assignments
- Differentiated instruction
- Native language texts and native language to English dictionary
- Follow all IEP modifications/504 plan

**Curriculum Development Resources/Instructional Materials/Equipment Needed Teacher Resources:**

- Textbook and Textbook Resources
- Computer with Internet Access
- Graphing Calculator and/or Scientific Calculator
- Teacher-made worksheets, warm-ups, explorations and WebQuests
- Computer software to support unit

**Teacher Notes:**

**OCEAN COUNTY MATHEMATICS CURRICULUM  
SOUTHERN REGIONAL SCHOOL DISTRICT  
Unit Overview**

**Content Area: Mathematics**

**Unit Title: Credit Cards**

**Target Course/Grade Level: Consumer Math: Personal Finance, Banking & Investments / 12**

**Unit Summary**

Students will develop their understanding of the use/risks of credit cards. They will research credit scores, annual percentage rates, interest paid. They will make use of the internet, word processing programs, excel programs and publishing/presenting programs.

**Primary interdisciplinary connections:**

Infused within the unit is connection to the 2009 NJCCCS for Mathematics, Language Arts Literacy and Technology.

**21<sup>st</sup> Century Themes:**

The unit will integrate the 21<sup>st</sup> Century Life and Career strand 9.1 strands A-D. These strands include: Critical thinking and problem solving, creativity and innovation, collaboration, teamwork and leadership, and cross cultural understanding and interpersonal communication.

**Technology connections:**

For further clarification refer to NJ Class Standard Introductions at <http://www.corestandards.org/the-standards/mathematics/>

**Learning Targets**

**Content Standards**

**Credit management includes making informed choices about sources of credit and requires an understanding of the cost of credit**

**9.2.12.C.1** Compare and contrast the financial benefits of different products and services offered by a variety of financial institutions.

**9.2.12.C.2** Compare and compute interest and compound interest and develop an amortization table using business tools.

**9.2.12.C.3** Compute and assess the accumulating effect of interest paid over time when using a variety of sources of credit.

**Credit worthiness is dependent on making informed credit decisions and managing debt responsibly**

**9.2.12.C.5** Analyze the information contained in a credit report and explain the importance of disputing inaccurate entries.

**9.2.12.C.6** Explain how predictive modeling determines “credit scores.”

**9.2.12.C.7** Explain the rights and responsibilities of buyers and sellers under consumer protection laws, and discuss common unfair or deceptive business practices.

**9.2.12.C.8** Evaluate the implications of personal and corporate bankruptcy for self and others.

**The potential for building and using personal wealth includes responsibility to the broader community and an understanding of the legal rights and responsibilities of being a good citizen**

**9.2.12.F.1** Demonstrate an understanding of the interrelationships among attitudes, assumptions, and patterns of behavior regarding money, saving, investing, and work across cultures.

**CONTENT STANDARDS LINK:** <http://www.corestandards.org/the-standards/mathematics/>

<p><b>Unit Essential Questions</b></p> <ul style="list-style-type: none"> <li>• What must I know to use credit wisely?</li> </ul>	<p><b>Unit Enduring Understandings</b></p> <p><i>Students will understand that...</i></p> <ul style="list-style-type: none"> <li>• Students will understand how the responsible use of credit can have a positive influence and impact their financial future.</li> </ul>
<p><b>Unit Objectives</b></p> <p><i>Students will know...</i></p> <ul style="list-style-type: none"> <li>• How to compare and contrast the financial benefits of different products and services offered by a variety of financial institutions.</li> <li>• How to compare and compute interest and compound interest and develop an amortization table using business tools.</li> <li>• How to compute and assess the accumulating effect of interest paid over time when using a variety of sources of credit.</li> <li>• How to analyze the information contained in a credit report and explain the importance of disputing inaccurate entries.</li> <li>• How to explain how predictive modeling determines “credit scores.”</li> <li>• How to explain the rights and responsibilities of buyers and sellers under consumer protection laws, and discuss common unfair or deceptive business practices.</li> <li>• How to evaluate the implications of personal and corporate bankruptcy for self and others.</li> </ul>	<p><b>Unit Objectives</b></p> <p><i>Students will be able to...</i></p> <ul style="list-style-type: none"> <li>• Compare and contrast the financial benefits of different products and services offered by a variety of financial institutions.</li> <li>• Compare and compute interest and compound interest and develop an amortization table using business tools.</li> <li>• Compute and assess the accumulating effect of interest paid over time when using a variety of sources of credit.</li> <li>• Analyze the information contained in a credit report and explain the importance of disputing inaccurate entries.</li> <li>• Explain how predictive modeling determines “credit scores.”</li> <li>• Explain the rights and responsibilities of buyers and sellers under consumer protection laws, and discuss common unfair or deceptive business practices.</li> <li>• Evaluate the implications of personal and corporate bankruptcy for self and others.</li> </ul>

**OCEAN COUNTY MATHEMATICS CURRICULUM  
SOUTHERN REGIONAL SCHOOL DISTRICT  
Evidence of Learning**

**Formative Assessments**

For additional ideas please refer to NJ State DOE classroom application documents:

<http://www.corestandards.org/resources>

- Homework
- Teacher observation
- Class participation
- DO-NOW
- Notebook
- Open-Ended Writing Assignments

**Summative Assessments**

For additional ideas please refer to NJ State DOE Professional Education Port (PEP):

<http://www.state.nj.us/education/cccs/>

- Quizzes
- Unit Projects and Demonstrations
- Quarterly Tests

**Modifications (ELLs, Special Education, Gifted and Talented)**

- Teacher tutoring
- Peer tutoring
- Cooperative learning groups
- Modified assignments
- Differentiated instruction
- Native language texts and native language to English dictionary
- Follow all IEP modifications/504 plan

**Curriculum Development Resources/Instructional Materials/Equipment Needed Teacher Resources:**

- Textbook and Textbook Resources
- Computer with Internet Access
- Graphing Calculator and/or Scientific Calculator
- Teacher-made worksheets, warm-ups, explorations and WebQuests
- Computer software to support unit

**Teacher Notes:**

**OCEAN COUNTY MATHEMATICS CURRICULUM  
SOUTHERN REGIONAL SCHOOL DISTRICT  
Unit Overview**

**Content Area: Mathematics**

**Unit Title: Automotive: Research, Insurance & Finances**

**Target Course/Grade Level: Consumer Math: Personal Finance, Banking & Investments / 12**

**Unit Summary**

Students will discover ways to effectively research relevant information on Automobiles. Topics will include; ratings, comparisons of, “Cost-to-Own”, dealer & real values of and locating both new and used vehicles. They will also understand the costs of insuring vehicles and financing vs. leasing vs. paying in full. They will make use of the internet, word processing programs, excel programs and publishing/presenting programs.

**Primary interdisciplinary connections:**

Infused within the unit is connection to the 2009 NJCCCS for Mathematics, Language Arts Literacy and Technology.

**21<sup>st</sup> Century Themes:**

The unit will integrate the 21<sup>st</sup> Century Life and Career strand 9.1 strands A-D. These strands include: Critical thinking and problem solving, creativity and innovation, collaboration, teamwork and leadership, and cross cultural understanding and interpersonal communication.

**Technology connections:**

For further clarification refer to NJ Class Standard Introductions at

<http://www.corestandards.org/the-standards/mathematics/>

**Learning Targets**

**Content Standards**

**The ability to prioritize wants and needs assists in making informed investments, purchases, and decisions**

**9.2.12.E.1** Analyze and apply multiple sources of financial information when prioritizing financial decisions.

**9.2.12.E.2** Determine how objective, accurate, and current financial information affects the prioritization of financial decisions.

**9.2.12.E.3** Evaluate how media, bias, purpose, and validity affect the prioritization of consumer decisions and spending.

**The potential for building and using personal wealth includes responsibility to the broader community and an understanding of the legal rights and responsibilities of being a good citizen**

**9.2.12.F.1** Demonstrate an understanding of the interrelationships among attitudes, assumptions, and patterns of behavior regarding money, saving, investing, and work across cultures.

**There are common financial risks and ways to manage risks**

**9.2.12.G.1** Analyze risks and benefits in various financial situations.

**Insurance is designed to protect the consumer against unintended losses.**

**9.2.12.G.2** Differentiate between property and liability insurance protection.

**9.2.12.G.3** Compare the cost of various types of insurance (e.g., life, homeowners, motor vehicle) for the same product or service, given different liability limits and risk factors.

**9.2.12.G.4** Evaluate individual and family needs for insurance protection using opportunity-cost analysis.

**9.2.12.G.5** Compare insurance policy coverage limits and related premiums and deductibles to minimize costs.

**CONTENT STANDARDS LINK:** <http://www.corestandards.org/the-standards/mathematics/>

**Unit Essential Questions**

- What kind of information do I need to make a decision about buying a car?
- What expenses should I consider before and after I buy a car?

**Unit Enduring Understandings**

*Students will understand that...*

- There are many decisions and costs associated with purchasing, insuring and maintaining a car.

**Unit Objectives**

*Students will know...*

- How to compute cost options to the base price of a car.
- How to find the cost of a trade in.
- How to find the total interest charges paid on a car purchase.
- How to find the total insurance premium due based on risk.

**Unit Objectives**

*Students will be able to...*

- Compute cost options to the base price of a car.
- Find the cost of a trade in.
- Find the total interest charges paid on a car purchase.
- Find the total insurance premium due based on risk.

**OCEAN COUNTY MATHEMATICS CURRICULUM  
SOUTHERN REGIONAL SCHOOL DISTRICT  
Evidence of Learning**

**Formative Assessments**

For additional ideas please refer to NJ State DOE classroom application documents:

<http://www.corestandards.org/resources>

- Homework
- Teacher observation
- Class participation
- DO-NOW
- Notebook
- Open-Ended Writing Assignments

**Summative Assessments**

For additional ideas please refer to NJ State DOE Professional Education Port (PEP):

<http://www.state.nj.us/education/cccs/>

- Quizzes
- Unit Projects and Demonstrations
- Quarterly Tests

**Modifications (ELLs, Special Education, Gifted and Talented)**

- Teacher tutoring
- Peer tutoring
- Cooperative learning groups
- Modified assignments
- Differentiated instruction
- Native language texts and native language to English dictionary
- Follow all IEP modifications/504 plan

**Curriculum Development Resources/Instructional Materials/Equipment Needed Teacher Resources:**

- Textbook and Textbook Resources
- Computer with Internet Access
- Graphing Calculator and/or Scientific Calculator
- Teacher-made worksheets, warm-ups, explorations and WebQuests
- Computer software to support unit

**Teacher Notes:**

**OCEAN COUNTY MATHEMATICS CURRICULUM  
SOUTHERN REGIONAL SCHOOL DISTRICT  
Unit Overview**

**Content Area: Mathematics**

**Unit Title: Stock Market & Investments**

**Target Course/Grade Level: Consumer Math: Personal Finance, Banking & Investments / 12**

**Unit Summary**

Students will research stocks to discover how to investigate a potential investment option. They will learn how the stock market functions and how to make educated investments. Students will investigate what makes a wise investment and track the movement of stock prices over an elongated time. They will make use of the internet, word processing programs, excel programs and publishing/presenting programs.

**Primary interdisciplinary connections:**

Infused within the unit is connection to the 2009 NJCCCS for Mathematics, Language Arts Literacy and Technology.

**21<sup>st</sup> Century Themes:**

The unit will integrate the 21<sup>st</sup> Century Life and Career strand 9.1 strands A-D. These strands include: Critical thinking and problem solving, creativity and innovation, collaboration, teamwork and leadership, and cross cultural understanding and interpersonal communication.

**Technology connections:**

For further clarification refer to NJ Class Standard Introductions at

<http://www.corestandards.org/the-standards/mathematics/>

**Learning Targets**

**Content Standards**

**Income often comes from different sources, including alternative sources.**

**9.2.12.A.6** Analyze and critique various sources of income and available resources (e.g., financial assets, property, and transfer payments) and how they may substitute for earned income

**Money management involves setting financial goals.**

**9.2.12.B.1** Prioritize financial decisions by systematically considering alternatives and possible consequences.

**9.2.12.B.2** Compare strategies for saving and investing and the factors that influence how much should be saved or invested to meet financial goals.

**Money management requires understanding of cash flow systems and business practices.**

**9.2.12.B.7** Develop personal financial planning strategies that respond to and use tax deductions and shelters.

**9.2.12.B.8** Describe and calculate interest and fees that are applied to various forms of spending, debt, and saving.

**9.2.12.B.9** Chart and evaluate the growth of mid- and long-term investments.

**9.2.12.B.10** Develop a plan that uses the services of various financial institutions to meet personal and family financial goals.

**Information about investment options assists with financial planning.**

**9.2.12.D.1** Summarize how investing builds wealth and assists in meeting long- and short-term financial goals.

**9.2.12.D.2** Assess factors that influence financial planning.

**9.2.12.D.3** Justify the use of savings and investment options to meet targeted goals.

**9.2.12.D.4** Analyze processes and vehicles for buying and selling investments.

**9.2.12.D.5** Compare the risk, return, and liquidity of various savings and investment alternatives.

**9.2.12.D.6** Explain how government and independent financial services and products are used to achieve personal financial goals.

**Appropriate application of basic economic principles leads to wiser decisions for individual, family, and business financial planning.**

**9.2.12.D.7** Relate savings and investment results to achievement of financial goals.

**9.2.12.D.8** Differentiate among various investment products and savings vehicles and how to use them most effectively.

**9.2.12.D.9** Assess the role of revenue-generating assets as mechanisms for accruing and managing wealth.

**9.2.12.D.10** Compare and contrast the past and present role of government in the financial industry and in the regulation of financial markets.

**9.2.12.D.11** Determine the impact of various market events on stock market prices and on other savings and investments.

**9.2.12.D.12** Evaluate how taxes affect the rate of return on savings and investments.

**9.2.12.D.13** Analyze how savings, retirement plans, and other investment options help to shift current income for purposes of tax reporting and filing.

**The ability to prioritize wants and needs assists in making informed investments, purchases, and decisions.**

**9.2.12.E.1** Analyze and apply multiple sources of financial information when prioritizing financial decisions.

**9.2.12.E.2** Determine how objective, accurate, and current financial information affects the prioritization of financial decisions.

**9.2.12.E.3** Evaluate how media, bias, purpose, and validity affect the prioritization of consumer decisions and spending.

**Cost-benefit analysis informs responsible spending practices.**

**9.2.12.E.4** Evaluate business practices and their impact on individuals, families, and societies.

**9.2.12.E.5** Evaluate written and verbal contracts for essential components and for obligations of the lender and borrower.

**Consumer protection includes providing information about the range of products and services and about consumer resources, rights, and responsibilities.**

**9.2.12.E.6** Apply consumer protection laws to the issues they address.

**9.2.12.E.7** Relate consumer fraud, including online scams and theft of employee time and goods, to laws that protect consumers.

**9.2.12.E.8** Determine when credit counseling is necessary and evaluate the resources available to assist consumers who wish to use it.

**9.2.12.E.9** Determine reasons for the increase of identity theft worldwide and evaluate the extent to which victims of identity theft are successful in fully restoring their personal identities.

**The potential for building and using personal wealth includes responsibility to the broader community and an understanding of the legal rights and responsibilities of being a good citizen.**

**9.2.12.F.1** Demonstrate an understanding of the interrelationships among attitudes, assumptions, and patterns of behavior regarding money, saving, investing, and work across cultures.

**9.2.12.F.3** Assess the impact of emerging global economic events on financial planning.

**9.2.12.F.4** Analyze how citizen decisions and actions can influence the use of economic resources to achieve societal goals and provide individual services.

**Philanthropic, charitable, and entrepreneurial organizations play distinctly different but vitally important roles in supporting the interests of local and global communities.**

**9.2.12.F.8** Evaluate the effects of entrepreneurship on economic stability and quality of living in local and global communities.

**9.2.12.F.9** Assess the impact of the global economy on entrepreneurial opportunities.

**CONTENT STANDARDS LINK:** <http://www.corestandards.org/the-standards/mathematics/>

<p><b>Unit Essential Questions</b></p> <ul style="list-style-type: none"> <li>• How is the stock market affected by everyday worldwide events?</li> </ul>	<p><b>Unit Enduring Understandings</b>  <i>Students will understand that...</i></p> <ul style="list-style-type: none"> <li>• Economic decision making requires making choices about cost, benefits and allocation of resources.</li> </ul>
<p><b>Unit Objectives</b>  <i>Students will know...</i></p> <ul style="list-style-type: none"> <li>• How the stock market functions.</li> <li>• Some of the things to consider when making an investment.</li> </ul>	<p><b>Unit Objectives</b>  <i>Students will be able to...</i></p> <ul style="list-style-type: none"> <li>• Make an informed decision about purchasing a stock.</li> <li>• Track the value of multiple stocks.</li> </ul>

**OCEAN COUNTY MATHEMATICS CURRICULUM  
SOUTHERN REGIONAL SCHOOL DISTRICT  
Evidence of Learning**

**Formative Assessments**

For additional ideas please refer to NJ State DOE classroom application documents:

<http://www.corestandards.org/resources>

- Homework
- Teacher observation
- Class participation
- DO-NOW
- Notebook
- Open-Ended Writing Assignments

**Summative Assessments**

For additional ideas please refer to NJ State DOE Professional Education Port (PEP):

<http://www.state.nj.us/education/cccs/>

- Quizzes
- Unit Projects and Demonstrations
- Quarterly Tests

**Modifications (ELLs, Special Education, Gifted and Talented)**

- Teacher tutoring
- Peer tutoring
- Cooperative learning groups
- Modified assignments
- Differentiated instruction
- Native language texts and native language to English dictionary
- Follow all IEP modifications/504 plan

**Curriculum Development Resources/Instructional Materials/Equipment Needed Teacher Resources:**

- Textbook and Textbook Resources
- Computer with Internet Access
- Graphing Calculator and/or Scientific Calculator
- Teacher-made worksheets, warm-ups, explorations and WebQuests
- Computer software to support unit

**Teacher Notes:**

**OCEAN COUNTY MATHEMATICS CURRICULUM  
SOUTHERN REGIONAL SCHOOL DISTRICT  
Unit Overview**

**Content Area: Mathematics**

**Unit Title: Living on Your Own**

**Target Course/Grade Level: Consumer Math: Personal Finance, Banking & Investments / 12**

**Unit Summary**

Students will learn the costs and responsibilities of living and supporting their selves. Topics in this unit will include: Rent, utilities, budgeting, furnishing and other cost related to this. They will make use of the internet, word processing programs, excel programs and publishing/presenting programs.

**Primary interdisciplinary connections:**

Infused within the unit is connection to the 2009 NJCCCS for Mathematics, Language Arts Literacy and Technology.

**21<sup>st</sup> Century Themes:**

The unit will integrate the 21<sup>st</sup> Century Life and Career strand 9.1 strands A-D. These strands include: Critical thinking and problem solving, creativity and innovation, collaboration, teamwork and leadership, and cross cultural understanding and interpersonal communication.

**Technology connections:**

For further clarification refer to NJ Class Standard Introductions at <http://www.corestandards.org/the-standards/mathematics/>

**Learning Targets**

**Content Standards**

**The potential for building and using personal wealth includes responsibility to the broader community and an understanding of the legal rights and responsibilities of being a good citizen**

**9.2.12.F.1** Demonstrate an understanding of the interrelationships among attitudes, assumptions, and patterns of behavior regarding money, saving, investing, and work across cultures.

**Consumer protection includes providing information about the range of products and services and about consumer resources, rights, and responsibilities.**

**9.2.12.E.6** Apply consumer protection laws to the issues they address.

**9.2.12.E.7** Relate consumer fraud, including online scams and theft of employee time and goods, to laws that protect consumers.

**9.2.12.E.8** Determine when credit counseling is necessary and evaluate the resources available to assist consumers who wish to use it.

**9.2.12.E.9** Determine reasons for the increase of identity theft worldwide and evaluate the extent to which victims of identity theft are successful in fully restoring their personal identities.

**The potential for building and using personal wealth includes responsibility to the broader community and an understanding of the legal rights and responsibilities of being a good citizen.**

**9.2.12.F.1** Demonstrate an understanding of the interrelationships among attitudes, assumptions, and patterns of behavior regarding money, saving, investing, and work across cultures.

**9.2.12.F.3** Assess the impact of emerging global economic events on financial planning.

**9.2.12.F.4** Analyze how citizen decisions and actions can influence the use of economic resources to achieve societal goals and provide individual services.

**Philanthropic, charitable, and entrepreneurial organizations play distinctly different but vitally important roles in supporting the interests of local and global communities.**

**9.2.12.F.6** Compare and contrast the role of philanthropy, volunteer service, and charities in community

development and quality of life in a variety of cultures.

**9.2.12.F.7** Explain the concept and forms of taxation and justify the use of taxation to fund public activities and initiatives.

**9.2.12.F.8** Evaluate the effects of entrepreneurship on economic stability and quality of living in local and global communities.

**9.2.12.F.9** Assess the impact of the global economy on entrepreneurial opportunities.

**Insurance is designed to protect the consumer against unintended losses.**

**9.2.12.G.2** Differentiate between property and liability insurance protection.

**9.2.12.G.3** Compare the cost of various types of insurance (e.g., life, homeowners, motor vehicle) for the same product or service, given different liability limits and risk factors.

**9.2.12.G.4** Evaluate individual and family needs for insurance protection using opportunity-cost analysis.

**9.2.12.G.5** Compare insurance policy coverage limits and related premiums and deductibles to minimize costs.

**9.2.12.G.6** Differentiate the costs and benefits of renter's and homeowner's insurance.

**9.2.12.G.7** Compare sources of health and disability coverage, including employee benefit plans, with options in another country.

**9.2.12.G.9** Explain how to self-insure and how to determine when self-insurance is appropriate.

**CONTENT STANDARDS LINK:** <http://www.corestandards.org/the-standards/mathematics/>

**Unit Essential Questions**

- How much money can I afford for housing?
- What other expenses can I expect when living on my own?
- What math skills are needed for shopping?
- What is responsible spending?
- How do you read a budget summary?

**Unit Enduring Understandings**

*Students will understand that...*

- Budgeting is important and vital to sustain a desirable way of life.

**Unit Objectives**

*Students will know...*

- How to find affordable living.
- How to budget their money.
- How to research the cost of utilities.

**Unit Objectives**

*Students will be able to...*

- Find affordable living.
- Budget their money.
- Research the cost of utilities.

**OCEAN COUNTY MATHEMATICS CURRICULUM  
SOUTHERN REGIONAL SCHOOL DISTRICT  
Evidence of Learning**

**Formative Assessments**

For additional ideas please refer to NJ State DOE classroom application documents:

<http://www.corestandards.org/resources>

- Homework
- Teacher observation
- Class participation
- DO-NOW
- Notebook
- Open-Ended Writing Assignments

**Summative Assessments**

For additional ideas please refer to NJ State DOE Professional Education Port (PEP):

<http://www.state.nj.us/education/cccs/>

- Quizzes
- Unit Projects and Demonstrations
- Quarterly Tests

**Modifications (ELLs, Special Education, Gifted and Talented)**

- Teacher tutoring
- Peer tutoring
- Cooperative learning groups
- Modified assignments
- Differentiated instruction
- Native language texts and native language to English dictionary
- Follow all IEP modifications/504 plan

**Curriculum Development Resources/Instructional Materials/Equipment Needed Teacher Resources:**

- Textbook and Textbook Resources
- Computer with Internet Access
- Graphing Calculator and/or Scientific Calculator
- Teacher-made worksheets, warm-ups, explorations and WebQuests
- Computer software to support unit

**Teacher Notes:**

**OCEAN COUNTY MATHEMATICS CURRICULUM  
SOUTHERN REGIONAL SCHOOL DISTRICT  
Unit Overview**

**Content Area: Mathematics**

**Unit Title: Home Purchasing**

**Target Course/Grade Level: Consumer Math: Personal Finance, Banking & Investments / 12**

**Unit Summary**

In this unit students will gain a basic understanding of purchasing a home. Topics will include: affordability, searching for houses that meet certain criteria, mortgages and fees associated with, and procedures to make a purchase. They will make use of the internet, word processing programs, excel programs and publishing/presenting programs.

**Primary interdisciplinary connections:**

Infused within the unit is connection to the 2009 NJCCCS for Mathematics, Language Arts Literacy and Technology.

**21<sup>st</sup> Century Themes:**

The unit will integrate the 21<sup>st</sup> Century Life and Career strand 9.1 strands A-D. These strands include: Critical thinking and problem solving, creativity and innovation, collaboration, teamwork and leadership, and cross cultural understanding and interpersonal communication.

**Technology connections:**

For further clarification refer to NJ Class Standard Introductions at <http://www.corestandards.org/the-standards/mathematics/>

**Learning Targets**

**Content Standards**

**The potential for building and using personal wealth includes responsibility to the broader community and an understanding of the legal rights and responsibilities of being a good citizen**

**9.2.12.F.1** Demonstrate an understanding of the interrelationships among attitudes, assumptions, and patterns of behavior regarding money, saving, investing, and work across cultures.

**Insurance is designed to protect the consumer against unintended losses.**

**9.2.12.G.2** Differentiate between property and liability insurance protection.

**9.2.12.G.3** Compare the cost of various types of insurance (e.g., life, homeowners, motor vehicle) for the same product or service, given different liability limits and risk factors.

**9.2.12.G.4** Evaluate individual and family needs for insurance protection using opportunity-cost analysis.

**9.2.12.G.5** Compare insurance policy coverage limits and related premiums and deductibles to minimize costs.

**9.2.12.G.6** Differentiate the costs and benefits of renter's and homeowner's insurance.

**9.2.12.G.7** Compare sources of health and disability coverage, including employee benefit plans, with options in another country.

**9.2.12.G.9** Explain how to self-insure and how to determine when self-insurance is appropriate.

**Consumer protection includes providing information about the range of products and services and about consumer resources, rights, and responsibilities.**

**9.2.12.E.6** Apply consumer protection laws to the issues they address.

**9.2.12.E.7** Relate consumer fraud, including online scams and theft of employee time and goods, to laws that protect consumers.

**9.2.12.E.8** Determine when credit counseling is necessary and evaluate the resources available to assist consumers who wish to use it.

**9.2.12.E.9** Determine reasons for the increase of identity theft worldwide and evaluate the extent to which

victims of identity theft are successful in fully restoring their personal identities.

**The potential for building and using personal wealth includes responsibility to the broader community and an understanding of the legal rights and responsibilities of being a good citizen.**

**9.2.12.F.1** Demonstrate an understanding of the interrelationships among attitudes, assumptions, and patterns of behavior regarding money, saving, investing, and work across cultures.

**9.2.12.F.3** Assess the impact of emerging global economic events on financial planning.

**9.2.12.F.4** Analyze how citizen decisions and actions can influence the use of economic resources to achieve societal goals and provide individual services.

**Philanthropic, charitable, and entrepreneurial organizations play distinctly different but vitally important roles in supporting the interests of local and global communities.**

**9.2.12.F.6** Compare and contrast the role of philanthropy, volunteer service, and charities in community development and quality of life in a variety of cultures.

**9.2.12.F.7** Explain the concept and forms of taxation and justify the use of taxation to fund public activities and initiatives.

**9.2.12.F.8** Evaluate the effects of entrepreneurship on economic stability and quality of living in local and global communities.

**9.2.12.F.9** Assess the impact of the global economy on entrepreneurial opportunities.

**Write expressions in equivalent forms to solve problems.**

**A-SSE.3.** Choose and produce an equivalent form of an expression to reveal and explain properties of the quantity represented by the expression.

**A-SSE.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.★

**CONTENT STANDARDS LINK:** <http://www.corestandards.org/the-standards/mathematics/>

**Unit Essential Questions**

- What is a mortgage loan?
- What steps need to be taken to purchase a home?
- What housing costs do we all have?

**Unit Enduring Understandings**

*Students will understand that...*

- Buying a house is a major undertaking
- There are many steps that you will need to complete to buy a house.

**Unit Objectives**

*Students will know...*

- How to compute the mortgage loan amount, the monthly payment, total amount paid, and total interest charged.
- How to find closing costs, assessed value and taxes of real estate.
- How to compute the annual homeowner's insurance premium and find other housing costs.

**Unit Objectives**

*Students will be able to...*

- Compute the mortgage loan amount, the monthly payment, total amount paid, and total interest charged.
- Find closing costs, assessed value and taxes of real estate.
- Compute the annual homeowner's insurance premium and find other housing costs.

**OCEAN COUNTY MATHEMATICS CURRICULUM  
SOUTHERN REGIONAL SCHOOL DISTRICT  
Evidence of Learning**

**Formative Assessments**

For additional ideas please refer to NJ State DOE classroom application documents:

<http://www.corestandards.org/resources>

- Homework
- Teacher observation
- Class participation
- DO-NOW
- Notebook
- Open-Ended Writing Assignments

**Summative Assessments**

For additional ideas please refer to NJ State DOE Professional Education Port (PEP):

<http://www.state.nj.us/education/cccs/>

- Quizzes
- Unit Projects and Demonstrations
- Quarterly Tests

**Modifications (ELLs, Special Education, Gifted and Talented)**

- Teacher tutoring
- Peer tutoring
- Cooperative learning groups
- Modified assignments
- Differentiated instruction
- Native language texts and native language to English dictionary
- Follow all IEP modifications/504 plan

**Curriculum Development Resources/Instructional Materials/Equipment Needed Teacher Resources:**

- Textbook and Textbook Resources
- Computer with Internet Access
- Graphing Calculator and/or Scientific Calculator
- Teacher-made worksheets, warm-ups, explorations and WebQuests
- Computer software to support unit

**Teacher Notes:**

**OCEAN COUNTY MATHEMATICS CURRICULUM  
SOUTHERN REGIONAL SCHOOL DISTRICT  
Unit Overview**

**Content Area: Mathematics**

**Unit Title: Vacationing & Travel**

**Target Course/Grade Level: Consumer Math: Personal Finance, Banking & Investments / 12**

**Unit Summary**

Students will look at traveling outside the Continental United States. They will look at such things as finding airfare and accommodations, currency, itineraries and other travel expenses associated with traveling. They will also look at some customs and traditions relevant to their destinations. They will make use of the internet, word processing programs, excel programs and publishing/presenting programs.

**Primary interdisciplinary connections:**

Infused within the unit is connection to the 2009 NJCCCS for Mathematics, Language Arts Literacy and Technology.

**21<sup>st</sup> Century Themes:**

The unit will integrate the 21<sup>st</sup> Century Life and Career strand 9.1 strands A-D. These strands include: Critical thinking and problem solving, creativity and innovation, collaboration, teamwork and leadership, and cross cultural understanding and interpersonal communication.

**Technology connections:**

For further clarification refer to NJ Class Standard Introductions at <http://www.corestandards.org/the-standards/mathematics/>

**Learning Targets**

**Content Standards**

**Consumer protection includes providing information about the range of products and services and about consumer resources, rights, and responsibilities.**

**9.2.12.E.6** Apply consumer protection laws to the issues they address.

**9.2.12.E.7** Relate consumer fraud, including online scams and theft of employee time and goods, to laws that protect consumers.

**9.2.12.E.8** Determine when credit counseling is necessary and evaluate the resources available to assist consumers who wish to use it.

**9.2.12.E.9** Determine reasons for the increase of identity theft worldwide and evaluate the extent to which victims of identity theft are successful in fully restoring their personal identities.

**The potential for building and using personal wealth includes responsibility to the broader community and an understanding of the legal rights and responsibilities of being a good citizen.**

**9.2.12.F.1** Demonstrate an understanding of the interrelationships among attitudes, assumptions, and patterns of behavior regarding money, saving, investing, and work across cultures.

**9.2.12.F.3** Assess the impact of emerging global economic events on financial planning.

**9.2.12.F.4** Analyze how citizen decisions and actions can influence the use of economic resources to achieve societal goals and provide individual services.

**Philanthropic, charitable, and entrepreneurial organizations play distinctly different but vitally important roles in supporting the interests of local and global communities.**

**9.2.12.F.6** Compare and contrast the role of philanthropy, volunteer service, and charities in community development and quality of life in a variety of cultures.

**9.2.12.F.7** Explain the concept and forms of taxation and justify the use of taxation to fund public activities and initiatives.

**9.2.12.F.8** Evaluate the effects of entrepreneurship on economic stability and quality of living in local and global communities.

**9.2.12.F.9** Assess the impact of the global economy on entrepreneurial opportunities.

**CONTENT STANDARDS LINK:** <http://www.corestandards.org/the-standards/mathematics/>

**Unit Essential Questions**

- How can mathematics be used to assure that travel decisions are reasonable and within one's personal budget?
- What resources are available to consumers for making sound financial decisions when planning a trip?

**Unit Enduring Understandings**

*Students will understand that...*

- Mathematics can be used to assure that travel decisions are reasonable and within one's personal budget.
- There are resources available to consumers for making sound financial decisions when planning a trip.

**Unit Objectives**

*Students will know...*

- How to utilize a variety of resources, such as atlases, maps, and the websites to determine total mileage and calculate trip time when traveling by car.
- How to calculate the cost and time of travel using other modes of transportation, such as by train or bus.
- How to research travel options utilizing services available to consumers such as AAA, local travel agencies, as well as internet websites.
- How to research accommodations cost and reservations utilizing hotel websites.

**Unit Objectives**

*Students will be able to...*

- Utilize a variety of resources, such as atlases, maps, and the websites to determine total mileage and calculate trip time when traveling by car.
- Calculate the cost and time of travel using other modes of transportation, such as by train or bus.
- Research travel options utilizing services available to consumers such as AAA, local travel agencies, as well as internet websites.
- Research accommodations cost and reservations utilizing hotel websites.

**OCEAN COUNTY MATHEMATICS CURRICULUM  
SOUTHERN REGIONAL SCHOOL DISTRICT  
Evidence of Learning**

**Formative Assessments**

For additional ideas please refer to NJ State DOE classroom application documents:

<http://www.corestandards.org/resources>

- Homework
- Teacher observation
- Class participation
- DO-NOW
- Notebook
- Open-Ended Writing Assignments

**Summative Assessments**

For additional ideas please refer to NJ State DOE Professional Education Port (PEP):

<http://www.state.nj.us/education/cccs/>

- Quizzes
- Unit Projects and Demonstrations
- Quarterly Tests

**Modifications (ELLs, Special Education, Gifted and Talented)**

- Teacher tutoring
- Peer tutoring
- Cooperative learning groups
- Modified assignments
- Differentiated instruction
- Native language texts and native language to English dictionary
- Follow all IEP modifications/504 plan

**Curriculum Development Resources/Instructional Materials/Equipment Needed Teacher Resources:**

- Textbook and Textbook Resources
- Computer with Internet Access
- Graphing Calculator and/or Scientific Calculator
- Teacher-made worksheets, warm-ups, explorations and WebQuests
- Computer software to support unit

**Teacher Notes:**

Time may not permit addressing all topics in this unit. Teachers should choose which to address based on available time.

**OCEAN COUNTY MATHEMATICS CURRICULUM  
SOUTHERN REGIONAL SCHOOL DISTRICT  
Unit Overview**

**Content Area: Mathematics**

**Unit Title: Number Sense, Concepts and Applications**

**Target Course/Grade Level: Consumer Math: Personal Finance, Banking & Investments / 12**

**Unit Summary**

Students will build upon their knowledge of rational numbers as they increase their understanding of irrational numbers and generalize number relationships through their work with algebra. The key components of number sense, as identified in the K-12 Overview, are an awareness of the uses of numbers in the world around us, a good sense of approximation, estimation, and magnitude, the concepts of numeration, and an understanding of the equivalence of different representations and forms of numbers.

**Primary interdisciplinary connections:**

Infused within the unit is connection to the 2009 NJCCCS for Mathematics, Language Arts Literacy and Technology.

**21<sup>st</sup> Century Themes:**

The unit will integrate the 21<sup>st</sup> Century Life and Career strand 9.1 strands A-D. These strands include: Critical thinking and problem solving, creativity and innovation, collaboration, teamwork and leadership, and cross cultural understanding and interpersonal communication.

**Technology connections:**

For further clarification refer to NJ Class Standard Introductions at <http://www.corestandards.org/resources>

**Learning Targets**

**Content Standards**

**Extend the properties of exponents to rational exponents.**

**N-RN.1.** Explain how the definition of the meaning of rational exponents follows from extending the properties of integer exponents to those values, allowing for a notation for radicals in terms of rational exponents.

**N-RN.2.** Rewrite expressions involving radicals and rational exponents using the properties of exponents.

**Use properties of rational and irrational numbers.**

**N-RN.3.** Explain why the sum or product of two rational numbers is rational; that the sum of a rational number and an irrational number is irrational; and that the product of a nonzero rational number and an irrational number is irrational.

**Reason quantitatively and use units to solve problems.**

**N-Q.1.** Use units as a way to understand problems and to guide the solution of multi-step problems; choose and interpret units consistently in formulas; choose and interpret the scale and the origin in graphs and data displays.

**N-Q.2.** Define appropriate quantities for the purpose of descriptive modeling.

**N-Q.3.** Choose a level of accuracy appropriate to limitations on measurement when reporting quantities.

**CONTENT STANDARDS LINK:** <http://www.corestandards.org/the-standards/mathematics/>

<p><b>Unit Essential Questions</b></p> <ul style="list-style-type: none"> <li>• How do we develop number sense and perform standard numerical operations and estimations on all types of numbers in a variety of ways?</li> <li>• How will students use mathematical processes of problem solving, communications, connections, reasoning, representations, and technology to solve problems and communicate mathematical ideas?</li> </ul>	<p><b>Unit Enduring Understandings</b> <i>Students will understand that...</i></p> <ul style="list-style-type: none"> <li>• It is important develop number sense and perform standard numerical operations and estimations on all types of numbers in a variety of ways.</li> <li>• They will use mathematical processes of problem solving, communications, connections, reasoning, representations, and technology to solve problems and communicate mathematical ideas.</li> </ul>
<p><b>Unit Objectives</b> <i>Students will know...</i></p> <ul style="list-style-type: none"> <li>• How to extend their understanding of the number system to include real numbers and an awareness of other number systems.</li> <li>• How to develop conjectures and informal proofs of properties of number systems and sets of numbers.</li> <li>• How to extend their intuitive grasp of number relationships, uses, and interpretations and develop an ability to work with rational and irrational numbers.</li> <li>• How to explore a variety of infinite sequences and informally evaluate their limits.</li> </ul>	<p><b>Unit Objectives</b> <i>Students will be able to...</i></p> <ul style="list-style-type: none"> <li>• Extend their understanding of the number system to include real numbers and an awareness of other number systems.</li> <li>• Develop conjectures and informal proofs of properties of number systems and sets of numbers.</li> <li>• Extend their intuitive grasp of number relationships, uses, and interpretations and develop an ability to work with rational and irrational numbers.</li> <li>• Explore a variety of infinite sequences and informally evaluate their limits.</li> </ul>

**OCEAN COUNTY MATHEMATICS CURRICULUM**  
**SOUTHERN REGIONAL SCHOOL DISTRICT**  
**Evidence of Learning**

**Formative Assessments**

For additional ideas please refer to NJ State DOE classroom application documents:

<http://www.corestandards.org/resources>

- Homework
- Teacher observation
- Class participation
- DO-NOW
- Notebook
- Open-Ended Writing Assignments

**Summative Assessments**

For additional ideas please refer to NJ State DOE Professional Education Port (PEP):

<http://www.state.nj.us/education/cccs/>

- Quizzes
- Unit Projects and Demonstrations
- Quarterly Tests

**Modifications (ELLs, Special Education, Gifted and Talented)**

- Teacher tutoring
- Peer tutoring
- Cooperative learning groups
- Modified assignments
- Differentiated instruction
- Native language texts and native language to English dictionary
- Follow all IEP modifications/504 plan

**Curriculum Development Resources/Instructional Materials/Equipment Needed Teacher Resources:**

- Textbook and Textbook Resources
- Computer with Internet Access
- Graphing Calculator and/or Scientific Calculator
- Teacher-made worksheets, warm-ups, explorations and WebQuests
- Computer software to support unit

**Teacher Notes:**

Time may not permit addressing all topics in this unit. Teachers should choose which to address based on available time.

**OCEAN COUNTY MATHEMATICS CURRICULUM  
SOUTHERN REGIONAL SCHOOL DISTRICT  
Unit Overview**

**Content Area: Mathematics**

**Unit Title: Spatial Sense and Geometry**

**Target Course/Grade Level: Consumer Math: Personal Finance, Banking & Investments / 12**

**Unit Summary**

Students can develop a strong spatial sense from consistent experiences in classroom activities which use a wide variety of manipulatives and technology. The key components of this spatial sense are spatial relationships, properties of geometric figures, geometric transformations, coordinate geometry, geometry of measurement, geometric modeling, and reasoning.

**Primary interdisciplinary connections:**

Infused within the unit is connection to the 2009 NJCCCS for Mathematics, Language Arts Literacy and Technology.

**21<sup>st</sup> Century Themes:**

The unit will integrate the 21<sup>st</sup> Century Life and Career strand 9.1 strands A-D. These strands include: Critical thinking and problem solving, creativity and innovation, collaboration, teamwork and leadership, and cross cultural understanding and interpersonal communication.

**Technology connections:**

For further clarification refer to NJ Class Standard Introductions at <http://www.corestandards.org/resources>

**Learning Targets**

**Content Standards**

**Experiment with transformations in the plane**

**G-CO.1.** Know precise definitions of angle, circle, perpendicular line, parallel line, and line segment, based on the undefined notions of point, line, distance along a line, and distance around a circular arc.

**G-CO.3.** Given a rectangle, parallelogram, trapezoid, or regular polygon, describe the rotations and reflections that carry it onto itself.

**G-CO.4.** Develop definitions of rotations, reflections, and translations in terms of angles, circles, perpendicular lines, parallel lines, and line segments.

**G-CO.5.** Given a geometric figure and a rotation, reflection, or translation, draw the transformed figure using, e.g., graph paper, tracing paper, or geometry software. Specify a sequence of transformations that will carry a given figure onto another.

**Understand congruence in terms of rigid motions**

**G-CO.7.** Use the definition of congruence in terms of rigid motions to show that two triangles are congruent if and only if corresponding pairs of sides and corresponding pairs of angles are congruent.

**Make geometric constructions**

**G-CO.12.** Make formal geometric constructions with a variety of tools and methods (compass and straightedge, string, reflective devices, paper folding, dynamic geometric software, etc.). Copying a segment; copying an angle; bisecting a segment; bisecting an angle; constructing perpendicular lines, including the perpendicular bisector of a line segment; and constructing a line parallel to a given line through a point not on the line.

**Understand similarity in terms of similarity transformations**

**G-SRT.2.** Given two figures, use the definition of similarity in terms of similarity transformations to decide if they are similar; explain using similarity transformations the meaning of similarity for triangles as the equality of all corresponding pairs of angles and the proportionality of all corresponding pairs of sides.

**Define trigonometric ratios and solve problems involving right triangles**

**G-SRT.6.** Understand that by similarity, side ratios in right triangles are properties of the angles in the triangle, leading to definitions of trigonometric ratios for acute angles.

**G-SRT.8.** Use trigonometric ratios and the Pythagorean Theorem to solve right triangles in applied problems.

**Understand and apply theorems about circles**

**G-C.1.** Prove that all circles are similar.

**Explain volume formulas and use them to solve problems**

**G-GMD.3.** Use volume formulas for cylinders, pyramids, cones, and spheres to solve problems.

**Apply geometric concepts in modeling situations**

**G-MG.1.** Use geometric shapes, their measures, and their properties to describe objects (e.g., modeling a tree trunk or a human torso as a cylinder).

**G-MG.2.** Apply concepts of density based on area and volume in modeling situations (e.g., persons per square mile, BTUs per cubic foot).

**G-MG.3.** Apply geometric methods to solve design problems (e.g., designing an object or structure to satisfy physical constraints or minimize cost; working with typographic grid systems based on ratios).

**CONTENT STANDARDS LINK:** <http://www.corestandards.org/the-standards/mathematics/>

**Unit Essential Questions**

- How do we develop spatial sense and the ability to use geometric properties, relationships, and measurement to model, describe and analyze phenomena?
- How will students use mathematical processes of problem solving, communications, connections, reasoning, representations, and technology to solve problems and communicate mathematical ideas?

**Unit Enduring Understandings**

*Students will understand that...*

- It is important to develop spatial sense and the ability to use geometric properties, relationships, and measurement to model, describe and analyze phenomena.
- They will use mathematical processes of problem solving, communications, connections, reasoning, representations, and technology to solve problems and communicate mathematical ideas.

**Unit Objectives**

*Students will know...*

- How to develop, understand, and apply a variety of strategies for determining perimeter, area, surface area, angle measure, and volume.
- How to investigate, explore, and describe geometry in nature and real-world applications, using models, manipulatives, and appropriate technology.
- How to understand and apply properties involving angles, parallel lines, and perpendicular lines.
- How to analyze properties of three-dimensional shapes by constructing models and by drawing and interpreting two-dimensional representations of them.
- How to use transformations, coordinates, and vectors to solve problems in Euclidean geometry.
- How to use basic trigonometric ratios to solve problems involving indirect measurement.
- How to solve real-world and mathematical problems using geometric models.

**Unit Objectives**

*Students will be able to...*

- Develop, understand, and apply a variety of strategies for determining perimeter, area, surface area, angle measure, and volume.
- Investigate, explore, and describe geometry in nature and real-world applications, using models, manipulatives, and appropriate technology.
- Understand and apply properties involving angles, parallel lines, and perpendicular lines.
- Analyze properties of three-dimensional shapes by constructing models and by drawing and interpreting two-dimensional representations of them.
- Use transformations, coordinates, and vectors to solve problems in Euclidean geometry.
- Use basic trigonometric ratios to solve problems involving indirect measurement.
- Solve real-world and mathematical problems using geometric models.
- Use inductive and deductive reasoning to solve problems and to present reasonable

- How to use inductive and deductive reasoning to solve problems and to present reasonable explanations of and justifications for the solutions.
- How to analyze patterns produced by processes of geometric change and express them in terms of iteration, approximation, limits, self-similarity, and fractals.
- How to explore applications of other geometries in real-world contexts.

explanations of and justifications for the solutions.

- Analyze patterns produced by processes of geometric change and express them in terms of iteration, approximation, limits, self-similarity, and fractals.
- Explore applications of other geometries in real-world contexts.

**OCEAN COUNTY MATHEMATICS CURRICULUM  
SOUTHERN REGIONAL SCHOOL DISTRICT  
Evidence of Learning**

**Formative Assessments**

For additional ideas please refer to NJ State DOE classroom application documents:

<http://www.corestandards.org/resources>

- Homework
- Teacher observation
- Class participation
- DO-NOW
- Notebook
- Open-Ended Writing Assignments

**Summative Assessments**

For additional ideas please refer to NJ State DOE Professional Education Port (PEP):

<http://www.state.nj.us/education/cccs/>

- Quizzes
- Unit Projects and Demonstrations
- Quarterly Tests

**Modifications (ELLs, Special Education, Gifted and Talented)**

- Teacher tutoring
- Peer tutoring
- Cooperative learning groups
- Modified assignments
- Differentiated instruction
- Native language texts and native language to English dictionary
- Follow all IEP modifications/504 plan

**Curriculum Development Resources/Instructional Materials/Equipment Needed Teacher Resources:**

- Textbook and Textbook Resources
- Computer with Internet Access
- Graphing Calculator and/or Scientific Calculator
- Teacher-made worksheets, warm-ups, explorations and WebQuests
- Computer software to support unit

**Teacher Notes:**

Time may not permit addressing all topics in this unit. Teachers should choose which to address based on available time.

**OCEAN COUNTY MATHEMATICS CURRICULUM  
SOUTHERN REGIONAL SCHOOL DISTRICT  
Unit Overview**

**Content Area: Mathematics**

**Unit Title: Patterns, Functions and Algebra**

**Target Course/Grade Level: Consumer Math: Personal Finance, Banking & Investments / 12**

**Unit Summary**

Patterns, relationships, and functions continue to provide a unifying theme for the study of mathematics in high school. Pattern-based thinking throughout the earlier grades and the informal investigations begun in the middle grades has prepared students to make extensive use of both the concept of a function and functional notation. Students should describe the relationships found in concrete situations with algebraic expressions, formulas and equations, as well as with tables of input-output values, with graphs, and with written statements.

**Primary interdisciplinary connections:**

Infused within the unit is connection to the 2009 NJCCCS for Mathematics, Language Arts Literacy and Technology.

**21<sup>st</sup> Century Themes:**

The unit will integrate the 21<sup>st</sup> Century Life and Career strand 9.1 strands A-D. These strands include: Critical thinking and problem solving, creativity and innovation, collaboration, teamwork and leadership, and cross cultural understanding and interpersonal communication.

**Technology connections:**

For further clarification refer to NJ Class Standard Introductions at <http://www.corestandards.org/resources>

**Learning Targets**

**Content Standards**

**Interpret the structure of expressions.**

**A-SSE.1.** Interpret expressions that represent a quantity in terms of its context

**A-SSE.2.** Use the structure of an expression to identify ways to rewrite it.

**Write expressions in equivalent forms to solve problems.**

**A-SSE.3.** Choose and produce an equivalent form of an expression to reveal and explain properties of the quantity represented by the expression.

**A-SSE.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.

**Perform arithmetic operations on polynomials.**

**A-APR.1.** Understand that polynomials form a system analogous to the integers, namely, they are closed under the operations of addition, subtraction, and multiplication; add, subtract, and multiply polynomials.

**Create equations that describe numbers or relationships.**

**A-CED.1.** Create equations and inequalities in one variable and use them to solve problems. Include equations arising from linear and quadratic functions, and simple rational and exponential functions.

**A-CED.2.** Create equations in two or more variables to represent relationships between quantities; graph equations on coordinate axes with labels and scales.

**Understand solving equations as a process of reasoning and explain the reasoning.**

**A-REI.1.** Explain each step in solving a simple equation as following from the equality of numbers asserted at the previous step, starting from the assumption that the original equation has a solution.

Construct a viable argument to justify a solution method.

**A-REI.2.** Solve simple rational and radical equations in one variable, and give examples showing how extraneous solutions may arise.

**Solve equations and inequalities in one variable.**

**A-REI.3.** Solve linear equations and inequalities in one variable, including equations with coefficients represented by letters.

**A-REI.4.** Solve quadratic equations in one variable.

**Solve systems of equations.**

**A-REI.5.** Prove that, given a system of two equations in two variables, replacing one equation by the sum of that equation and a multiple of the other produces a system with the same solutions.

**A-REI.6.** Solve systems of linear equations exactly and approximately (e.g., with graphs), focusing on pairs of linear equations in two variables.

**A-REI.7.** Solve a simple system consisting of a linear equation and a quadratic equation in two variables algebraically and graphically. For example, find the points of intersection between the line  $y = -3x$  and the circle  $x^2 + y^2 = 3$ .

**Represent and solve equations and inequalities graphically.**

**A-REI.10.** Understand that the graph of an equation in two variables is the set of all its solutions plotted in the coordinate plane, often forming a curve (which could be a line).

**A-REI.12.** Graph the solutions to a linear inequality in two variables as a half-plane (excluding the boundary in the case of a strict inequality), and graph the solution set to a system of linear inequalities in two variables as the intersection of the corresponding half-planes.

**Understand the concept of a function and use function notation.**

**F-IF.1.** Understand that a function from one set (called the domain) to another set (called the range) assigns to each element of the domain exactly one element of the range

**Interpret functions that arise in applications in terms of the context.**

**F-IF.4.** For a function that models a relationship between two quantities, interpret key features of graphs and tables in terms of the quantities, and sketch graphs showing key features given a verbal description of the relationship. Key features include: intercepts; intervals where the function is increasing, decreasing, positive, or negative; relative maximums and minimums; symmetries; end behavior; and periodicity.

**F-IF.5.** Relate the domain of a function to its graph and, where applicable, to the quantitative relationship it describes. For example, if the function  $h(n)$  gives the number of person-hours it takes to assemble  $n$  engines in a factory, then the positive integers would be an appropriate domain for the function.

**Build a function that models a relationship between two quantities.**

**F-BF.1.** Write a function that describes a relationship between two quantities.

**F-BF.2.** Write arithmetic and geometric sequences both recursively and with an explicit formula, use them to model situations, and translate between the two forms.

**Construct and compare linear, quadratic, and exponential models and solve problems.**

**F-LE.1.** Distinguish between situations that can be modeled with linear functions and with exponential functions.

**F-LE.2.** Construct linear and exponential functions, including arithmetic and geometric sequences, given a graph, a description of a relationship, or two input-output pairs (include reading these from a table).

**F-LE.3.** Observe using graphs and tables that a quantity increasing exponentially eventually exceeds a quantity increasing linearly, quadratically, or (more generally) as a polynomial function.

**Interpret expressions for functions in terms of the situation they model.**

**F-LE.5.** Interpret the parameters in a linear or exponential function in terms of a context.

**CONTENT STANDARDS LINK:** <http://www.corestandards.org/the-standards/mathematics/>

<p><b>Unit Essential Questions</b></p> <ul style="list-style-type: none"> <li>• How do we represent and analyze relationships among variable quantities and solve problems involving patterns, functions, algebraic concepts and processes?</li> <li>• How will students use mathematical processes of problem solving, communications, connections, reasoning, representations?</li> </ul>	<p><b>Unit Enduring Understandings</b> <i>Students will understand that...</i></p> <ul style="list-style-type: none"> <li>• It is important to represent and analyze relationships among variable quantities and solve problems involving patterns, functions, algebraic concepts and processes.</li> <li>• They will use mathematical processes of problem solving, communications, connections, reasoning, representations, and technology to solve problems and communicate mathematical ideas.</li> </ul>
<p><b>Unit Objectives</b> <i>Students will know...</i></p> <ul style="list-style-type: none"> <li>• How to represent and describe mathematical relationships with tables, rules, simple equations, and graphs.</li> <li>• How to understand and describe the relationships among various representations of patterns and functions.</li> <li>• How to use patterns, relationships, and functions to model situations and to solve problems in mathematics and in other subject areas.</li> <li>• How to analyze functional relationships to explain how a change in one quantity results in a change in another.</li> <li>• How to understand and describe the general behavior of functions.</li> <li>• How to use patterns, relationships, and linear functions to model situations in mathematics and in other areas.</li> <li>• How to develop, analyze, and explain arithmetic sequences.</li> </ul>	<p><b>Unit Objectives</b> <i>Students will be able to...</i></p> <ul style="list-style-type: none"> <li>• Represent and describe mathematical relationships with tables, rules, simple equations, and graphs.</li> <li>• Understand and describe the relationships among various representations of patterns and functions.</li> <li>• Use patterns, relationships, and functions to model situations and to solve problems in mathematics and in other subject areas.</li> <li>• Analyze functional relationships to explain how a change in one quantity results in a change in another.</li> <li>• Understand and describe the general behavior of functions.</li> <li>• Use patterns, relationships, and linear functions to model situations in mathematics and in other areas.</li> <li>• Develop, analyze, and explain arithmetic sequences.</li> </ul>

**OCEAN COUNTY MATHEMATICS CURRICULUM  
SOUTHERN REGIONAL SCHOOL DISTRICT  
Evidence of Learning**

**Formative Assessments**

For additional ideas please refer to NJ State DOE classroom application documents:

<http://www.corestandards.org/resources>

- Homework
- Teacher observation
- Class participation
- DO-NOW
- Notebook
- Open-Ended Writing Assignments

**Summative Assessments**

For additional ideas please refer to NJ State DOE Professional Education Port (PEP):

<http://www.state.nj.us/education/cccs/>

- Quizzes
- Unit Projects and Demonstrations
- Quarterly Tests

**Modifications (ELLs, Special Education, Gifted and Talented)**

- Teacher tutoring
- Peer tutoring
- Cooperative learning groups
- Modified assignments
- Differentiated instruction
- Native language texts and native language to English dictionary
- Follow all IEP modifications/504 plan

**Curriculum Development Resources/Instructional Materials/Equipment Needed Teacher Resources:**

- Textbook and Textbook Resources
- Computer with Internet Access
- Graphing Calculator and/or Scientific Calculator
- Teacher-made worksheets, warm-ups, explorations and WebQuests
- Computer software to support unit

**Teacher Notes:**

Time may not permit addressing all topics in this unit. Teachers should choose which to address based on available time.

**OCEAN COUNTY MATHEMATICS CURRICULUM**  
**SOUTHERN REGIONAL SCHOOL DISTRICT**  
Unit Overview

**Content Area: Mathematics**

**Unit Title: Data Analysis, Probability, Statistics and Discrete Math**

**Target Course/Grade Level: Consumer Math: Personal Finance, Banking & Investments / 12**

**Unit Summary**

Students will develop a strong understanding of probability and statistics from consistent experiences in classroom activities where a variety of manipulatives and technology are used. The key components of this understanding in probability are: probability terms, the concept of the probability of an event, predicting and determining probabilities, expected value, the relationship between theoretical and experimental probabilities, and compound events. In statistics, the key components are: data collection, organization, and representation, sampling, central tendency, variance and correlation, and analysis and inference.

**Primary interdisciplinary connections:**

Infused within the unit is connection to the 2009 NJCCCS for Mathematics, Language Arts Literacy and Technology.

**21<sup>st</sup> Century Themes:**

The unit will integrate the 21<sup>st</sup> Century Life and Career strand 9.1 strands A-D. These strands include: Critical thinking and problem solving, creativity and innovation, collaboration, teamwork and leadership, and cross cultural understanding and interpersonal communication.

**Technology connections:**

For further clarification refer to NJ Class Standard Introductions at <http://www.corestandards.org/resources>

**Learning Targets**

**Content Standards**

**Summarize, represent, and interpret data on a single count or measurement variable**

**S-ID.1.** Represent data with plots on the real number line (dot plots, histograms, and box plots).

**S-ID.2.** Use statistics appropriate to the shape of the data distribution to compare center (median, mean) and spread (interquartile range, standard deviation) of two or more different data sets.

**S-ID.3.** Interpret differences in shape, center, and spread in the context of the data sets, accounting for possible effects of extreme data points (outliers).

**Summarize, represent, and interpret data on two categorical and quantitative variables**

**S-ID.5.** Summarize categorical data for two categories in two-way frequency tables. Interpret relative frequencies in the context of the data (including joint, marginal, and conditional relative frequencies). Recognize possible associations and trends in the data.

**S-ID.6.** Represent data on two quantitative variables on a scatter plot, and describe how the variables are related.

Interpret linear models

**S-ID.7.** Interpret the slope (rate of change) and the intercept (constant term) of a linear model in the context of the data.

**S-ID.8.** Compute (using technology) and interpret the correlation coefficient of a linear fit.

**S-ID.9.** Distinguish between correlation and causation.

**Summarize, represent, and interpret data on two categorical and quantitative variables**

**S-ID.5.** Summarize categorical data for two categories in two-way frequency tables. Interpret relative frequencies in the context of the data (including joint, marginal, and conditional relative frequencies). Recognize possible associations and trends in the data.

**S-ID.6.** Represent data on two quantitative variables on a scatter plot, and describe how the variables are

related.

### **Interpret linear models**

**S-ID.7.** Interpret the slope (rate of change) and the intercept (constant term) of a linear model in the context of the data.

**S-ID.8.** Compute (using technology) and interpret the correlation coefficient of a linear fit.

**S-ID.9.** Distinguish between correlation and causation.

### **Understand and evaluate random processes underlying statistical experiments**

**S-IC.1.** Understand statistics as a process for making inferences about population parameters based on a random sample from that population.

### **Make inferences and justify conclusions from sample surveys, experiments, and observational studies**

**S-IC.3.** Recognize the purposes of and differences among sample surveys, experiments, and observational studies; explain how randomization relates to each.

**S-IC.6.** Evaluate reports based on data.

### **Understand independence and conditional probability and use them to interpret data**

**S-CP.1.** Describe events as subsets of a sample space (the set of outcomes) using characteristics (or categories) of the outcomes, or as unions, intersections, or complements of other events (“or,” “and,” “not”).

**S-CP.2.** Understand that two events A and B are independent if the probability of A and B occurring together is the product of their probabilities, and use this characterization to determine if they are independent.

**S-CP.3.** Understand the conditional probability of A given B as  $P(A \text{ and } B)/P(B)$ , and interpret independence of A and B as saying that the conditional probability of A given B is the same as the probability of A, and the conditional probability of B given A is the same as the probability of B.

**S-CP.5.** Recognize and explain the concepts of conditional probability and independence in everyday language and everyday situations.

### **Use the rules of probability to compute probabilities of compound events in a uniform probability model**

**S-CP.6.** Find the conditional probability of A given B as the fraction of B’s outcomes that also belong to A, and interpret the answer in terms of the model.

**S-CP.7.** Apply the Addition Rule,  $P(A \text{ or } B) = P(A) + P(B) - P(A \text{ and } B)$ , and interpret the answer in terms of the model.

**S-CP.8.** Apply the general Multiplication Rule in a uniform probability model,  $P(A \text{ and } B) = P(A)P(B|A) = P(B)P(A|B)$ , and interpret the answer in terms of the model.

**S-CP.9.** Use permutations and combinations to compute probabilities of compound events and solve problems.

### **Calculate expected values and use them to solve problems**

**S-MD.1.** Define a random variable for a quantity of interest by assigning a numerical value to each event in a sample space; graph the corresponding probability distribution using the same graphical displays as for data distributions.

**S-MD.3.** Develop a probability distribution for a random variable defined for a sample space in which theoretical probabilities can be calculated; find the expected value.

**S-MD.4.** Develop a probability distribution for a random variable defined for a sample space in which probabilities are assigned empirically; find the expected value.

### **Use probability to evaluate outcomes of decisions**

**S-MD.5.** Weigh the possible outcomes of a decision by assigning probabilities to payoff values and finding expected values.

**S-MD.6.** Use probabilities to make fair decisions (e.g., drawing by lots, using a random number generator).

**S-MD.7.** Analyze decisions and strategies using probability concepts (e.g., product testing, medical testing, pulling a hockey goalie at the end of a game).

**CONTENT STANDARDS LINK:** <http://www.corestandards.org/the-standards/mathematics/>

<p><b>Unit Essential Questions</b></p> <ul style="list-style-type: none"> <li>• How do we develop an understanding of the concepts and techniques of data-analysis, probability, and discrete mathematics, and use them to model situations, solve problems, and analyze and draw appropriate inferences from data?</li> <li>• How will students use mathematical processes of problem solving, communications, connections, reasoning, representation?</li> </ul>	<p><b>Unit Enduring Understandings</b> <i>Students will understand that...</i></p> <ul style="list-style-type: none"> <li>• It is important to develop an understanding of the concepts and techniques of data-analysis, probability, and discrete mathematics, and use them to model situations, solve problems, and analyze and draw appropriate inferences from data.</li> <li>• They will use mathematical processes of problem solving, communications, connections, reasoning, representations, and technology to solve problems and communicate mathematical ideas.</li> </ul>
<p><b>Unit Objectives</b> <i>Students will know...</i></p> <ul style="list-style-type: none"> <li>• How to estimate probabilities and predict outcomes from actual data.</li> <li>• How to understand sampling and recognize its role in statistical claims.</li> <li>• Evaluate bias, accuracy, and reasonableness of data in real-world contexts.</li> <li>• How to understand and apply measures of dispersion and correlation.</li> <li>• How to design a statistical experiment to study a problem, conduct the experiment, and interpret and communicate the outcomes.</li> <li>• How to make predictions using curve fitting and numerical procedures to interpolate and extrapolate from known data.</li> <li>• How to use relative frequency and probability, as appropriate, to represent and solve problems involving uncertainty.</li> <li>• How to use simulations to estimate probabilities.</li> <li>• How to create and interpret discrete and continuous probability distributions, and understand their application to real-world situations.</li> <li>• How to describe the normal curve in general terms, and use its properties to answer questions about sets of data that are assumed to be normally distributed.</li> <li>• How to understand and use the law of large numbers (that experimental results tend to approach theoretical probabilities after a large number of trials).</li> </ul>	<p><b>Unit Objectives</b> <i>Students will be able to...</i></p> <ul style="list-style-type: none"> <li>• Estimate probabilities and predict outcomes from actual data.</li> <li>• Understand sampling and recognize its role in statistical claims.</li> <li>• Evaluate bias, accuracy, and reasonableness of data in real-world contexts.</li> <li>• Understand and apply measures of dispersion and correlation.</li> <li>• Design a statistical experiment to study a problem, conduct the experiment, and interpret and communicate the outcomes.</li> <li>• Make predictions using curve fitting and numerical procedures to interpolate and extrapolate from known data.</li> <li>• Use relative frequency and probability, as appropriate, to represent and solve problems involving uncertainty.</li> <li>• Use simulations to estimate probabilities.</li> <li>• Create and interpret discrete and continuous probability distributions, and understand their application to real-world situations.</li> <li>• Describe the normal curve in general terms, and use its properties to answer questions about sets of data that are assumed to be normally distributed.</li> <li>• Understand and use the law of large numbers (that experimental results tend to approach theoretical probabilities after a large number of trials).</li> </ul>

**OCEAN COUNTY MATHEMATICS CURRICULUM**  
**SOUTHERN REGIONAL SCHOOL DISTRICT**  
**Evidence of Learning**

**Formative Assessments**

For additional ideas please refer to NJ State DOE classroom application documents:

<http://www.corestandards.org/resources>

- Homework
- Teacher observation
- Class participation
- DO-NOW
- Notebook
- Open-Ended Writing Assignments

**Summative Assessments**

For additional ideas please refer to NJ State DOE Professional Education Port (PEP):

<http://www.state.nj.us/education/cccs/>

- Quizzes
- Unit Projects and Demonstrations
- Quarterly Tests

**Modifications (ELLs, Special Education, Gifted and Talented)**

- Teacher tutoring
- Peer tutoring
- Cooperative learning groups
- Modified assignments
- Differentiated instruction
- Native language texts and native language to English dictionary
- Follow all IEP modifications/504 plan

**Curriculum Development Resources/Instructional Materials/Equipment Needed Teacher Resources:**

- Textbook and Textbook Resources
- Computer with Internet Access
- Graphing Calculator and/or Scientific Calculator
- Teacher-made worksheets, warm-ups, explorations and WebQuests
- Computer software to support unit

**Teacher Notes:**

Time may not permit addressing all topics in this unit. Teachers should choose which to address based on available time.