Belvidere Cluster Wide Mathematics Curriculum 6th grade Updated Fall 2018

All Belvidere Cluster curriculum and instruction areas are aligned to the New Jersey Student Learning Standards (NJSLS) in accordance with the NJ Department of Education's curriculum implementation requirements.

Interdisciplinary Connections

– English Language Arts

- Science and Scientific Inquiry (Next Generation)

Social Studies

Technology

- Visual and Performing Arts

Technology Standards and Integration iPads/Chromebooks

iXL

Interactive SmartBoard activities

NJSLA Technology

8.1.2.A.2

Create a document using a word processing application.

8.1.2.A.4

Demonstrate developmentally appropriate navigation skills in virtual environments (i.e.

games, museums).

8.1.P.B.1

Create a story about a picture taken by the student on a digital camera or mobile device.

8.1.P.C.1

Collaborate with peers by participating in interactive digital games or activities.

8.1.2.E.1

Use digital tools and online resources to explore a problem or issue.

CAREER EDUCATION (NJDOE CTE Clusters)

- Education & Training
- Finance
- Information Technology
- Science, Technology, Engineering & Mathematics (STEM)

21st Century Skills/ Themes

- Financial, Economic, Business and Entrepreneurial Literacy
- Creativity and Innovation

- Critical Thinking

- Problem Solving
- Communication

- Collaboration

– Information Literacy

CRP1. Act as a responsible and contributing citizen and employee.

CRP2. Apply appropriate academic and technical skills.

CRP3. Attend to personal health and financial well-being.

CRP4. Communicate clearly and effectively and with reason.

CRP5. Consider the environmental, social and economic impacts of decisions.

CRP6. Demonstrate creativity and innovation.

CRP7. Employ valid and reliable research strategies.

CRP8. Utilize critical thinking to make sense of problems and persevere in solving them.

CRP9. Model integrity, ethical leadership and effective management.

CRP10. Plan education and career paths aligned to personal goals.

CRP11. Use technology to enhance productivity.

CRP12. Work productively in teams while using cultural global competence.

Integrated Accommodations and Modifications

Special Education

- Printed copy of board work/notes provided
- Additional time for skill mastery
- Assistive technology
- Behavior management plan
- Center-Based Instruction
- Check work frequently for understanding
- Computer or electronic device utilization
- Extended time on tests/ quizzes
- Have student repeat directions to check for understanding
- Highlighted text visual presentation
- Modified assignment format
- Modified test content
- Modified test format
- Modified test length
- Multiple test sessions
- Multi-sensory presentation
- Preferential seating
- Preview of content, concepts, and vocabulary
- Reduced/shortened written assignments
- Secure attention before giving instruction/directions
- Shortened assignments
- Student working with an assigned partner
- Teacher initiated weekly assignment sheet
- Use open book, study guides, test prototypes
- Cubing activities
- Exploration by interest
- Flexible grouping
- Goal setting with students
- Jigsaw
- Mini workshops to re-teach or extend skills Open-ended activities
- Think-Pair-Share
- Varied supplemental materials

<u>ELL</u>

- Allowing students to correct errors (looking for understanding)

- Teaching key aspects of a topic Eliminate nonessential information Using videos, illustrations, pictures, and drawings to explain or clarify
- allowing products (projects, timelines, demonstrations, models, drawings, dioramas, poster boards, charts, graphs, slideshows, videos, etc.) to demonstrate student's learning
- Allowing students to correct errors (looking for understanding)
- Allowing the use of note cards or open-book during testing
- Decreasing the amount of work presented or required
- Having peers take notes or providing a copy of the teacher's notes
- Modifying tests to reflect selected objectives
- Providing study guides
- Reducing the number of answer choices on a multiple choice test
- Tutoring by peers
- Explain/clarify key vocabulary terms

<u>At Risk</u>

- Allowing students to correct errors (looking for understanding)
- Teaching key aspects of a topic Eliminate nonessential information allowing products (projects, timelines, demonstrations, models, drawings, dioramas, poster boards, charts, graphs, slideshows, videos, etc.) to demonstrate student's learning
- Allowing students to select from given choices .
- Allowing the use of note cards or open-book during testing
- Collaborating (general education teacher and specialist) to modify vocabulary, omit or modify items to reflect objectives for the student, eliminate sections of the test, and determine how the grade will be determined prior to giving the test
- decreasing the amount of work presented or required .
- Having peers take notes or providing a copy of the teacher's notes
- Marking students' correct and acceptable work, not the mistakes
- Modifying tests to reflect selected objectives
- Providing study guides
- Reducing the number of answer choices on a multiple choice test
- Tutoring by peers
- Using authentic assessments with real-life problem-solving
- Using true/false, matching, or fill in the blank tests in lieu of essay tests
- using videos, illustrations, pictures, and drawings to explain or clarify
- Flexible grouping
- Goal setting with students
- Jigsaw
- Mini workshops to re-teach or extend skills Open-ended activities
- Think-Pair-Share
- Varied supplemental materials

Gifted and Talented

- Alternative formative and summative assessments
- Choice boards
- Games and tournaments
- Group investigations
- Independent research and projects Interest groups for real world application
- Learning contracts
- Leveled rubrics
- Multiple intelligence options
- Personal agendas

- Project-based learning
- Problem-based learning
- Stations/centers
- Think-Tac-Toes
- Tiered activities/assignments
- Tiered products

<u>504</u>

- Printed copy of board work/notes provided
- Additional time for skill mastery
- Assistive technology
- Behavior management plan
- Center-Based Instruction
- Check work frequently for understanding
- Computer or electronic device utilization
- Extended time on tests/ quizzes
- Have student repeat directions to check for understanding
- Highlighted text visual presentation
- Modified assignment format
- Modified test content
- Modified test format
- Modified test length
- Multiple test sessions
- Multi-sensory presentation
- Preferential seating
- Preview of content, concepts, and vocabulary
- Reduced/shortened written assignments
- Secure attention before giving instruction/directions
- Shortened assignments
- Student working with an assigned partner
- Seacher initiated weekly assignment sheet
- Use open book, study guides, test prototype
- Exploration by interest
- Flexible grouping
- Goal setting with students
- Mini workshops to re-teach or extend skills Open-ended activities
- Think-Pair-Share
- Varied supplemental materials

Belvidere Cluster Wide Mathematics Curriculum 6th Grade

Unit Plan 1			
Title: Numbers and Operations			
Grade Level: 6	δ Αι	pproximate Time: 2.5 weeks	
Chapter Summary: This chapter extends previous knowledge of integers students have to the system of rational numbers. Students will be exploring absolute value, comparing and ordering integers, and evaluate exponential form.			
	Learning Tar	gets	
PARCC Major	Clusters; Supporting Clusters;	al Clusters	
Domain: The N	Number System		
Cluster: Apply	and extend previous understandings of nun	nbers to the system of rational numbers.	
Standard #:	Standard:		
<mark>6.NS.5</mark>	 6.NS.5 6.NS.5 Understand that positive and negative numbers are used together to describe quantities having opposite directions or values (e.g., temperature above/below zero, elevation above/below sea level, credits/debits, positive/negative electric charge); use positive and negative numbers to represent quantities in real-world contexts, explaining the meaning of 0 in each situation. 		
6.NS.6	6.NS.6 Understand a rational number as a point on the number line. Extend number line diagrams and coordinate axes familiar from previous grades to represent points on the line and in the plane with negative number coordinates.		
6.NS.7	Understand ordering and absolute value	of rational numbers.	
Domain: Expre	essions & Equations		
Cluster: Apply	and extend previous understandings of arith	hmetic to algebraic expressions.	
Standard #:	Standard:		
6.EE.1	6.EE.1 Write and evaluate numerical expressions involving whole-number exponents.		
Domain: Stand	dards for Math Practice		
Standard #:	Standard:		
MP1	Making sense of problems and persevere	e in solving them.	
MP2	MP2 Reason abstractly and quantitatively.		
MP3	MP3 Construct viable arguments and critique the reasoning of others.		
MP4	MP4 Model with mathematics.		
MP5 Use appropriate tools strategically.			
MP6 Attend to precision.			
MP7 Look for and make use of structure.			
MP8 Look for and express regularity in repeated reasoning.			
 Chapter Essential Question: How are opposite and negative numbers used in real-world contexts? What is the difference between an integer and a rational number? How do powers affect numbers? 		apter Enduring Understandings: More than integers are necessary to solve real-world applications. ie. negative, opposite, and rational numbers. Powers can simplify numbers.	
 Students will become secure in the concepts of opposite numbers, negative numbers, and absolute value. Students will be able to compare and order integers and rational numbers. Students will practice and learn different powers. 			
Evidence of Learning			

Possible Formative Assessments:

 SMART Response questions used throughout the chapter. Quizzes Homework/classwork Q and A Labs/Projects IXL.com TenMarks.com Firstinmath.com Summative Assessment: Chapter Test Possible Benchmark Assessments: Unit Assessment 		
Possible Alternative Assessments:		
 Choice boards - projects Skit Demonstration Journaling Conferencing 		
Suggested	Lesson Plan	
I OPICS	Approximate Timetrame	
Numbers	0.5 day	
Topic #2 Addition Subtraction and Integers	1.5 days	
Numbers	0.5 day	
Topic #4: Absolute Value	1.5 days	
Topic #5: Comparing Integers	1 day	
Topic #6: Comparing and Ordering Rational Numbers Lab: RAFT – Hi-Ho, Hi-Low	3 days	
Topic #7: Exponents	2 days	
Topic #8: Real Numbers	0.5 day	
Review and Chapter Test	2 days	
Curriculum Development Resources:		
 <u>https://njctl.org/courses/math/6th-grade-math/numbers-and-operations-6th-grade/</u> <u>http://www.raftbayarea.org/ideas/Hi%20Ho%20Hi%20Low.pdf</u> <u>https://www.khanacademy.org/</u> Approved classroom textbooks 		
Lesson Components		
 21st Century Skills Financial, Economic, Business, and Entrepreneurial Literacy 21st Century Themes Critical Thinking and Problem Solving Communication and Collaboration Life and Career Skills 		

Belvidere Cluster Wide Mathematics Curriculum

6th Grade Unit Plan 2				
Title: Factor	rs and Multiples			
Grade Level: 6	Grade Level: 6 Approximate Time: 2 weeks			
Chapter Summ problems using	nary: This chapter will explore factors a factors and multiples.	nd multiples allowing students to solve real world		
	Learning	Targets		
PARCC 📕 Major	Clusters; 💶 Supporting Clusters; 으 Addi	tional Clusters		
Domain: The N	Number System			
Cluster: Comp	oute fluently with multi-digit numbers and	I find common factors and multiples.		
Standard #:	Standard:			
6.NS.4	S.4 Find the greatest common factor of two whole numbers less than or equal to 100 and the least common multiple of two whole numbers less than or equal to 12. Use the distributive property to express a sum of two whole numbers 1-100 with a common factor as a multiple of a sum of two whole numbers with no common factor.			
Domain: Stand	ards for Math Practice			
Standard #:	Standard:			
MP1	Making sense of problems and persev	ere in solving them.		
MP2	Reason abstractly and quantitatively.			
MP3	Construct viable arguments and critique	le the reasoning of others.		
MP4 MP5	Nodel with mathematics.			
MP6	Attend to precision			
MP7	Look for and make use of structure.			
Chapter Esser	ntial Question:	Chapter Enduring Understanding:		
How do oper	ations affect numbers?	• Factors and multiples can be used to solve real		
• How do we s	olve real world application problems?	world problems.		
Chapter Object	ctives:			
 Studen 	ts will explore even and odd numbers.			
Studen	nts will review disability rules.			
 Studen 	its will use factors and multiples to find t	both GCFs and LCMs.		
Possible Form	EVIDENCE O	r Learning		
 SMART Response questions used throughout the chapter. Quizzes Homework/classwork Q and A Labs/Projects IXL.com TenMarks.com Firstinmath.com 				
Summative Assessment:				
Chapter Test				
Possible Benchmark Assessments:				
Unit Assessment				
Possible Alternative Assessments:				
Choice boards - projectsSkit				

DemonstrationJournalingConferencing		
Suggested I	_esson Plan	
Topics	Approximate Timeframe	
Topic #1: Even and Odd Numbers	1 day	
Topic #2: Divisibility Rules for 3 and 9	1 day	
Topic #3: Greatest Common Factor	2 days	
Topic #4: Least Common Multiple	2 days	
Topic #5: GCF and LCM Word Problems	2 days	
Review and Chapter Test	2 days	
Curriculum Development Resources:		
• <u>https://njctl.org/courses/math/6th-grade-math/factors-and-multiples/</u>		
https://www.khanacademy.org/		
Approved classroom textbooks		
Lesson Components		
21st Century Skills		

• Financial, Economic, Business, and Entrepreneurial Literacy

21st Century Themes

- Critical Thinking and Problem SolvingCommunication and Collaboration
- Life and Career Skills •

Unit Plan 3			
Title: Fraction and Decimal Computation			
Grade Level:	6	Approximate Time: 3 weeks	
Chapter Summary: This chapter will help students to further their understanding of fractions. They will fully understand the concept of division of fractions. They will model fraction problems and solve problems involving real world situations. This chapter will review long division, as well as make sure students have a strong understanding of decimal computation.			
	Learning	Targets	
PARCC 📕 Major	Clusters; 📮 Supporting Clusters; 으 Addi	tional Clusters	
Domain: The I	Number System		
Cluster: Apply fractions	and extend previous understandings of	f multiplication and division to divide fractions by	
Standard #:	Standard:		
6.NS.1	6.NS.1 Interpret and compute quotients of fractions, and solve word problems involving division of fractions by fractions, e.g., by using visual fraction models and equations to represent the problem.		
Cluster: Comp	oute fluently with multi-digit numbers and	d find common factors and multiples.	
Standard #:	Standard:		
<mark>6.NS.2</mark>	Fluently divide multi-digit numbers us	sing the standard algorithm.	
<mark>6.NS.3</mark>	6.NS.3 Fluently add, subtract, multiply, and divide multi-digit decimals using the standard algorithm for each operation.		
Domain: Stand	dards for Math Practice		
Standard #:	Standard:		
MP1	MP1 Making sense of problems and persevere in solving them.		
MP2	Reason abstractly and quantitatively.		
MP3	Construct viable arguments and critique	ue the reasoning of others.	
MP4	Model with mathematics.		
MP5	Use appropriate tools strategically.		
MP6	Attend to precision.		
MP7	Look for and make use of structure.		
 Chapter Essential Question: How do operations affect numbers? How do we solve real world application problems? What are the standard algorithms for long division and decimal computation? 		 Decimal computation is necessary to solve real world application problems. 	
 Chapter Objectives: Students will model and solve division of fractions. Students will review long division. Students will practice and learn the standard algorithms for decimal computation. Students will solve real world application problems with decimals. 			
Possible Formative Assessments:			
 SMART Response questions used throughout the chapter. Quizzes Homework/classwork Q and A Labs/Projects IXL.com 			

TenMarks.com			
Firstinmath.com			
Summative Assessment:			
Chapter Test			
Possible Benchmark Assessments:			
Unit Assessment			
Possible Alternative Assessments:			
Choice boards - projects			
• Skit			
Demonstration			
Journaling Conformation			
Conterencing Suggested I	asson Blan		
Topics	Approximate Timeframe		
Topic #1: Erection Division			
	3 days		
Topic #2: Long Division Review	2 days		
Topic #3: Adding Decimals	1 day		
Topic #4:.Subtracting Decimals	1 day		
Topic #5: Distributive Property & Product of Decimals	1 day		
Topic #6: Multiplying Decimals			
Lab: RAFT – Dizzy Decimals & More	2 days		
Topic #7: Dividing Decimals (Terminating)	1 day		
Topic #8: Dividing Decimals (Repeating)	1 day		
Lab: RAFT – The Money You Will Save	1 day		
Review and Chapter Test	2 days		
Curriculum Development Resources:			
 <u>https://njctl.org/courses/math/6th-grade-math/fraction-and-decimal-computation/</u> 			
http://www.raftbayarea.org/ideas/Dizzy%20Decimals%20and%20More.pdf			
 <u>http://www.raftbayarea.org/ideas/Money%20You%20Will%20Save.pdf</u> 			
Approved classroom textbooks			
21 st Century Skills			
 Financial, Economic, Business, and Entrepreneurial Literacy 21st Century Themes Critical Thinking and Problem Solving 			
Communication and Collaboration			

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- ICT Literacy Life and Career Skills •

Belvidere Cluster Wide **Mathematics Curriculum** 6th Grade

Unit Plan 4			
Title: Ratios, Proportions & Percents			
Grade Level: 6	; ;	Approximate Time: 6 weeks	
Chapter Summary: This chapter will introduce formally the concepts of ratios, proportions, and percent problems. They will review definitions about ratios, develop a sense of converting between different measurements, and work with unit rate problems. They will then be able to solve problems involving percents and use that knowledge in real-world situations involving them			
	Learning	Targets	
PARCC 📕 Major	Clusters; 💶 Supporting Clusters; 😐 Addi	itional Clusters	
Domain: Ratio	s and Proportional Relationships		
Cluster: Under	stand ratio concepts and use ratio reas	oning to solve problems.	
Standard #	Standard:	<u> </u>	
6.RP.1	Understand the concept of a ratio and use ratio language to describe a ratio relationship between two quantities. For example, "The ratio of wings to beaks in the bird house at the zoo was 2:1, because for every 2 wings there was 1 beak." "For every vote candidate A received, candidate C received nearly three votes."		
6.RP.2	Understand the concept of a unit rate a/b associated with a ratio a:b with $b \neq 0$, and use rate language in the context of a ratio relationship. For example, "This recipe has a ratio of 3 cups of flour to 4 cups of sugar, so there is 3/4 cup of flour for each cup of sugar." "We paid \$75 for 15 hamburgers, which is a rate of \$5 per hamburger."		
	Use ratio and rate reasoning to solve real-world and mathematical problems, e.g., by reasoning about tables of equivalent ratios, tape diagrams, double number line diagrams, or equations. a. Make tables of equivalent ratios relating quantities with whole number		
	measurements, find missing values in the tables, and plot the pairs of values on the coordinate plane. Use tables to compare ratios.		
6.RP.3	b. Solve unit rate problems including those involving unit pricing and constant speed. For example, if it took 7 hours to mow 4 lawns, then at that rate, how many lawns could be mowed in 35 hours? At what rate were lawns being mowed?		
c. Find a percent of a quantity as a rate per 100 (e.g., 30% of a quantity means 30/100 times the quantity); solve problems involving finding the whole, given a part and percent.		as a rate per 100 (e.g., 30% of a quantity means blems involving finding the whole, given a part and the	
	d. Use ratio reasoning to convert measurement units; manipulate and transform units appropriately when multiplying or dividing quantities		
Domain: Standards for Math Practice			
Standard #:	Standard #: Standard:		
MP1	Making sense of problems and persevere in solving them.		
MP2	Reason abstractly and quantitatively.		
MP3	Construct viable arguments and critique the reasoning of others.		
MP4	Model with mathematics.		
MP5	Use appropriate tools strategically.		
MP6	MP6 Attend to precision.		
MP7	MP7 Look for and make use of structure.		
MP8	Look for and express regularity in repe	eated reasoning.	
Chapter Essei	ntial Question:	Chapter Enduring Understanding:	
• Is it important to know how to solve for unit rates?		 Reasoning about ratios and proportions will help solve real world situations 	
What is the connection between a ratio and a fraction/decimal?		SUIVE TEAI-WUTTU SILUALIUTIS.	

 How are ratios used in the real world? 	• The relationships between fractions, decimals,	
• Where can examples of ratios and rates be found?	and percents are critical and needed to solve	
What does a percent represent?	problems.	
 How can knowledge about percents aid me in 		
real-world situations?		
Chapter Objectives:		
Students will be able to use ratios to describe	proportional situations.	
 Students will be able to represent ratios and p 	ercents with concrete models, fractions, and decimals.	
 Students will be able to apply their knowledge 	of rations and proportions to percent problems.	
 Students will be able to solve problems involv 	ing percents.	
Students will be able to make conversions bet	ween different measurements and unit ratios.	
Evidence (of Learning	
Possible Formative Assessments:	and the chapter	
 SMART Response questions used through Quizzos 	out the chapter.	
Homework/classwork		
Q and A		
Labs/Projects		
IXL.com		
TenMarks.com		
Firstinmath.com		
Chapter Project		
Summative Assessment:		
Chapter Test		
Possible Benchmark Assessments:		
Unit Assessment		
Possible Alternative Assessments:		
Choice boards - projects		
Skit Demonstration		
Conferencing		
Suggested	Lesson Plan	
Topics	Approximate Timeframe	
Topic #1: Writing Ratios	2 days	
Lab: RAFT – Salmon You Can Count On	2 days	
Topic #2: Equivalent Ratios		
Lab: PhET Proportion Playground	3 days	
Topic #3: Rates & Unit Rates		
Select one of the labs below:		
Lab: RAFT – Happy Trails Mix	3 days	
Lab: PhET Unit Rate		
Lab: Design on a Dime Project	2 days	
Topic #4: Using Ratios to Convert Measurements	3 davs	
Tania #5: Converting Linit Datian		
ropic #5: Converting Unit Ratios	3 days	
Topic #6: Percents & Fractions	3 days	

Topic #7: Percents & Decimals	2 days	
Topic #8: Using Percents	4 days	
Lab: Orange Soda Experiment	3 days	
Review and Chapter Test	2 days	
Curriculum Development Resources:		
 https://njctl.org/courses/math/6th-grade-math/ratios-proportions-percents/ http://www.raftbayarea.org/ideas/Salmon%20You%20Can%20Count%20On.pdf https://phet.colorado.edu/en/simulation/proportion-playground http://www.raftbayarea.org/ideas/Happy%20Trails%20Mix.pdf https://phet.colorado.edu/en/simulation/unit-rates https://www.khanacademy.org/ Approved classroom textbooks 		
Lesson Components		
 21st Century Skills Financial, Economic, Business, and Entrepreneurial Literacy 21st Century Themes Critical Thinking and Problem Solving Communication and Collaboration Life and Career Skills 		

Belvidere Cluster Wide
Mathematics Curriculum
6th Grade
Unit Plan 5

Title: Expressions			
Grade Level: 6		Approximate Time: 3 weeks	
Chapter Summary: This chapter will introduce students to the concepts of powers and order of operations. Students will explore algebraic expressions, as well the use of the distributive property and to combine like terms.			
	Learning	Targets	
PARCC 📕 Major (Clusters; 💶 Supporting Clusters; 😐 Addi	tional Clusters	
Domain: Expres	ssions & Equations		
Cluster: Apply a	and extend previous understandings of	arithmetic to algebraic expressions.	
Standard #:	Standard:		
6.EE.1	Write and evaluate numerical express	sions involving whole-number exponents.	
6.EE.2	Write, read, and evaluate expression	s in which letters stand for numbers.	
6.EE.3	Apply the properties of operations to	generate equivalent expressions.	
6.EE.4	6.EE.4 Identify when two expressions are equivalent (i.e., when the two expressions name the same number regardless of which value is substituted into them).		
Cluster: Reaso	n about and solve one-variable equation	ons and inequalities.	
Standard #:	Standard:		
6.EE.6	.EE.6 Use variables to represent numbers and write expressions when solving a real-world or mathematical problem; understand that a variable can represent an unknown number, or, depending on the purpose at hand, any number in a specified set.		
Domain: Standa	ards for Math Practice		
Standard #:	Standard:		
MP1	Making sense of problems and persevere in solving them.		
MP2	2 Reason abstractly and quantitatively.		
MP3	Construct viable arguments and critique the reasoning of others.		
MP4 MP5	MP4 Model with mathematics.		
MP6	IVIP5 Use appropriate tools strategically. MP6 Attend to precision		
MP7	Look for and make use of structure.		
MP8	Look for and express regularity in rep	peated reasoning.	
Chapter Essen	Chapter Essential Question: Chapter Enduring Understanding:		
• How do powe	rs affect numbers?	 Powers can simplify computation. 	
 How can order of operations, the distributive property, and combing like terms help solve an algebraic equation? How can an algebraic expression help me solve a real-world application problem? 			
Chapter Objectives:			
 Students will practice and learn different powers. Students will solve problems using order of operations. Students will differentiate between an algebraic expression and equation. Students will translate between words and expressions. Students will be able to evaluate expressions. Students will use the distributive property to combine like terms. 			
	Evidence o	fLearning	
Possible Formative Assessments:			
• SMA	RT Response questions used through	out the chapter.	

Quizzes		
 Homework/classwork 		
Q and A		
 Labs/Projects 		
• IXL.com		
• TenMarks.com		
Firstinmath.com		
Summative Assessment:		
Chapter Test		
Possible Benchmark Assessments:		
Unit Assessment		
Possible Alternative Assessments:		
Choice boards - projects		
Skit		
Demonstration		
• Journaling		
Conferencing		
Suggested	Lesson Plans	
	Approximate Timetrame	
Topic #1: Mathematical Expressions	0.5 day	
lopic #2: Order of Operations	0 E dava	
Lad: RAFT – Algebraic Horse	2.5 days	
Topic #3: The Distributive Property		
Lab: $RAFT = Simple Expressions Bingo$	2 days	
Topic #4: Combining Like Terms		
Lab: RAFT – Algebra Rummy 2 days		
Topic #5: Translating between Words and		
Expressions	2.5 days	
Topic #6: Evaluating Expressions	2.5 days	
	2.0 00,0	
Review and Chapter Test	2 days	
Curriculum Development Resources:		
 <u>https://njctl.org/courses/math/6th-grade-math/equations-inequalities/</u> 		
http://www.raftbayarea.org/ideas/Algebraic%	20Horse.pdf	
 http://www.rattbayarea.org/ideas/Simple%20 http://www.rattbayarea.org/ideas/Simple%20 	Expressions%20Bingo.par	
 <u>http://www.raitbayarea.org/ideas/Aigebra%2t</u> https://www.kbapacadomy.org/ 	JRummy.pu	
Approved classroom textbooks		
Lesson Componente		
21 st Century Skills	omponente	
Financial Economic Business and Entrepreneu	rial Literacy	
21 st Century Themes		
Critical Thinking and Problem Solving		
Communication and Collaboration		
Life and Career Skills		

Belvidere Cluster Wide	
Mathematics Curriculum	
6th Grade	
Unit Plan 6	
Title: Equations and Inequalities	
Grade Level: 6 Approximate Time: 3 weeks	

Chapter Summary: This chapter will allow students to learn about inequalities. They will solve inequalities and equations using different operations. They will discover how to write, solve, and graph simple inequalities themselves.

Learning Targets		
PARCC Major Clusters; Supporting Clusters; O Additional Clusters		
Domain: Expres	sions & Equations	
Cluster: Reason	about and solve one-variable equat	ions and inequalities.
Standard #	Standards:	
6.EE.5	Understand solving an equation or values from a specified set, if any, determine whether a given number	inequality as a process of answering a question: which make the equation or inequality true? Use substitution to in a specified set makes an equation or inequality true.
6.EE.7	6.EE.7 Solve real-world and mathematical problems by writing and solving equations of the form $x + p = q$ and $px = q$ for cases in which p, q and x are all nonnegative rational numbers.	
6.EE.8 Write an inequality of the form $x > c$ or $x < c$ to represent a constraint or condition in a real-world or mathematical problem. Recognize that inequalities of the form $x > c$ or $x < c$ have infinitely many solutions; represent solutions of such inequalities on number line diagrams.		
Domain: Stan	dards for Math Practice	
Standard #:	Standard #: Standard:	
MP1	Making sense of problems and	persevere in solving them.
MP2	Reason abstractly and quantitatively.	
MP3	Construct viable arguments and	I critique the reasoning of others.
MP4	Model with mathematics.	
MP5	Use appropriate tools strategically	
MP6	Attend to precision.	
MP7	Look for and make use of structure.	
MP8	Look for and express regularity	in repeated reasoning.
Chapter Essenti	al Question:	Chapter Enduring Understanding:
 How are inequed equations? 	alities different than equality	 Inequalities are used in real world problems. Inequalities can be modeled using number lines and solved using different operations.
roblems?	ialities help model real world	 Inequalities are manipulated similarly to equality

Chapter Objectives:

problems?

- Students will be able to determine solutions to different types of equations.
- Students will identify and manipulate inverse equations using different operations. •
- Students will solve one step addition, subtraction, multiplication, and division equations. •
- Students will write and solve simple inequalities.
- Students will develop the knowledge of how to graph solution sets to simple inequalities. •

Evidence of Learning

equations.

FUSSINIE FUTITIALIVE ASSESSITIETILS.		
 SMART Response questions used throughout the chapter. Quizzes Homework/classwork Q and A Labs/Projects IXL.com TenMarks.com Firstinmath.com Summative Assessment: Chapter Test Possible Benchmark Assessments:		
Unit Assessment		
 Possible Alternative Assessments: Choice boards - projects Skit Demonstration Journaling Conferencing 		
Suggested Lesson Plan		
Topics Approximate Timeframe		
Topic #1: Equations and Identities 0.25 day		
Topic #2: Tables 0.25 day		
Topic #3: Determining Solutions to Equations 0.5 day		
Topic #4: Solving an Equation for a Variable 2 days		
Topic #5: Solving One Step Addition & Subtraction Equations 2 days		
Topic #6: Solving One Step Multiplication & Division Equations 2 days Lab: RAFT – Occasions for an Equation		
Topic #7: Writing Equations 2 days		
Topic #8: Writing Simple Inequalities 1 day		
Topic #9: Solutions to Simple Inequalities 1 days		
Topic #10: Graphing Solution Sets to Simple Inequalities 2 days		
Review and Chapter Test 2 days		
Curriculum Development Resources:		
<u>https://njctl.org/courses/math/6th-grade-math/equations-inequalities/</u>		
http://www.raftbayarea.org/ideas/Occasions%20for%20an%20Equation.pdf		

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https://www.khanacademy.org/ Approved classroom textbooks .

Lesson Components

- 21st Century Skills
- Financial, Economic, Business, and Entrepreneurial Literacy 21st Century Themes
- Critical Thinking and Problem Solving Communication and Collaboration •
- •
- Life and Career Skills

Belvidere Cluster Wide	
Mathematics Curriculum	
6th Grade	
Unit Plan 7	
Title: Applications of Equations	
Grade Level: 6	Approximate Time: 3 weeks

Chapter Summary: This chapter focuses on number fluency and facility with what numbers represent, It explores how numbers are related to each other and how each can best be used to describe a particular elements. The chapter will also explore factors and multiples are used to describe the distributive procession.		
situation. The chapter will also explore factors and multiples as well as the distributive property.		
PARCC Major (Clusters: Supporting Clusters: Additional Clusters	
	Jumber System	
Cluster: Barroo	ant and analyze quantitative relationships between dependent	and independent variables
Cluster. Represe	Stendard	
Standard #:		
 6.EE.9 6.EE.9 b.EE.9 b.EE.9 c.example, in terms of the other quantity, thought of as the independent variable. Analyze the relationship between the dependent and independent variables using graphs and tables, and relate these to the equation. For example, in a problem involving motion at constant speed, list and graph ordered pairs of distances and times, and write the equation d = 65t to represent the relationship between distance and time. 		
Domain: Standa	lards for Math Practice	
Standard #:	Standard:	
MP1	Making sense of problems and persevere in solving th	em.
MP2	Reason abstractly and quantitatively.	
MP3	Construct viable arguments and critique the reasoning	of others.
MP4	Model with mathematics.	
MP5	Use appropriate tools strategically.	
MP6	Attend to precision.	
MP7	Look for and make use of structure.	
MP8	Look for and express regularity in repeated reasoning.	
 Chapter Essential Questions: How can equations, tables, and graphs be used to represent real-life scenarios? When the value of one variable dependent variable when the value of one variable does not dependent variable. A table can show the relationship between a dependent and independent variable. 		ng Understandings: ue of one variable depends on the her, it is called a dependent variable; he of one variable does not depend on he other, it is called an independent how the relationship between a d independent variable.
Chapter Objectives:		
Students will differentiate between dependent and independent variables.		
Student	its will represent the relationship between dependent and	l independent variables, found in
real-life scenarios, with equations, tables, and graphs.		
Evidence of Learning		
	A DT Despenses suppliant used throughout the charter	
 SIMA Quiz: 	 SMART Response questions used throughout the chapter. 	
 Quizzes Homework/classwork 		
• Q and A		
Labs/Projects		
• IXL.com		
• TenN	Marks.com	
Firstinmath.com		
Summative Assessment:		
Chapter Test		

Possible Benchmark Assessments:

• Unit Assessment

Possible Alternative Assessments:

- Choice boards projects
- Skit
- Demonstration
- Journaling
- Conferencing

Suggested Lesson Plan

Topics	Approximate Timeframe
Topic #1: Translating to Equations	1 day
Topic #2: Dependent and Independent Variables	4 days
Topic #3: Equations and Tables	4 days
Topic #4: Graphing Equations	4 days
Review and Chapter Test	2 days

Curriculum Development Resources:

- <u>https://njctl.org/courses/math/6th-grade-math/dependent/</u>
- http://www.raftbayarea.org/ideas/Meet%20My%20Function%20Machine.pdf
- <u>https://www.khanacademy.org/</u>
- Approved classroom textbooks

Lesson Components

21st Century Skills

• Financial, Economic, Business, and Entrepreneurial Literacy

21st Century Themes

- Critical Thinking and Problem Solving
- Communication and Collaboration
- Life and Career Skills

Belvidere Cluster Wide		
Mathematics Curriculum		
6th Grade		
Unit Plan 8		
Title: Graphing		
Grade Level: 6 Approximate Time: 1.5 weeks		

Chapter Summary: This chapter introduces all four quadrants of the Cartesian plane and ordered pairs. Polygons will also be displayed on coordinate planes.			
	Learning	Targets	
PARCC 📕 Major C	PARCC Major Clusters; Supporting Clusters; Additional Clusters		
Domain: The Nu	umber System		
Cluster: Apply a	ind extend previous understandings of	numbers to the system of rational numbers.	
Standard #:	Standards:		
6.NS.8	6.NS.8 Solve real-world and mathematical problems by graphing points in all four quadrants of the coordinate plane. Include use of coordinates and absolute value to find distances between points with the same first coordinate or the same second coordinate.		
Domain: Geome	etry		
Cluster: Solve r	eal-world and mathematical problems	involving area, surface area, and volume.	
6.G.3	6.G.3 Draw polygons in the coordinate plane given coordinates for the vertices; use coordinates to find the length of a side joining points with the same first coordinate or the same second coordinate. Apply these techniques in the context of solving real-world and mathematical problems.		
Domain: Standa	ards for Math Practice		
Standard#:	Standard:		
MP1	Making sense of problems and pers	evere in solving them.	
MP2	Reason abstractly and quantitatively	/.	
MP3	Construct viable arguments and criti	ique the reasoning of others.	
MP4	Model with mathematics.		
MP5	Use appropriate tools strategically.		
MP6	Attend to precision.		
MP7	Look for and make use of structure.		
MP8	Look for and express regularity in re	epeated reasoning.	
Chapter Essent	ial Question:	Chapter Enduring Understanding:	
 What is the Cartesian plane and what does an ordered pair represent? 		 The Cartesian plane and ordered pairs can be utilized to represent real world application problems. 	
Chapter Objectives:			
 Students will recognize the different parts of the Cartesian plane. 			
Students will practice and learn how to graph an ordered pair.			
 Students will examine polygons in the coordinate plane. 			
 Students will solve problems involving distance between two points. 			
Evidence of Learning			
Possible Forma	tive Assessments:		
 SMART 	Response questions used throughout	the chapter.	
• Quizzes			
Homework/classwork			
• Q and A			
Labs/Projects			
IXL.com TanMarka com			
I Eniviarks.com Firstinmath.com			
Filsunnaul.com Summative Assessment:			
Unit Test			
Possible Benchmark Assessments:			
Unit Assess	 Unit Assessment 		

Possible Alternative Assessments:

- Choice boards projects •
- Skit
 Demonstration
 Journaling
 Conferencing Demonstration

Suggested Lesson Plan		
Topics	Approximate Timeframe	
Topic #1: Cartesian Plane	1 day	
Topic #2: Graphing Ordered Pairs		
Lab: RAFT – Graphing Race to the Edge	3 days	
Topic #3: Polygons in the Coordinate Plane	1 day	
Topic #4: Cartesian Plane Applications	1.5 days	
Review, Chapter Test 1.5 days		
Curriculum Development Resources:		
https://njctl.org/courses/math/6th-grade-math/graphing-6th-grade/		
 <u>http://www.raftbayarea.org/ideas/Graphing%2</u> 	20Race%20to%20the%20Edge.pdf	
 <u>https://www.khanacademy.org/</u> 		
Approved class textbooks		
Lesson Components		
21 st Century Skills		
Financial, Economic, Business, and Entrepreneurial Literacy		
21 st Century Themes		
Critical Ininking and Problem Solving		
Communication and Collaboration Life and Caroor Skills		

Belvidere Cluster Wide		
Mathematics Curriculum		
6th Grade		
Unit Plan 9		
Title: Geometry/Measurement		
Grade Level: 6	Approximate Time: 4 weeks	

Chapter Summary: This chapter will allow students to explore how to find the area of different figures. They will be introduced to 3-Dimensional figures, as well as learn to calculate their surface area and volume. Polygons will also be displayed on coordinate planes and irregular figures will be examined.

	Learning Targets
PARCC 📕 Major Clu	sters; 🗖 Supporting Clusters; 🜻 Additional Clusters
Domain: Geometry	у
Cluster: Solve real	I-world and mathematical problems involving area, surface area, and volume.
Standard #s:	Standards:
6.G.1	Find the area of right triangles, other triangles, special quadrilaterals, and polygons by composing into rectangles or decomposing into triangles and other shapes; apply these techniques in the context of solving real-world and mathematical problems.
6.G.2	Find the volume of a right rectangular prism with fractional edge lengths by packing it with unit cubes of the appropriate unit fraction edge lengths, and show that the volume is the same as would be found by multiplying the edge lengths of the prism. Apply the formulas V = I w h and V = b h to find volumes of right rectangular prisms with fractional edge lengths in the context of solving real-world and mathematical problems.
6.G.3	Draw polygons in the coordinate plane given coordinates for the vertices; use coordinates to find the length of a side joining points with the same first coordinate or the same second coordinate. Apply these techniques in the context of solving real-world and mathematical problems.
6.G.4	Represent three-dimensional figures using nets made up of rectangles and triangles, and use the nets to find the surface area of these figures. Apply these techniques in the context of solving real-world and mathematical problems.
omain: Standards	s for Math Practice
tandard#:	Standard:
P1	Making sense of problems and persevere in solving them

MP1	Making sense of problems and persevere in solving them.
MP2	Reason abstractly and quantitatively.
MP3	Construct viable arguments and critique the reasoning of others.
MP4	Model with mathematics.
MP5	Use appropriate tools strategically.
MP6	Attend to precision.
MP7	Look for and make use of structure.
MP8	Look for and express regularity in repeated reasoning.

 How is the area of a figure calculated? How do irregular figures and shaded region affect the area of the figure? What is a 3-Dimensional figure compared to a 2-Dimensional figure? Are surface area and volume the same as area? The area calculate formulas. 3-Dimensional propertie Surface a calculate Polygons coordinational figure 	of different figures can be d using different, yet similar sional solids have unique s and characteristics. area and volume can be d using formulas. can be represented in a te plane.

Chapter Objectives:

- Students will calculate the area of rectangles, parallelograms, triangles, and trapezoids.
- Students will solve for the area of irregular figures and shaded regions.
- Students will be introduced to 3-Dimensional solids.
- · Students will determine the surface area and volume of different solids.
- · Students will examine polygons in the coordinate plane .

Evidence of Learning

Possible Formative Assessments:

- SMART Response questions used throughout the chapter.
- Quizzes
- Homework/classwork
- Q and A
- Labs/Projects
- IXL.com
- TenMarks.com
- Firstinmath.com

Summative Assessment:

· Chapter Test

Possible Benchmark Assessments:

Unit Assessment

Possible Alternative Assessments:

- Choice boards projects
- Skit
- Demonstration
- Journaling
- Conferencing

Suggested Lesson Plan		
Topics	Approximate Timeframe	
Topic #1: Area of Rectangles	1 day	
Lab (to review): RAFT – Polygon Pursuit		
Topic #2: Area of Parallelograms	1.5 days	
Topic #3: Area of Right Triangles	1 day	
Lab: Area of Right Triangles Exploratory Challenge		
Topic #4: Area of Acute and Obtuse Triangles		
Lab: Area of Acute and Obtuse Exploratory Challenge		
Topic #5: Area of Trapezoids	1 day	
Topic #6: Mixed Review: Area	2 days	
Topic #7: Area of Irregular Figures	1 day	
Topic #8: Area of Shaded Regions	1.5 days	
Topic #9: 3-Dimensional Solids	1 day	
Lab: RAFT – Shape Skeletons		
Topic #10: Nets	1 day	
Lab: Nets Exploratory Challenge Lab		

Topic #11: Surface Area		2 days
Topic #12: Volume		2 days
Lab: RAFT – Chewed Food		
Topic #13: Surface Area & Volume Application Problems		2 days
Topic #14: More Polygons in the Coordinate Plane		3 days
Review and Chapter Test		2 days
Curriculum Development Resour	ces:	
https://njctl.org/courses/ma	<u>:h/6th-grade-math/</u>	
http://www.raftbayarea.org/ideas/Polygon%20Pursuit.pdf		
 http://www.raftbayarea.org/ideas/Shape%20Skeletons.pdf 		
 <u>http://www.raftbayarea.org/ideas/Chewed%20Food.pdf</u> 		
• http://www.engageny.org/sites/default/files/resource/attachments/math-g6-m5-teacher-mater		
ls.pdf		
<u>https://www.khanacademy.org/</u>		
Approved classroom text books		
Lesson Components		
21st Century Skills		
Financial, Economic, Business, and Entrepreneurial Literacy		
21st Century Themes		
 Critical Thinking and Problem Solving 		
Communication and Collaboration		
Life and Career Skills		

Polvidoro Cluster Wide		
Delvidere Cluster Wide		
Mathematics Curriculum		
6th Grade		
Unit Plan 10		
Title: Statistical Variability		
Grade Level: 6 Approximate Time: 2 weeks		
Chapter Summary: In this chapter the students will explore and understand mean, median, and mode. The		
students will then strengthen their understanding by working through some application problems. Then		

students will review the vocabulary dealing with measurements of variation such as, max, min, range and quartiles			
Learning Targets			
PARCC Maior	Clusters: Supporting Clusters: O Additional	Clusters	
Domain: Statis	stics and Probability		
Cluster: Devel	lon understanding of statistical variability		
Standard #	Standarda:		
Stanuaru #.	Standards:		
6.SP.1	question and accounts for it in the answers. For example, "How old am I?" is not a statistical question, but "How old are the students in my school?" is a statistical question because one anticipates variability in students' ages.		
6.SP.2	Understand that a set of data collected to answer a statistical question has a distribution which can be described by its center, spread, and overall shape		
6.SP.3	6.SP.3 Recognize that a measure of center for a numerical data set summarizes all of its values with a single number, while a measure of variation describes how its values vary with a single number.		
Cluster: Summ	narize and describe distributions.		
Standards #:	Standards:		
	Summarize numerical data sets in relation	n to their context, such as by:	
6.SP.5	 c. Giving quantitative measures of center (median and/or mean) and variability (interquartile range and/or mean absolute deviation), as well as describing any overall pattern and any striking deviations from the overall pattern with reference to the context in which the data were gathered. d. Relating the choice of measures of center and variability to the shape of the data 		
	distribution and the context in which the d	ata were gathered.	
Domain: Stand	dards for Math Practice		
Standard #:	Standard:		
MP1	Making sense of problems and persevere in solving them.		
MP2	Reason abstractly and quantitatively.		
MP3	3 Construct viable arguments and critique the reasoning of others.		
MP4	Model with mathematics.		
MP5	Use appropriate tools strategically.		
MP6	Attend to precision.		
MP7	MP7 Look for and make use of structure.		
MP8	Look for and express regularity in repeated	reasoning.	
Chapter Esser	ntial Question: Cha	pter Enduring Understanding:	
 What are the ways to organize, measure, and display data? Measurements of center and variation are essential to analyze data. 			
Chapter Objectives:			
 Students will review the vocabulary for measurements of center. 			
• Students will practice and strengthen their understanding of measurements of center by working			
through application problems			
 Students will review vocabulary for measurements of variation such as min/max, range, quartiles, Outliers, and mean absolute deviation. 			
Evidence of Learning			
Possible Formative Assessments:			
 SMART Response questions used throughout the chapter. Quizzes 			

Homework/classwork		
Q and A		
Labs/Projects		
IXL.com		
TenMarks.com		
Firstinmath.com		
Summative Assessment:		
Chapter Test		
Possible Benchmark Assessments:		
Unit Assessment		
Possible Alternative Assessments:		
Choice boards - projects		
Skit		
Demonstration		
• Journaling		
Conferencing		
Suggested Lesson Plan		
Τοριςς	Approximate Timeframe	
Chapter Intro: What is Statistics?	0.5 day	
Topic #1: Measures of Center (Mean, Median, Mode)	2.5 days	
Topic #2: Central Tendency Application Problems	2 day	
Topic #3: Measures of Variation (Min-Max, Range,		
Quartiles, Outliers, Mean Absolute Deviation)	4 days	
Lab: RAFT – Medi, Meany, Midi, Mode	4 days	
Lab: RAFT – Who is the Outlier		
Review and Chapter Test	2 days	
Curriculum Development Resources:		
 <u>https://njctl.org/courses/math/6th-grade-math/statistical-variability/</u> 		
 <u>http://www.rattbayarea.org/ideas/Medi%20Mean</u> 	<u>iy%20Midi%20Mode.pdf</u>	
 http://www.rattbayarea.org/ideas/Who%20is%20 	<u>)The%20Outlier.pdf</u>	
<u>https://www.khanacademy.org/</u>		
Approved classroom textbooks		
Lesson Components		
21 Century Skills	Litoracy	
Financial, Economic, Business, and Entrepreneurial Literacy		
Critical Thinking and Problem Solving		
Communication and Collaboration		
Life and Career Skills		
Belvidere Cluster Wide		

	Beividere Cluster wide
	6th Grade
Unit Plan 11	
Title: Data Displays	
Grade Level: 6	ApproximateTime: 2 weeks

Chapter Summary: In this chapter students will explore the different ways to display data, through plots,			
graphs, and cha	115.	Townsta	
		I largets	
	Lusters; Supporting Clusters; Add		
Domain: Statist	ics and Probability		
Cluster: Summa	arize and describe distributions.		
Standards #:	Standards:		
6.SP.4	Display numerical data in plots on a number line, including dot plots, histograms, and box plots.		
	Summarize numerical data sets in relation to their context, such as by:		
6 SP 5	a. Reporting the number of observa	tions.	
0.01.0	b. Describing the nature of the attrib	oute under investigation, including how it was	
	measured and its units of measurem	ent.	
Domain: Standa	ards for Math Practice		
Standard #:	Standard:		
MP1	Making sense of problems and perse	evere in solving them.	
MP2	Reason abstractly and quantitatively		
MP3	Construct viable arguments and critic	que the reasoning of others.	
MP4	Model with mathematics.		
MP5	Use appropriate tools strategically.		
MP6	Attend to precision.		
MP7	Look for and make use of structure.		
MP8	Look for and express regularity in re	peated reasoning.	
Chapter Essent	tial Question:	Chapter Enduring Understanding:	
 What are the ways to organize, measure, and display data? Measurements of center and variation are Data displays are essential in organizing data. 			
Chapter Object	ives:		
Student	s will practice and strengthen their und	lerstanding of measurements of center by working	
through	application problems		
Student	s will explore and understand the diffe	rent ways to display data	
	Evidence of	of Learning	
Possible Forma	ative Assessments:		
 SMA 	RT Response questions used through	out the chapter.	
Quiz:	zes		
Home	ework/classwork		
• Qan	d A (Drojecto		
IXL.com TenMarks.com			
 Firstinmath.com 			
Summative Assessment:			
Chapter Test			
Possible Benchmark Assessments:			
Unit Assessment			
Possible Alternative Assessments:			
Choice boards - projects			
Skit			
Demonstration			

- Journaling ٠

Conferencing		
Suggested Lesson Plan		
Topics	Approximate Timeframe	
Topic #1: Data Displays	0.5 day	
Topic #2: Frequency Tables and Histograms	1.5 days	
Topic #3: Box-and-Whisker Plots	2 days	
Topic #4: Dot Plots	1 days	
Topic #5: Analyzing Data Displays	2 days	
Review and Chapter Test 2 days		
Curriculum Development Resources:		
https://njctl.org/courses/math/6th-grade-math/data-displays/		
http://www.raftbayarea.org/ideas/Medi%20Meany%20Midi%20Mode.pdf		
http://www.raftbayarea.org/ideas/Who%20is%20The%20Outlier.pdf		
https://www.khanacademy.org/		
Approved classroom textbooks		
Lesson Components		
21st Century Skills		
 Financial, Economic, Business, and Entrepreneurial Literacy 		
21st Century Themes		
Critical Thinking and Problem Solving		
Communication and Collaboration		
Life and Career Skills		