# 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: Numbe	ers and Operations	
Grade Level: 6	6 Approximate Time: 2.5 weeks	
•	<b>mary:</b> This chapter extends previous knowledge of integers students have to the system of rs. Students will be exploring absolute value, comparing and ordering integers, and evaluate m.	
	Learning Targets	
	Clusters; 💶 Supporting Clusters; 으 Additional Clusters	
Domain: The N	Number System	
Cluster: Apply	and extend previous understandings of numbers to the system of rational numbers.	
Standard #:	Standard:	
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	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 arithmetic to algebraic expressions.	
Standard #:	Standard:	
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 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.	
	ntial Question: Chapter Enduring Understandings:	
<ul> <li>How are opposite and negative numbers used in real-world contexts?</li> <li>What is the difference between an integer and a rational number?</li> <li>More than integers are necessary to solve real-world applications. ie. negative, oppos and rational numbers.</li> <li>Powers can simplify numbers.</li> </ul>		
• How do powe	ers affect numbers?	
Chapter Object		
<ul> <li>Studen value.</li> <li>Studen</li> </ul>	nts will become secure in the concepts of opposite numbers, negative numbers, and absolute nts will be able to compare and order integers and rational numbers.	
• Studen	nts will practice and learn different powers.	
	Evidence of Learning	

**Possible Formative Assessments:** 

SMART Response questions used throug	hout the chapter	
Quizzes		
<ul> <li>Homework/classwork</li> </ul>		
Q and A		
Labs/Projects		
• IXL.com		
TenMarks.com		
Firstinmath.com Summative Assessment:		
Chapter Test Possible Benchmark Assessments:		
Unit Assessment		
Possible Alternative Assessments:		
<ul> <li>Choice boards - projects</li> <li>Skit</li> </ul>		
Demonstration		
Journaling		
Conferencing		
Suggested	l Lesson Plan	
Topics	Approximate Timeframe	
Topic #1: Addition, Natural Numbers & Whole Numbers	0.5 day	
Topic #2 Addition Subtraction and Integers	1.5 days	
Topic #3: Multiplication, Division and Rational	•	
Numbers	0.5 day	
Topic #4: Absolute Value	1.5 days	
Topic #5: Comparing Integers	1 day	
Topic #6: Comparing and Ordering Rational		
Numbers	3 days	
Lab: RAFT – Hi-Ho, Hi-Low		
Topic #7: Exponents	2 days	
Topic #8: Real Numbers	0.5 day	
Review and Chapter Test	2 days	
Curriculum Development Resources:	20030	
<ul> <li>https://njctl.org/courses/math/6th-grade-math</li> </ul>	n/numbers-and-operations-6th-grade/	
<ul> <li>http://www.raftbayarea.org/ideas/Hi%20Ho%</li> </ul>		
<ul> <li><u>https://www.khanacademy.org/</u></li> </ul>		
<ul> <li>Approved classroom textbooks</li> </ul>		
	Components	
21 <sup>st</sup> Century Skills		
Financial, Economic, Business, and Entrepreneu	Irial Literacy	
<ul> <li>21<sup>st</sup> Century Themes</li> <li>Critical Thinking and Problem Solving</li> </ul>		
<ul> <li>Communication and Collaboration</li> </ul>		
<ul> <li>Life and Career Skills</li> </ul>		

Belvidere Cluster Wide Mathematics Curriculum

6th Grade			
	Unit Plan 2		
Title: Factors and Multiples			
Grade Level: 6	3	Approximate Time: 2 weeks	
Chapter Sumn	nary: This chapter will explore factors a	nd multiples allowing students to solve real world	
problems using	factors and multiples.		
	Learning		
-	, 11 5 ,	tional Clusters	
Domain: The N	Number System		
Cluster: Comp	ute fluently with multi-digit numbers and	find common factors and multiples.	
Standard #:	Standard:		
6.NS.4	least common multiple of two whole	wo whole numbers less than or equal to 100 and the numbers less than or equal to 12. Use the distributive ole numbers 1-100 with a common factor as a multiple no common factor.	
Domain: Stand	lards for Math Practice		
Standard #:	Standard:		
MP1	Making sense of problems and persev	ere in solving them.	
MP2	Reason abstractly and quantitatively.	<u> </u>	
MP3	Construct viable arguments and critiqu	e 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 Esser		<ul> <li>Chapter Enduring Understanding:</li> <li>Factors and multiples can be used to solve real</li> </ul>	
-	ations affect numbers?	world problems.	
	olve real world application problems?		
Chapter Object			
	ts will explore even and odd numbers.		
	ts will review disability rules. ts will use factors and multiples to find I	ooth GCEs and LCMs	
	Evidence o		
Possible Form	ative Assessments:		
<ul> <li>SMART Response questions used throughout the chapter.</li> <li>Quizzes</li> <li>Homework/classwork</li> <li>Q and A</li> <li>Labs/Projects</li> <li>IXL.com</li> <li>TenMarks.com</li> <li>Firstinmath.com</li> </ul>			
Summative Assessment:			
Chapter Test			
Possible Benchmark Assessments:			
Unit Assessment			
Possible Alter	Possible Alternative Assessments:		
<ul> <li>Choice boards - projects</li> <li>Skit</li> </ul>			

Demonstration		
Journaling		
Conferencing		
Suggeste	ed Lesson 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:	- L	
• https://njctl.org/courses/math/6th-grade	-math/factors-and-multiples/	
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 •

Belvidere Cluster Wide	
Mathematics Curriculum	
6th Grade	

	Unit Plan 3		
Title: Fracti	tion and Decimal Computation		
Grade Level: 6 Approximate Time: 3 weeks			
understand the involving real v	<b>nmary:</b> This chapter will help students to further their understanding of fractions. The concept of division of fractions. They will model fraction problems and solve pr world situations. This chapter will review long division, as well as make sure stud standing of decimal computation.	oblems	
	Learning Targets		
	or Clusters; 🔲 Supporting Clusters; 으 Additional Clusters		
Domain: The I	Number System		
Cluster: Apply fractions	ly and extend previous understandings of multiplication and division to divide frac	ctions by	
Standard #:	Standard:		
6.NS.1	Interpret and compute quotients of fractions, and solve word problems involve fractions by fractions, e.g., by using visual fraction models and equations to problem.		
Cluster: Comp	npute fluently with multi-digit numbers and find common factors and multiples.		
Standard #:	Standard:		
<mark>6.NS.2</mark>	Fluently divide multi-digit numbers using the standard algorithm.		
6.NS.3	Fluently add, subtract, multiply, and divide multi-digit decimals using the star algorithm for each operation.	ndard	
Domain: Stan	ndards for Math Practice		
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	Attend to precision.		
MP7	Look for and make use of structure.		
Chapter Esse	ential Question: Chapter Enduring Understanding:		
• How do oper	erations affect numbers?	to solve real	
• How do we s	solve real world application problems? world application problems.		
	ne standard algorithms for long division al computation?		
Chapter Obje	ectives:		
<ul><li>Studer</li><li>Studer</li></ul>	ents will model and solve division of fractions. ents will review long division. ents will practice and learn the standard algorithms for decimal computation. ents will solve real world application problems with decimals.		
	Evidence of Learning		
Possible Form	mative Assessments:		
<ul> <li>Qui</li> </ul>	MART Response questions used throughout the chapter. uizzes omework/classwork		
● Q a ● Lab	and A abs/Projects		
• IXL	L.com		

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sessments:	<u></u>
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sessments:	
ects	
Suggested Les	son Plan
pics	Approximate Timeframe
n	
	3 days
Review	2 days
	-
ls	1 day
cimals	1 day
perty & Product of	
	1 day
imals	
nals & More	2 days
als (Terminating)	1 day
als (Repeating)	1 day
	-
You Will Save	1 day
	2 days
nt Resources:	
ourses/math/6th-grade-math/frac	
yarea.org/ideas/Dizzy%20Decim	
yarea.org/ideas/Money%20You%	<u>200011%20Save.pd1</u>
<u>academy.org/</u> om textbooks	
Lesson Comp	JIIEIIIS
Pusinosa and Estroproposticit	torony
Dusiness, and Entrepreneurial L	leracy
Business, and Entrepreneurial L	teracy
Problem Solving Collaboration	

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- ICT Literacy Life and Career Skills •

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

	Unit F	Plan 4
Title: Ratios,	Proportions & Percents	
Grade Level:	3	Approximate Time: 6 weeks
problems. The measurements	y will review definitions about ratios, dev , and work with unit rate problems. The se that knowledge in real-world situation	ly the concepts of ratios, proportions, and percent velop a sense of converting between different y will then be able to solve problems involving ns involving them.
PARCC Major		itional Clusters
	is and Proportional Relationships	
		aning to colve problems
	rstand ratio concepts and use ratio reas	coning to solve problems.
Standard #: 6.RP.1	Standard: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 measurements, find missing values in the tables, and plot the pairs of coordinate plane. Use tables to compare ratios.		n the tables, and plot the pairs of values on the
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 the percent.	
	d. Use ratio reasoning to convert measurement units; manipulate and transform units appropriately when multiplying or dividing quantities	
Domain: Stand	dards for Math Practice	
Standard #:	Standard:	
MP1	Making sense of problems and persevere in solving them.	
MP2	Reason abstractly and quantitatively.	
MP3	Construct viable arguments and critiqu	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.	acted reasoning
MP8 Chapter Esser	Look for and express regularity in reperticul Question:	
-	ntial Question:	<ul> <li>Chapter Enduring Understanding:</li> <li>Reasoning about ratios and proportions will help</li> </ul>
•	t to know how to solve for unit rates? connection between a ratio and a nal?	solve real-world situations.

<ul> <li>How are ratios used in the real world?</li> <li>Where can examples of ratios and rates be found?</li> <li>What does a percent represent?</li> <li>How can knowledge about percents aid me in real-world situations?</li> </ul>	The relationships between fractions, decimals, and percents are critical and needed to solve problems.
<ul> <li>Students will be able to use ratios to describe</li> <li>Students will be able to represent ratios and p</li> <li>Students will be able to apply their knowledge</li> <li>Students will be able to solve problems involv</li> </ul>	bercents with concrete models, fractions, and decimals. e of rations and proportions to percent problems. ing percents.
	tween different measurements and unit ratios.
Evidence of Eviden	of Learning
<ul> <li>SMART Response questions used through         <ul> <li>Quizzes</li> <li>Homework/classwork</li> <li>Q and A</li> <li>Labs/Projects</li> <li>IXL.com</li> <li>TenMarks.com</li> <li>Firstinmath.com</li> <li>Chapter Project</li> </ul> </li> <li>Summative Assessment:         <ul> <li>Chapter Test</li> </ul> </li> <li>Possible Benchmark Assessments:             <ul> <li>Unit Assessment</li> <li>Choice boards - projects</li> <li>Skit</li> <li>Demonstration</li> <li>Journaling</li> </ul> </li> </ul>	nout the chapter.
Conferencing	
	Lesson Plan
<b>Topics</b> Topic #1: Writing Ratios Lab: RAFT – Salmon You Can Count On	Approximate Timeframe 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 Lab: PhET Unit Rate	3 days
Lab: Design on a Dime Project	2 days
Topic #4: Using Ratios to Convert Measurements	3 days
Topic #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:		
<ul> <li>https://njctl.org/courses/math/6th-grade-math/ratios-proportions-percents/</li> <li>http://www.raftbayarea.org/ideas/Salmon%20You%20Can%20Count%20On.pdf</li> <li>https://phet.colorado.edu/en/simulation/proportion-playground</li> <li>https://www.raftbayarea.org/ideas/Happy%20Trails%20Mix.pdf</li> <li>https://phet.colorado.edu/en/simulation/unit-rates</li> <li>https://www.khanacademy.org/</li> <li>Approved classroom textbooks</li> </ul>		
Lesson Components		
<ul> <li>21<sup>st</sup> Century Skills</li> <li>Financial, Economic, Business, and Entrepreneurial Literacy</li> <li>21<sup>st</sup> Century Themes</li> <li>Critical Thinking and Problem Solving</li> <li>Communication and Collaboration</li> <li>Life and Career Skills</li> </ul>		

Belvidere Cluster Wide	
Mathematics Curriculum	
6th Grade	
Unit Plan 5	

Title: Expres		
Grade Level: 6 Approximate Time: 3 weeks		
	plore algebraic expressions, as well the	ts to the concepts of powers and order of operations. e use of the distributive property and to combine like
	Learning	
	Clusters; 🗖 Supporting Clusters; 으 Addit	tional Clusters
	ssions & Equations	
Cluster: Apply	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 expressions	s in which letters stand for numbers.
6.EE.3	Apply the properties of operations to	generate equivalent expressions.
6.EE.4	Identify when two expressions are eq same number regardless of which values of which values are same number regardless of which values of whic	uivalent (i.e., when the two expressions name the lue is substituted into them).
Cluster: Reaso	n about and solve one-variable equatio	ns and inequalities.
Standard #:	Standard:	
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: Stand	ards for Math Practice	
Standard #:	Standard:	
MP1	Making sense of problems and perse	vere in solving them.
MP2	Reason abstractly and quantitatively.	
MP3	Construct viable arguments and critiq	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.	a stad was sources
MP8	Look for and express regularity in rep	
Chapter Esser		<ul> <li>Chapter Enduring Understanding:</li> <li>Powers can simplify computation.</li> </ul>
<ul> <li>How do powers affect numbers?</li> <li>How can order of operations, the distributive property, and combing like terms help solve an algebraic equation?</li> <li>How can an algebraic expression help me solve a</li> </ul>		<ul> <li>Algebraic expressions and equations can hel solve real-world application problems.</li> </ul>
-	olication problem?	
<ul> <li>Studen</li> <li>Studen</li> <li>Studen</li> <li>Studen</li> </ul>	ts will practice and learn different power ts will solve problems using order of ope ts will differentiate between an algebraid ts will translate between words and exp ts will be able to evaluate expressions.	erations. c expression and equation. ressions.
Studen	ts will use the distributive property to co	
Dessible 5 -	Evidence o	t Learning
	ative Assessments:	
• SMA	ART Response questions used through	but the chapter.

Quizzes	
Homework/classwork	
• Q and A	
Labs/Projects	
IXL.com	
<ul> <li>TenMarks.com</li> </ul>	
<ul> <li>Firstinmath.com</li> </ul>	
Summative Assessment:	
Chapter Test	
Possible Benchmark Assessments:	
Unit Assessment	
Possible Alternative Assessments:	
Choice boards - projects	
• Skit	
Demonstration	
Journaling	
Conferencing	
	Lesson Plans
Topics	Approximate Timeframe
Topic #1: Mathematical Expressions	0.5 day
Topic #2: Order of Operations	
Lab: 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
	2 0030
Topic #5: Translating between Words and	
Expressions	2.5 days
Topic #6: Evaluating Expressions	2.5 days
	-
Review and Chapter Test	2 days
Curriculum Development Resources:	
<ul> <li><u>https://njctl.org/courses/math/6th-grade-math</u></li> </ul>	
http://www.raftbayarea.org/ideas/Algebraic%	
<ul> <li><u>http://www.raftbayarea.org/ideas/Simple%20</u></li> </ul>	Expressions%20Bingo.pdf
<ul> <li><u>http://www.raftbayarea.org/ideas/Algebra%20</u></li> </ul>	<u>0Rummy.pdf</u>
<ul> <li><u>https://www.khanacademy.org/</u></li> </ul>	
Approved classroom textbooks	
	components
21 <sup>st</sup> Century Skills	
• Financial, Economic, Business, and Entrepreneu	rial Literacy
21 <sup>st</sup> 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.

inemserves.	Learni	ng Targets
PARCC 📕 Major (		ditional Clusters
Domain: Expres	ssions & Equations	
Cluster: Reasor	about and solve one-variable equati	ons and inequalities.
Standard #:	Standards:	
6.EE.5	values from a specified set, if any, r	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	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	real-world or mathematical problem	c or $x < c$ to represent a constraint or condition in a a. Recognize that inequalities of the form $x > c$ or $x < c$ esent solutions of such inequalities on number line
Domain: Stan	dards for Math Practice	
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	Attend to precision.	
MP7	Look for and make use of structure.	
MP8	Look for and express regularity	
Chapter Essent	ial Question:	Chapter Enduring Understanding:
· How are inequ	ualities different than equality	<ul> <li>Inequalities are used in real world problems.</li> </ul>
equations?		· Inequalities can be modeled using number lines and
• How will inequ	ualities help model real world	solved using different operations
problems?		<ul> <li>Inequalities are manipulated similarly to equality</li> </ul>

Chapter Objectives:

- 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.

<ul> <li>SMART Response questions used throughout</li> </ul>	the chapter.
• Quizzes	
Homework/classwork	
Q and A	
<ul> <li>Labs/Projects</li> </ul>	
• IXL.com	
<ul><li>TenMarks.com</li><li>Firstinmath.com</li></ul>	
• Fistimian.com	
Chapter Test	
Possible Benchmark Assessments:	
Unit Assessment	
Possible Alternative Assessments:	
Choice boards - projects	
• Skit	
Demonstration	
Journaling	
Conferencing	
Suggested Les	
Topics	Approximate Timeframe
Topic #1: Equations and Identities	0.25 day
Copic #2: Tables	0.25 day
Fopic #3: Determining Solutions to Equations	0.5 day
Fopic #4: Solving an Equation for a Variable	2 days
Opic #5: Solving One Step Addition & Subtraction	
Equations	2 days
Opic #6: Solving One Step Multiplication &	
Division Equations	2 days
ab: RAFT – Occasions for an Equation	2 00/0
Copic #7: Writing Equations	2 days
Opic #8: Writing Simple Inequalities	1 day
Topic #9: Solutions to Simple Inequalities	1 days
Opic #10: Graphing Solution Sets to Simple	
Inequalities 2 days	
Review and Chapter Test	2 days
Curriculum Development Resources:	
https://njctl.org/courses/math/6th-grade-math/	equations-inequalities/

•

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

## Lesson Components

- 21<sup>st</sup> Century Skills
- Financial, Economic, Business, and Entrepreneurial Literacy 21<sup>st</sup> 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

		now each can best be used to describe a particular Itiples as well as the distributive property
situation. The chapter will also explore factors and multiples as well as the distributive property. Learning Targets		
PARCC Maior		itional Clusters
Domain: The N		
	•	between dependent and independent variables.
Standard #:	Standard:	
Stanuaru #.		titics in a real world problem that abance is relationship.
		tities in a real-world problem that change in relationship
	to one another; write an equation to express one quantity, thought of as the dependent variable, in terms of the other quantity, thought of as the independent variable. Analyze the	
6.EE.9	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
		of distances and times, and write the equation $d = 65t$ to
	represent the relationship between d	istance and time.
Domain: Stand	lards 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 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 re	
Chapter Essential Questions: Chapter Enduring Understandings:		<ul> <li>When the value of one variable depends on the</li> </ul>
	ations, tables, and graphs be used to I-life scenarios?	value of another, it is called a dependent variable;
representied		when the value of one variable does not depend on
		the value of the other, it is called an independent
		variable.
		• A table can show the relationship between a
Ohantan Ohian	4	dependent and independent variable.
Chapter Object		
	ts will differentiate between dependent	•
	e scenarios, with equations, tables, and	en dependent and independent variables, found in
Teal-Inc		of Learning
Possible Form	ative Assessments:	
	ART Response questions used through	out the chapter
• Quiz		
<ul> <li>Homework/classwork</li> </ul>		
• Q and A		
	s/Projects	
• IXL.		
	Marks.com	
• First	tinmath.com	
Chapter Te	51	

#### 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 Lab: RAFT – Meet my Function Machine	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

	Learning Targets		
PARCC 📕 Major	Clusters; 💶 Supporting Clusters; 🔍 Additional Clusters		
Domain: The N	Number System		
Cluster: Apply	and extend previous understandings of numbers to the system of rational numbers.		
Standard #:	Standards:		
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: Geom	netry		
Cluster: Solve	real-world and mathematical problems involving area, surface area, and volume.		
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: Stand	dards for Math Practice		
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	Attend to precision.		
MP7	Look for and make use of structure.		
MP8	Look for and express regularity in repeated reasoning.		
<ul> <li>What is the C ordered pair r</li> </ul>	Cartesian plane and what does an • The Cartesian plane and ordered pairs can be		
Chapter Objec	tives:		
Studen	ts will recognize the different parts of the Cartesian plane.		
	ts will practice and learn how to graph an ordered pair.		
	its will examine polygons in the coordinate plane.		
Studen	nts will solve problems involving distance between two points.		
Dessible 5	Evidence of Learning		
	native Assessments: T Response questions used throughout the chapter.		
<ul> <li>Quizzes</li> <li>Homew</li> <li>Q and J</li> </ul>	vork/classwork		
<ul> <li>Labs/Pi</li> </ul>			
<ul> <li>IXL.con</li> </ul>	•		
	irks.com		
Firstinn	nath.com		
Summative As	sessment:		
<ul> <li>Unit Test</li> </ul>			

# 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:		
<ul> <li><u>https://njctl.org/courses/math/6th-grade-math</u></li> <li><u>http://www.raftbayarea.org/ideas/Graphing%</u></li> <li><u>https://www.khanacademy.org/</u></li> <li>Approved class textbooks</li> </ul>		
Lesson C	omponents	
<ul> <li>21<sup>st</sup> Century Skills</li> <li>Financial, Economic, Business, and Entrepreneurial Literacy</li> <li>21<sup>st</sup> Century Themes</li> <li>Critical Thinking and Problem Solving</li> <li>Communication and Collaboration</li> <li>Life and Career Skills</li> </ul>		

Belvidere Cluster Wide	
atics Curriculum	
6th Grade	
Unit Plan 9	
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 Clusters;	Supporting Clusters; O Additional Clusters	
Domain: Geometry		
Cluster: Solve real-work	d 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 for Math Practice		
tandard#:	Standard:	
P1	Making sense of problems and persevere in solving them.	

	Otandald.
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.

Chapter Essential Question:	Chapter Enduring Understanding:
Chapter Losential Question.	
<ul> <li>How is the area of a figure calculated?</li> </ul>	• The area of different figures can be
<ul> <li>How do irregular figures and shaded region affect the area of the figure?</li> </ul>	calculated using different, yet similar formulas.
<ul> <li>What is a 3-Dimensional figure compared to a 2-Dimensional figure?</li> </ul>	<ul> <li>3-Dimensional solids have unique properties and characteristics.</li> <li>Surface area and volume can be</li> </ul>
· Are surface area and volume the same as area?	calculated using formulas.
	<ul> <li>Polygons can be represented in a coordinate plane.</li> </ul>

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 Lessor	n 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 Lab: RAFT – Chewed Food	2 days
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 Resources:	
<ul> <li><u>https://njctl.org/courses/math/6th-grade-math/</u></li> </ul>	
http://www.raftbayarea.org/ideas/Polygon%20Purs	suit.pdf
http://www.raftbayarea.org/ideas/Shape%20Skele	tons.pdf
• http://www.raftbayarea.org/ideas/Chewed%20Foo	<u>d.pdf</u>
• http://www.engageny.org/sites/default/files/resourc	ce/attachments/math-g6-m5-teacher-materia
<u>ls.pdf</u>	
<ul> <li><u>https://www.khanacademy.org/</u></li> </ul>	
<ul> <li>Approved classroom text books</li> </ul>	
Lesson Compon	ents
21st Century Skills	
• Financial, Economic, Business, and Entrepreneurial Li	iteracy
21st Century Themes	
Critical Thinking and Problem Solving	
Communication and Collaboration	
Life and Career Skills	

Belvidere Cl	uster Wide
Mathematics	Curriculum
6th Gi	rade
Unit Pla	an 10
Title: Statistical Variability	
Grade Level: 6	Approximate Time: 2 weeks
<b>Chapter Summary:</b> In this chapter the students will explore students will then strengthen their understanding by wo	

students will re quartiles.	view the vocabulary dealing with measu	urements of variation such as, max, min, range and
•	Learning	) Targets
PARCC 📕 Major	Clusters; 💶 Supporting Clusters; 으 Addi	
Domain: Statis	tics and Probability	
Cluster: Devel	op understanding of statistical variabilit	V V
Standard #:	Standards:	
6.SP.1	Recognize a statistical question as or question and accounts for it in the ar	ne that anticipates variability in the data related to the nswers. For example, "How old am I?" is not a the students in my school?" is a statistical question n students' ages.
6.SP.2	Understand that a set of data collect which can be described by its center	ed to answer a statistical question has a distribution , spread, and overall shape
6.SP.3	with a single number, while a measu single number.	for a numerical data set summarizes all of its values re of variation describes how its values vary with a
Cluster: Summ	narize and describe distributions.	
Standards #:	Standards:	
6.SP.5	(interquartile range and/or mean abs	elation to their context, such as by: enter (median and/or mean) and variability solute deviation), as well as describing any overall om the overall pattern with reference to the context in
	which the data were gathered.	of center and variability to the shape of the data
Domain: Stand	lards for Math Practice	
Standard #:	Standard:	
MP1	Making sense of problems and persev	vere 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.	
MP8	Look for and express regularity in repe	eated reasoning.
<ul><li>Chapter Esser</li><li>What are the</li></ul>	ntial Question: ways to organize, measure, and	<ul> <li>Chapter Enduring Understanding:</li> <li>Measurements of center and variation are</li> </ul>
display data?		essential to analyze data.
<ul> <li>Studen through</li> <li>Studen</li> </ul>	ts will review the vocabulary for measu ts will practice and strengthen their und n application problems	rements of center. derstanding of measurements of center by working vents of variation such as min/max, range, quartiles,
	Evidence of	of Learning
	native Assessments: ART Response questions used through zzes	out the chapter.

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ity/
2 days
2 days
4 days
2 day
2.5 days
0.5 day
••
Approximate Timeframe

	Belvidere Cluster Wide
	Mathematics Curriculum
	6th Grade
	Unit Plan 11
Title: Data Displays	
Grade Level: 6	ApproximateTime: 2 weeks

	Learning Ta	rgets	
PARCC 📕 Major		al Clusters	
Domain: Stati	stics and Probability		
Cluster: Sumr	marize and describe distributions.		
Standards #:	Standards:		
6.SP.4	Display numerical data in plots on a num plots.	ber line, including dot plots, histograms, and box	
	Summarize numerical data sets in relation	on to their context, such as by:	
	a. Reporting the number of observation	-	
<mark>6.SP.5</mark>		under investigation, including how it was	
	measured and its units of measurement.		
Domain: Stan	dards for Math Practice		
Standard #:	Standard:		
MP1	Making sense of problems and persever	e in solving them	
MP1 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 repeat	ed reasoning.	
Chapter Esse		apter Enduring Understanding:	
-	e ways to organize, measure, and	Measurements of center and variation are Data displays are essential in organizing data.	
Chapter Obje	ctives:		
Stude	nts will practice and strengthen their unders	tanding of measurements of center by working	
Ų	h application problems		
<ul> <li>Stude</li> </ul>	nts will explore and understand the different	ways to display data	
	Evidence of Le	erning	
Possible Forr	native Assessments:		
• SM	ART Response questions used throughout	the chapter.	
	izzes		
-	mework/classwork		
	and A		
• Lat • IXL	os/Projects		
	nMarks.com		
	stinmath.com		
Summative A			
• Cł	napter Test		
	chmark Assessments:		
<ul> <li>Unit Asses</li> </ul>			
- 01117100000	rnative Assessments:		
Possible Alte	111alive A3363311161113.		
	arde projects		
	ards - projects		

- Journaling •

Suggested L	esson 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: <ul> <li><u>https://njctl.org/courses/math/6th-grade-math/c</u></li> <li><u>http://www.raftbayarea.org/ideas/Medi%20Mea</u></li> <li><u>http://www.raftbayarea.org/ideas/Who%20is%2</u></li> <li><u>https://www.khanacademy.org/</u></li> <li>Approved classroom textbooks</li> </ul>	any%20Midi%20Mode.pdf 20The%20Outlier.pdf
Lesson Co	mponents
<ul> <li>21st Century Skills</li> <li>Financial, Economic, Business, and Entreprene</li> <li>21st Century Themes</li> <li>Critical Thinking and Problem Solving</li> <li>Communication and Collaboration</li> </ul>	eurial Literacy