

learning focus:

- ✓ model, write, and solve one-step equations and inequalities
- ✓ determine if a given value makes an equation or inequality true
- ✓ represent solutions for equations and inequalities on a number line

EQUATIONS & INEQUALITIES UNIT

6th
GRADE

12 DAY CCSS-ALIGNED UNIT

EQUATION AND INEQUALITIES UNIT
Table of Contents

PAGE	TOPIC	RESOURCE
4	Sample Pacing Guide	
5-6	Ideas for Implementation & Helpful Hints	
7-16	Binder Covers, Dividers, and Spine Labels	
17-18	One-Step Equations: Addition and Subtraction	Student Handout 1
19	One-Step Equations: Addition and Subtraction	Homework 1
21-22	One-Step Equations Application	Student Handout 2
23	One-Step Equations Application	Homework 2
25	Adding and Subtracting One-Step Equations	Mini Quiz 1
27-28	One-Step Equations: Multiplication and Division	Student Handout 3
29	One-Step Equations: Multiplication and Division	Homework 3
31-32	One-Step Equations Application	Student Handout 4
33	One-Step Equations Application	Homework 4
35	Multiplying and Dividing One-Step Equations	Mini Quiz 2
37-38	Independent and Dependent Variables	Student Handout 5
39	Independent and Dependent Variables	Homework 5
41-42	One-Step Equations Quiz	Quiz 1
43-44	Intro to Inequalities	Student Handout 6
		Homework 6
		Quiz 2
		Student Handout 7
		Homework 7
		Student Handout 8

ONE-STEP EQUATIONS: ADDITION & SUBTRACTION I
Fill in the missing number to keep the scales balanced.

11 - = 6

10 3 + = 15

KEY

☐ x ☐ $-x$ ☐ 1 ☐ -1

EQUATIONS AND INEQUALITIES
ACTIVITY PACING GUIDE

DAY	TOPIC	RESOURCE
DAY 1	One-Step Equations: Addition and Subtraction	Student Handout 1
DAY 2	One-Step Equations: Addition and Subtraction	Homework 1
DAY 3	One-Step Equations: Addition and Subtraction	Student Handout 2
DAY 4	One-Step Equations: Addition and Subtraction	Homework 2
DAY 5	One-Step Equations: Addition and Subtraction	Mini Quiz 1
DAY 6	One-Step Equations: Addition and Subtraction	Student Handout 3
DAY 7	One-Step Equations: Addition and Subtraction	Homework 3
DAY 8	One-Step Equations: Addition and Subtraction	Student Handout 4
DAY 9	One-Step Equations: Addition and Subtraction	Homework 4
DAY 10	One-Step Equations: Addition and Subtraction	Mini Quiz 2
DAY 11	One-Step Equations: Addition and Subtraction	Student Handout 5
DAY 12	One-Step Equations: Addition and Subtraction	Homework 5

A MANEUVERING THE MIDDLE® RESOURCE

EQUATIONS & INEQUALITIES



a 12 day CCSS-aligned unit

CCSS: 6.EE.5, 6.EE.6, 6.EE.7, 6.EE.8, 6.EE.9

**ready-to-go, scaffolded
student materials**

EQUATIONS AND INEQUALITIES UNIT

Table of Contents

PAGE	TOPIC	RESOURCE
4	Sample Pacing Guide	
5-6	Ideas for Implementation & Helpful Hints	
7-16	Binder Covers, Dividers, and Spine Labels	
17-18	One-Step Equations: Addition and Subtraction	Student Handout 1
19	One-Step Equations: Addition and Subtraction	Homework 1
21-22	One-Step Equations Application I	Student Handout 2
23	One-Step Equations Application I	Homework 2
25	Adding and Subtracting One-Step Equations	Mini Quiz 1
27-28	One-Step Equations: Multiplication and Division	Student Handout 3
29	One-Step Equations: Multiplication and Division	Homework 3
31-32	One-Step Equations Application II	Student Handout 4
33	One-Step Equations Application II	Homework 4
35	Multiplying and Dividing One-Step Equations	Mini Quiz 2
37-38	Independent and Dependent Variables	Student Handout 5
39	Independent and Dependent Variables	Homework 5
41-42	One-Step Equations Quiz	Quiz 1
43-44	Intro to Inequalities	Student Handout 6
45	Intro to Inequalities	Homework 6
47-48	Solving Inequalities	Student Handout 7
49	Solving Inequalities	Homework 7
51-52	Application of Inequalities	Student Handout 8
53	Application of Inequalities	Homework 8
55-58	Equations and Inequalities Unit Study Guide	Study Guide
59-60	Equations and Inequalities Unit Test	Test

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EQUATIONS & INEQUALITIES

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CCSS: 6.EE.5, 6.EE.6, 6.EE.7, 6.EE.8, 6.EE.9

student friendly + real-world
application

interactive
practice

Unit: Equations & Inequalities
Homework 3

Name _____
Date _____ Pd _____

ONE-STEP EQUATIONS: MULTIPLICATION & DIVISION

Franco is playing memory with different math cards. Solve for x on each card and record the matching sets below.

A $8x = 72$	D $9 + x = 33$	C $x = 10$	D $7 = x - 9$
E $\frac{x}{4} = 8$	F $16 + x = 3$		
I $x - 13 = 5$	J $20x = 20$		
M $\frac{x}{6} = 4$	N $96 = 3x$		
A $x =$	D $x =$		
E $x =$	F $x =$		

Use your understanding of solving one-step equations to answer the questions below.

4. Write and solve the equation represented below.

15
r r r

Equation: _____
Solution: _____

5. Write and solve the equation represented below.

88.00
+ + + + + + + +

Equation: _____
Solution: _____

Solve the following one-step equations.

6. $3x = 12$ CHECK & C

8. $75 = 5x$ CHECK & C

10. $9x = 126$ CHECK & C

12. $\frac{x}{15} = 7$ CHECK & C

Summarize today's lesson:

Unit: Equations & Inequalities
Student Handout 3

Name _____
Date _____ Pd _____

ONE-STEP EQUATIONS: MULTIPLICATION & DIVISION

Use your understanding of one-step equations to fill in the missing number to keep the scales balanced.

$4 \cdot \square = 16$ $3 \cdot \square = 21$ $36 \div 6 = \square$

SOLVING ONE-STEP EQUATIONS

- Solving equations allows you to find a missing value, or variable.
- The _____ must be alone or _____ on one side of the equation.
- Isolate the variable by using _____ operations.
- Keep your equation _____.
- Check your _____ by plugging your answer back into the equation.

1. Use the key to write and solve the equation represented below.

$x \cdot x \cdot x = \begin{matrix} 1 & 1 & 1 & 1 & 1 & 1 \\ 1 & 1 & 1 & 1 & 1 & 1 \end{matrix}$

Equation: _____ Solution: _____

2. Write and solve the equation represented below.

$x \cdot x = \begin{matrix} 1 & 1 & 1 \\ 1 & 1 & 1 \end{matrix}$

Equation: _____ Solution: _____

3. Write and solve the equation represented below.

$\frac{1}{1} = x \cdot x \cdot x \cdot x$

Equation: _____ Solution: _____

KEY

x	$-x$	$\frac{1}{x}$
x	$-x$	-1

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use of grade
level modeling

EQUATIONS & INEQUALITIES

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CCSS: 6.EE.5, 6.EE.6, 6.EE.7, 6.EE.8, 6.EE.9

streamline your planning
process with unit overviews

EQUATIONS AND INEQUALITIES OVERVIEW



STANDARDS

6.EE.5 Understand solving an equation or an inequality as a process of answering a question: Which values from a specified set, if any, make the equation or inequality true? Use substitution to determine whether a given number in a specified set makes an equation or inequality true.

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.

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 a condition in the 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.

6.EE.9 Use variables to represent two quantities in a real-world problem that change in relationship to one another; write an equation to express one quantity, thought of as the dependent variable, in terms of the other quantity, thought of as the independent variable. Analyze the relationship between the dependent and independent variables using graphs and tables, and relate these to the equation.



key vocabulary



vertical alignment



sample
pacing
calendar

PIC IDEAS

- Equations are two mathem...
- An inequality represents tw...
- An inequality has infinitely n...
- An equation has one soluti...

ESSENTIAL QUESTIONS

- What process can you use t...
- How does a graph on a num...
- How are independent and d...
- What patterns do you notice...

EQUATIONS AND INEQUALITIES PACING GUIDE



DAY 1	DAY 2	DAY 3	DAY 4	DAY 5
One-Step Equations: Addition and Subtraction	One-Step Equations: Application I	One-Step Equations: Multiplication and Division	One-Step Equations: Application II	Independent and Dependent Variables
Student Handout 1 Homework 1	Student Handout 2 Homework 2 Mini-Quiz 1	Student Handout 3	Student Handout 4 Homework 4	Student Handout 5
DAY 6	DAY 7			
One-Step Equations Quiz	Intro to Inequalities			
Quiz 1	Student Handout 6 Homework 6			
DAY 11	NOTES			
Equations and Inequalities Unit Test				
Unit Test				

EQUATIONS AND INEQUALITIES PACING GUIDE



TOPIC	TEACHING TIPS
Combining Like Terms	<ul style="list-style-type: none"> Write several different types of terms on the board. Ask two students to come up to the board with a fly swatter. When you call out a term, the first student to "swat" a like term wins the point for the team. Continue with other students. Keep score if your students can handle it. ©
One-Step Equations	<ul style="list-style-type: none"> Start by displaying a very long and complex equation on the board. Explain that today you are setting the foundation for these types of equations. Then, require students to show their steps as they solve. This will come in handy when rational numbers are included in a few days. White board races, markers, and graffiti activities are all great ideas to spice up practice. Search www.maneuveringthemiddle.com for the post called "Turn Any Worksheet into an Activity" for more details and ideas.
Independent and Dependent Variables	<ul style="list-style-type: none"> This can be a difficult concept, even with Algebra 1 students. There are various acronyms and ideas in science, several teachers use "DRY MIX" for dependent reactive y-axis and measured independent x-axis. I found it helpful to make that connection in math. Students also should be able to notice that the x-value in a table is always on the left or the top, and the y-value is always on the right or the bottom.
One-Step Inequalities	<ul style="list-style-type: none"> Typically inequalities are more difficult because of the vocabulary required. Though it is helpful for them to use a chart or notes, it can be beneficial to have them think about the context of the problem using these three questions: <ol style="list-style-type: none"> Can it be equal to the value? Can it be more than the value? Can it be less than the value? It is also always helpful to relate it back to something they are very comfortable with (e.g. money, grades).
Graphing Inequalities	<ul style="list-style-type: none"> Once a student has graphed their solution, encourage them to test a number on the number line that is included. Practice substituting a number back into the inequality.

teaching
ideas

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CCSS: 6.EE.5, 6.EE.6, 6.EE.7, 6.EE.8, 6.EE.9

unit study guide + assessments

Unit: Equations & Inequalities
Quiz 1

Name _____
Date _____ Pd _____

QUIZ: ONE-STEP EQUATIONS

Solve the equations below. Be sure to check your work.

1. $x + 18 = 63$ 2. $x + 9.5 = 35$

3. $\frac{x}{15} = 8$

5. Which solution satisfies the model below?

$x \quad x \quad x = \begin{array}{|c|c|c|c|} \hline 1 & 1 & 1 & 1 \\ \hline 1 & 1 & 1 & 1 \\ \hline \end{array}$

A. $x = 3$
B. $x = 6$
C. $x = 9$
D. $x = 27$

Answers

1. _____
2. _____
3. _____



quizzes



editable unit test

Unit: Equations & Inequalities
Review

Name _____
Date _____ Pd _____

EQUATIONS & INEQUALITIES UNIT STUDY GUIDE

Solve each of the problems below. These represent the types of questions on your test. Be sure to ask questions if you need more help with a topic.

I CAN DETERMINE IF A VALUE MAKES AN EQUATION OR AN INEQUALITY TRUE.

1. $6x = 108$, if $x = 18$ 2. _____

I CAN SOLVE EQUATIONS.

4. $2.1x = 23.1$ 5. _____

7. $x - 10.6 = 16.9$ 8. _____

10. $\frac{x}{10} = 14$

SIXTH GRADE CURRICULUM

EQUATIONS AND INEQUALITIES

UNIT EIGHT: ANSWER KEYS

answer keys
included



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