

Math6.org Activities for Algebra

Vocabulary Studies

- ___1) On-Line Word Search
- ___2) 3 Column Notes
- ___3) Flash Cards
- ___4) Crossword Puzzle
- ___5) Matching Practice
- ___6) Vocabulary Millionaire!

Tests and Games

- ___32) Mid Chapter Quiz
- ___33) Quiz Bowl
- ___34) Practice Test
- ___35) Algebra Millionaire

Activities by Lesson

2.1 Variables and Expressions

- ___1) Variable Worksheet
- ___2) Variables (GP)
- ___3) Lesson Quiz
- ___4) **Using Variable Expression

2.2 Translating Math

- ___5) Translating Worksheet
- ___6) Lesson Quiz
- ___7) **Know It All Magic

2.3 Equations & Substitution

- ___8) Substitution Worksheet
- ___9) Substitution (GP)
- ___10) Lesson Quiz
- ___11) **Use a Table

2.4 Addition Equations

- ___12) Addition Equations Worksheet
- ___13) Equations Lesson
- ___14) Addition Equations (GP)
- ___15) Lesson Quiz
- ___16) **Geometric Algebra

2.5 Subtraction Equations

- ___17) Subtraction Equations Worksheet
- ___18) Solving Equations Lesson
- ___19) Subtraction Equations (GP)
- ___20) Lesson Quiz
- ___21) **Money Math

2.6 Multiplication Equations

- ___22) Multiplication Equations Worksheet
- ___23) Equations Lesson
- ___24) Multiplication Equations (GP)
- ___25) Lesson Quiz
- ___26) **More Money Math

2.7 Division Equations

- ___27) Division Equations Worksheet
- ___28) Equations Lesson
- ___29) Division Equations (GP)
- ___30) Lesson Quiz
- ___31) **Amazing Averages
 - ___ Amazing Averages (GP)
 - ___ Amazing Averages Extension

Word List – 3 Column Notes

Word	Definition	Example
algebraic expression	A mathematical phrase that contains at least 1 variable.	$7 + y$
constant		
difference		
equation		
inverse operation		
phrase		
product		
quantity		
quotient		
solution		
substitute		
sum		
variable		

Math Journal - Chapter 2 - Algebra

2.01 Create your own algebraic expression. Make a table to show 5 possible solutions.

2.02 The extension @ Math6.org for this lesson is a fun magic trick. You may complete this extension or create an Error Alert poster to assist your classmates in understanding the difficulties related to subtraction expressions. Please include correct and incorrect examples for writing subtraction phrases.

2.03 Select your 5 favorite foods and research the number of grams of sugar in each. Create a table showing the results. Then create a second table that shows only one of the results and write an algebraic expression for each of the missing results. (see sample)

Animal Speeds	
Cheetah	70 mph
Lion	$Z + 10$
Rabbit	$C / 2$
Zebra	$R + 5$

2.04 Many students require a visual clue to assist in remembering to keep equations balanced during "alterations". Choose any problem from today's work. Draw a balance for each step of the solution and show how you kept the equation balanced as you found the solution.

2.05 Use the model in box 1 of today's guided practice or create a new flow map with examples to help you write a "how to solve subtraction equations" paragraph.

2.06 Today's enrichment @ Math6.org will compare, predict, and test with algebra. I would like you to complete this enrichment **or** complete worksheet 2.6ext modeling the algebra for each problem.

2.07 You now know how to apply all 4 of the operations to equations with variables. Create a 4x4. Select one problem for each operation and model its solution. Then on the back of the 4x4, write a paragraph or poem about the equation operation you find to be the easiest or most interesting. (you need not explain why - you may write a love poem, a eulogy, sermon, newspaper article ...)

General Scoring Rubric:

- 0 No Response
- 1 Wrong response
- 2 Weak response
- 3 Showed understanding
- 4 Showed understanding and cited an example
- 5 Showed understanding, cited examples and communicated effectively enough to enable others to understand.

Math Objectives

5.01

Simplify algebraic expressions and justify the results using the basic properties of rational numbers.

- a. Identity
- b. Commutative
- c. Associative
- d. Distributive
- e. Order of operations

Essential Question

One way to alleviate boredom is to break routines. The school board has decided that they are going to break the routine of the school day by using an algebraic expression to determine the time that the school day will start. You may choose $(8:00 + n \text{ minutes})$ or $(8:00 - n \text{ minutes})$ where $n =$ the number of days of school. (1, 2, 3, 4, 5...) Which formula will you choose and what are some of your reasons for choosing this answer?

Wayne County Schools 21st Century Instructional Lesson Plan

Variables and Expressions

NAME:		Subject: Math					
Date:		Grade Level (s): 6					
Standards/Objectives Addressed (NCSCOS)							
5.01 Simplify algebraic expressions and justify the results using the basic properties of rational numbers. a. Identity; b. Commutative; c. Associative; d. Distributive; e. Order of operations							
Essential Question(s) (In student-friendly terms)							
One way to alleviate boredom is to break routines. The school board has decided that they are going to break the routine of the school day by using an algebraic expression to determine the time that the school day will start. You may choose (8:00 + n minutes) or (8:00 - n minutes) where n = the number of days of school. (1, 2, 3, 4, 5...) Which formula will you choose and what are some of your reasons for choosing this answer?							
Assess (Look at student data to plan. Use formative and/or summative assessments.)							
Assess student knowledge of properties, estimation and mental math.							
High Yield Instructional Strategies (check all that apply to the lesson)							
Identifying similarities and differences	✓	Reinforcing effort and providing recognition		Nonlinguistic representation	✓	Setting objectives and providing feedback	✓
Questions, cues, and advance organizers	✓	Summarizing and note taking	✓	Cooperative learning	✓	Generating and testing hypotheses	
Homework and practice	✓						
Learner Diversity							
<ul style="list-style-type: none"> • How will you differentiate to meet the needs of all learners in your class? 							
504 modifications ET and RA. Additional student and teacher modeling, paired learning groups, and concrete representations will help to guide all students to reach expected outcomes. Differentiated assignments and practice will focus on remediation and enrichment of lower and higher ability groups.							
Engage (Anticipatory Set)							
<ul style="list-style-type: none"> • Capture the students' attention, stimulate their thinking and help them access prior knowledge. Consider novelty, meaning and emotion. 							
Begin with changing times/weather activity. Review variables from the Science Method. Today we will learn about variables and algebraic expressions.							

Instructional Practices Used in this Lesson				
Coaching	✓	Providing Directions/ Instructions	✓	Learning Centers
Discussion	✓	Providing opportunities for practice	✓	Teacher-directed Questions and Answers
Hands-on experiences	✓	Direct Instruction	✓	Modeling
Presentation	✓	Testing		Other: Math6.org
Suggested brained-based learning activities promoting the above Instructional Practices				
Think-Pair-Share	✓	Instructional Games		Music/Rhyme/Rhythm/Rap
Thinking Maps	✓	Student Facilitators		Movement
Technology Integration	✓	Storytelling		Humor
Use of visuals	✓	Field Trips(Virtual)		Project/Problem- Based Learning
Metaphor/Simile/Analogy		Reciprocal Teaching		Mnemonics
Peer/Self Assessment	✓	Drawing or illustrating		Other:
Writing/Reflecting/Journals	✓	Simulations/Role Play		Other:
Type(s) of Grouping Used: ___small group <input checked="" type="checkbox"/> _student pairs <input checked="" type="checkbox"/> _whole group <input checked="" type="checkbox"/> _individual				
Explain, Explore, Elaborate Content Chunks: How will you divide and teach the content? <ul style="list-style-type: none"> • Transitions should be used every 5-15 minutes to keep the students' brains engaged. • Involve students in an analysis of their explorations. • Use reflective activities to clarify and modify student understanding. • Give students time to think, plan, investigate and organize collected information. • Give students the opportunity to expand and solidify their understanding of the concept and/or apply it to a real-world situation. 				
See next page for instructional detail.				
Evaluate (Feedback/Closure) <ul style="list-style-type: none"> • Evaluate throughout the lesson. Are students able to answer the Essential Question(s)? • Present students with a scoring guide (such as a rubric) at the beginning to self-assess. • What assessment(s) will be used to be sure the students are successful? 				
Create your own algebraic expression. Make a table to show 5 possible solutions.				
Describe, Analyze, Reflect: <ul style="list-style-type: none"> • How effective was the lesson? How did the strategies help the students deepen their understanding? Cite evidence of student work, performance, behaviors, and/or remarks to support your view. • What caused the lesson to go well? What challenges did you encounter? • What did you do to contribute to the lesson's effectiveness? • What learning did you take from this lesson to apply to future lessons? What would you do differently next time? 				

Date: _____

Time Frame: **80 minutes**

Variables and Expressions

Essential Question: One way to alleviate boredom is to break routines. The school board has decided that they are going to break the routine of the school day by using an algebraic expression to determine the time that the school day will start. You may choose $(8:00 + n \text{ minutes})$ or $(8:00 - n \text{ minutes})$ where $n =$ the number of days of school. (1, 2, 3, 4, 5...) Which formula will you choose and what are some of your reasons for choosing this answer?

Objective (s) Numbers: **5.01**
Outcomes: Simplify algebraic expressions and justify the results using the basic properties of rational numbers.
a. Identity
b. Commutative
c. Associative
d. Distributive
e. Order of operations

Materials: Textbook pages 48-51

Anticipatory Set: Begin with changing times/weather activity. Review variables from the Science Method. Today we will learn about variables and algebraic expressions.

During the Lesson

Presentation of Information:
Integration of Other Subjects: Writing (narrative)
Reading (vocabulary, problem solving, analyzing expectation)
Integration of Reading: Reading for information and interpretation.
Integration of Technology: Computer, Projector, PowerPoint, Internet

Modeling: Introduce and teach the vocabulary. {algebraic expression, phrase, variable, constant, substitution}

Differentiation: 504 modifications ET and RA. Additional student and teacher modeling will help to guide all students to reach expected outcomes.

Guided Practice: Use a 4x4 to model substitution in the following algebraic expressions $\{4n + 5, n = 6\}$ $\{36 \div n, n = 9\}$ $\{27 - n^2, n = 4\}$ $\{144/n, n = 6\}$

After the Lesson

Independent Practice Text page 50-50 {1–2, 5–6, 11–17 odd, 22–30}
AIG: {11–19, 22–30}
Assign workbook page 2.1

Closure / Assessment: Create your own algebraic expression. Make a table to show 5 possible solutions.

Integration with School-wide Focus: Improve mathematics computation and problem solving.

Related Math6.org Activities: There are **6** activities connected with this lesson

[Variables Guided Practice](#)

**Using Variable Expression

Math Objectives

5.02

Use and evaluate algebraic expressions.

Essential Question

Right now, your math program contains a mixture of word problems and mathematical sentences. However, the school board has decided that they want our program to be 100% word problems or 100% mathematical sentences. Your parents will be voting on this issue and they will ask for your input. What argument will you give them to help them to choose the style that you prefer. (you may not argue to return to the mixed version that we currently employ)

Wayne County Schools 21st Century Instructional Lesson Plan

Translate Between Words and Math

NAME:		Subject: Math					
Date:		Grade Level (s): 6					
Standards/Objectives Addressed (NCSCOS)							
5.02 Use and evaluate algebraic expressions.							
Essential Question(s) (In student-friendly terms)							
Right now, your math program contains a mixture of word problems and mathematical sentences. However, the school board has decided that they want our program to be 100% word problems or 100% mathematical sentences. Your parents will be voting on this issue and they will ask for your input. What argument will you give them to help them to choose the style that you prefer? (you may not argue to return to the mixed version that we currently employ)							
Assess (Look at student data to plan. Use formative and/or summative assessments.)							
Assess student knowledge of algebraic expressions and variables.							
High Yield Instructional Strategies (check all that apply to the lesson)							
Identifying similarities and differences	✓	Reinforcing effort and providing recognition		Nonlinguistic representation	✓	Setting objectives and providing feedback	✓
Questions, cues, and advance organizers	✓	Summarizing and note taking	✓	Cooperative learning	✓	Generating and testing hypotheses	
Homework and practice	✓						
Learner Diversity							
<ul style="list-style-type: none"> • How will you differentiate to meet the needs of all learners in your class? 							
504 modifications ET and RA. Additional student and teacher modeling, paired learning groups, and concrete representations will help to guide all students to reach expected outcomes. Differentiated assignments and practice will focus on remediation and enrichment of lower and higher ability groups.							
Engage (Anticipatory Set)							
<ul style="list-style-type: none"> • Capture the students' attention, stimulate their thinking and help them access prior knowledge. Consider novelty, meaning and emotion. 							
Begin with Think/Pair discussion of life events when monies are paid. Today we will learn about translating word phrases into numeric and algebraic expressions.							

Instructional Practices Used in this Lesson				
Coaching	✓	Providing Directions/ Instructions	✓	Learning Centers
Discussion	✓	Providing opportunities for practice	✓	Teacher-directed Questions and Answers
Hands-on experiences	✓	Direct Instruction	✓	Modeling
Presentation	✓	Testing		Other: Math6.org
Suggested brained-based learning activities promoting the above Instructional Practices				
Think-Pair-Share	✓	Instructional Games		Music/Rhyme/Rhythm/Rap
Thinking Maps	✓	Student Facilitators		Movement
Technology Integration	✓	Storytelling		Humor
Use of visuals	✓	Field Trips(Virtual)		Project/Problem- Based Learning
Metaphor/Simile/Analogy		Reciprocal Teaching		Mnemonics
Peer/Self Assessment	✓	Drawing or illustrating		Other:
Writing/Reflecting/Journals	✓	Simulations/Role Play		Other: Magic
Type(s) of Grouping Used: <input type="checkbox"/> small group <input checked="" type="checkbox"/> student pairs <input checked="" type="checkbox"/> whole group <input checked="" type="checkbox"/> individual				
Explain, Explore, Elaborate Content Chunks: How will you divide and teach the content? <ul style="list-style-type: none"> • Transitions should be used every 5-15 minutes to keep the students' brains engaged. • Involve students in an analysis of their explorations. • Use reflective activities to clarify and modify student understanding. • Give students time to think, plan, investigate and organize collected information. • Give students the opportunity to expand and solidify their understanding of the concept and/or apply it to a real-world situation. 				
See next page for instructional detail.				
Evaluate (Feedback/Closure) <ul style="list-style-type: none"> • Evaluate throughout the lesson. Are students able to answer the Essential Question(s)? • Present students with a scoring guide (such as a rubric) at the beginning to self-assess. • What assessment(s) will be used to be sure the students are successful? 				
The extension @ Math6.org for this lesson is a fun magic trick. You may complete this extension or create an Error Alert poster to assist your classmates in understanding the difficulties related to subtraction expressions. Please include correct and incorrect examples for writing subtraction phrases.				
Describe, Analyze, Reflect: <ul style="list-style-type: none"> • How effective was the lesson? How did the strategies help the students deepen their understanding? Cite evidence of student work, performance, behaviors, and/or remarks to support your view. • What caused the lesson to go well? What challenges did you encounter? • What did you do to contribute to the lesson's effectiveness? • What learning did you take from this lesson to apply to future lessons? What would you do differently next time? 				

Date: _____

Time Frame: **80 minutes**

Translate Between Words and Math

Essential Question:	Right now, your math program contains a mixture of word problems and mathematical sentences. However, the school board has decided that they want our program to be 100% word problems or 100% mathematical sentences. Your parents will be voting on this issue and they will ask for your input. What argument will you give them to help them to choose the style that you prefer? (you may not argue to return to the mixed version that we currently employ)
Objective (s) Numbers:	5.02
Outcomes:	Use and evaluate algebraic expressions.
Materials:	Textbook pages 52-56; Reteaching 2.2
Anticipatory Set:	Begin with Think/Pair discussion of life events when monies are paid. Today we will learn about translating word phrases into numeric and algebraic expressions.
Presentation of Information:	
Integration of Other Subjects:	Writing (to instruct/inform) Reading (vocabulary, problem solving, analyzing expectation)
Integration of Reading:	Reading for information and interpretation.
Integration of Technology:	Computer, Projector, PowerPoint, Internet
Modeling:	When solving word problems, we often need to write an equation. To do so, you must know what operations are needed. Learning about the key words for translating will help us with this skill.
Differentiation:	504 modifications ET and RA. Additional student and teacher modeling will help to guide all students to reach expected outcomes.
Guided Practice:	Use Reteaching 2.2 to guide the students through this skill. Pay special attention to the process of subtraction and help the students to understand that substitution works when they feel confused.

After the Lesson

Independent Practice	Text page 54-55 {1-3, 8-13, 30-31, 36-42} AIG: {10-15, 30-42} Assign workbook page 2.2
Closure / Assessment:	The extension @ Math6.org for this lesson is a fun magic trick. You may complete this extension or create an Error Alert poster to assist your classmates in understanding the difficulties related to subtraction expressions. Please include correct and incorrect examples for writing subtraction phrases.

Integration with School-wide Focus: Improve mathematics computation and problem solving.

Related Math6.org Activities: There are **5** activities connected with this lesson

Translating Worksheet

****Know It All Magic**

Quiz
Section A

Choose the best answer.

- Evaluate $2x$ for $x = 7$.
A 5 C 9
B 7 D 14
- Evaluate $\frac{x}{3}$ for $x = 27$.
A 3 C 27
B 9 D 81
- Evaluate $2y - 4$ for $y = 9$.
A 9 C 15
B 14 D 25

Which expression matches the phrase?

- 32 less than y
A $32 + y$ C $32 - y$
B $y + 32$ D $y - 32$
- 35 divided by w
A $\frac{35}{w}$ C $\frac{w}{35}$
B $35w$ D $35 + w$
- Which phrase matches $15 + h$?
A fifteen less than h
B fifteen times h
C fifteen plus h
D the quotient of fifteen and h

Math Objectives

5.03

Solve simple (one- and two-step) equations or inequalities.

Essential Question

Any letter or symbol can be used to represent a variable in a mathematical sentence. Often these letters are the first letter of the word that they represent in the sentence. However, when practicing algebraic concepts, mathematical sentences are given without a word problem (in order to allow more practice problems in less space). The variables that are most often used in these instances are x and n . Rather than mixing it up for these practice problems, it seems prudent that a single letter or symbol should be chosen as the standard mathematical variable. What 3 letters or symbols should not be used? Explain why you chose these.

Wayne County Schools 21st Century Instructional Lesson Plan

Equations and Their Solutions

NAME:		Subject: Math					
Date:		Grade Level (s): 6					
Standards/Objectives Addressed (NCSCOS)							
5.03 Solve simple (one- and two-step) equations or inequalities.							
Essential Question(s) (In student-friendly terms)							
Any letter or symbol can be used to represent a variable in a mathematical sentence. Often these letters are the first letter of the word that they represent in the sentence. However, when practicing algebraic concepts, mathematical sentences are given without a word problem (in order to allow more practice problems in less space). The variables that are most often used in these instances are x and n. Rather than mixing it up for these practice problems, it seems prudent that a single letter or symbol should be chosen as the standard mathematical variable. What 3 letters or symbols should not be used? Explain why you chose these.							
Assess (Look at student data to plan. Use formative and/or summative assessments.)							
Assess student knowledge of algebraic expressions and variables.							
High Yield Instructional Strategies (check all that apply to the lesson)							
Identifying similarities and differences	✓	Reinforcing effort and providing recognition		Nonlinguistic representation	✓	Setting objectives and providing feedback	✓
Questions, cues, and advance organizers	✓	Summarizing and note taking	✓	Cooperative learning	✓	Generating and testing hypotheses	
Homework and practice	✓						
Learner Diversity							
<ul style="list-style-type: none"> How will you differentiate to meet the needs of all learners in your class? 							
504 modifications ET and RA. Additional student and teacher modeling, paired learning groups, and concrete representations will help to guide all students to reach expected outcomes. Differentiated assignments and practice will focus on remediation and enrichment of lower and higher ability groups.							
Engage (Anticipatory Set)							
<ul style="list-style-type: none"> Capture the students' attention, stimulate their thinking and help them access prior knowledge. Consider novelty, meaning and emotion. 							
Equations are mathematical sentences that have an equals sign. The equals sign shows you that the quantities on either side are equal in value. Whatever you add or take away from one side of the equation, must be added or taken away from the other side to keep the balance. Have the students measure the mass of a chosen object using a balance. Then have the students use equations to find the mass of 3o and 12o. Today we learn about equations and substitution.							

Instructional Practices Used in this Lesson

Coaching	✓	Providing Directions/ Instructions	✓	Learning Centers	
Discussion	✓	Providing opportunities for practice	✓	Teacher-directed Questions and Answers	✓
Hands-on experiences	✓	Direct Instruction	✓	Modeling	✓
Presentation	✓	Testing		Other: Math6.org	✓

Suggested brained-based learning activities promoting the above Instructional Practices

Think-Pair-Share	✓	Instructional Games		Music/Rhyme/Rhythm/Rap	
Thinking Maps	✓	Student Facilitators		Movement	✓
Technology Integration	✓	Storytelling		Humor	
Use of visuals	✓	Field Trips(Virtual)		Project/Problem- Based Learning	✓
Metaphor/Simile/Analogy		Reciprocal Teaching		Mnemonics	
Peer/Self Assessment	✓	Drawing or illustrating		Other:	
Writing/Reflecting/Journals	✓	Simulations/Role Play	✓	Other:	

Type(s) of Grouping Used:

_small group _student pairs _whole group _individual

Explain, Explore, Elaborate

Content Chunks: How will you divide and teach the content?

- Transitions should be used every 5-15 minutes to keep the students' brains engaged.
- Involve students in an analysis of their explorations.
- Use reflective activities to clarify and modify student understanding.
- Give students time to think, plan, investigate and organize collected information.
- Give students the opportunity to expand and solidify their understanding of the concept and/or apply it to a real-world situation.

See next page for instructional detail.

Evaluate (Feedback/Closure)

- Evaluate throughout the lesson. Are students able to answer the Essential Question(s)?
- Present students with a scoring guide (such as a rubric) at the beginning to self-assess.
- What assessment(s) will be used to be sure the students are successful?

Select your 5 favorite foods and research the number of grams of sugar in each. Create a table showing the results. Then create a second table that shows only one of the results and write an algebraic expression for each of the missing results. (see sample)

Animal Speeds	
Cheetah	70 mph
Lion	Z + 10
Rabbit	C / 2
Zebra	R + 5

Describe, Analyze, Reflect:

- How effective was the lesson? How did the strategies help the students deepen their understanding? Cite evidence of student work, performance, behaviors, and/or remarks to support your view.
- What caused the lesson to go well? What challenges did you encounter?
- What did you do to contribute to the lesson's effectiveness?
- What learning did you take from this lesson to apply to future lessons? What would you do differently next time?

Date: _____

Time Frame: **80 minutes**

Equations and Their Solutions

Essential Question: Any letter or symbol can be used to represent a variable in a mathematical sentence. Often these letters are the first letter of the word that they represent in the sentence. However, when practicing algebraic concepts, mathematical sentences are given without a word problem (in order to allow more practice problems in less space). The variables that are most often used in these instances are x and n . Rather than mixing it up for these practice problems, it seems prudent that a single letter or symbol should be chosen as the standard mathematical variable. What 3 letters or symbols should not be used? Explain why you chose these.

Objective (s) Numbers: **5.03**
Outcomes: Solve simple (one- and two-step) equations or inequalities.
Materials: Textbook pages 58-61; balance; various objects
Anticipatory Set: Today we learn about equations and substitution.

During the Lesson

Presentation of Information:
Integration of Other Subjects: Writing (create a table)
Reading (vocabulary, problem solving, analyzing expectation)
Integration of Reading: Reading for information and interpretation.
Integration of Technology: Computer, Projector, PowerPoint, Internet

Modeling: Equations are mathematical sentences that have an equals sign. The equals sign shows you that the quantities on either side are equal in value. Whatever you add or take away from one side of the equation, must be added or taken away from the other side to keep the balance. Have the students measure the mass of a chosen object using a balance. Then have the students use equations to find the mass of 30 and 120.

Differentiation: 504 modifications ET and RA. Additional student and teacher modeling will help to guide all students to reach expected outcomes.

Guided Practice: Use a 4x4 to model substitution. Practice evaluating the solutions as true or false for the following problems. $\{4n + 5 = 31, n = 6\}$ $\{36 \div n = 4, n = 9\}$ $\{27 - 2n = 7, n = 10\}$ $\{144/n = 26, n = 6\}$

After the Lesson

Independent Practice Text page 60-61 {1–20, 33–41 odd, 46–54}
AIG: {21–54}
Assign workbook page 2.3

Closure / Assessment: Select your 5 favorite foods and research the number of grams of sugar in each. Create a table showing the results. Then create a second table that shows only one of the results and write an algebraic expression for each of the missing results. (see sample)

Animal Speeds	
Cheetah	70 mph
Lion	$Z + 10$
Rabbit	$C / 2$
Zebra	$R + 5$

Integration with School-wide Focus: Improve mathematics computation and problem solving.

Related Math6.org Activities: There are 6 activities connected with this lesson

[Substitution Guided Practice](#)

****Use a Table**

Math Objectives

5.03

Solve simple (one- and two-step) equations or inequalities.

Essential Question

During the next four lessons, your teacher will provide you with an action plan for solving algebraic equations and inequalities. Your teacher will help you to practice and master this plan, so that you will be able to solve equations regardless of the operations involved. Your task will be to evaluate the action plan that is being used to find the solutions, determine if there are any steps that need to be changed (or reworded) and settle on a final action plan for solving all algebraic equations and inequalities. Why is it important that a single plan of action is followed every time you need to solve an equation or inequality?

Wayne County Schools 21st Century Instructional Lesson Plan

Solving Addition Equations

NAME:		Subject: Math					
Date:		Grade Level (s): 6					
Standards/Objectives Addressed (NCSCOS)							
5.03 Solve simple (one- and two-step) equations or inequalities.							
Essential Question(s) (In student-friendly terms)							
During the next four lessons, your teacher will provide you with an action plan for solving algebraic equations and inequalities. Your teacher will help you to practice and master this plan, so that you will be able to solve equations regardless of the operations involved. Your task will be to evaluate the action plan that is being used to find the solutions, determine if there are any steps that need to be changed (or reworded) and settle on a final action plan for solving all algebraic equations and inequalities. Why is it important that a single plan of action is followed every time you need to solve an equation or inequality?							
Assess (Look at student data to plan. Use formative and/or summative assessments.)							
Assess student knowledge of algebraic expressions and variables.							
High Yield Instructional Strategies (check all that apply to the lesson)							
Identifying similarities and differences	✓	Reinforcing effort and providing recognition		Nonlinguistic representation	✓	Setting objectives and providing feedback	✓
Questions, cues, and advance organizers	✓	Summarizing and note taking	✓	Cooperative learning	✓	Generating and testing hypotheses	
Homework and practice	✓						
Learner Diversity							
<ul style="list-style-type: none"> How will you differentiate to meet the needs of all learners in your class? 							
504 modifications ET and RA. Additional student and teacher modeling, paired learning groups, and concrete representations will help to guide all students to reach expected outcomes. Differentiated assignments and practice will focus on remediation and enrichment of lower and higher ability groups.							
Engage (Anticipatory Set)							
<ul style="list-style-type: none"> Capture the students' attention, stimulate their thinking and help them access prior knowledge. Consider novelty, meaning and emotion. 							
Discuss inverse. Have students call the inverses to various topics. Today we will be learning how to use inverse operations to solve equations with addition.							

Instructional Practices Used in this Lesson				
Coaching	✓	Providing Directions/ Instructions	✓	Learning Centers
Discussion	✓	Providing opportunities for practice	✓	Teacher-directed Questions and Answers
Hands-on experiences	✓	Direct Instruction	✓	Modeling
Presentation	✓	Testing		Other: Math6.org
Suggested brained-based learning activities promoting the above Instructional Practices				
Think-Pair-Share	✓	Instructional Games		Music/Rhyme/Rhythm/Rap
Thinking Maps	✓	Student Facilitators		Movement
Technology Integration	✓	Storytelling		Humor
Use of visuals	✓	Field Trips(Virtual)		Project/Problem- Based Learning
Metaphor/Simile/Analogy		Reciprocal Teaching		Mnemonics
Peer/Self Assessment	✓	Drawing or illustrating	✓	Other:
Writing/Reflecting/Journals	✓	Simulations/Role Play		Other:
Type(s) of Grouping Used: <input type="checkbox"/> small group <input checked="" type="checkbox"/> student pairs <input checked="" type="checkbox"/> whole group <input checked="" type="checkbox"/> individual				
Explain, Explore, Elaborate Content Chunks: How will you divide and teach the content? <ul style="list-style-type: none"> • Transitions should be used every 5-15 minutes to keep the students' brains engaged. • Involve students in an analysis of their explorations. • Use reflective activities to clarify and modify student understanding. • Give students time to think, plan, investigate and organize collected information. • Give students the opportunity to expand and solidify their understanding of the concept and/or apply it to a real-world situation. 				
See next page for instructional detail.				
Evaluate (Feedback/Closure) <ul style="list-style-type: none"> • Evaluate throughout the lesson. Are students able to answer the Essential Question(s)? • Present students with a scoring guide (such as a rubric) at the beginning to self-assess. • What assessment(s) will be used to be sure the students are successful? 				
Many students require a visual clue to assist in remembering to keep equations balanced during "alterations". Choose any problem from today's work. Draw a balance for each step of the solution and show how you kept the equation balanced as you found the solution.				
Describe, Analyze, Reflect: <ul style="list-style-type: none"> • How effective was the lesson? How did the strategies help the students deepen their understanding? Cite evidence of student work, performance, behaviors, and/or remarks to support your view. • What caused the lesson to go well? What challenges did you encounter? • What did you do to contribute to the lesson's effectiveness? • What learning did you take from this lesson to apply to future lessons? What would you do differently next time? 				

Date: _____

Time Frame: **80 minutes**

Solving Addition Equations

Essential Question: During the next four lessons, your teacher will provide you with an action plan for solving algebraic equations and inequalities. Your teacher will help you to practice and master this plan, so that you will be able to solve equations regardless of the operations involved. Your task will be to evaluate the action plan that is being used to find the solutions, determine if there are any steps that need to be changed (or reworded) and settle on a final action plan for solving all algebraic equations and inequalities. Why is it important that a single plan of action is followed every time you need to solve an equation or inequality?

Objective (s) Numbers: **5.03**
Outcomes: Solve simple (one- and two-step) equations or inequalities.

Materials: Textbook pages 62-65

Anticipatory Set: Discuss inverse. Have students call the inverses to various topics. Today we will be learning how to use inverse operations to solve equations with addition.

During the Lesson

Presentation of Information:
Integration of Other Subjects: Writing (sequencing)
Reading (vocabulary, problem solving, analyzing expectation)
Integration of Reading: Reading for information and interpretation.
Integration of Technology: Computer, Projector, PowerPoint, Internet

Modeling: When an equation contains a variable, you make alterations with the purpose of getting the variable to be alone. The alterations use inverse operations to turn values within the equation to 0. The opposite of Addition is Subtraction so Addition and Subtraction are Inverse Operations.

Differentiation: 504 modifications ET and RA. Additional student and teacher modeling will help to guide all students to reach expected outcomes.

Guided Practice: Use a 4x4. In box one record the steps for solving equations involving addition. 1. Simplify if possible. 2. Use Inverse Operations to isolate the variable. 3. Check with Substitution. In boxes 2-4 model solutions for $\{29 + n + 13 = 78\}$ $\{16 + n = 45 - 13\}$ $\{42 + n = 52\}$

After the Lesson

Independent Practice Text page 64-65 {1-6, 8-16, 36-43}
AIG: {1-2, 18-30, 36-43}
Assign workbook page 2.4

Closure / Assessment: Many students require a visual clue to assist in remembering to keep equations balanced during "alterations". Choose any problem from today's work. Draw a balance for each step of the solution and show how you kept the equation balanced as you found the solution.

Integration with School-wide Focus: Improve mathematics computation and problem solving.

Related Math6.org Activities: There are **7** activities connected with this lesson

[Equations Lesson](#)

[Addition Equations Guided Practice](#)

**Geometric Algebra

Math Objectives

5.03

Solve simple (one- and two-step) equations or inequalities.

Essential Question

During the next four lessons, your teacher will provide you with an action plan for solving algebraic equations and inequalities. Your teacher will help you to practice and master this plan, so that you will be able to solve equations regardless of the operations involved. Your task will be to evaluate the action plan that is being used to find the solutions, determine if there are any steps that need to be changed (or reworded) and settle on a final action plan for solving all algebraic equations and inequalities. Why is it important that a single plan of action is followed every time you need to solve an equation or inequality?

Wayne County Schools 21st Century Instructional Lesson Plan

Solving Subtraction Equations

NAME:		Subject: Math					
Date:		Grade Level (s): 6					
Standards/Objectives Addressed (NCSCOS)							
5.03 Solve simple (one- and two-step) equations or inequalities.							
Essential Question(s) (In student-friendly terms)							
During the next four lessons, your teacher will provide you with an action plan for solving algebraic equations and inequalities. Your teacher will help you to practice and master this plan, so that you will be able to solve equations regardless of the operations involved. Your task will be to evaluate the action plan that is being used to find the solutions, determine if there are any steps that need to be changed (or reworded) and settle on a final action plan for solving all algebraic equations and inequalities. Why is it important that a single plan of action is followed every time you need to solve an equation or inequality?							
Assess (Look at student data to plan. Use formative and/or summative assessments.)							
Assess student success with the lesson on addition equations. Also evaluate/review inverse operations. Fact Families is an important yet overlooked part of today's lesson.							
High Yield Instructional Strategies (check all that apply to the lesson)							
Identifying similarities and differences	✓	Reinforcing effort and providing recognition		Nonlinguistic representation	✓	Setting objectives and providing feedback	✓
Questions, cues, and advance organizers	✓	Summarizing and note taking	✓	Cooperative learning	✓	Generating and testing hypotheses	
Homework and practice	✓						
Learner Diversity							
<ul style="list-style-type: none"> How will you differentiate to meet the needs of all learners in your class? 							
504 modifications ET and RA. Additional student and teacher modeling, paired learning groups, and concrete representations will help to guide all students to reach expected outcomes. Differentiated assignments and practice will focus on remediation and enrichment of lower and higher ability groups.							
Engage (Anticipatory Set)							
<ul style="list-style-type: none"> Capture the students' attention, stimulate their thinking and help them access prior knowledge. Consider novelty, meaning and emotion. 							
Today we will continue to use inverse operations to solve equations, but this time involving subtraction. Begin by modeling fact families. Have Think/Pair Shares work together to create fact families for several algebraic equations.							

Instructional Practices Used in this Lesson

Coaching	✓	Providing Directions/ Instructions	✓	Learning Centers	
Discussion	✓	Providing opportunities for practice	✓	Teacher-directed Questions and Answers	✓
Hands-on experiences	✓	Direct Instruction	✓	Modeling	✓
Presentation	✓	Testing		Other: Math6.org	✓

Suggested brained-based learning activities promoting the above Instructional Practices

Think-Pair-Share	✓	Instructional Games		Music/Rhyme/Rhythm/Rap	
Thinking Maps	✓	Student Facilitators		Movement	✓
Technology Integration	✓	Storytelling		Humor	
Use of visuals	✓	Field Trips(Virtual)		Project/Problem- Based Learning	
Metaphor/Simile/Analogy		Reciprocal Teaching		Mnemonics	
Peer/Self Assessment	✓	Drawing or illustrating	✓	Other: Eating M&M's	✓
Writing/Reflecting/Journals	✓	Simulations/Role Play		Other:	

Type(s) of Grouping Used:

small group student pairs whole group individual

Explain, Explore, Elaborate

Content Chunks: How will you divide and teach the content?

- Transitions should be used every 5-15 minutes to keep the students' brains engaged.
- Involve students in an analysis of their explorations.
- Use reflective activities to clarify and modify student understanding.
- Give students time to think, plan, investigate and organize collected information.
- Give students the opportunity to expand and solidify their understanding of the concept and/or apply it to a real-world situation.

See next page for instructional detail.

Evaluate (Feedback/Closure)

- Evaluate throughout the lesson. Are students able to answer the Essential Question(s)?
- Present students with a scoring guide (such as a rubric) at the beginning to self-assess.
- What assessment(s) will be used to be sure the students are successful?

Use the model in box 1 of today's guided practice or create a new flow map with examples to help you write a "how to solve subtraction equations" paragraph.

Describe, Analyze, Reflect:

- How effective was the lesson? How did the strategies help the students deepen their understanding? Cite evidence of student work, performance, behaviors, and/or remarks to support your view.
- What caused the lesson to go well? What challenges did you encounter?
- What did you do to contribute to the lesson's effectiveness?
- What learning did you take from this lesson to apply to future lessons? What would you do differently next time?

Date: _____

Time Frame: **80 minutes**

Solving Subtraction Equations

Essential Question: During the next four lessons, your teacher will provide you with an action plan for solving algebraic equations and inequalities. Your teacher will help you to practice and master this plan, so that you will be able to solve equations regardless of the operations involved. Your task will be to evaluate the action plan that is being used to find the solutions, determine if there are any steps that need to be changed (or reworded) and settle on a final action plan for solving all algebraic equations and inequalities. Why is it important that a single plan of action is followed every time you need to solve an equation or inequality?

Objective (s) Numbers: **5.03**
Outcomes: Solve simple (one- and two-step) equations or inequalities.

Materials: Textbook pages 66-68; Reteaching 2.5 (Math6.org version); Bag of M&M's per student

Anticipatory Set: Today we will continue to use inverse operations to solve equations, but this time involving subtraction. Begin by modeling fact families. Have Think/Pair Shares work together to create fact families for several algebraic equations.

During the Lesson

Presentation of Information:
Integration of Other Subjects: Writing (sequencing/how to)
Reading (vocabulary, problem solving, analyzing expectation)
Integration of Reading: Reading for information and interpretation.
Integration of Technology: Computer, Projector, PowerPoint, Internet

Modeling: Solving subtraction equations is almost exactly like solving addition equations except that the inverse of subtraction is addition! The other issue is that subtraction is not commutative so you must pay close attention to where you put the addition problems so that your answer looks correct. (see reteaching 2.5 from Math6.org for additional work on the special nature of subtraction problems)

Differentiation: 504 modifications ET and RA. Additional student and teacher modeling will help to guide all students to reach expected outcomes.

Guided Practice: Modeling Subtraction Equations. Have the students use font size 44 to write the equation $\{n - 7 = 15\}$. Put 7 M&M's on top of the -7. Use inverse operations to move the M&M's to the right side of the equation. Find the solution. (repeat with $\{24 = n - 8\}$ and $\{n - 5 - 4 = 27\}$)

After the Lesson

Independent Practice Text page 67-68 {1–15, 17–31 odd, 32, 36–43}
AIG: {12–43}
Assign workbook page 2.5

Closure / Assessment: Use the model in box 1 of today's guided practice or create a new flow map with examples to help you write a "how to solve subtraction equations" paragraph.

Integration with School-wide Focus: Improve mathematics computation and problem solving.

Related Math6.org Activities: There are **7** activities connected with this lesson

[Solving Equations Lesson](#)

[Subtraction Equations Guided Practice](#)

**Money Math

Reteaching Page

2.5 Solving Subtraction Equations

When an equation contains a **variable**, you make alterations with the purpose of getting the variable to be alone.

Since subtraction is not commutative, you will want to consider using **fact families**, **write the problem backwards**, or **inverse operations** to help isolate the variable. (Writing the problem “backwards” is the same thing as using the addition side of the fact family).

Fact Family

$$\begin{aligned} 19 - a &= 7 \\ 19 - 7 &= a \end{aligned}$$

Backwards

$$\begin{aligned} 19 - a &= 7 \\ 7 + a &= 19 \end{aligned}$$

Inverse Operation

$$\begin{aligned} 19 - a &= 7 \\ 19 + (a - a) &= 7 + a \\ 19 &= 7 + a \end{aligned}$$

Write each of the following “backwards” to get rid of the subtraction.

$38 - a = 27$

$a - 16 = 36$

$24 - a = 12$

$37 - a = 22$

Rewrite each problem to remove the subtraction, then solve for n in the following equations.

_____ 1) $n - 7 = 12$

_____ (hint – write it backwards)

_____ 2) $n - 38 = 52$

_____ (hint – write it backwards)

_____ 3) $18 - n = 4$

_____ (hint – use the fact family)

_____ 4) $41 - n = 16$

_____ (hint – use the fact family)

Math Objectives

5.03

Solve simple (one- and two-step) equations or inequalities.

Essential Question

During the next four lessons, your teacher will provide you with an action plan for solving algebraic equations and inequalities. Your teacher will help you to practice and master this plan, so that you will be able to solve equations regardless of the operations involved. Your task will be to evaluate the action plan that is being used to find the solutions, determine if there are any steps that need to be changed (or reworded) and settle on a final action plan for solving all algebraic equations and inequalities. Why is it important that a single plan of action is followed every time you need to solve an equation or inequality?

Wayne County Schools 21st Century Instructional Lesson Plan

Solving Multiplication Equations

NAME:		Subject: Math					
Date:		Grade Level (s): 6					
Standards/Objectives Addressed (NCSCOS)							
5.03 Solve simple (one- and two-step) equations or inequalities.							
Essential Question(s) (In student-friendly terms)							
During the next four lessons, your teacher will provide you with an action plan for solving algebraic equations and inequalities. Your teacher will help you to practice and master this plan, so that you will be able to solve equations regardless of the operations involved. Your task will be to evaluate the action plan that is being used to find the solutions, determine if there are any steps that need to be changed (or reworded) and settle on a final action plan for solving all algebraic equations and inequalities. Why is it important that a single plan of action is followed every time you need to solve an equation or inequality?							
Assess (Look at student data to plan. Use formative and/or summative assessments.)							
Evaluate/review inverse operations. Examine student confidence and capabilities with predict and test strategies.							
High Yield Instructional Strategies (check all that apply to the lesson)							
Identifying similarities and differences	✓	Reinforcing effort and providing recognition	✓	Nonlinguistic representation		Setting objectives and providing feedback	✓
Questions, cues, and advance organizers	✓	Summarizing and note taking	✓	Cooperative learning	✓	Generating and testing hypotheses	
Homework and practice	✓						
Learner Diversity							
<ul style="list-style-type: none"> How will you differentiate to meet the needs of all learners in your class? 							
504 modifications ET and RA. Additional student and teacher modeling, paired learning groups, and concrete representations will help to guide all students to reach expected outcomes. Differentiated assignments and practice will focus on remediation and enrichment of lower and higher ability groups.							
Engage (Anticipatory Set)							
<ul style="list-style-type: none"> Capture the students' attention, stimulate their thinking and help them access prior knowledge. Consider novelty, meaning and emotion. 							
Today we will use inverse operations to solve equations with multiplication.							

Instructional Practices Used in this Lesson				
Coaching	✓	Providing Directions/ Instructions	✓	Learning Centers
Discussion	✓	Providing opportunities for practice	✓	Teacher-directed Questions and Answers
Hands-on experiences	✓	Direct Instruction	✓	Modeling
Presentation	✓	Testing		Other: Math6.org
Suggested brained-based learning activities promoting the above Instructional Practices				
Think-Pair-Share	✓	Instructional Games		Music/Rhyme/Rhythm/Rap
Thinking Maps	✓	Student Facilitators		Movement
Technology Integration	✓	Storytelling		Humor
Use of visuals	✓	Field Trips(Virtual)		Project/Problem- Based Learning
Metaphor/Simile/Analogy		Reciprocal Teaching		Mnemonics
Peer/Self Assessment	✓	Drawing or illustrating		Other:
Writing/Reflecting/Journals	✓	Simulations/Role Play		Other:
Type(s) of Grouping Used: ___small group <input checked="" type="checkbox"/> student pairs <input checked="" type="checkbox"/> whole group <input checked="" type="checkbox"/> individual				
Explain, Explore, Elaborate Content Chunks: How will you divide and teach the content? <ul style="list-style-type: none"> • Transitions should be used every 5-15 minutes to keep the students' brains engaged. • Involve students in an analysis of their explorations. • Use reflective activities to clarify and modify student understanding. • Give students time to think, plan, investigate and organize collected information. • Give students the opportunity to expand and solidify their understanding of the concept and/or apply it to a real-world situation. 				
See next page for instructional detail.				
Evaluate (Feedback/Closure) <ul style="list-style-type: none"> • Evaluate throughout the lesson. Are students able to answer the Essential Question(s)? • Present students with a scoring guide (such as a rubric) at the beginning to self-assess. • What assessment(s) will be used to be sure the students are successful? 				
Today's enrichment @ Math6.org will compare, predict, and test with algebra. I would like you to complete this enrichment or complete worksheet 2.6ext modeling the algebra for each problem.				
Describe, Analyze, Reflect: <ul style="list-style-type: none"> • How effective was the lesson? How did the strategies help the students deepen their understanding? Cite evidence of student work, performance, behaviors, and/or remarks to support your view. • What caused the lesson to go well? What challenges did you encounter? • What did you do to contribute to the lesson's effectiveness? • What learning did you take from this lesson to apply to future lessons? What would you do differently next time? 				

Date: _____

Time Frame: **80 minutes**

Solving Multiplication Equations

Essential Question:	During the next three lessons, your teacher will provide you with an action plan for solving algebraic equations and inequalities. Your teacher will help you to practice and master this plan, so that you will be able to solve equations regardless of the operations involved. Your task will be to evaluate the action plan that is being used to find the solutions, determine if there are any steps that need to be changed (or reworded) and settle on a final action plan for solving all algebraic equations and inequalities. Why is it important that a single plan of action is followed every time you need to solve an equation or inequality?
Objective (s) Numbers:	5.03
Outcomes:	Solve simple (one- and two-step) equations or inequalities.
Materials:	Textbook pages 69-72; Extension page 2.6
Anticipatory Set:	Today we will use inverse operations to solve equations with multiplication.

During the Lesson

Presentation of Information:	
Integration of Other Subjects:	Writing (compare/contrast) Reading (vocabulary, problem solving, analyzing expectation)
Integration of Reading:	Reading for information and interpretation.
Integration of Technology:	Computer, Projector, PowerPoint, Internet
Modeling:	Multiplication equations are very common. We have used the Predict and Test (aka Guess and Check) method in the previous years to solve these equations without using algebra. Now that we understand inverse operations and keeping the balance of an equation, we can do away with most of the predict and test problems and replace them with algebra.
Differentiation:	504 modifications ET and RA. Additional student and teacher modeling will help to guide all students to reach expected outcomes.
Guided Practice:	Use a 4x4. In box one record the steps for solving equations involving addition. 1. Simplify if possible. 2. Use Inverse Operations to isolate the variable. 3. Check with Substitution. In boxes 2-4 model solutions for $\{5n = 85\}$ $\{115 - 5 * 3 = 4n\}$ $\{3n = 130 - 52\}$

After the Lesson

Independent Practice	Text page 71-72 {1-6, 8-16, 19-33 odd, 42-48} AIG: {18-38, 40-48} Assign workbook page 2.6
Closure / Assessment:	Today's enrichment @ Math6.org will compare, predict, and test with algebra. I would like you to complete this enrichment or complete worksheet 2.6ext modeling the algebra for each problem.

Integration with School-wide Focus: Improve mathematics computation and problem solving.

Related Math6.org Activities: There are **7** activities connected with this lesson

[Equations Lesson](#)

[Multiplication Equations Guided Practice](#)

**More Money Math

Extension Money Math

Multiplication Equations are very helpful when trying to figure out how long, how much and how many hours answer to real world money problems. Try the following problems so that you can see how this algebra is used in the real world. **Write a multiplication equation to solve each of these problems.**

Then find the solution

_____ 1) Mrs. Johnson is paid monthly but goes to the grocery store every week. She wants to make sure that she doesn't run out of money for food at the end of the month (some months have 5 weeks so we need to use 5 weeks for a month). If she puts aside \$300 when she gets paid, how much money can she spend in the grocery store each week?

_____ 2) Mrs. Smith didn't use algebra to calculate her monthly reserve and put aside \$400 for groceries. Mrs. Smith has 3 children and spends \$125 per week in the grocery store. How much money will she need to draw from savings to cover her error?

_____ 3) Anna wants to earn \$135 to buy a new bicycle. She earns an average of \$15 each time she does a baby-sitting job. How many times will she need to baby-sit to save enough money for her bicycle? _____

_____ 4) Anna usually gets 3 baby-sitting jobs per week. She earns an average of \$15 each time she does a baby-sitting job. Anna wants to earn \$135 to buy a new bicycle. How many weeks will it take her to save enough money for the bicycle?

_____ 5) Candid's mother wants to save \$1008 for Christmas presents. She will join a Christmas Club and use the interest on her savings as extra money at Christmas time. If she starts saving in January, how much money does she need to put in the Christmas Club Account each month? _____

_____ 6) Mr. Mitchell would like to buy a new set of golf clubs at the end of the school year. He has priced his dream set at \$1600. He will be able to set aside \$400 twice during the period due to special income from bonuses and his website design business. How much money per pay check will he need to set aside to have enough to buy the golf clubs. (a school year is 10 paychecks). _____

Name _____

Extension Money Math

-----Key-----

- 1) \$60
- 2) \$225
- 3) 9
- 4) 3 weeks
- 5) \$84
- 6) \$80

Math Objectives

5.03

Solve simple (one- and two-step) equations or inequalities.

Essential Question

During the next four lessons, your teacher will provide you with an action plan for solving algebraic equations and inequalities. Your teacher will help you to practice and master this plan, so that you will be able to solve equations regardless of the operations involved. Your task will be to evaluate the action plan that is being used to find the solutions, determine if there are any steps that need to be changed (or reworded) and settle on a final action plan for solving all algebraic equations and inequalities. Why is it important that a single plan of action is followed every time you need to solve an equation or inequality?

Wayne County Schools 21st Century Instructional Lesson Plan

Solving Division Equations

NAME:		Subject: Math					
Date:		Grade Level (s): 6					
Standards/Objectives Addressed (NCSCOS)							
5.03 Solve simple (one- and two-step) equations or inequalities.							
Essential Question(s) (In student-friendly terms)							
During the next two lessons, your teacher will provide you with an action plan for solving algebraic equations and inequalities. Your teacher will help you to practice and master this plan, so that you will be able to solve equations regardless of the operations involved. Your task will be to evaluate the action plan that is being used to find the solutions, determine if there are any steps that need to be changed (or reworded) and settle on a final action plan for solving all algebraic equations and inequalities. Why is it important that a single plan of action is followed every time you need to solve an equation or inequality?							
Assess (Look at student data to plan. Use formative and/or summative assessments.)							
Evaluate/review inverse operations and their overall comfort level with the process of solving equations so far. Review/Remediate Fact Families if needed.							
High Yield Instructional Strategies (check all that apply to the lesson)							
Identifying similarities and differences	✓	Reinforcing effort and providing recognition	✓	Nonlinguistic representation	✓	Setting objectives and providing feedback	✓
Questions, cues, and advance organizers	✓	Summarizing and note taking	✓	Cooperative learning	✓	Generating and testing hypotheses	
Homework and practice	✓						
Learner Diversity							
<ul style="list-style-type: none"> How will you differentiate to meet the needs of all learners in your class? 							
504 modifications ET and RA. Additional student and teacher modeling, paired learning groups, and concrete representations will help to guide all students to reach expected outcomes. Differentiated assignments and practice will focus on remediation and enrichment of lower and higher ability groups.							
Engage (Anticipatory Set)							
<ul style="list-style-type: none"> Capture the students' attention, stimulate their thinking and help them access prior knowledge. Consider novelty, meaning and emotion. 							
Would you like to make averages, area and volume problems way too easy for test? Today we will use inverse operations to solve equations with division.							

Instructional Practices Used in this Lesson				
Coaching	✓	Providing Directions/ Instructions	✓	Learning Centers
Discussion	✓	Providing opportunities for practice	✓	Teacher-directed Questions and Answers
Hands-on experiences	✓	Direct Instruction	✓	Modeling
Presentation	✓	Testing		Other: Math6.org
Suggested brained-based learning activities promoting the above Instructional Practices				
Think-Pair-Share	✓	Instructional Games		Music/Rhyme/Rhythm/Rap
Thinking Maps	✓	Student Facilitators		Movement
Technology Integration	✓	Storytelling		Humor
Use of visuals	✓	Field Trips(Virtual)		Project/Problem- Based Learning
Metaphor/Simile/Analogy		Reciprocal Teaching		Mnemonics
Peer/Self Assessment	✓	Drawing or illustrating		Other:
Writing/Reflecting/Journals	✓	Simulations/Role Play		Other:
Type(s) of Grouping Used: ___small group <input checked="" type="checkbox"/> _student pairs <input checked="" type="checkbox"/> _whole group <input checked="" type="checkbox"/> _individual				
Explain, Explore, Elaborate Content Chunks: How will you divide and teach the content? <ul style="list-style-type: none"> • Transitions should be used every 5-15 minutes to keep the students' brains engaged. • Involve students in an analysis of their explorations. • Use reflective activities to clarify and modify student understanding. • Give students time to think, plan, investigate and organize collected information. • Give students the opportunity to expand and solidify their understanding of the concept and/or apply it to a real-world situation. 				
See next page for instructional detail.				
Evaluate (Feedback/Closure) <ul style="list-style-type: none"> • Evaluate throughout the lesson. Are students able to answer the Essential Question(s)? • Present students with a scoring guide (such as a rubric) at the beginning to self-assess. • What assessment(s) will be used to be sure the students are successful? 				
<p>You now know how to apply all 4 of the operations to equations with variables. Create a 4x4. Select one problem for each operation and model its solution. Then on the back of the 4x4, write a paragraph or poem about the equation operation you find to be the easiest or most interesting. (you need not explain why - you may write a love poem, a eulogy, sermon, newspaper article ...)</p>				
Describe, Analyze, Reflect: <ul style="list-style-type: none"> • How effective was the lesson? How did the strategies help the students deepen their understanding? Cite evidence of student work, performance, behaviors, and/or remarks to support your view. • What caused the lesson to go well? What challenges did you encounter? • What did you do to contribute to the lesson's effectiveness? • What learning did you take from this lesson to apply to future lessons? What would you do differently next time? 				

Date: _____

Time Frame: **80 minutes**

Solving Division Equations

Essential Question: During the next couple of lessons, your teacher will provide you with an action plan for solving algebraic equations and inequalities. Your teacher will help you to practice and master this plan, so that you will be able to solve equations regardless of the operations involved. Your task will be to evaluate the action plan that is being used to find the solutions, determine if there are any steps that need to be changed (or reworded) and settle on a final action plan for solving all algebraic equations and inequalities. Why is it important that a single plan of action is followed every time you need to solve an equation or inequality?

Objective (s) Numbers: **5.03**
Outcomes: Solve simple (one- and two-step) equations or inequalities.

Materials: Textbook pages 73-75

Anticipatory Set: Would you like to make averages, area and volume problems way too easy for test? Today we will use inverse operations to solve equations with division.
Review/Remediate Fact Families

During the Lesson

Presentation of Information:
Integration of Other Subjects: Writing (evaluative/students' choice)
Reading (vocabulary, problem solving, analyzing expectation)
Integration of Reading: Reading for information and interpretation.
Integration of Technology: Computer, Projector, PowerPoint, Internet

Modeling: Division equations may look the most complicated but you will find they are the easiest since the inverse of division is multiplication. You will use division equations often during the next 3 years. You know the formula for finding area, averages, circumference and many other formulas. Division equations will help you use those formulas to look for different variables within the formula.

Differentiation: 504 modifications ET and RA. Additional student and teacher modeling will help to guide all students to reach expected outcomes.

Guided Practice: Use a 4x4. In box one record the steps for solving equations involving addition. 1. Simplify if possible. 2. Use Inverse Operations to isolate the variable. 3. Check with Substitution. In boxes 2-4 model solutions for $\{n \div 7 = 6\}$ $\{20 - 6 * 3 = n \div 32\}$ $\{n \div 8 = 130 - 53\}$

After the Lesson

Independent Practice Text page 74-75 {1-3, 5-7, 9-17, 23-28}
AIG: {1-3, 5-7, 9-15, 20-21, 23-28}
Assign workbook page 2.7

Closure / Assessment: You now know how to apply all 4 of the operations to equations with variables. Create a 4x4. Select one problem for each operation and model its solution. Then on the back of the 4x4, write a paragraph or poem about the equation operation you find to be the easiest or most interesting. (you need not explain why - you may write a love poem, a eulogy, sermon, newspaper article ...)

Integration with School-wide Focus: Improve mathematics computation and problem solving.

Related Math6.org Activities: There are **9** activities connected with this lesson
[Equations Lesson](#) ****Amazing Averages**
[Division Equations GP](#) **Guided Practice and Extension**

Math Objectives

5.03

Solve simple (one- and two-step) equations or inequalities.

Essential Question

During the next four lessons, your teacher will provide you with an action plan for solving algebraic equations and inequalities. Your teacher will help you to practice and master this plan, so that you will be able to solve equations regardless of the operations involved. Your task will be to evaluate the action plan that is being used to find the solutions, determine if there are any steps that need to be changed (or reworded) and settle on a final action plan for solving all algebraic equations and inequalities. Why is it important that a single plan of action is followed every time you need to solve an equation or inequality?

Wayne County Schools 21st Century Instructional Lesson Plan

Inequalities

NAME:		Subject: Math					
Date:		Grade Level (s): 6					
Standards/Objectives Addressed (NCSCOS)							
5.03 Solve simple (one- and two-step) equations or inequalities.							
Essential Question(s) (In student-friendly terms)							
You have been provided with an action plan for solving algebraic equations and inequalities. Your teacher has helped you to practice and master this plan, so that you will be able to solve equations regardless of the operations involved. Your task is to evaluate the action plan that is being used to find the solutions, determine if there are any steps that need to be changed (or reworded) and settle on a final action plan for solving all algebraic equations and inequalities. Why is it important that a single plan of action is followed every time you need to solve an equation or inequality?							
Assess (Look at student data to plan. Use formative and/or summative assessments.)							
Evaluate/review inverse operations and their overall comfort level with the process of solving equations so far. Review/Remediate Graphing Inequalities on a Number Line.							
High Yield Instructional Strategies (check all that apply to the lesson)							
Identifying similarities and differences	✓	Reinforcing effort and providing recognition	✓	Nonlinguistic representation		Setting objectives and providing feedback	✓
Questions, cues, and advance organizers	✓	Summarizing and note taking	✓	Cooperative learning	✓	Generating and testing hypotheses	✓
Homework and practice	✓						
Learner Diversity							
<ul style="list-style-type: none"> How will you differentiate to meet the needs of all learners in your class? 							
504 modifications ET and RA. Additional student and teacher modeling, paired learning groups, and concrete representations will help to guide all students to reach expected outcomes. Differentiated assignments and practice will focus on remediation and enrichment of lower and higher ability groups.							
Engage (Anticipatory Set)							
<ul style="list-style-type: none"> Capture the students' attention, stimulate their thinking and help them access prior knowledge. Consider novelty, meaning and emotion. 							
Show the students $n > 4$ and $n \geq 4$. Have the small groups decide and label each graph. Today we will learn to solve and graph whole-number inequalities.							

Instructional Practices Used in this Lesson				
Coaching	✓	Providing Directions/ Instructions	✓	Learning Centers
Discussion	✓	Providing opportunities for practice	✓	Teacher-directed Questions and Answers
Hands-on experiences	✓	Direct Instruction	✓	Modeling
Presentation	✓	Testing		Other: Math6.org
Suggested brained-based learning activities promoting the above Instructional Practices				
Think-Pair-Share	✓	Instructional Games		Music/Rhyme/Rhythm/Rap
Thinking Maps	✓	Student Facilitators		Movement
Technology Integration	✓	Storytelling		Humor
Use of visuals	✓	Field Trips(Virtual)		Project/Problem- Based Learning
Metaphor/Simile/Analogy		Reciprocal Teaching		Mnemonics
Peer/Self Assessment	✓	Drawing or illustrating		Other:
Writing/Reflecting/Journals	✓	Simulations/Role Play		Other:
Type(s) of Grouping Used: <input checked="" type="checkbox"/> small group <input checked="" type="checkbox"/> student pairs <input checked="" type="checkbox"/> whole group <input checked="" type="checkbox"/> individual				
Explain, Explore, Elaborate Content Chunks: How will you divide and teach the content? <ul style="list-style-type: none"> • Transitions should be used every 5-15 minutes to keep the students' brains engaged. • Involve students in an analysis of their explorations. • Use reflective activities to clarify and modify student understanding. • Give students time to think, plan, investigate and organize collected information. • Give students the opportunity to expand and solidify their understanding of the concept and/or apply it to a real-world situation. 				
See next page for instructional detail.				
Evaluate (Feedback/Closure) <ul style="list-style-type: none"> • Evaluate throughout the lesson. Are students able to answer the Essential Question(s)? • Present students with a scoring guide (such as a rubric) at the beginning to self-assess. • What assessment(s) will be used to be sure the students are successful? 				
A common error when working with graphing inequalities is that students become confused about the meaning of the open and closed circle. Explain to a fifth grader why the open circle is used to not include the circled value in the answer set.				
Describe, Analyze, Reflect: <ul style="list-style-type: none"> • How effective was the lesson? How did the strategies help the students deepen their understanding? Cite evidence of student work, performance, behaviors, and/or remarks to support your view. • What caused the lesson to go well? What challenges did you encounter? • What did you do to contribute to the lesson's effectiveness? • What learning did you take from this lesson to apply to future lessons? What would you do differently next time? 				

Date: _____

Time Frame: **80 minutes**

Inequalities

Essential Question: You have been provided with an action plan for solving algebraic equations and inequalities. Your teacher has helped you to practice and master this plan, so that you will be able to solve equations regardless of the operations involved. Your task is to evaluate the action plan that is being used to find the solutions, determine if there are any steps that need to be changed (or reworded) and settle on a final action plan for solving all algebraic equations and inequalities. Why is it important that a single plan of action is followed every time you need to solve an equation or inequality?

Objective (s) Numbers: **5.03**
Outcomes: Solve simple (one- and two-step) equations or inequalities.

Materials: Textbook pages 76-77; number lines

Anticipatory Set: Show the students $n > 4$ and $n \geq 4$. Have the small groups decide and label each graph. Today we will learn to solve and graph whole-number inequalities.

During the Lesson

Presentation of Information:
Integration of Other Subjects: Writing (instructions/how to)
Reading (vocabulary, problem solving, analyzing expectation)
Integration of Reading: Reading for information and interpretation.
Integration of Technology: Computer, Projector, PowerPoint, Internet

Modeling: Display the graphs of 6 inequalities and help the students to read and understand the difference between "less than" and "less than or equal to". $\{n < 3\}$ $\{n \leq 3\}$ $\{n > 1\}$ $\{n \geq 1\}$ $\{n > 6\}$ $\{n \leq 11\}$ Explain that inequalities are solved exactly like equations - they will learn one slight change in seventh grade but that change will be easy after they master the sixth grade level of this skill.

Differentiation: 504 modifications ET and RA. Additional student and teacher modeling will help to guide all students to reach expected outcomes.

Guided Practice: Use a 4x4 to model the solutions and graphs for $\{3n \leq 27\}$ $\{n + 4 < 10\}$ $\{n/6 \geq 1\}$ and $\{n - 11 > 16\}$

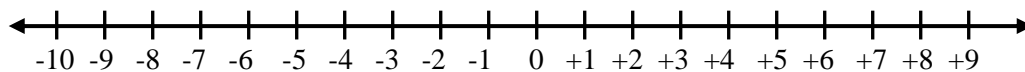
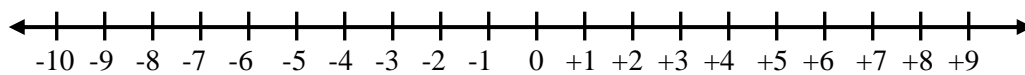
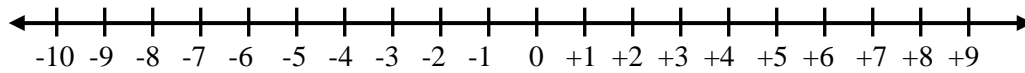
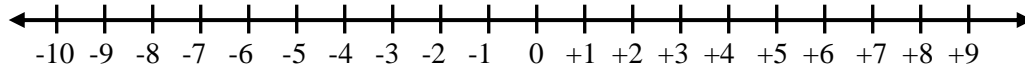
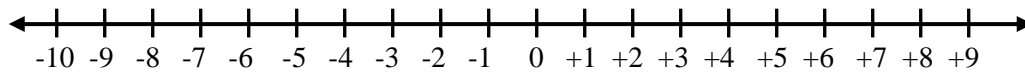
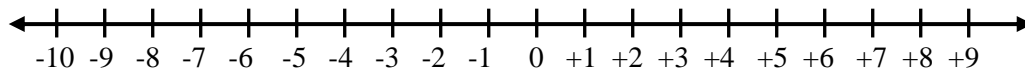
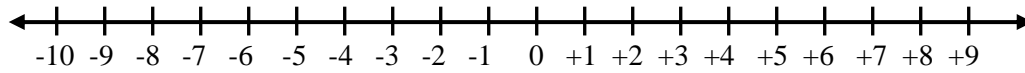
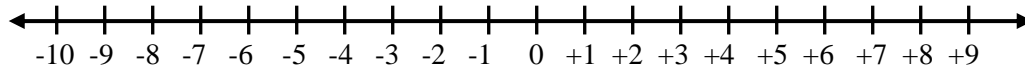
After the Lesson

Independent Practice Text page 77 {11-21 odd}
AIG: {17, 19, 20 - 24}

Closure / Assessment: A common error when working with graphing inequalities is that students become confused about the meaning of the open and closed circle. Explain to a fifth grader why the open circle is used to not include the circled value in the answer set.

Integration with School-wide Focus: Improve mathematics computation and problem solving.

Number Lines



Math Objectives

5.01; 5.02; 5.03

Simplify algebraic expressions and justify the results using the basic properties of rational numbers.

- a. Identity;
- b. Commutative;
- c. Associative;
- d. Distributive;
- e. Order of operations;

Use and evaluate algebraic expressions; Solve simple (one- and two-step) equations or inequalities.

Essential Question

What steps do you think should be taken to ensure that a person is prepared for examination on a set of skills?

(action plan)

Wayne County Schools 21st Century Instructional Lesson Plan

Algebra Concepts Review

NAME:		Subject: Math					
Date:		Grade Level (s): 6					
Standards/Objectives Addressed (NCSCOS)							
5.01; 5.02; 5.03 Simplify algebraic expressions and justify the results using the basic properties of rational numbers. a. Identity; b. Commutative; c. Associative; d. Distributive; e. Order of operations; Use and evaluate algebraic expressions; Solve simple (one- and two-step) equations or inequalities.							
Essential Question(s) (In student-friendly terms)							
What steps do you think should be taken to ensure that a person is prepared for examination on a set of skills? (action plan)							
Assess (Look at student data to plan. Use formative and/or summative assessments.)							
Examine student performance on various skill assessments, journals and projects.							
High Yield Instructional Strategies (check all that apply to the lesson)							
Identifying similarities and differences		Reinforcing effort and providing recognition	✓	Nonlinguistic representation		Setting objectives and providing feedback	✓
Questions, cues, and advance organizers		Summarizing and note taking		Cooperative learning	✓	Generating and testing hypotheses	
Homework and practice	✓						
Learner Diversity							
<ul style="list-style-type: none"> How will you differentiate to meet the needs of all learners in your class? 							
504 modifications ET and RA. Additional student and teacher modeling, paired learning groups, and concrete representations will help to guide all students to reach expected outcomes.							
Engage (Anticipatory Set)							
<ul style="list-style-type: none"> Capture the students' attention, stimulate their thinking and help them access prior knowledge. Consider novelty, meaning and emotion. 							
Today we will review the skills that we have been studying during this unit. We will practice test taking skills and remediate those skills about which we don't feel as comfortable as others.							

Instructional Practices Used in this Lesson				
Coaching	<input checked="" type="checkbox"/>	Providing Directions/ Instructions	<input checked="" type="checkbox"/>	Learning Centers
Discussion	<input type="checkbox"/>	Providing opportunities for practice	<input checked="" type="checkbox"/>	Teacher-directed Questions and Answers
Hands-on experiences	<input type="checkbox"/>	Direct Instruction	<input type="checkbox"/>	Modeling
Presentation	<input type="checkbox"/>	Testing	<input type="checkbox"/>	Other: Math6.org
Suggested brained-based learning activities promoting the above Instructional Practices				
Think-Pair-Share	<input checked="" type="checkbox"/>	Instructional Games	<input type="checkbox"/>	Music/Rhyme/Rhythm/Rap
Thinking Maps	<input type="checkbox"/>	Student Facilitators	<input checked="" type="checkbox"/>	Movement
Technology Integration	<input checked="" type="checkbox"/>	Storytelling	<input type="checkbox"/>	Humor
Use of visuals	<input type="checkbox"/>	Field Trips(Virtual)	<input type="checkbox"/>	Project/Problem- Based Learning
Metaphor/Simile/Analogy	<input type="checkbox"/>	Reciprocal Teaching	<input type="checkbox"/>	Mnemonics
Peer/Self Assessment	<input checked="" type="checkbox"/>	Drawing or illustrating	<input type="checkbox"/>	Other:
Writing/Reflecting/Journals	<input checked="" type="checkbox"/>	Simulations/Role Play	<input type="checkbox"/>	Other:
Type(s) of Grouping Used: <input type="checkbox"/> small group <input checked="" type="checkbox"/> student pairs <input type="checkbox"/> whole group <input checked="" type="checkbox"/> individual				
Explain, Explore, Elaborate Content Chunks: How will you divide and teach the content? <ul style="list-style-type: none"> • Transitions should be used every 5-15 minutes to keep the students' brains engaged. • Involve students in an analysis of their explorations. • Use reflective activities to clarify and modify student understanding. • Give students time to think, plan, investigate and organize collected information. • Give students the opportunity to expand and solidify their understanding of the concept and/or apply it to a real-world situation. 				
See next page for instructional detail.				
Evaluate (Feedback/Closure) <ul style="list-style-type: none"> • Evaluate throughout the lesson. Are students able to answer the Essential Question(s)? • Present students with a scoring guide (such as a rubric) at the beginning to self-assess. • What assessment(s) will be used to be sure the students are successful? 				
Have co-operative learning groups review and discuss their answers before turning their papers in for correction by the teacher.				
Describe, Analyze, Reflect: <ul style="list-style-type: none"> • How effective was the lesson? How did the strategies help the students deepen their understanding? Cite evidence of student work, performance, behaviors, and/or remarks to support your view. • What caused the lesson to go well? What challenges did you encounter? • What did you do to contribute to the lesson's effectiveness? • What learning did you take from this lesson to apply to future lessons? What would you do differently next time? 				

Date: _____

Time Frame: **80 minutes**

Algebra Concepts Review

Essential Question: What steps do you think should be taken to ensure that a person is prepared for examination on a set of skills? (action plan)

Objective (s) Numbers: **5.01; 5.02; 5.03**
Outcomes: Simplify algebraic expressions and justify the results using the basic properties of rational numbers.
a. Identity;
b. Commutative;
c. Associative;
d. Distributive;
e. Order of operations;
Use and evaluate algebraic expressions; Solve simple (one- and two-step) equations or inequalities.

Materials: Textbook pages 82-84; Test Form B

Anticipatory Set: Today we will review the skills that we have been studying during this unit. We will practice test taking skills and remediate those skills about which we don't feel as comfortable as others.

During the Lesson

Presentation of Information:
Integration of Other Subjects: Reading (vocabulary, problem solving, analyzing expectation)
Integration of Reading: Reading for information and interpretation.
Integration of Technology: Computer, Projector, PowerPoint, Internet

Modeling: Discuss the value of careful review, the process that should occur when errors are made and the importance of reviewing material that students are less comfortable with.

Differentiation: 504 modifications ET and RA. Additional student and teacher modeling will help to guide all students to reach expected outcomes.

Guided Practice: Discuss Instructions for the review on pages 82-84. Have the students review the Headings and address and questions or requests for immediate remediation.

After the Lesson

Independent Practice Text page 82-84 {1 - 59}
AIG: {1-59}
Assign Test Form B

Closure / Assessment: Have co-operative learning groups review and discuss their answers before turning their papers in for correction by the teacher.

Integration with School-wide Focus: Improve mathematics computation and problem solving.

Related Math6.org Activities: There are **many** activities connected with this lesson

[Vocabulary Matching Practice](#)

[Practice Test](#)

[Algebra Quiz Bowl](#)

[Algebra Millionaire](#)

CHAPTER

2

Chapter Test

Form B

Evaluate each expression to find the missing values in the tables

1.

w	$w + 12$
3	15
4	
5	

2.

x	$\frac{x}{5}$
5	1
10	
15	

3.

a	$8a + 1$
3	25
5	
8	

Find an expression for each table.

4.

w	
20	8
18	6
16	4

5.

y	
7	56
8	64
9	72

6.

z	
10	31
20	41
40	61

7. The temperature at noon on an August day in Houston was 89°F . After a thunderstorm, it dropped 5°F . Write an expression for the new temperature.

8. Company A has 50 more employees than Company B. Let n be the number of employees in Company B. Write an expression for the number of employees in Company A.

Write each phrase as a numerical or algebraic expression.

9. 32 more than w

10. the product of 12 and 6

11. 84 less than z

12. the quotient of r and 140

CHAPTER **Chapter Test**

2 **Form B, continued**

Write two phrases for each expression.

13. $f - 12$

14. $w \div 15$

15. $110 + x$

16. $15w$

Determine whether the given value of the variable is a solution.

17. $12w = 144$ for $w = 12$

18. $142 = 128 + y$ for $y = 14$

19. $184 + w = 230$ for $w = 414$

20. $\frac{w}{64} = 23$ for $w = 16$

Solve each equation.

21. $86 + x = 112$ _____

22. $v + 108 = 126$ _____

23. $134 + m = 165$ _____

24. $108 = j - 10$ _____

25. $f - 49 = 25$ _____

26. $h - 52 = 120$ _____

27. $16h = 128$ _____

28. $84 = 4r$ _____

29. $17w = 187$ _____

30. $\frac{w}{14} = 7$ _____

31. $\frac{y}{35} = 9$ _____

32. $\frac{z}{25} = 12$ _____

33. Lina had x rolls of film developed for the yearbook staff at \$8.00 per roll and spent \$120. How many rolls of film did Lina have developed?

34. You plan to buy a DVD player 15 weeks from now. If the DVD player costs \$180, how much money must you save each week in order to buy it?

Essential Question

If you could press restart,
what would you do
differently to prepare for
today's exam?

(decision making)

Wayne County Schools 21st Century Instructional Lesson Plan

Algebra Concepts Assessment

NAME:		Subject: Math					
Date:		Grade Level (s): 6					
Standards/Objectives Addressed (NCSCOS)							
5.01; 5.02; 5.03 Simplify algebraic expressions and justify the results using the basic properties of rational numbers. a. Identity; b. Commutative; c. Associative; d. Distributive; e. Order of operations; Use and evaluate algebraic expressions; Solve simple (one- and two-step) equations or inequalities.							
Essential Question(s) (In student-friendly terms)							
If you could press restart, what would you do differently to prepare for today's exam? (decision making)							
Assess (Look at student data to plan. Use formative and/or summative assessments.)							
Examine student performance on concepts review.							
High Yield Instructional Strategies (check all that apply to the lesson)							
Identifying similarities and differences		Reinforcing effort and providing recognition	<input checked="" type="checkbox"/>	Nonlinguistic representation		Setting objectives and providing feedback	<input checked="" type="checkbox"/>
Questions, cues, and advance organizers		Summarizing and note taking		Cooperative learning		Generating and testing hypotheses	
Homework and practice							
Learner Diversity							
<ul style="list-style-type: none"> How will you differentiate to meet the needs of all learners in your class? 							
504 modifications ET and RA.							
Engage (Anticipatory Set)							
<ul style="list-style-type: none"> Capture the students' attention, stimulate their thinking and help them access prior knowledge. Consider novelty, meaning and emotion. 							
Today we will assess our mastery of Algebra.							

Instructional Practices Used in this Lesson

Coaching		Providing Directions/ Instructions	✓	Learning Centers	
Discussion		Providing opportunities for practice		Teacher-directed Questions and Answers	
Hands-on experiences		Direct Instruction		Modeling	
Presentation		Testing		Other: Math6.org	✓

Suggested brain-based learning activities promoting the above Instructional Practices

Think-Pair-Share		Instructional Games		Music/Rhyme/Rhythm/Rap	
Thinking Maps		Student Facilitators		Movement	
Technology Integration	✓	Storytelling		Humor	
Use of visuals		Field Trips(Virtual)		Project/Problem- Based Learning	
Metaphor/Simile/Analogy		Reciprocal Teaching		Mnemonics	
Peer/Self Assessment		Drawing or illustrating		Other:	
Writing/Reflecting/Journals	✓	Simulations/Role Play		Other:	

Type(s) of Grouping Used:

small group student pairs whole group individual

Explain, Explore, Elaborate

Content Chunks: How will you divide and teach the content?

- Transitions should be used every 5-15 minutes to keep the students' brains engaged.
- Involve students in an analysis of their explorations.
- Use reflective activities to clarify and modify student understanding.
- Give students time to think, plan, investigate and organize collected information.
- Give students the opportunity to expand and solidify their understanding of the concept and/or apply it to a real-world situation.

See next page for instructional detail.

Evaluate (Feedback/Closure)

- Evaluate throughout the lesson. Are students able to answer the Essential Question(s)?
- Present students with a scoring guide (such as a rubric) at the beginning to self-assess.
- What assessment(s) will be used to be sure the students are successful?

Write a paragraph evaluation of your expected performance on this test. What did you do well on? What did you have trouble with? How did you prepare for this test and what would you like to do differently for the next exam?

Describe, Analyze, Reflect:

- How effective was the lesson? How did the strategies help the students deepen their understanding? Cite evidence of student work, performance, behaviors, and/or remarks to support your view.
- What caused the lesson to go well? What challenges did you encounter?
- What did you do to contribute to the lesson's effectiveness?
- What learning did you take from this lesson to apply to future lessons? What would you do differently next time?

Date: _____

Time Frame: **80 minutes**

Algebra Concepts Assessment

Essential Question:	If you could press restart, what would you do differently to prepare for today's exam? (decision making)
Objective (s) Numbers:	5.01; 5.02; 5.03
Outcomes:	Simplify algebraic expressions and justify the results using the basic properties of rational numbers. a. Identity b. Commutative
Materials:	Cumulative Assessment (Form B)
Anticipatory Set:	Today we will assess our mastery of Algebra.

During the Lesson

Presentation of Information:	
Integration of Other Subjects:	Writing (evaluation) Reading (vocabulary, problem solving, analyzing expectation)
Integration of Reading:	Reading for information and interpretation.
Integration of Technology:	Computer, Projector, PowerPoint, Internet
Modeling:	Review the Practice Test, answer questions and model answers.
Differentiation:	504 modifications ET and RA. Additional student and teacher modeling will help to guide all students to reach expected outcomes.
Guided Practice:	Discuss the Instructions.

After the Lesson

Independent Practice	Assign Cumulative Review Test Form B
Closure / Assessment:	Write a paragraph evaluation of your expected performance on this test. What did you do well on? What did you have trouble with? How did you prepare for this test and what would you like to do differently for the next exam? Choose a Journal entry to share with your class.

Integration with School-wide Focus: Improve mathematics computation and problem solving.

Related Math6.org Activities: There are **many** activities connected with this lesson
[Vocabulary Matching Practice](#)
[Practice Test](#)
[Algebra Quiz Bowl](#)
[Algebra Millionaire](#)

CHAPTER
2 **Cumulative Test**
Form B

Select the best answer for questions 1–49.

1. Which number is the greatest?
A 789,345 **C** 798,378
B 456,789 **D** 435,089

2. What is six million, three hundred forty-six thousand, two hundred eleven in standard form?
F 6,346,211 **H** 6,034,621
G 634,602,111 **J** 2,113,466

3. What is the value of 5^3 ?
A 15 **C** 125
B 25 **D** 625

4. What is $8 \cdot 8 \cdot 8 \cdot 8$ written in exponential form?
F 32 **H** 4,096
G 8^4 **J** 4^8

5. What is the value of $8 \cdot 4 + 5 - 1$?
A 36 **C** 71
B 37 **D** 112

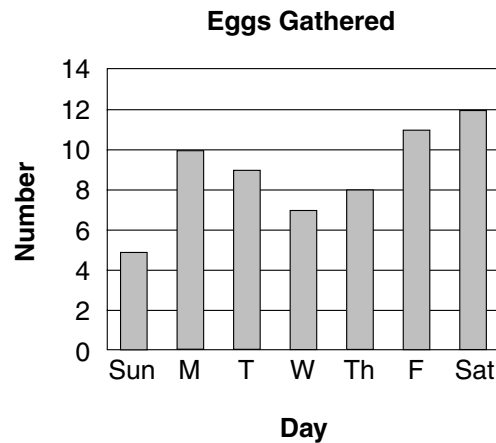
6. What is the value of $4^2 - (5 - 2) \cdot 3$?
F 7 **H** 39
G 33 **J** 52

7. $9 \cdot (4 \cdot 3) = (9 \cdot 4) \cdot 3$ is an example of which property?
A Associative **C** Distributive
B Commutative **D** Exponential

8. Find the next two terms in the sequence: 4, 8, 12, 16, ...
F 20, 26 **H** 64, 128
G 32, 64 **J** 20, 24

9. What is the value of 12^1 ?
A 0 **C** 12
B 1 **D** 144

10. The bar graph shows the number of eggs Catherine gathered each day last week. How many eggs did she gather last week?



- F** 60 **H** 65
G 62 **J** 70

11. At 8:00 A.M., the temperature was 54°F . By noon the temperature was 82°F . By how many degrees did the temperature increase?
A 14° **C** 42°
B 28° **D** 136°

12. 9^2 45^1
F < **H** =
G > **J** none of these

13. Round to the largest place value to estimate $567 + 129$.
A 600 **C** 800
B 700 **D** 900

CHAPTER
2 **Cumulative Test**
Form B, continued

14. John biked 34 miles each week for 24 weeks. How far did he bike after 24 weeks?
F 58 miles H 816 miles
G 82 miles J 1,016 miles
15. What is the expansion of 7^4 ?
A 7 C $7 \cdot 7 \cdot 7$
B $7 \cdot 7$ D $7 \cdot 7 \cdot 7 \cdot 7$
16. Which numbers are listed in order from least to greatest?
F 2,341, 5,644, 2,891, 9,234
G 2,341, 2,891, 5,644, 9,234
H 9,234, 5,644, 2,891, 2,341
J 9,234, 5,644, 2,341, 2,891
17. What is 1,347 written in words?
A One thousand four hundred thirty-seven.
B One thousand three hundred forty-seven
C One hundred three hundred forty-seven
D One thousand seventy-four
18. Estimate $38,975 - 21,984$.
F 10,000 H 18,000
G 17,000 J 22,000
19. In a 4-H group, a phone tree is used to contact each member's family for special events. The leader calls 3 families. Each family calls 3 other families, and so on. How many families will be called during the 3rd round of calls?
A 6 C 27
B 9 D 81
20. Which is the greatest?
F 3^2 H 2^3
G 6^2 J 2^5
21. Linda's new patio will be 12 feet wide and 15 feet long. The patio will be constructed using "S" shaped pavers. She needs 4 pavers for each square foot. How many pavers will Linda need?
A 180 pavers C 720 pavers
B 200 pavers D 900 pavers
22. Lori's social studies class is taking a field trip to a museum 50 miles from her school. The bus travels at an average of 45 miles per hour. About how long will it take the class to get to the museum?
F $\frac{1}{2}$ hour H $1\frac{1}{2}$ hours
G 1 hour J 2 hours
23. What is the value of 8^3 ?
A 24 C 64
B 32 D 512
24. Simplify $7 \cdot 3 + 9 \cdot 2$.
F 29 H 60
G 39 J 120
25. What is the value of $9 \div (1 + 2) \cdot 4^2 - 7$?
A 17 C 169
B 41 D 204
26. $3(2 + 4) = (3 \cdot 2) + (3 \cdot 4)$ is an example of which property?
F Associative H Distributive
G Commutative J Exponential

CHAPTER 2 **Cumulative Test**
Form B, continued

27. A length of yarn 68 cm long is to be cut into exactly 4 pieces of equal length. What is the length of each piece?

- A** 17 cm **C** 24 cm
B 20 cm **D** 272 cm

28. Find the next two terms in the sequence: 7, 11, 8, 12, 9, ...

- F** 12, 13 **H** 10, 13
G 13, 15 **J** 13, 10

29. Which is the solution to the equation $7a = 56$?

- A** $a = 9$ **C** $a = 7$
B $a = 8$ **D** $a = 6$

30. Find the missing value in the table.

a	$8a - 5$
9	67
10	?

- F** 13 **H** 64
G 52 **J** 75

31. Which means the “product of a and 8”?

- A** $8 + a$ **C** $8a$
B $8 - a$ **D** $8 \div a$

32. Luke is 12 years old. Luke is 7 years younger than his sister Aimee. Solve $y - 7 = 12$ to find Aimee’s age.

- F** 5 **H** 19
G 12 **J** 21

33. Which of the following is a phrase for $y - 9$?

- A** the sum of y and 9
B the difference of y and 9
C the product of y and 9
D the quotient of y and 9

34. Which of the following has a solution of 9?

- F** $w + 9 = 9$ **H** $y - 8 = 11$
G $9a = 72$ **J** $\frac{p}{3} = 3$

35. Evaluate $8h + 4$ for $h = 4$.

- A** 36 **C** 84
B 64 **D** 88

36. Which expression completes the table?

t	?
7	20
5	14
3	8

- F** $t + 4$ **H** $t + 13$
G $3t - 1$ **J** $\frac{t}{3}$

37. Which is a phrase for $3n \div 8$?

- A** the product of n and 8
B the product of $3n$ and 8
C the quotient of $3n$ and 8
D the quotient of n and 8

38. Which means the “sum of 23 and y ”?

- F** $23 + y$ **H** $23 - y$
G $23 \div y$ **J** $23y$

39. Solve $104 = 130 - w$.

- A** 13 **C** 114
B 26 **D** 234

CHAPTER
2 **Cumulative Test**
Form B, continued

40. Which of the following has a solution of 12?

- F** $\frac{y}{6} = 2$ **H** $6y = 12$
G $y + 6 = 14$ **J** $y - 5 = 8$

41. The area of a rectangle is 100 square inches. Its length is 20 inches. What is its width?

- A** 5 in. **C** 100 in.
B 10 in. **D** 200 in.

42. The area of a rectangular deck is 250 square feet. Its length is 25 feet. What is its width?

- F** 5 ft **H** 25 ft
G 10 ft **J** 625 ft

43. The parking lot of a new shopping center is one-fourth the area of the shopping mall. The area of the mall is 250,000 square feet. Find the area of the parking lot.

- A** 625 ft² **C** 62,500 ft²
B 6,250 ft² **D** 625,000 ft²

44. Chantal cut an apple into a equal slices. She ate 4 slices and had 4 slices left. Which equation models the problem?

- F** $a + 4 = 4$ **H** $8a = 4$
G $4 - a = 2$ **J** $a - 4 = 4$

45. Which value of x makes the equation $\frac{56}{x} = 7$ true?

- A** $x = 7$ **C** $x = 9$
B $x = 8$ **D** $x = 10$

46. Which expression matches the phrase “the quotient of 112 and r ”?

- F** $112r$ **H** $112 + r$
G $112 - r$ **J** $112 \div r$

47. Which of the following is a phrase for $220 + r$?

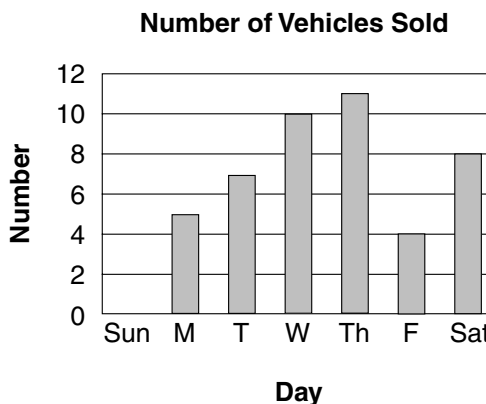
- A** the sum of 200 and 20
B the difference of 220 and r
C r more than 220
D 220 times r

48. Find the missing value in the table.

y	$9y + 8$
11	107
12	?

- F** 108 **H** 116
G 112 **J** 920

49. The graph shows the number of vehicles sold per day at a local dealership. What is the total number of vehicles sold?



- A** 40 **C** 45
B 42 **D** 50

Name _____

Algebra Assessment

1	A	B	C	D
2	F	G	H	J
3	A	B	C	D
4	F	G	H	J
5	A	B	C	D
6	F	G	H	J
7	A	B	C	D
8	F	G	H	J
9	A	B	C	D
10	F	G	H	J
11	A	B	C	D
12	F	G	H	J
13	A	B	C	D
14	F	G	H	J
15	A	B	C	D
16	F	G	H	J
17	A	B	C	D
18	F	G	H	J
19	A	B	C	D
20	F	G	H	J
21	A	B	C	D
22	F	G	H	J
23	A	B	C	D
24	F	G	H	J
25	A	B	C	D
26	F	G	H	J

27	A	B	C	D
28	F	G	H	J
29	A	B	C	D
30	F	G	H	J
31	A	B	C	D
32	F	G	H	J
33	A	B	C	D
34	F	G	H	J
35	A	B	C	D
36	F	G	H	J
37	A	B	C	D
38	F	G	H	J
39	A	B	C	D
40	F	G	H	J
41	A	B	C	D
42	F	G	H	J
43	A	B	C	D
44	F	G	H	J
45	A	B	C	D
46	F	G	H	J
47	A	B	C	D
48	F	G	H	J
49	A	B	C	D

Name _____

Algebra Assessment

1	A	B	C	D
2	F	G	H	J
3	A	B	C	D
4	F	G	H	J
5	A	B	C	D
6	F	G	H	J
7	A	B	C	D
8	F	G	H	J
9	A	B	C	D
10	F	G	H	J
11	A	B	C	D
12	F	G	H	J
13	A	B	C	D
14	F	G	H	J
15	A	B	C	D
16	F	G	H	J
17	A	B	C	D
18	F	G	H	J
19	A	B	C	D
20	F	G	H	J
21	A	B	C	D
22	F	G	H	J
23	A	B	C	D
24	F	G	H	J
25	A	B	C	D
26	F	G	H	J

27	A	B	C	D
28	F	G	H	J
29	A	B	C	D
30	F	G	H	J
31	A	B	C	D
32	F	G	H	J
33	A	B	C	D
34	F	G	H	J
35	A	B	C	D
36	F	G	H	J
37	A	B	C	D
38	F	G	H	J
39	A	B	C	D
40	F	G	H	J
41	A	B	C	D
42	F	G	H	J
43	A	B	C	D
44	F	G	H	J
45	A	B	C	D
46	F	G	H	J
47	A	B	C	D
48	F	G	H	J
49	A	B	C	D

Name _____

Algebra Assessment

1	A	B		D
2		G	H	J
3	A	B		D
4	F		H	J
5		B	C	D
6		G	H	J
7		B	C	D
8	F	G	H	
9	A	B		D
10	F		H	J
11	A		C	D
12	F		H	J
13	A		C	D
14	F	G		J
15	A	B	C	
16	F		H	J
17	A		C	D
18	F		H	J
19	A	B		D
20	F		H	J
21	A	B		D
22	F		H	J
23	A	B	C	
24	F		H	J
25	A		C	D
26	F	G		J

27		B	C	D
28	F	G	H	
29	A		C	D
30	F	G	H	
31	A	B		D
32	F	G		J
33	A		C	D
34	F	G	H	
35		B	C	D
36	F		H	J
37	A	B		D
38		G	H	J
39	A		C	D
40		G	H	J
41		B	C	D
42	F		H	J
43	A	B		D
44	F	G	H	
45	A		C	D
46	F	G	H	
47	A	B		D
48	F	G		J
49	A	B		D

Chapter 2 Assessment

27	100%
26	96%
25	93%
24	89%
23	85%
22	81%
21	78%
20	74%
19	70%
18	67%
17	63%
16	59%
15	56%
14	52%
13	48%
12	44%
11	41%
10	37%
9	33%