KCS @ home

Seventh Grade
Math

knoxschools.org/kcsathome

Apply Properties to Multi-Step Addition and Subtraction Problems

In this activity, students develop strategies for effective addition and subtraction of rational numbers.

Think about the expressions shown on the chart while answering this series of questions:

$$-1.6 + \frac{1}{4}$$

$$3 - 2\frac{1}{5} + (-1.4)$$

$$5\frac{3}{7} + \frac{2}{3} - \left(-\frac{4}{7}\right)$$

$$-5\frac{3}{7} - 3\frac{1}{7}$$

[1] For which of these expressions might you want to convert fractions to decimals? Mark your choices with a "D" and explain.

[2] For which of these expressions might you want to convert decimals to fractions? Mark your choices with an "F" and explain.

[3] What other strategies and properties might be helpful in simplifying these expressions? Have students point out the expressions where their strategies apply and explain their reasoning.

[4] Evaluate the expressions, and explain your strategy for each expression.

Apply Properties to Multi-Step Addition and Subtraction Problems

Answer Key

In this activity, students develop strategies for effective addition and subtraction of rational numbers.

Ask students to think about the expressions shown on the chart while answering this series of questions.

- **Ask:** For which of these expressions might you want to covert fractions to decimals? Mark your choices with a "D" and explain. Possible answer: In the first two expressions, the fractions can be converted to nice decimals, but thirds and sevenths do not convert easily.
- **Ask:** For which of these expressions might you want to convert decimals to fractions? Mark your choices with an "F" and explain. Possible answer: The second expression might be easier with fractions. They'll have a common denominator.
- **Ask:** What other strategies and properties might be helpful in simplifying these expressions? Have students point out the expressions where their strategies apply and explain their reasoning. Possible answers: Use the additive inverse to write subtraction of a negative as addition. Use the commutative property to collect terms with a common denominator.

Have students evaluate the expressions, and share strategies. -1.35 or $-1\frac{7}{20}$; -0.6 or $-\frac{3}{5}$; $6\frac{2}{3}$; $-8\frac{4}{7}$

- Write new expressions as needed to elicit more strategies or give further practice.

$$-1.6 + \frac{1}{4}$$

$$3 - 2\frac{1}{5} + (-1.4)$$

$$5\frac{3}{7} + \frac{2}{3} - \left(-\frac{4}{7}\right)$$

$$-5\frac{3}{7} - 3\frac{1}{7}$$

Proficiency Level

Beginning

Have students use the fourth expression to complete the sentence: "Fractions with the same _____ can be added or subtracted easily."

Intermediate

Using the third expression, have students complete the following sentence: "It is easier to add or subtract fractions with the same denominator than it is to _____."

Advanced

Have students describe why it is sometimes easier to add fractions than to convert fractions to decimals.

Unit 1 Performance Tasks

1. **CAREERS IN MATH** **Urban Planner** Armand is an urban planner, and he has proposed a site for a new town library. The site is between City Hall and the post office on Main Street.

The distance between City Hall and the post office is $6\frac{1}{2}$ miles. City Hall is $1\frac{1}{4}$ miles closer to the library site than it is to the post office.

a. Write $6\frac{1}{2}$ miles and $1\frac{1}{4}$ miles as decimals.

b. Let d represent the distance from City Hall to the library site. Write an expression for the distance from the library site to the post office.

c. Write an equation that represents the following statement: The distance from City Hall to the library site plus the distance from the library site to the post office is equal to the distance from City Hall to the post office.

d. Solve your equation from part c to determine the distance from City Hall to the library site, and the distance from the post office to the library site.

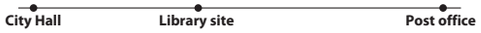
2. Sumaya is reading a book with 288 pages. She has already read 90 pages. She plans to read 20 more pages each day until she finishes the book.

a. Sumaya writes the equation $378 = -20d$ to find the number of days she will need to finish the book. Identify the errors that Sumaya made.

b. Write and solve an equation to determine how many days Sumaya will need to finish the book. In your answer, count part of a day as a full day. Show that your answer is reasonable.

Unit 1 Performance Tasks

1. **CAREERS IN MATH** **Urban Planner** Armand is an urban planner, and he has proposed a site for a new town library. The site is between City Hall and the post office on Main Street.



The distance between City Hall and the post office is $6\frac{1}{2}$ miles. City Hall is $1\frac{1}{4}$ miles closer to the library site than it is to the post office.

a. Write $6\frac{1}{2}$ miles and $1\frac{1}{4}$ miles as decimals.

6.5 miles; 1.25 miles

b. Let d represent the distance from City Hall to the library site. Write an expression for the distance from the library site to the post office.

$d + 1.25$

c. Write an equation that represents the following statement: The distance from City Hall to the library site plus the distance from the library site to the post office is equal to the distance from City Hall to the post office.

$d + d + 1.25 = 6.5$

d. Solve your equation from part **c** to determine the distance from City Hall to the library site, and the distance from the post office to the library site.

City Hall to library: 2.625 miles; post office to library: 3.875 miles

2. Sumaya is reading a book with 288 pages. She has already read 90 pages. She plans to read 20 more pages each day until she finishes the book.

a. Sumaya writes the equation $378 = -20d$ to find the number of days she will need to finish the book. Identify the errors that Sumaya made.

Sumaya added 90 pages instead of subtracting. Also, she reads 20 pages per day, not -20 pages.

b. Write and solve an equation to determine how many days Sumaya will need to finish the book. In your answer, count part of a day as a full day. Show that your answer is reasonable.

$198 = 20d$; $d = 9.9$; Sumaya will need 10 days to finish the book. In 10 days, Sumaya will read 200 pages, and $90 + 200 = 290$.

c. Estimate how many days you would need to read a book about the same length as Sumaya's book. What information did you use to find the estimate?

Sample answer: About 3 weeks because I would probably read about 15 pages a day, and $288 \div 15 \approx 300 \div 15 = 20$ days or just about 3 weeks.

3. Jackson works as a veterinary technician and earns $12.20 per hour.

a. Jackson normally works 40 hours a week. In a normal week, what is his total pay before taxes and other deductions?

$488

b. Last week, Jackson was ill and missed some work. His total pay before deductions was $372.10. Write and solve an equation to find the number of hours Jackson worked.

30.5 hours; $12.20x = \$372.10$

c. Jackson records his hours each day on a time sheet. Last week when he was ill, his time sheet was incomplete. How many hours are missing? Show your work. Then show that your answer is reasonable.

Mon	Tues	Wed	Thurs	Fri
8	$7\frac{1}{4}$	$8\frac{1}{2}$		

$6\frac{3}{4}$ or 6.75 hours; $30.5 - \left(8 + 7\frac{1}{4} + 8\frac{1}{2}\right) = 30\frac{1}{2} - 23\frac{3}{4} = 6\frac{3}{4}$

From part b, Jackson worked 30.5 hours total. The amounts in the chart are about 8, 7, and 9, or 24 in all, which is 6.5 hours less than 30.5.

d. When Jackson works more than 40 hours in a week, he earns 1.5 times his normal hourly rate for each of the extra hours. Jackson worked 43 hours one week. What was his total pay before deductions? Justify your answer.

$542.90; $40(\$12.20) + 3(1.5(\$12.20)) = \$542.90$

e. What is a reasonable range for Jackson's expected yearly pay before deductions? Describe any assumptions you made in finding your answer.

Sample answer: About $25,000 to $30,000; I assumed he worked 50 weeks per year, and between 40 and 45 hours per week.

Seventh Grade
Social Studies

knoxschools.org/kcsathome

KCS@home

Week 1 Review - 7th Grade Social Studies - The Renaissance

Objective: To continue to review the Renaissance.
Task: Using prior knowledge, information contained in the museum exhibit activity last week, and the reading below, complete the countdown and questions that follow.
Read: The Renaissance was a period of time from the 14th to the 17th century in Europe. This came between the modern time period and the Middle Ages. The Renaissance was a "rebirth" of culture, education, science, art, literature, music, mathematics, and religion. The Renaissance was impacted by a movement called humanism. This is a belief that people should be a part of the government and use their own talents and abilities. It opened up society for people to pursue their own interests.

The start of the Renaissance is believed to be in Florence, Italy due to the wealth of the city-states and Italy's geographic position for trading. The Italian city-states were ruled by wealthy families. The Medici Family ruled Florence and gained their wealth through owning a bank and the wool trade. The Medici Family used their wealth to support education and art. They were patrons of Michelangelo, da Vinci, and even Galileo.

During the Renaissance Leonardo da Vinci, Michelangelo, and Shakespeare became well known for their work. Da Vinci became known for his famous paintings (Last Supper, Mona Lisa) and for his work in anatomy and his inventions. Michelangelo became known for his works of art (The David, the Sistine Chapel) including sculptures, architecture, and painting. Shakeapeare became known as the best English playwright of all time and he is credited with contributing over 1,000 words to the English language.

Countdown!

5 - Important Key Terms of the Renaissance
4 - Important Ideas of the Renaissance
3 - Important Key People in the Renaissance
2 - Symbols to Illustrate the Renaissance
1 - Summary Sentence of the Renaissance

Which person (Michelangelo, da Vinci, Shakespeare, or the Medici Family) would you most like to meet? _____
Why? (Give facts based on what you know.)

Seventh Grade
ELA

knoxschools.org/kcsathome

Grade 7. ELA. Week 2

Do it Anyway

People are often unreasonable, illogical,
and self-centered; Forgive them anyway.

If you are kind, people may accuse you of selfish,
ulterior motives; Be kind anyway.

If you are successful, you will win some false friends
and some true enemies; Succeed anyway.

If you are honest and frank people may cheat you; Be
honest and frank anyway.

What you spend years building someone could
destroy overnight; Build anyway.

If you find serenity and happiness, they may be
jealous; Be happy anyway.

The good you do today, people will often forget
tomorrow; Do good anyway.

Give the world the best you have, and it may never be
enough; Give the world the best you've got anyway.

You see in the final analysis it is between you and
God. It was never between you and them anyway.

- Mother Teresa

Writing Prompts

This assignment is based on last week's reading of Jo Cutler and Robin Banerjee's article, "Five Reasons Why Being Kind Makes You Feel Good -- According to Science" and the poem attributed to Mother Teresa, "Do It Anyway." The article can be found in the student resources for week one on the knoxschools.org website as well as on commonlit.org.

Directions: Choose one of the following prompts and answer it in an essay or short story.

Argument - Argue whether the poem "Do it Anyway," or the article "Five Reasons Why You Should Be Kind -- According to Science," would have a greater chance of influencing a reader's behavior. Be sure to include evidence from both the article and the poem in your response.

Expository - Write another article about the power of kindness and include details from the article along with suggestions for how middle school students can show more kindness to others starting today.

Narrative - Write a story about a character who performs acts of kindness and always does the right thing because he or she loves the way being kind feels.

KCS @ home

Seventh Grade
Science

knoxschools.org/kcsathome

7th Grade Science: Week 2 April 6th
Reading Chemical Equations

Directions: Read the passages below and answer the questions in each section.

A **chemical equation** is a symbolic way of representing a *chemical reaction*. Remember that a **chemical reaction** is any change in a substance where the molecules themselves are rearranged. In every *chemical equation,* there are two main parts: the **reactants** and the **products**. **Reactants** are always written on the left and represent what was present at the beginning of the reaction. **Products** are always written on the right and represent what was present at the end of the reaction. In order to separate the reactants from the products, an arrow is written in between to show that the reactants "yielded" a change.

For each of the chemical equations below:

Draw a box around the **reactants**.

Underline the **products**.

1) $2KClO_3 \rightarrow 2KCl + 3O_2$

2) $2NaCl + F_2 \rightarrow 2NaF + Cl_2$

3) $2H_2 + O_2 \rightarrow 2H_2O$

4) $Pb(OH)_2 + 2HCl \rightarrow 2H_2O + PbCl_2$

5) $2AlBr_3 + 3K_2SO_4 \rightarrow 6KBr + Al_2(SO_4)_3$

Reading Chemical Equations:

Identifying **reactants** and **products** really is that simple. **Reactants** are always the ones on the left, and **products** are always the ones on the right. However, there is much more to a *chemical formula* than that.

Remember that the letters in the *chemical equations* are the **symbols** for each **element** from the *periodic table*. **Oxygen** is *O*, **Hydrogen** is *H*, **Chlorine** is *Cl*, and so on. Numbers in the *chemical equations* can be one of two things: a **coefficient** or a **subscript**.

Coefficients are the *larger numbers* that sometimes appear at the beginning of a chemical formula. **Subscripts** are the *smaller numbers* that float behind the elemental symbols. A **coefficient** will always appear at the beginning of the molecular formula because it indicates *how many* of that molecule is present. A **subscript** will always trail after an elemental symbol because it indicates *how many* of that element are present in a single molecule.

For each of the *chemical formulas* below:

Draw a box around the **coefficients**.

Underline the **subscripts**.

6) $2KClO_3$

7) $2FeO_2 + 3Cl_2$

8) $2H_2 + O_2$

9) $2NaCl + F_2$

10) $2AlBr_3 + 3K_2SO_4$

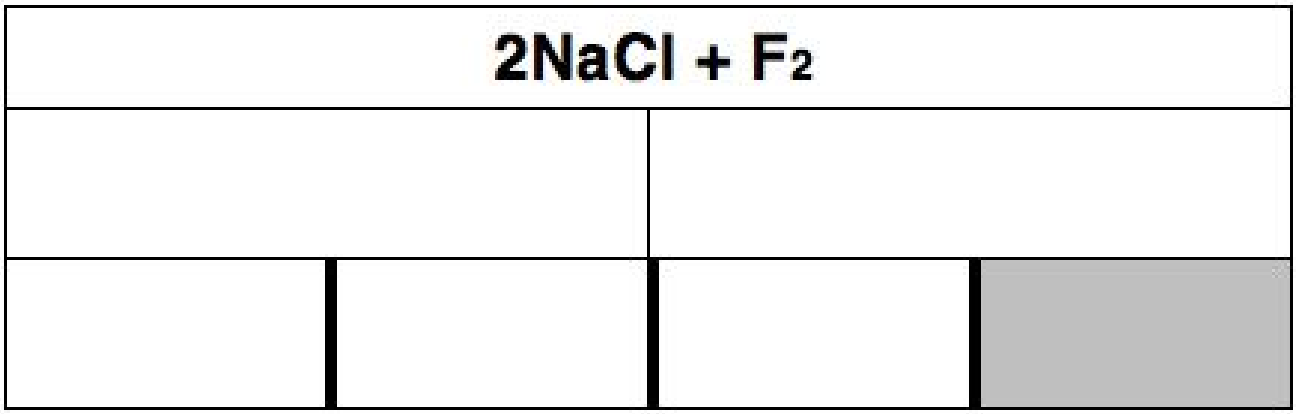
Breaking Chemical Formulas Down:

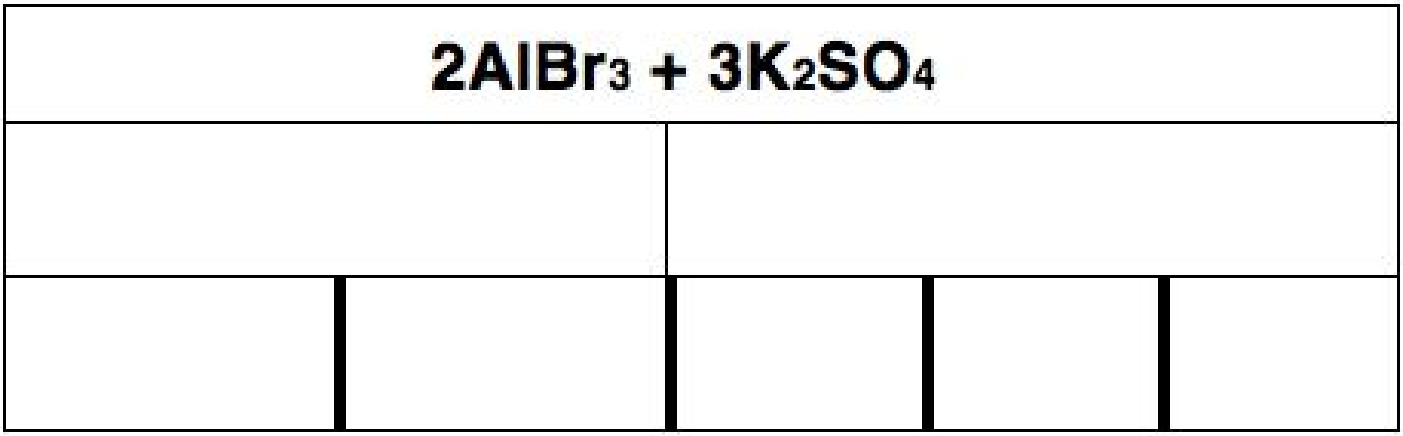
Now that you've identified the **coefficients** and **subscripts**, use them to read the *chemical formulas* below and fill in the tables:

$2KClO_3$			
How many molecules of $KClO_3$? 2 because the coefficient is a 2			
How many K? **2 because there is 1 per molecule with 2 molecules.**	**How many Cl?** **2 because there is 1 per molecule with 2 molecules.**	**How many O?** **6 because there are 3 per molecule with 2 molecules.**	

$2FeO_2 + 3Cl_2$			
How many molecules of FeO_2?		**How many molecules of Cl_2?**	
How many Fe?	**How many O?**	**How many Cl?**	

$2H_2 + O_2$			





Now, try breaking down a whole chemical reaction *without* being given a table:

$$2KClO_3 \rightarrow 2KCl + 3O_2$$

7th Grade Science: Week 2 April 6th
Reading Chemical Equations

Directions: Read the passages below and answer the questions in each section.

A **chemical equation** is a symbolic way of representing a *chemical reaction*. Remember that a **chemical reaction** is any change in a substance where the molecules themselves are rearranged. In every *chemical equation,* there are two main parts: the **reactants** and the **products**. **Reactants** are always written on the left and represent what was present at the beginning of the reaction. **Products** are always written on the right and represent what was present at the end of the reaction. In order to separate the reactants from the products, an arrow is written in between to show that the reactants "yielded" a change.

For each of the chemical equations below:

	Reactants:		Products:
1)	$2KClO_3$	→	$2KCl + 3O_2$
2)	$2NaCl + F_2$	→	$2NaF + Cl_2$
3)	$2H_2 + O_2$	→	$2H_2O$
4)	$Pb(OH)_2 + 2HCl$	→	$2H_2O + PbCl_2$
5)	$2AlBr_3 + 3K_2SO_4$	→	$6KBr + Al_2(SO_4)_3$

Reading Chemical Equations:

Identifying **reactants** and **products** really is that simple. **Reactants** are always the ones on the left, and **products** are always the ones on the right. However, there is much more to a *chemical formula* than that.

Remember that the letters in the *chemical equations* are the **symbols** for each **element** from the *periodic table*. **Oxygen** is *O*, **Hydrogen** is *H*, **Chlorine** is *Cl*, and so on. Numbers in the *chemical equations* can be one of two things: a **coefficient** or a **subscript**.

Coefficients are the *larger numbers* that sometimes appear at the beginning of a chemical formula. **Subscripts** are the *smaller numbers* that float behind the elemental symbols. A **coefficient** will always appear at the beginning of the molecular formula because it indicates *how many* of that molecule is present. A **subscript** will always trail after an elemental symbol because it indicates *how many* of that element are present in a single molecule.

For each of the *chemical formulas* below:

Draw a box around the **coefficients**.

Underline the **subscripts**.

6) $2KClO_3$

7) $2FeO_2 + 3Cl_2$

8) $2H_2 + O_2$

9) $2NaCl + F_2$

10) $2AlBr_3 + 3K_2SO_4$

Breaking Chemical Formulas Down:

Now that you've identified the **coefficients** and **subscripts**, use them to read the *chemical formulas* below and fill in the tables:

$2KClO_3$			
How many molecules of $KClO_3$? 2 because the coefficient is a 2			
How many K? **2 because there is 1 per molecule with 2 molecules.**	**How many Cl?** **2 because there is 1 per molecule with 2 molecules.**	**How many O?** **6 because there are 3 per molecule with 2 molecules.**	

$2FeO_2 + 3Cl_2$			
How many molecules of FeO_2? 2		**How many molecules of Cl_2?** 3	
How many Fe? 2	**How many O?** 4	**How many Cl?** 6	

$2H_2 + O_2$			
$2\ H_2$		O_2	
4 H		2 O	

$2NaCl + F_2$			
2 NaCl		1 F_2	
2 Na	1 Cl	2 F	

$2AlBr_3 + 3K_2SO_4$			
2 $AlBr_3$		3 K_2SO_4	
2 Al	6 Br	6 K	3 S / 12 O

Now, try breaking down a whole chemical reaction *without* being given a table:

$2KClO_3 \rightarrow 2KCl + 3O_2$

Reactants:

2 $KClO_3$

2 K
2 Cl
6 O

Products:

2 KCl
3 O_2

2 K
2 Cl
6 O