

June 2019

To our incoming 7th/8th graders,

We are looking forward to having you as our students next year! As we wish you a fun, relaxing, and safe summer, please read through the list of supplies (below) that you will need when you return to school at the end of August.

writing / reading

2 two-pocket folders
1 durable binder (1" - 2")
1 package of loose-leaf paper (for binder)
1 package of 5-divider tabs (recommended)
1 one-subject notebook

math / science

2 folders: one for math, one for science
1 pack of red ink pens (8 or 10 count)

(8th grade only): 2 composition notebooks
(lined pages, NO grid pages)

(7th grade only): 2 one-subject notebooks
(to start the year, but about 4 more
throughout the year)

*These can be composition OR spiral notebooks
with lined pages, but NO grid pages)

Remember to:

- ***read your summer reading book;***
- ***complete your reading project; and***
- ***complete your math packet!***

******You are encouraged to complete the district's math calendar for extra credit.***

Thank you! We look forward to seeing you for the 2017-2018 school year!

Mr. Neagle	(7 th and 8 th grade social studies, 8 th reading)
Mrs. Vogel	(7 th and 8 th writing, 7 th reading)
Mrs. Alves	(7 th grade math and science)
Mr. Perkins	(8 th grade math and science)
Ms. Blanchard	(special education)

social studies

1" binder
1 package of 6-divider tabs
1 box of pens (black or blue)
1 package of loose-leaf paper

(8th grade only): 1 one-subject
notebook

for all subjects

pencils
colored pencils
highlighters
glue sticks
individual pencil sharpener

June 1, 2019

Dear Parents / Guardians,

My name is Mrs. Heidi Alves, and I will be your child's seventh grade math and science teacher for the 2019 - 2020 academic school year! ☺

LPSD Summer Math Policy...

You may be familiar with the math calendar that the Lowell Public School District suggests and encourages students to complete over the summer (to strengthen and reinforce skills). At the end of each school year, students are given a calendar with a math problem they need to solve each day over the summer. It is turned in to their math teacher in the fall when school starts.

I am encouraging students to complete the district's math calendar, but students' scores will not be recorded or factored into their first quarter math grades (so they will not negatively affect students' report card averages). Your student's summer math calendar can and should be turned in to me at the beginning of the 2019-2020 school year. It is important that your student turns in all of his or her math computational work for EACH question, as well.

Mrs. Alves's Summer Math Packet...

In addition to the district's policy, incoming 7th graders are required to complete a math packet over the summer. This assignment will be scored and recorded when students return to the Pyne in the fall; it will be factored into students' first quarter report card grades. The completed packet is due the first week of school (last week in August/first week in September).

It is very important that students:

1. SHOW ALL their WORK / THINKING for their problem solving;
2. ORGANIZE their WORK; and
3. COMPLETELY ANSWER the questions.

By simply completing the work and turning it in on time, your child will start his or her 7th grade year on a positive note. Please encourage your child to work on his or her math packet throughout the summer instead of waiting until the last week before school starts. The packet is lengthy, and it may be difficult to complete if students do not pace themselves.

Why Reinforce Math Skills Throughout the Summer...

It is so important that students continue to use the skills they learned during their 6th grade year; the skills students learn in 7th grade are closely related and cover the same concepts more in-depth. Unfortunately, in mathematics, "if you don't use it, you lose it." Together, let's encourage your child to apply his or her skills and prepare for 7th grade content!



Thank you,

Heidi Alves

7th grade math/science
Pyne Arts Magnet School

Name: _____

Date: _____

6th Grade Homeroom: _____

Summer Math Packet: for incoming 7th graders

***Questions from this packet are adapted from Common Core Georgia Performance Standards Frameworks.*

Ratio and Proportion Questions:

Understand ratio concepts and use ratio reasoning to solve problems.

A ratio can be written three different ways:

- using a colon symbol as in 2:3
- using the word “to” as in 2 to 3
- using the fraction bar as in $\frac{2}{3}$

Write each ratio below using the other two ways:

1. the ratio of 3 inches to 20 feet

2. the ratio of 26 students: 1 class

3. the ratio of $\frac{2 \text{ boys}}{3 \text{ girls}}$

When the denominator of a rate is 1, we call the rate a **unit rate**. We usually use the key word **per** or the division symbol (/) to indicate a unit rate. For example: If a student earns \$7.65 per hour, it is the same as \$7.65/hour, and means \$7.65 for every hour of work.

Find the unit rate for the following:

4. 120 eggs from 20 chickens

5. \$55 for 20 people

6. 250 miles in 4 hours

Unit rates can also be used to solve problems.

7. Which is the better deal: 8 ounces of shampoo for \$0.89 or 12 ounces for \$1.47 ?

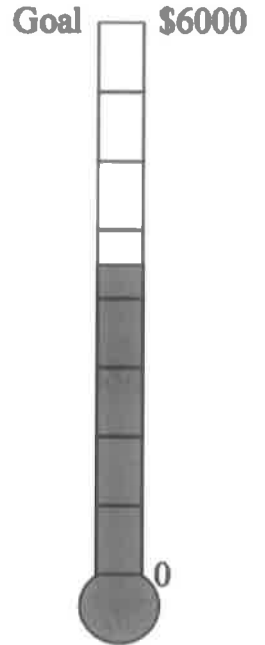
8. Which is the better deal: 3 cans of soda for \$1.27 or 5 cans of soda for \$1.79 ?

9. Which is the better deal: 10 pounds of hamburger for \$4.99 or 5 pounds of hamburger for \$2.69 ?

After looking at the scale to the right...

- Michael said, "We have reached $\frac{5}{8}$ of our goal."
- Juan said, "I think we have earned about 60% of the \$6,000 we need."
- Fiona said, "We have earned about \$3,500."
- Nathan said, "You are all close, but none of you are correct."

Nathan is correct.



a) Represent the amount earned as a fraction, as a decimal, as a percent, and as a dollar amount.

b) Show how you know that the *fraction*, the *percent*, the *decimal*, and the *dollar amount* answers are all equivalent in this situation.

c) Which 3 of the amounts are *always* equivalent to each other? Why?

d) Which amount is *not always* equivalent to the others? Why not?

TASK: ICE CREAM OR CAKE?

Suppose you survey all the students at your school to find out whether they like ice cream or cake better as a dessert, and you record your results in the contingency table below.

	ice cream	cake	totals
boys	82	63	145
girls	85	70	155
totals	167	133	300

- a) What percentage of students at your school prefers ice cream over cake?

- b) At your school, are those preferring ice cream more likely to be boys or girls?

- c) At your school, are girls more likely to choose ice cream over cake than boys are?

Number System Questions:

Apply and extend previous understandings of multiplication and division to divide fractions by fractions.

Solve the following division problems. Show all work.

a. $1\frac{3}{4} \div \frac{1}{2}$

b. $\frac{11}{12} \div \frac{1}{4}$

c. $\frac{2}{3} \div \frac{3}{4}$

d. Michael's mom paid \$2.40 for a $\frac{3}{4}$ -pound of cereal. How much is that per pound?

e. Melitta found out that if she walks really fast during her morning exercise, she can cover $2\frac{1}{2}$ miles in $\frac{3}{4}$ of an hour. How fast is she walking in miles per hour?

f. It's your birthday, and you are going to have a party. From the grocery store, you get 6 pints of ice cream. If you serve $\frac{3}{4}$ of a pint of ice cream to each of your guests, how many guests can be served?

Compute the following product: 35×37 .

Using only the result of this computation and estimation, give the exact answer to each of the following: For each computation write a rationale for how you made the placement of the decimal point in each answer. When you have finished, you make check your results with a calculator. Acknowledge any errors you may have made and adjust your rationale to correct the error.

0.35×3.7

35×0.37

3.5×37

0.35×0.37

Consider the number sentence $146 \div 7 = 20857$, is it true? If not, use what you know about estimation to determine the correct placement of the decimal point. Justify your solution.

The task is to use only this information and estimation to give a fairly precise answer to each of the following: Be sure to justify each of your solutions

$146 \div 0.7$

$1.46 \div 7$

$14.6 \div 0.7$

$1460 \div 70$

Answer the following word problems. Show all work.

a. Two students are having a party. They want to make treat bags for their guests. They want each bag to be identical with nothing leftover. They have 36 Silly Bandz and 72 pieces of bubble gum to put in the bags. What is the greatest number of treat bags they can make and how many of each item will be in each treat bag?

b. Mitzi is making trail mix out of 48 bags of nuts and 32 bags of dried cranberries. She wants each new portion of trail mix to be identical containing the same combination of nuts and cranberries with nothing left over. What is the greatest number of portions of trail mix Mitzi can make and how much of each ingredient will be in each portion?

c. You and your friends have tickets to attend a music concert. While standing in line, the promoter states he will give a gift card for a free album download to each person that is a multiple of 2. He will also give a backstage pass to each fourth person and floor seats to each fifth person.

Which person will receive the free album download, backstage pass, and floor seats? Explain the process you used to determine your answer.

Are the following equations true or false?

$$42 + 12 = 6(7+2)$$

Is it true or false? Explain your thinking.

$$6(7+2) = (6 \times 7) + (6 \times 2)$$

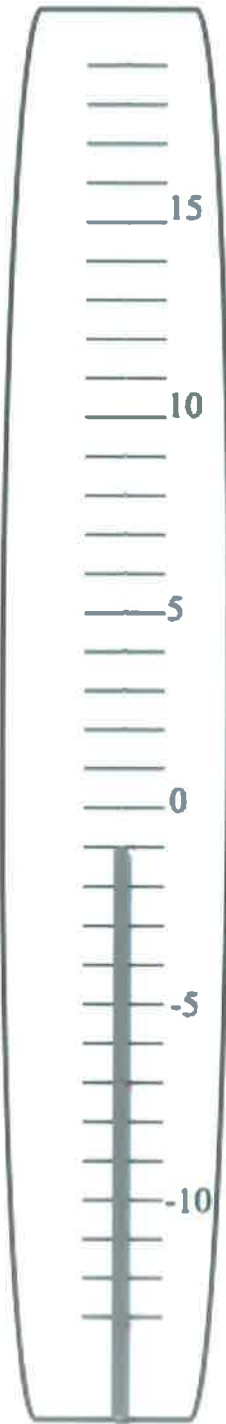
Is it true or false? Explain your thinking.

$$6(7 + 2) = (6 \times 7) + (6 \times 2) = 42 + 12$$

Is it true or false? Explain your thinking.

Looking at the expression on the left side of the equation can you explain the use of the number 6?

Directions: Use the thermometer to answer the questions. Use a blue colored pencil to represent colder temperatures, and use a red colored pencil to represent warmer temperatures.



1A. Which temperature is colder, -10° or 0° ?

1B. Plot both numbers on the number line below.



2A. Which temperature is colder, -5° or 0° ?

2B. Plot both numbers on the number line.



3A. Which temperature is warmer, -6° or -9° ?

3B. Plot both numbers on the number line.



4A. Which temperature is warmer, -2° or -5° ?

4B. Plot both numbers on the number line.



5. What do you notice about negative numbers?

Vocabulary Alert:

The distance between a number and zero on the number line is called **absolute value**. The symbol for absolute value is shown in this equation $|8| = 8$ and $|-8| = 8$. These are read as, "The absolute value of 8 equals 8" and "the absolute value of negative 8 equals 8." This is true because the distance between 0 and 8 on the number line is 8 spaces and the distance between 0 and negative 8 on the number line is 8 spaces. Distance is always positive. One can never travel a negative distance.

5. Explain $|4|$.

6. Explain $|-7|$.

7. Explain $|8|$.

Now, some hard ones...

Explain $-|12|$.

Explain $-|19|$.

Explain $-|p|$.

Explain $-|-7|$.

Expressions and Equations Questions:

Apply and extend previous understandings of arithmetic to algebraic expressions.

1. Are the following expressions equivalent? How do you know?

a. $2^2 \cdot 3^2 - 2^3 - 1$

b. $2^2 \cdot (3^2 - 2^3) - 1$

c. $(2 \cdot 3)^2 - 2^3 - 1$

2. Explain the order of operations and how the procedure itself is useful in solving mathematical and real world problems.

Write each word phrase as an algebraic expression.

6 less than $3t$

the product of w and 8

r divided by 15

9 more than twice x

the quotient of 12 and x

the product of x and 6

the sum of three times a and 35

six times the sum of x and 8

a number, x , decreased by 9

a number increased by the quotient of x and 7

15 less than 4 times l

a number, n , decreased by the difference of x and 7

Mr. Green's Math class is planning a trip to the IMAX Theater. It will cost \$10 for the school bus and the price of a ticket is \$13 dollars per student. What will determine the amount of money the class will have to make?

How will the number of students affect the price?

How will they know how much money they need to make?

What value varies in this example?

Write an expression to show the amount of money the class needs to make.

How much will it cost if 10 students attend?

How much will it cost if 17 students attend? Draw a model to represent this situation

The formula for finding the Volume of a rectangular prism can be stated as $V = l \times w \times h$, where l = length of the prism, w = width of the prism and h = height of the prism. What is the Volume of a prism with:

- a. $l = 33$, $w = 47$, and $h = 15$?
- b. $l = 22.5$, $w = 33.7$, and $h = 12.5$?
- c. $l = 122.25$, $w = 50.75$, and $h = 16.5$?

Determine whether or not the following pairs of expressions are equivalent. Be sure to justify your conclusions.

$6y + 12$ and $6(y + 2)$

$3x + y$ and $y + 3x$

$3x + 2$ and $3(x + 2)$

$5x^2 + 15$ and $5(x^2 + 3)$

$3y^2 + 6x^2$ and $3(y^2 + 2x^2)$

Find the weight of the pair of shoes and pair of socks.



1. Write an equation that represents the above balance scale.
2. What does 13.9 represent in the equation?
3. What do you notice about the shoes if the pair of socks weighs 0.8 ounces? How can you find the weight of the pair of shoes if the pair of socks weighs 0.8 ounces?
4. How can you find the weight of the pair of socks if the pair of shoes weighs 13.1 ounces?

5.  +  = 13.9 ounces

- a. Select a variable to represent the athletic shoes (tennis shoes).
- b. Select a variable to represent the socks.
- c. Write an equation that represents the above equations using variables instead of pictures.
- d. Write an equation in terms of athletic shoes.
- e. Write an equation in terms of socks.

Answer the following word problems to the best of your ability. Show all work.

In the annual car show, 40% of the cars in the main display area are used cars. Given that 294 cars are used cars, what is the total number of cars in the show?

Rachel is 40 cm taller than Lucy. Rachel is 25% taller than Lucy. How tall is Lucy?

Mike and Chris went to dinner. Chris insisted that they leave a 20% tip for the waitress. Mike left a \$17.20 tip. How much was their bill before the tip?

TASK: WHEN IS IT NOT EQUAL

Write an inequality for the following statements.

1. You need to earn at least \$50.
2. You can spend no more than \$5.60
3. The trip will take at least 4 hours.
4. The car ride will be no more than 8 hours.
5. Four boxes of candy contained at least 48 pieces total.
6. With John's 7 marbles and mine, we had less than 20 marbles together.
7. Seven buses can hold no more than 560 students.

Graph the following inequalities:

8. $p \geq 17$

9. $b \leq 7$

10. $t < 4$

11. $r > 10$

TASK: ANALYZING TABLES

Consider the tables below where the x - and y -values represent two quantities. For each table, do the following:

- Do the quantities vary proportionally? Explain how you know.
- Write a rule for each table in words.
- Write the rule as an equation.

Table 1

x	5	4	3	2	1
y	10	8	6	4	2

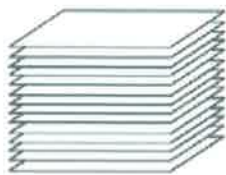
Table 2

x	50	40	30	20	10
y	5	4	3	2	1

Table 3

x	1	2	3	4	5
y	1	$\frac{1}{2}$	$\frac{1}{3}$	$\frac{1}{4}$	$\frac{1}{5}$

Quality Track printing company is filling an order of graduation programs for all high schools in the district. On average, there are 200 programs printed packaged in stacks that are 50 cm high. The programs measure 10 cm by 17 cm by 2 cm.



The company has decided to place a decorative label on the lateral faces of the box.

1. What is the minimum number of square centimeters needed to cover the faces of the box with this decorative paper?
2. What steps did you take to find the surface area to cover the faces of the box with decorative paper?
3. If the programs and box were triangular shaped, what steps would you take to find the surface area of the prism?

Domino produces boxes that are 2 in. by $1\frac{1}{2}$ in. by 4 in. The sugar cubes used to fill the box are 1 inch on each side.

- 1. How many sugar cubes would it take to fill the Domino box?**
- 2. If Domino decided to decrease the size of the sugar cubes and make them $\frac{1}{2}$ in. on all sides, how many $\frac{1}{2}$ in. sugar cubes would it take to fill the Domino box?**
- 3. The Domino Company packs 36 boxes in cases to ship to stores. You have been assigned the task of determining the dimensions of a case that will hold 36 boxes. Give the dimensions and explain how you arrived at your answer.**