

Cranford Public Schools



“Soaring into Summer with Math”

This Summer Math Packet was developed to provide students entering grade six an opportunity to review appropriate grade level concepts and to improve math performance.

Summer 2009

Spending the Summer of 2009 with Math!

One goal of Cranford Public Schools is to promote increased math performance in our middle school grade levels. Completing the summer math booklet allows each student, and parent to work together to achieve this goal. Students who complete the summer math booklet will be able to:

- Increase retention of math concepts,
- Improve and raise the level of math performance,
- Work toward closing the gap in student performance, and
- Apply math concepts to performance tasks.

Student Responsibilities



Students will be able to improve their own math performance by:

- Completing the summer math booklet
- Reviewing math skills throughout the summer, and
- **Returning the math booklet to next year's math teacher.**

Student Signature

Grade

Date

Parent Responsibilities

It is our hopes that our students' parents will assist us in this endeavor and help promote their child's success in math by:



- Supporting the math goal of the cluster of schools,
- Monitoring student completion of the summer math booklet, and
- Encouraging student use of math concepts in summer activities.

Parent Signature

Date

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Dear Parents and Students,

In this booklet you will find math activities that will help to review and maintain math skills learned in fifth grade and prepare your child for sixth grade. These activities are varied and meant to show how much fun and relevant math can be in everyday life. There are activities that can be done throughout vacation, at the pool, at a restaurant, on the beach, etc.

The number of activities to be completed is listed for each week. The activities should be done in a small notebook or on separate sheets of paper organized in a folder. One problem solving activity from the problem solving section should also be completed each week. Parents and students should discuss the activities, and parents should check to see if the activities have been completed correctly.

All work should be returned to your child's sixth grade teacher. Have a great time "spending the summer with math!"

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Week 1

During the first week of summer vacation, we will focus on a Cranford Summer Club's trip to Jenkinson's Pier. A successful trip has you completing four of the following activities.



1. The fifty-six members of the Cranford Summer Club went to Jenkinson's Pier for a club activity. Each member had fun riding 39 rides during the day. What was the total number of rides club members enjoyed?

2. Write your own Jenkinson's Pier work problem for the following problem:
 47×78 .

3. Solve 5 of the following:

$$\begin{array}{r} 56 \\ \times 9 \\ \hline \end{array}$$

$$\begin{array}{r} 63 \\ \times 45 \\ \hline \end{array}$$

$$\begin{array}{r} 75 \\ \times 27 \\ \hline \end{array}$$

$$\begin{array}{r} 243 \\ \times 40 \\ \hline \end{array}$$

$$\begin{array}{r} 161 \\ \times 60 \\ \hline \end{array}$$

$$\begin{array}{r} 337 \\ \times 39 \\ \hline \end{array}$$

4. Have a friend quiz you on your multiplication basic facts for 15 minutes.

5. During the Summer Club's candy bar sale, each participating member sold 87 candy bars. There were 34 members participating in the fund raising sale. How many bars were sold?

6. Jennifer wishes she could spend the entire summer at Jenkinson's Pier. She figures out that she could ride 46 rides per day. She knows the park is open 7 days a week and that her summer vacation is 8 weeks long. If she could stay there all summer, how many rides would Jennifer be able to go on during the summer?

7. Write down 5 multiplication and division fact families. For example:

$$2 \times 3 = 6$$

$$3 \times 2 = 6$$

$$6 \div 3 = 2$$

$$6 \div 2 = 3$$

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8. How many numbers between 20 and 50 have no remainder when divided by
- 6?
 - 7?
 - 8?
9. State a number that is between $\frac{1}{4}$ and 0.30.

Week 2

This week we will focus on a trip to the pool. Josh and Sam are helping to organize the Cranford Pool Club's swim meet. Complete four of the following activities to make it a success.

1. Josh and Sam were told to make sure the club's swimming pool was large enough for the swim team's upcoming meet. The pool needed an area of at least 2400 square feet. If the pool was 80 feet long and 40 feet wide, can they host the meet? Explain your answer.

2. The swim club's championship meet will be held at the club with the pool that is largest in area. Use the following chart to determine which club holds the championship meet:

Pool Name	Length	Width
Diving Pool	70	70
Sun Pool	80	60
Summer Pool	90	50

3. The members of the Diving Pool Club want to build a fence around their pool. The fence will make a rectangle 110 feet long and 90 feet wide. How many feet of fencing will the club need to purchase all together?

4. If the Summer Pool is 4 feet deep throughout the entire pool, how many cubic feet of water does it hold? Explain your answer.

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5. The Summer Pool Club has a kiddie pool that is 6 feet by 12 feet. The Diving Pool Club's kiddie pool is 11 feet by 7 feet. Who has the larger kiddie pool? By how many square feet?



6. Give an example of something that you would measure in each of the following units:

km	cm
m	mm
mile	L
pint	quart
cup	gallon

7. A gallon contains 128 ounces. Paul wants to divide three gallons of apple cider equally among the two dozen friends at his pool party. How much apple cider will each friend receive?
8. What unit of measure would you use to measure the length of a river? What about the volume of water in the river?
9. Joe had a pizza party at the pool. He ordered 8 pizzas, each cut into 8 slices. When his friends went home, he had $\frac{1}{4}$ of a pepperoni pizza, $\frac{5}{8}$ of a mushroom pizza, $\frac{1}{2}$ of a cheese pizza, and $\frac{1}{8}$ of a veggie pizza left over. How much pizza was left over in all?
- Show one way to get the answer to this problem. Explain your method.
 - Show another way to get the answer to this problem. Explain your method.

Week 3

This week we will take a break between trips to raise some money and play some sports. Choose 5 of the following activities to complete.

1. Steve is mowing lawns this summer to earn money for a Playstation. He makes \$28 Monday, \$31 Tuesday, \$37 Wednesday, and \$32 on both Thursday and

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Friday. What was his average income for those 5 days? If the Playstation and 4 games costs \$250, about how many weeks until Steve can buy them?

2. Jenny's volleyball team played 4 games. In them, the team scored 14, 12, 9, and 5 points. Joey's team scored 11, 8, 20, and 3 points. Which team has the better points per game average? How do you know?
3. The temperature for one week in July was 98°, 95°, 89°, 98°, 93°, 99°, and 100° Fahrenheit. What was the week's average temperature?



4. Keep track of the high and low temperatures each day this week. Find the average high and low temperatures for the week.
5. I Scream for Ice Cream is having a sale on cones. You must pick one cone type, one flavor, and one topping from the following options.

Cone Types	Flavor	Toppings
Sugar	Chocolate	Nuts
Waffle	Vanilla	Sprinkles
	Strawberry	Fudge

Make a tree diagram showing all of the different combinations of ice cream cone you can have.

6. Make an organized list of all of the different pizzas you can make by selecting one crust type, one vegetable topping, and one meat topping from the following chart.

Crust	Vegetable	Meat
Thick	Mushroom	Pepperoni
Thin	Onion	Sausage
Deep Dish	Green Pepper	Ham

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How many combinations were you able to make?

7. Make a tree diagram for the pizza combinations above. Which strategy for figuring out all of the possible combinations do you prefer? Why?



8. Write a paragraph explaining how to make a tree diagram. You should also include how a tree diagram is used. You may give examples.

Week 4

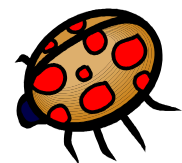
This week let's spend some time sight-seeing in Washington, D.C. We will use the Metro to get from place to place. Complete 5 of the following activities related to your sight-seeing adventures.

1. It takes 34 minutes to travel from Shady Grove to Woodley Park/National Zoo. At what time do you need to leave the Shady Grove stop to get to the Woodley Park/National Zoo stop by 11:00 a.m.?



2. You get to the zoo at 11:15 a.m. If you spend an hour eating lunch and 3 hours touring the zoo, what time will it be when you start back home?
3. You and your friends decide to take a tour bus to Arlington National Cemetery. The tour leaves the Mall at 1:00 p.m. and returns at 4:30 p.m. how long is your tour? If you paid \$28.00, how much did the tour bus company charge per hour?

4. While visiting the Museum of Natural History, you and your friends decide to schedule your time in each exhibit. You plan to spend 25 minutes looking at the Hope Diamond, 45 minutes with the Dinosaurs, 35 minutes studying the birds, 20 minutes in the gift shop, and the rest of your time looking at insects. If you have three-and-a-half hours to spend at the



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museum, how much time will you get to spend looking at insects?

5. At the National Air and Space Museum you want to watch one of the IMAX movies. It will start at 11:30 a.m. and run for 1 hour and 25 minutes. What time will the movie be finished?

6. Calculate the following. Simplify your answers.

$$\begin{array}{r} 2 \text{ weeks } 3 \text{ days} \\ \times 5 \\ \hline \end{array}$$

$$\begin{array}{r} 7 \text{ weeks } 6 \text{ days} \\ \times 4 \\ \hline \end{array}$$

7. How many hours are there in 3 days?
How many days are there in two weeks?

8. The fifth grade at Park Middle School is taking a field trip to Washington, D.C. using buses that hold 36 passengers each.. There are four classes of 24 students each, and 5 adults (teachers or parents) will accompany each of the three classes. How many buses should be ordered? Explain your reasoning

Week 5

The time has finally come for a fun-filled trip to Wildwood. You are getting ready for a week of eating crabs, playing games, and swimming in the ocean. Complete 5 of the following activities.

1. The drive from Cranford to Wildwood will take 2 hours and 50 minutes. If you and your family leave at 11:45 a.m., what time will you arrive in Wildwood? How long is it round trip?

2. On the boardwalk, you arrive at your favorite arcade. While there, you survey the other people present about their favorite arcade games. Eighteen say they like driving games best, 25 prefer adventure games, 18 enjoy sports games, and 14 favor battle games. Create a pictograph representing the data from your survey. Use a scale of 2 to 1.



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3. At the arcade you notice something interesting. The ratio of boys to girls is 2 to 3. If there are 75 people in the arcade all together, how many are girls?

4. Your family stops for a delicious pizza lunch. You order an extra large pizza with 18 slices. You father eats $\frac{1}{3}$ of the pizza, your mother eats $\frac{1}{6}$, and your two little sisters each eat $\frac{1}{9}$. How many slices are left for you? You would prefer to eat $\frac{2}{9}$ of the pizza. Is there enough for you to do that?

5. At the beach, you notice many people are flying kites. Draw a picture of kite flyers at the beach of kites that contains 5 right angles, 5 obtuse angles, and 5 acute angles. Label the angles.

6. At the beach, you compared the number of people swimming to the number of people lounging on the beach. The ratio was 4:5. If there were 36 people swimming, how many were lounging on the beach? How many were there in all?

7. Finally, your family decides to conclude its wonderful beach trip with a crab feast. Your father orders 2 dozen crabs. Dad eats 8 of the crabs, mom eats 6. You eat 4 and your two little sisters each eat 3 crabs. What fraction of the crabs does each person get? Write your answers in simplest form.
8. Jim drew three vertices of a parallelogram on the sand with points (0, 0), (2, 4), and (6, 0). What are the coordinates of the fourth vertex?

Week 6

This Saturday your family has an exciting trip to Baltimore and the Inner Harbor planned. You will stop at the Baltimore Aquarium, the Maryland Science Center, and maybe even do a little shopping. Have fun as you choose 3 of the following activities to complete.

1. At the aquarium, you learn about fish that can live in water with temperatures down to -15° F. Make a list of as



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many other things that you can think of that use negative numbers.



2. The science center is featuring an exhibit on Fibonacci and the Fibonacci sequence. Find out what you can about this famous number sequence by looking in the library or on the internet.

3. Exponents are shortcuts for repeated multiplication problems. If $3 \times 3 \times 3 \times 3 = 3^4$, write the exponent for each of the following problems

$$2 \times 2 \times 2 \times 2 \times 2 \times 2 \times 2$$

$$5 \times 5 \times 5 \times 5 \times 5$$

$$8 \times 8 \times 8 \times 8 \times 8 \times 8 \times 8 \times 8 \times 8 \times 8$$

Why do you think the mathematics decided to create a shortened form of these types of problems? Give your answer in complete sentences.

4. Shopping in the Inner Harbor, you find a bookstore that features dictionaries for all different subjects. What mathematical vocabulary have you used this summer? Create a mini-dictionary containing some of those mathematical words. Use them in complete sentences.

5. Spend a day recording all of the math-related words you hear. How many are there? Where did you hear each?

6. Write a letter to a future fifth grader (real or make-believe) explaining one mathematical concept you learned in the fifth grade. Be sure to give an example of when he or she might use it and why it is important to you. You may use pictures or diagrams to help in your explanation.



Week 7



This week, all of your activities are linked together. As summer begins to draw to a close, you plan one last trip to New York and Shea Stadium. It should be a relaxing day filled with baseball and junk food. You parents have given you \$45.00 to spend at the game. You decide to budget \$20.00 for food and the remainder for souvenirs. Complete all four tasks.

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1. Before you can spend any of it, you must get to the stadium. The game starts at 2:00 p.m. Your dad says it will take an hour and fifteen minutes to drive to New York. Once there, you should allow 30 minutes to find a parking space and another 25 minutes to get into the stadium and get seated. What time should you leave for the game?
2. After you arrive at the stadium and find your seats you decide to start eating. Use the menu on the next page to select four items to eat (you may use 2 or more of a single food item). Remember to stay within your budget for food.

Shea Stadium Menu
Hot Dog - \$2.50
Hamburger - \$3.20
Chicken Sandwich - \$4.55
Large Soda - \$2.25
Medium Soda - \$1.75
Pretzel - \$2.88
Peanuts - \$3.30
Popcorn - \$2.75
Candy - \$2.45

3. For your baseball souvenirs, you decide on a t-shirt and baseball cap. The shirt costs \$13.95 and the cap costs another \$7.85. Can you afford them both? If so, how much change will you get back? If not, how much more money will you need?
4. The game ends at 5:30 p.m. Traffic is much worse than it was on the way to the game. The trip home takes 1 hour and 55 minutes. What time did you arrive at home?

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Week 8

It is time to get ready to attend Cranford Public Schools! We have mailed you a sample schedule to practice reading. It looks like this:

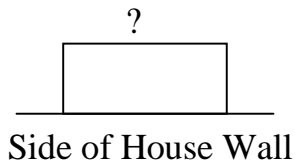
Period	Class	Room Number	Start time	End time
1	Math	27	8:15	9:00
2	Language Arts		9:03	9:46
3	Language Arts		9:49	10:32
4	Spanish	39	10:35	11:18
	Lunch	Cafe	11:21	11:46
5	Physical Education	Gym	11:49	12:32
6	Cycles		12:35	1:18
7	Science	29	1:21	2:04
8	Social Studies	30	2:07	2:50

Use the schedule to answer five of the following questions.

1. What time does spanish begin? What time does science end?
2. One of your classes is longer than the others. Which one and how long is it?
How long are your other classes?
3. Which period begins in the morning and ends in the afternoon?
4. How much time are you given between classes?
5. How much time do you spend in school each day? Each week?
6. If it takes you 2 hours to get ready for school in the morning, what time will you need to get up?

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7. Linda wants to fence in a rectangular yard for her dogs to run around and get exercise before school starts. She only has 72 feet of fencing, so she decides to use the side of the house as one side of the fenced-in yard.



- Sketch a graph showing the relationship between the width of the yard and the area. Remember that the lengths of the three sides of the yard have to add up to 72 feet. The fourth side of the yard is formed by the side of the house.
- Use the graph to determine which width would result in the greatest area for the dogs to run in. Explain your reasoning.

7. Are you excited about starting middle school?

