## Summer Enrichment

for Students Entering Seventh Grade


## Math 7

Dear Crusader Families and Friends,
We are providing these summer enrichment activities for children entering grades kindergarten through eighth grade. Working with your child throughout the summer will lessen the likelihood of the "summer slide," which is a phrase used to describe the slide backwards that many children experience in reading and math skills over the summer. You can combat the "summer slide" by encouraging your child to devote a small bit of time each day to keeping up skills.

Countless studies show that reading is one of the single most important things a child of any age can do. Reading strengthens vocabulary, exercises the brain, improves concentration, improves language skills, develops imagination, and helps children to develop empathy.

We hope you find these activities helpful! Take time to preview the activities together. We encourage you to have your child create a summer journal.

Thank you for partnering with us in your child's education!

Sincerely Yours in Christ,

Betsy Davenport
Principal
Holy Cross Catholic School

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Playing board and card games are a good way to reinforce basic computation skills and mathematical reasoning. Try to play board and card games at least once a week. Some suggested games to play are: Monopoly, Chess, War, Battleship, Mancala, Dominoes, Phase 10, Yahtzee, 24 Challenge, Sudoku, KenKen, Connect Four, and Risk.

## Where to Go to Get Help ... or Practice!

During the course of your math work this summer, you may need some assistance with deepening your understanding the skills and concepts. You also might want to get some more practice. Here are some sites you can visit online:

LearnZillion has video lessons on every Math standard. Go to www.LearnZillion.com and search for any math topic or standard.

## LearnZillion

Khan Academy has helpful videos and self-guided practice problems for every grade level. Go to www.khanacademy.org to get started.

## Math 7

Ratios \& Proportional Relationships: Understand ratio concepts and use ratio reasoning to solve problems.

## Directions:

1. Find five examples of ratios in the real world. Write them down and describe the situation in which they are found. *Remember, ratios are comparisons of two quantities which can be written in the following ways:
1) $a$ to $b$
2) $\frac{a}{b}$
3) $a: b$


Example: At the grocery store, Brandi noticed that there were three times as many carts as there were baskets for shoppers to use to carry their food.

The ratio of carts to baskets (c:b) is 3 to 1 .
2. Create a problem using ratios for your parents/guardians or friends to solve. Write both your problem and solution in your journal.

## Math 7

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

Directions: Complete the problems below.

1. Chef Emerald had a recipe that called for $\frac{3}{4} \mathrm{lb}$ onions and $1 \frac{1}{3} \mathrm{lbs}$ of pork. He was preparing the recipe for a special event and needed to quadruple it to make enough for all of his guests. How many pounds of onions and pounds of pork would he need for the recipe? Show all work.

2. Create a problem about the estimated cost of ingredients for the recipe if onions cost $\$ 2.99 / \mathrm{lb}$. and pork costs $\$ 5.49 / \mathrm{lb}$. Include both an estimated solution and an exact solution to see that your estimation is reasonable.

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Expressions \& Equations: Use variables to represent numbers and write expressions when solving a real-world or mathematical problem.

Directions: Complete the problems below.

1. A town's total allocation for police officer's wages and benefits in a new budget is $\$ 800,000$. If wages are calculated at $\$ 55,000$ per officer and benefits at $\$ 25,000$ per officer, write an equation where the solution is the number of officers the town can employ, if they spend their whole budget. Solve the equation.

2. Deon was offered a job at the nearby recreation center. The owner offered him $\$ 600$ per week or $\$ 50$ the first day and agreed to double it for each following day.

- How could Deon make the most money?
- Which deal should he accept and why?

3. Create three real-world mathematical problems involving variables to represent unknown numbers. *Be sure to create an answer key with explanations of how to solve each of your problems.

## Math 7

Geometry: Draw polygons in the coordinate plane given coordinates for the vertices.

Directions: Complete Parts 1 and 2.

## Part 1

1. Use the following coordinates to draw polygons on the coordinate plane below.
A. $(6,1)$
B. $(2,4)$
C. $(-5,4)$
D. $(-1,1)$

Name the figure: $\qquad$

A. $(3,3)$
B. $(-1,3)$
C. $(-4,0)$
D. $(-1,-3)$
E. $(3,-3)$

Name the figure: $\qquad$

## Part 2



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2. On graph paper (on the next page), draw your own coordinate plane. Label the $X$ and $Y$ axes.
3. Choose a room in your house and study the arrangement of the furniture.
4. Measure the dimensions of at least four pieces of furniture in the room you chose.
5. Create a scale, and then graph the pieces of furniture on your coordinate plane.
6. Write directions using your coordinate plane and furniture model. Give them to a parent to see if they can complete a transformation of the furniture according to the directions and scale model you created.

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Number System: Find the greatest common factor of two whole numbers less than or equal to 100 , and the least common multiple of two whole numbers less than or equal to 12. Use the distributive property to express a sum of two whole numbers, 1-100, with a common factor as a multiple of a sum of two whole numbers with no common factor.

Directions: Solve the following problems.


1. The florist can order roses in bunches of one dozen and lilies in bunches of 8 . Last month she ordered the same number of roses as lilies. If she ordered no more than 100 roses, how many bunches of each could she have ordered?
2. What is the smallest number of bunches of each could she have ordered? Explain your answer.
3. In your journal, create a table or draw a diagram to solve the problem. Explain your reasoning.

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Statistics \& Probability: Understand that a set of data collected to answer a statistical question has a distribution that can be described by its center, spread, and overall shape.

Directions: Solve the problems below.

1. The bar chart represents the scores from a quiz. Children were asked to name six boy bands in 30 seconds. Each score represents the number of correctly named bands.


a. How many children were involved in the quiz? Show your work.

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b. Complete the table with values for the Mean, Median, Mode, and Range of scores. Explain how you calculate each answer.

2. The results of another quiz question are shown in the table below. Draw a possible bar chart of the scores.

| Mean score | 3.5 |
| :---: | :---: |
| Median score | 3 |
| Mode score | 6 |
| Range of scores | 5 |



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Expressions \& Equations: Apply and extend previous understandings of arithmetic to algebraic expressions. Reason about and solve one-variable equations and inequalities.

There are nine small boxes in a room. They all look exactly the same, but one is a bit heavier than the others.

William says:


First, William arranges the boxes like this:


1. Explain what William now knows about the heavy box.

Then William separates the boxes like this.


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2. Which is the heavy box? Explain how you know.
3. Suppose the scales showed this the first time instead.


What should William do now to find the heavy box?

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MATH 7 UNIT 1 PREVIEW - Ratios \& Proportional Reasoning:
Understand ratio concepts and use ratio reasoning to solve problems.
Number System: Solve real world problems involving the four operations with rational numbers.

Directions: Complete each task below.

## Task 1:

Here is a recipe for making 8 doughnuts:

| 4 cups of flour |
| :--- |
| $1 / 2$ cup of milk |
| $3 / 4$ cup of sugar |
| 2 eggs |
| 2 sticks of butter |
| One tablespoon of yeast |

You want to make 28 doughnuts.
a. How much flour do you need? Show your work.
b. How much milk do you need? Show your work.

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## Task 2:

Calculate the prices of the paint cans.
The prices are proportional to the amount of paint in the can.


## Task 3:



72 cm
a. The poster is 72 cm wide. How high is the poster?

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b. The building on the poster is 36 cm tall. Is it possible to figure out how tall the building is on the photograph? If you think it is possible, show how. If you think it is not, explain why.

## Task 4:

A local food company produces yogurt in $3 / 4$ cup tubs.

| 2 cups $=1$ pint | 2 pints $=1$ quart |
| :--- | :--- |
| 4 quarts $=1$ gallon | 16 fl. oz. $=1$ pint |



Show all your work as you answer the questions below:

1. The tubs of yogurt are sold for $\$ 0.75$ each. Twenty percent of this is profit for the food company. How much profit does the company make on each tub?
2. The machine that fills the $3 / 4$ cup tubs with yogurt runs 10 hours a day for 5 days a week. It fills 1,600 tubs an hour. How many gallons of yogurt are needed to fill 1,600 tubs?

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3. How many gallons of yogurt are produced each week?
4. Each tub of yogurt contains 1.85 g of fat. The company would like to reduce this amount by $15 \%$, but instead of changing the yogurt composition, the company would like to alter the serving size. How many fluid ounces will the new container be?
