Summer Math

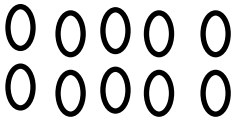
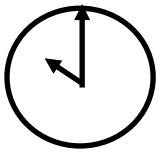
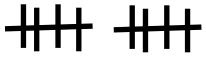
Educator Packet

Unit 5

Warm up: Target Number

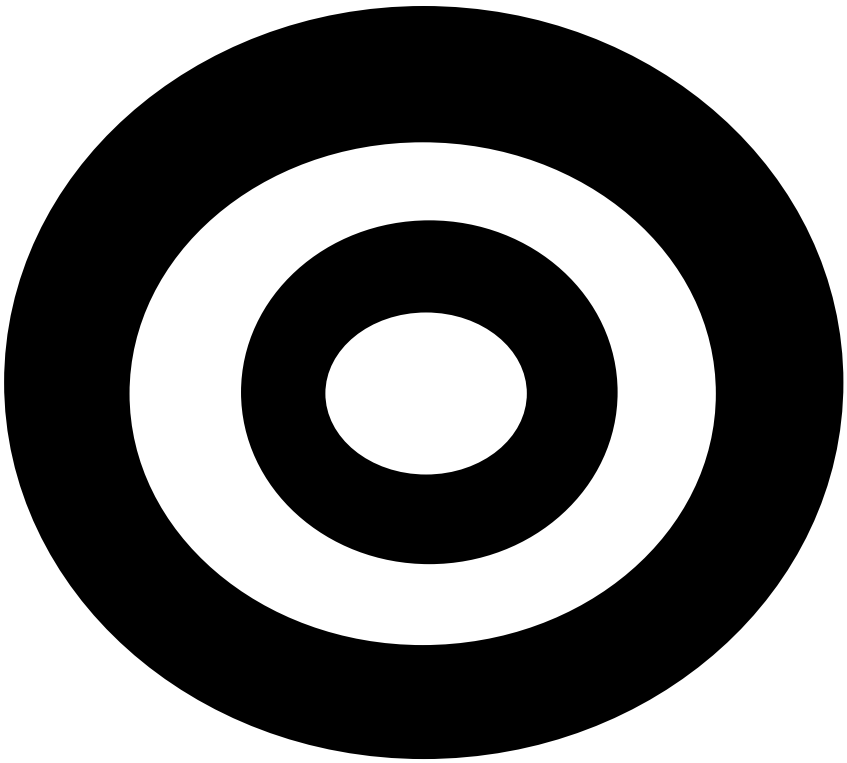
- The task is to represent the target number in different ways in one minute. Do a couple samples with students before starting the timer.
    a. Start all groups with the numbers 12 and 15.
        i. All target numbers are fair to use with students in grades 1 through 8.
        ii. Use numbers 20 and under for any "Cat-Icon" students in the group.
- Set the timer for one minute.
- Educators play along, and write examples to share related to the students' required math fluencies:
- At the end of the minute, students give ONE example at a time, going around the group a couple of times until all DIFFERENT responses are used. Students need to give **different** ways to represent the number. Writing, "7 + 3" is different from writing, "3 + 7". Drawing 7 circles and 3 circles is different from writing, "7 + 3."

Examples of some different ways to represent the number 10:

7 + 3	10 + 0	17 – 7	2 x 5	100 / 10	20/2
3 + 7	0 + 10	ten	5 x 2	10/1	10 x 1
					
One dozen eggs take away 2		2 + 2 + 2 + 2 + 2			100 - 90

Required [Math] Fluencies

Grade 3	Single digit products and quotients (product automaticity by the end of Grade 3)	***Automaticity for Products*** by the end of Grade 3
	Add and subtract within 1,000	***Procedural Fluency***
Grade 4	Add and subtract within 1,000,000	***Procedural Fluency***
Grade 5	Multi digit multiplication	***Procedural Fluency***
Grade 6	Multi digit division; multi digit decimal operations	***Procedural Fluency***
Grade 7	Solve two step equations in the form of px + q = r and p(x +q) = r	***Procedural Fluency***
Grade 8	Solve simple 2 x 2 systems of equations by inspection/substitution	***Procedural Fluency***



Target Number

<u>Suggested Target Numbers</u>: Start with 12 and 15 for everyone for the first two sessions. Afterwards, numbers over 20 are fair for all grade bands except for the DOG ICON, which should just use numbers under 20**.**

12	15	24	36
60	48	100	45
90	50	75	

More choices: 9 18 6 20

FAMILY FUN GAME Directions

Key Points:

- Starting with Unit 2, the Family Fun Game gives students repeated practice in each of the Math Matters skills. This allows students to practice all of the skills throughout the summer.

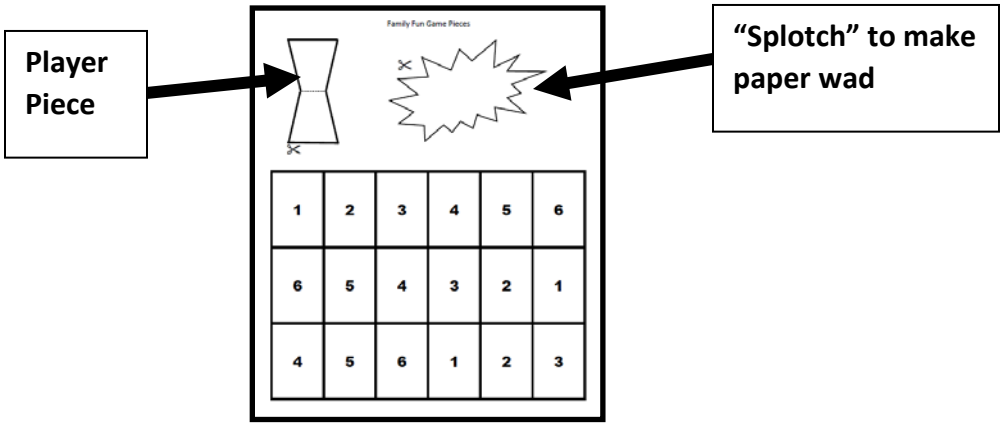
Process:

1. Each Student Packet has its own Family Fun Game Cards, allowing each student to participate with students who have different skills to practice.
2. Do not cut the cards apart! Starting with Lesson 2, the three cards in each row will practice the same skill.
3. Instead of students drawing a card, students select a problem from their grade band sheets. Students can select problems in the order they choose, BUT ask students to solve one problem from each row, before repeating from the row, so they practice each skill.
4. Game Directions are on the game board. Game boards are at the end of each Student Packet, so they are easy to pull off and use.
5. The best way to move around the board is to use dice. The Student Packets have a "Do It Yourself (DIY)" version to toss a small wad of paper onto a board of numbers.
6. Many students end up reading all of the problems in between turns as they search for the "best" ones to answer.

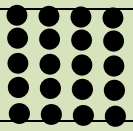
Do It Yourself (DIY) Game Pieces

Player: Cut the outside of the double trapezoid. Fold in half to make the player. If more than one student has the same color, students can write their names on the playing piece.

If you don't have a 6-sided die: Cut around the jagged "splotch" shape and wad the paper into a ball. Toss the ball onto the number board to find number of spaces to move.



BLM Unit 5, Follow-Up Lesson 3 Family Fun Game All Level Answer Key

Problem Letter	Kinder (pink)	1-2 (blue)	3-4 Iguana Tales Specific information about strategies in 3-4 packets	5-6 (yellow)	7-8 (orange)
A	15 beans counted Number 15	2, 8 make ten	$79.99	0.5	8
B	9 beans counted Number 9	1, 9 make ten	1/2 (or any equivalence)	$8\frac{1}{8}$	10
C	10 beans counted Number 10	7 + 9 = 16 9 + 7 = 16 16 – 9 = 7 16 – 7 = 9	1and 2/3, 1 and 3/4	$0.01	0.12 cm
D	2 cicadas	8 + 7 = 15 7 + 8 = 15 15 – 7 = 8 15 – 8 = 7		1,111,111,110	87.5 feet OR 87.50 feet OR 87 ½ feet
E	8 mice	Last week: 12 miles This week: 11 Total:12+11=33miles	63	54.657 grams salt	$\frac{3\text{ ft}}{1\text{ yd}} = \frac{x\text{ ft}}{9\text{ yd}}$
F	9 leaves	David read 24 books.	7 balloons	11.92% chemical B	$\frac{16\text{ oz}}{1\text{lb}} \_ \frac{x\text{ oz}}{5\text{ lb}}$
G	Penny	14	5 pennies	$27.45 tax	$.26 OR 26 cents
H	Nickel	17	30 muffins	$350 tip	$0.40 OR 40 cents
I	Penny	13	0.02	$90 interest	$687.50
J	Top bar	one fourth OR One out of 4 equal pieces	0.75	$230 charged	$31.25
K	9 dots	Circle divided into 4 equal parts	Finished number line	3 cups cashews	3 hours
L	Bar on left	Lucy ate 4 cookies.	8.99	10% tip	4 hours
M	Must cut or tear card into approximately 2 equal pieces	Bob walked 4 miles.	1/4 = 0.4	False. Scale factor not consistent	$428
N	Halves, or 1 out of 2 equal pieces	7	0.07	True. Scale factor = (÷4) or($\times \frac{1}{4}$)	$1030.00
O	Both pieces are the same size	17		120 cotton balls: 1 bag	$18.34 or $18.35
P	7 flowers	65		48 babies	$59.34
Q	4 flowers	80		$\frac{12}{12}$ or 1 whole	200
R	0 frogs	85		$\frac{7}{2}$ $\frac{}{15}$	96

CGI CHARTS:

While the New York State's Next Generations Learning Standards for Grade 5 and Grade 6 do not have a chart of sample word problems, the CGI Chart for Grades 5 and 6 give the students practice multiplying with fractions and decimals. Additionally, the CGI process supports students in reading and solving word problems.

Process:

1. ***Pick one word problem.*** Spend time on the process instead of a quick answer.
2. **Read the problem to students,** using the choice of differentiated numbers to fill in the blanks.
3. ***Read again and encourage students to take notes on the graphic organizer***. (modeling, teaching the first time)
4. ***Give students time to solve.*** (If struggling, prompt with, "What number does the problem start with?" Do you want to draw this or use manipulatives to recreate it?)
    a. Have manipulatives and paper for students to choose either medium for solving the problem.
5. ***Ask students to explain their process before asking them for an answer.*** This allows students time to self-correct and gives the Educator a clue about how the student is thinking.
6. ***At the end, look at the final answer together, to decide if it solves the problem***. How would you say this in a sentence?

	Unknown Product a x b = ?	**Group Size Unknown** a x ? = p and p ÷ a = ?	**Number of Groups Unknown** ? x b = p and p ÷ b = ?
Equal Groups	A child has 20 baby teeth. If there are 17 children in the class that still have all their baby teeth, how many baby teeth would that be?	A lot of teeth have been lost by children in this school. A total of 147 teeth have been lost. If each child averaged a loss of 7 teeth, how many children are in this school?	Most fifth and sixth graders have many permanent teeth. There are 14 students in the fifth grade. If they have a total of 108 permanent teeth, what is the average number of permanent teeth per student?
Rate	Kiki worked at a hot dog stand. She could sell 45 hot dogs in 30 minutes. How many hot dogs could she sell in 3-1/2 hours?	If Kiki sold 18 hot dogs per hour, how many hours would it take her to sell 627 hot dogs?	If Kiki sold 587 hot dogs over a period of 12 hours, how many sold hot dogs did she average per hour?
Price	The price of a package of hot dogs is $2.97. How much will Kiki spend on 3 dozen packages?	Kiki spent $45.36 on hot dog buns. If each package costs $1.08, how many packages did she buy?	Kiki spent $119.60 on hot dogs. She bought 520 hot dogs. How much did she spend per hot dog?
Multiplicative Comparison	Kiki uses 6 times more mustard than catsup on the hot dogs she sells. She uses 48 ounces of catsup a week. How many ounces of mustard does she use?	In a week, Kiki uses 50 pounds of potatoes. She uses 2.5 pounds of catsup. How many times more potatoes than catsup does she use?	Kiki used 125 pounds of onions in a two week period. That's 1-1/2 times more onions than potatoes. How many potatoes did she use?
Fractions	Kiki puts $\frac{1}{4}$ cup of chopped onions on each hot dog. If she sells 29 hotdogs, how many cups of chopped onions will she need?	An onion yields 2/3 cup when chopped. If Kiki had 7-1/3 cups of chopped onions, how many onions did she chop?	Kiki chopped 12-1/3 cups of onions. She used the onions on 61 hot dogs. How many cups of onions did she use on each hot dog?

CGI Problems for *A Foot in the Mouth* Unit 5

	Multiplicación	División de medidas	División partitiva
Formación de grupos y Partición	Un niño tiene 20 dientes de leche. Si hay 17 niños en la clase que todavía tienen sus dientes de leche, ¿cuántos dientes de leche serían en total?	Muchos niños han perdido gran cantidad de dientes en esta escuela. En total se han perdido 147 dientes. Si en promedio cada niño perdió 7 dientes, ¿cuántos niños hay en esta escuela?	La mayoría de los de quinto y sexto grado tienen muchos dientes definitivos. Hay 14 estudiantes en el quinto grado. Si en total tienen 108 dientes definitivos, ¿cuál es el número promedio de dientes definitivos por estudiante?
Velocidad	Kiki trabajaba en un puesto de salchichas. Podía vender 45 salchichas en 30 minutos. ¿Cuántas salchichas podría vender en 3-1/2 horas?	Si Kiki vendió 18 salchichas por hora, ¿cuántas horas se demoraría en vender 627 salchichas?	Si Kiki vendió 587 salchichas en un período de 12 horas, ¿cuántas salchichas vendió en promedio por hora?
Precio	El precio de un paquete de salchichas es $2.97. ¿Cuánto va a gastar Kiki en 3 docenas de paquetes?	Kiki gastó $45.36 en panes para salchichas. Si cada paquete cuesta $1.08, ¿cuántos paquetes compró?	Kiki gastó $119.60 en salchichas. Compró 520 salchichas. ¿Cuánto gastó por salchicha?
Comparación multiplicativa	Kiki usa 6 veces más mostaza que ketchup en las salchichas que vende. Usa 48 onzas de ketchup a la semana. ¿Cuántas onzas de mostaza usa?	En una semana, Kiki usa 50 libras de papas. Usa 2.5 libras de ketchup. ¿Cuántas veces más papas que ketchup usa?	Kiki usó 125 libras de cebolla en un período de dos semanas. Eso es 1-1/2 veces más cebollas que papas. ¿Cuántas papas usó?
Fracciones	Kiki pone $\frac{1}{4}$ taza de cebolla picada en cada salchicha. Si vende 29 salchichas, ¿cuántas tazas de cebolla picada necesitará?	Una cebolla rinde 2/3 de taza al ser picada. Si Kiki tenía 7-1/3 tazas de cebollas picadas, ¿cuántas cebollas picó?	Kiki picó 12-1/3 tazas de cebolla. Usó las cebollas en 61 salchichas. ¿Cuántas tazas de cebollas usó en cada salchicha?

Materials
- 4 graham crackers (1 sheet)
- 2 TBS Nutella
  Allergy Warning – please substitute a different spread for the entire class if nut allergies are present.
- 3 large strawberries
- 2 paper dessert plates
- 2 paper towels
- 2 plastic knives

All items listed above per partner pair
- **BLM** Crackers and Nutella-Snack Fractions
- **BLM** Crackers and Nutella-Snack Fractions Teacher Guide

Math Vocabulary
unlike denominators
like denominators
unit price
ratio
proportion
percent
greatest common factor
least common multiple

Literature Vocabulary
theme
point of view
influence
confident
revolution

Teacher Note
Pay particular attention to how students deal with the different fractions that emerge from dividing the Nutella. The pictorial model shows halves and fourths; however the VALUE of those fractional pieces are also fractions. For instance: Students receive one-fourth of the Nutella when divided by 4 people. Each one-fourth portion has a value of (or is equal to) half a TBS. This is purposeful and should be a key point of discussion.

Unit 5, Lesson 2 — Grades 5-6

Snack Fractions

Students should wash their hands before this activity if using food items.

Math Objectives
- Use addition, subtraction, multiplication and division to solve problems involving fractions, decimals, ratios, and percents.
- Convert between fractions, decimals, and percents.
- Estimate to find solutions to problems involving fractions, decimals, and percents.

Language Objectives
- Discuss how fractions, decimals, ratios, and percents can be used to solve real-world problems.

Snack Fractions
The Snack Fraction activities for this unit will focus on combining and separating fractional parts as well as dividing into fourths. Students will not divide the cracker during this activity. The Focus is on area and set models in a non-rectangular format. A Teacher Guide for the BLM is provided.

Two TBS of Nutella represents one whole. Three strawberries represent one whole.

QUESTIONS
- What is the whole in this situation?
- How do I break this up into equal shares?
- What does that fraction represent?
- Does this fraction have an easily calculated decimal equivalent?
- How can you find the decimal of this fraction?
- How did you calculate the percent?

Once the activity is complete, let them enjoy their snack!

Snack Fraction Journal Writing: BLM Crackers and Nutella-Snack Fractions

- Describe any challenges you had during today's activity and how you were able to solve the problem.

Objectives
Read through the math and language objectives, making sure that students understand how they accomplished each.

Unit 5 Lesson 2 – Snack Fractions
1 per student

Strawberries and Nutella – Snack Fractions KEY

Work together to solve the problems and fill in the chart below.

	Divide snack equally between 2 people		
	Your fractional portion of the whole?	**Value of your portion?**	**How did you divide the snack?**
Nutella 2 TBS = 1 whole	$\frac{1}{2}$	How much Nutella would you receive? 1 TBS	
strawberries 3 strawberries = 1 whole	$\frac{1}{2}$	How many strawberries would you receive? $1\frac{1}{2}$ strawberries	answers will vary but may include: a) each berry divided in half b) 2 whole strawberries and 1 divided in half

	Divide snack equally between 4 people		
	Your fractional portion of the whole?	**Value of your portion?**	**How did you divide the snack?**
Nutella 2 TBS = 1 whole	$\frac{1}{4}$	How much Nutella would you receive? $\frac{1}{2}$ TBS	
strawberries 3 strawberries = 1 whole	$\frac{1}{4}$	How many strawberries would you receive? $\frac{3}{4}$ of 1 strawberry	answers will vary but may include: a) each strawberry divided into fourths b) 2 strawberries divided in half, 1 strawberry divided into fourths

*Why is it possible for the *fractional portion of the whole* to differ from the *value of your portion*? The value takes the unit of measure into consideration and describes the quantity of the fractional portion of the whole.