Summer Math

Educator Packet
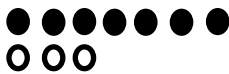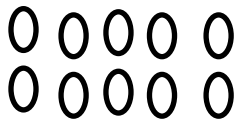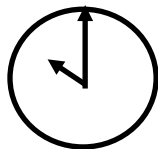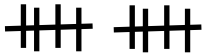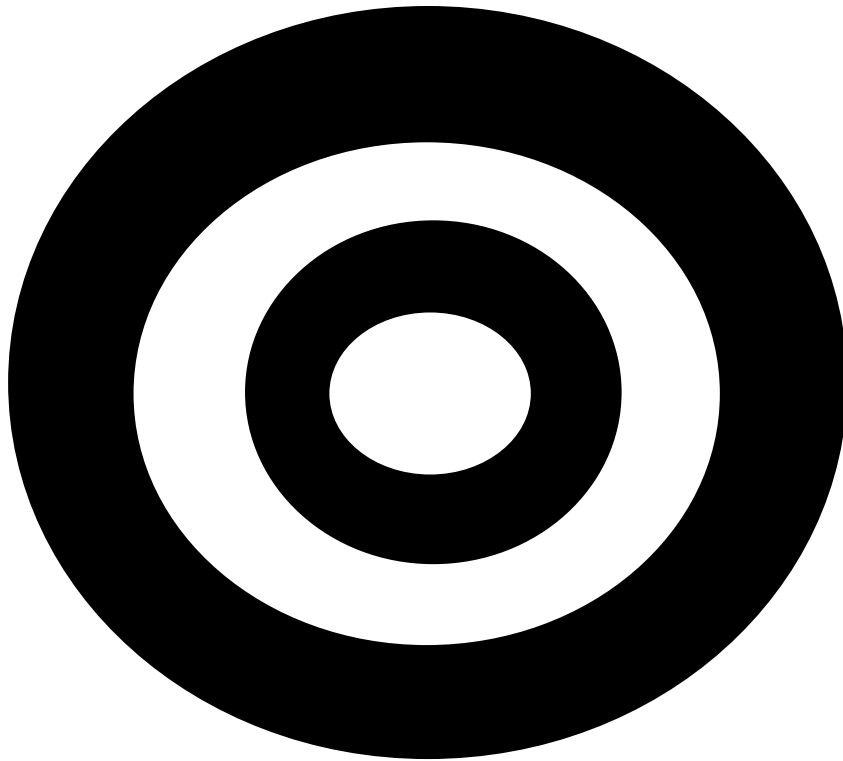
Unit 1

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

Kindergarten	Add and subtract within 5	*Procedural Fluency*: can easily use a process to figure out the answer (for example, using manipulatives, diagrams)
Grade 1	Add and subtract within 10	*Procedural Fluency*
Grade 2	Single digit sums and differences (automaticity by the end of Grade 2); Add and subtract within 100	*Automaticity* by the end of Grade 2: Knows the answer without stopping to use a process to figure out the answers.
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*

Target Number

Suggested Target Numbers: 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.
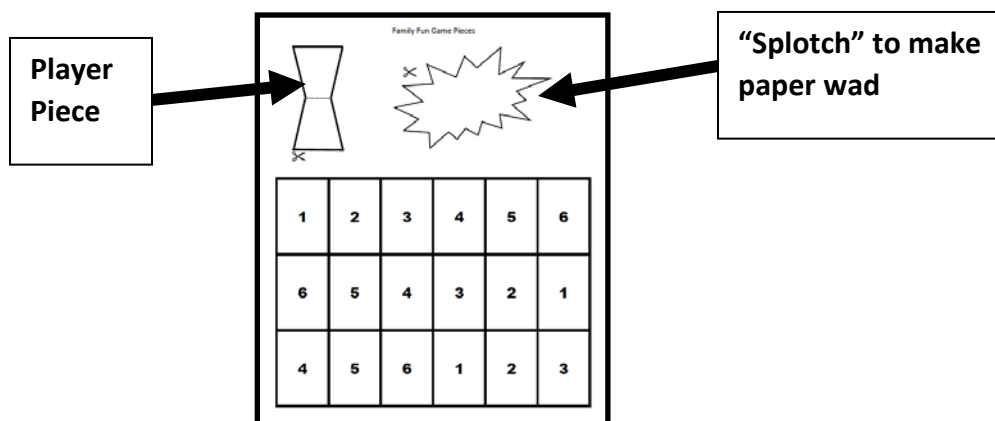
Process:

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.

Player Piece

"Splotch" to make paper wad

Family Fun Game Pieces

1	2	3	4	5	6
6	5	4	3	2	1
4	5	6	1	2	3

BLM Unit 1   Family Fun Game Answer Key - All Levels

Problem Letter	Kinder (pink)	1-2 (blue)	3-4 (green)	5-6 (yellow)	7-8 (peach)
A	5¢ (cents)	$32	0.15	2.35	18 boys : 22 girls
B	6¢ (cents)	$42	0.2	1.2 or 1.20	11 girls : 20 total
C	7¢ (cents)	$55	0.42	0.42	12 boys : 27 total
D	8¢ (cents)	$78	0.05	13%	16 red : 27 total
E	9¢ (cents)	$62	1/4	1%	9 cups
F	10¢ (cents)	$82	2/8	34%	1 1/3 cups
G	6¢ (cents)	$28	1/3	25% and 1/4	18 cups
H	7¢ (cents)	$12	2/6	50% and 1/2	10 cups
I	8¢ (cents)	$8	10	75% and 3/4	7.5 ounces
J	10¢ (cents)	$10	3	2.35 1/4	$36
K	13¢ (cents)	$32	9	3/8	25 shirts
L	15¢ (cents)	$25	1	3/5	16 shirts
M	11¢ (cents)	$15	6	3/8	20 blocks
N	12¢ (cents)	$21	3	2/5	7.2 minutes
O	9¢ (cents)	$45	15	3/6 or 1/2	Martin runs faster. Martin runs 12 blks/6 min and Alicia runs 10 blks/6 min
P	14¢ (cents)	$37	8	8.2	5 gallons
Q	13¢ (cents)	$3	9	9.01	425 miles
R	16¢ (cents)	$19	28	151.2	$5.00

CGI CHARTS:

With a few changes, Math Matters' CGI Chart is in New York State's Next Generations Learning Standards for Grade 3 and Grade 4 for use with multiplication and division word problems involving Equal Groups and Arrays and Area Problems.

Key Points:
- Allows students to solve the problem in a way they understand, instead of the "right" way.
  - **NY-3.OA.3 –** Use multiplication and division within 100 to solve word problems in situations involving equal groups, arrays, and measurement quantities.
    - E.g., using drawings and equations with a symbol for the unknown number to represent the problem.
  - **NY-4.NBT.5 –** Multiply a whole number of up to four digits by a one-digit whole number, and multiply two two-digit numbers, using strategies based on place value and the properties of operations.
    - Illustrate and explain the calculation by using equations, rectangular arrays, and/or area models.

Process:
1. ***Pick one word problem.*** Spend time on the process instead of a quick answer.
   - For Grade Band 3-4, the multiplication/division terms on the (English) CGI Chart have been updated to represent the Next Generation terminology changes.
     - The "Compare" row of addition/subtraction problems remains for use to practice addition and subtraction during the summer.
     - Use the STAR (Grade 3) ★ or the TRIANGLE (Grade 4) ▲ for types of word problems on the summer math assessments.
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?

Unit 1 CGI Problems for *The Everything Kids' Money Books*

Compare	**(Difference Unknown)** Eva and Frank's class was studying money. They were using plastic lids for money. Eva had ____ plastic lids and Frank had _____ plastic lids. How many more plastic lids did Eva have than Frank? (27, 15) (35, 29) (125, 97)	**(Bigger Unknown)** Eva and Frank's class was studying money. They were using plastic lids for money. Eva had _____ plastic lids. Her friend, Frank, had _____ more plastic lids than Eva. How many plastic lids did Frank have? (39, 15) (27, 15) (106, 15)	**(Smaller Unknown)** Eva and Frank's class was studying money. They were using plastic lids for money. Eva had ____ lids. She had ____ more lids than Frank. How many lids did Frank have? (75, 3) (17, 25) (215, 27)
Equal Groups	**(Unknown Product)** ★ ▲ a x b = ? Carlos had _____ sets of pennies. There were ____ pennies in each set. How many pennies did he have in all? (4, 6) (9, 12) (12, 15)	**(Group Size Unknown)** ★ a x ? = p and p / a = ? Carlos had _____ pennies he wanted to share equally among ____ bags. How many pennies will he put in each bag? (49, 7) (121, 11) (130, 6)	**(Number of Groups Unknown)** ? x b = p and p / b = ? Carlos had _____ pennies. He wanted to store them in money bags, ____ to a bag. How many bags did he need? (24, 6) (144, 12) (125, 5)

	(Diferencia desconocida)	(Cantidad comparativa desconocida)	(Referentedesconocido)
Comparar	En la clase de Eva y Frank estaban estudiando sobre el dinero. Usaban tapas plásticas como dinero. Eva tenía ____ tapas plásticas y Frank tenía _____ tapas plásticas. ¿Cuántas tapas plásticas adicionales tenía Eva? (27,15) (35, 29) (125, 97)	En la clase de Eva y Frank estaban estudiando sobre el dinero. Usaban tapas plásticas como dinero. Eva tenía ____ tapas plásticas. Su amigo, Frank, tenía_____ más que las que Eva tenía. ¿Cuántas tapas plásticas adicionales tenía Frank? (39,15) (27, 15) (106, 15)	En la clase de Eva y Frank estaban estudiando sobre el dinero y usaban tapas plásticas como dinero. Eva tenía____ más que las _____ que Frank tenía. ¿Cuántas tapas tenía Frank? (3, 75) (25, 17) (27, 215)
Agrupamiento y división	Multiplicación ★ ▲ Carlos contó _____ sets de _____ centavos. Había ____ centavos en cada set. ¿Cuántos centavos tenía Carlos en total ? (4, 6) (9, 12) (12, 15)	División de medidas ★ Carlos tenía _____ centavos que quería repartir igualmente entre ____ bolsas. ¿Cuántos centavos echará en cada bolsa? (49, 7) (121, 11) (130, 6)	División partitiva Carlos tenía ____centavos. Quería guardarlos en bolsas de dinero, _____ por bolsa. ¿Cuántas bolsas necesitaba? (24, 6) (144, 12) (125, 5)

Math Objectives
- Construct pictorial models of fractions.
- Compare fractional parts of a whole.
- Use fraction names and symbols to describe fractional parts of a whole.
- Use pictorial models to generate equivalent fractions.
- Compare fractions using pictorial models.

Language Objectives
- Discuss fraction comparisons.
- Discuss fraction equivalencies.

Vocabulary
- one-half
- one-eighth
- four-eighths
- equivalent
- greater than, less than

Materials:
- **BLM** string cheese Snack Fractions per student

Per Partners:
- 1 large string cheese*
- 2 paper dessert plates
- 2 paper towels
- 2 plastic knives

*(**NOTE:** Half of a piece of string cheese is not a very large snack for 3rd-4th graders. Please feel free to give each their own string cheese when they have completed the fraction portion of the activity.)

ELPS (*English Language Proficiency Standards*)
2D, 2E, 2F, 3E, 3G, 5A, 5F, 5G
CCRS *(College and Career Readiness Standards)*
ELA
II.A.2; II.B.1,2,3; II.D.1; III.B.1,2; IV.A.3; IV.B.1,2,3
Cross –Disciplinary
I.A.1,2; I.B.1,2; I.D.1,2,3,4; I.E.1,2.
Math
I.A.1; I.B.2.

Unit 1, Lesson 3   3-4

Snack Fractions
Children should wash their hands before this activity if using food items.

Snack Fractions
As part of each math day, please include a quick "Snack Fraction" activity. If your district/school does not allow any snacks to be given to students, please alter the activity by providing the paper shape to be divided into fractional parts.

In lesson 2 how did you share your ice cream sandwich? On your fraction record sheet, you showed the fractional part that each of you would receive; and you showed the fractional part that you would have received if there had been six of you sharing the ice cream sandwich.
- What fractional part did partners receive? *(halves, written 1/2)*
- What fractional part would each of six have received? *(one-sixth written 1/6)*
- What comparison sentence did you find when you compared your actual portion to a fourth? *(1/2 >1/6)*
- How did you find the sixths equivalence to half? *(student response)*

Today you are going to share a string cheese with a partner. Before you receive the actual snack, though, you will work through the String Cheese Snack Fraction record sheet. *(Distribute the sheet.)*

What is the same on this sheet as the other Snack Fraction sheets? *(upper portion dividing into halves)*

What is different? *(rounded rectangles instead of circles or real rectangles; dividing into eight portions instead of six)*

Once students have completed the record sheet, give them the actual snack and other supplies and let them share. This will be the format for subsequent snack fractions. When they are finished, have them complete the Snack Fraction Writing on the back of the BLM sheet or in their Math Journal Spiral.

Snack Fraction Journal Writing: BLM String Cheese Fractions
You have now divided snacks into halves, sixths and eighths. What can you tell about the denominator of fractions as you divide the snack for more people? What can you tell about the fractional portions of the snack as you divide for more people?

Objectives: Review the objectives with the class, making sure they understand how they achieved each.