Summer Math

Educator Packet
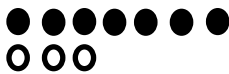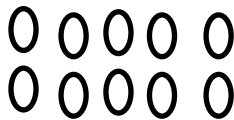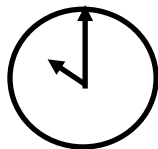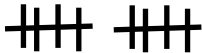
Unit 5

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

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*
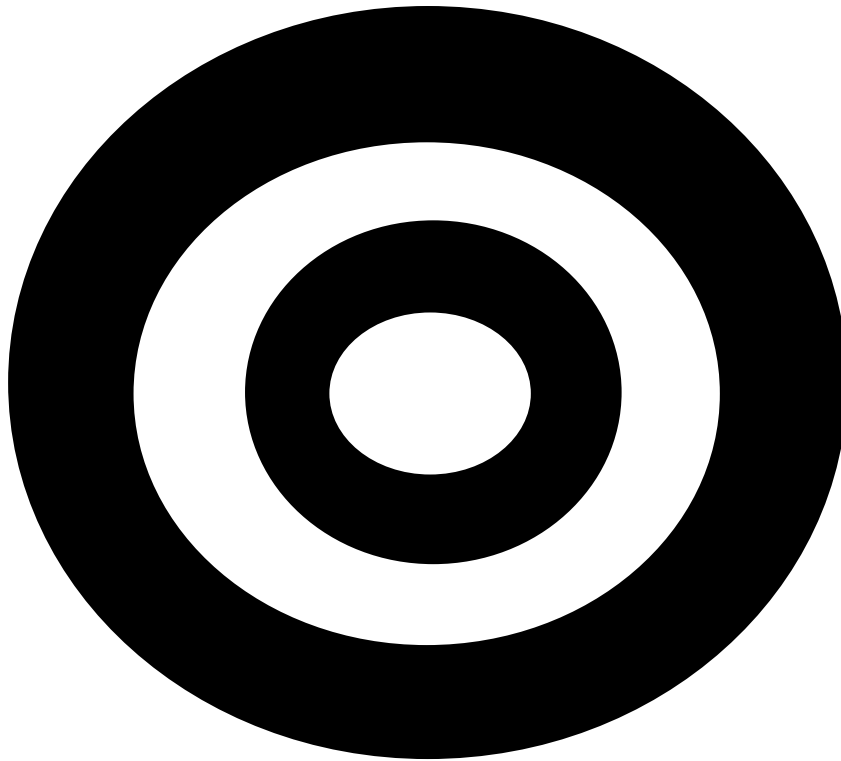
Target Number

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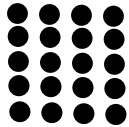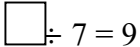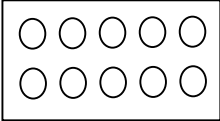
Player: Cut the outside of the double trapezoid. Fold in half to make the player. If more than one student has the same color, students can write their names on the playing piece.

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
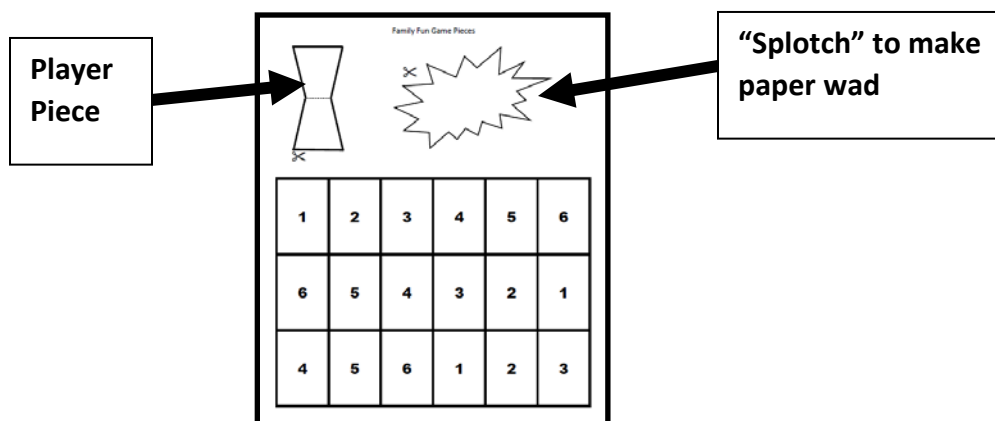
BLM Unit 5   Family Fun/Iguana Tales   TEACHER PAGES (one of two pages) Answer key and what to color if you have the right answer.

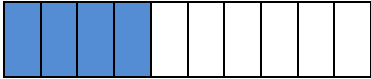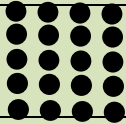|		Problem	Suggested Strategy	Solution	Color in….
1		Find the sum of $42.50 and $37.49	algorithm	$79.99	2 of the 19 spines
2		A fraction equivalent to 0.5 is	Number sense	1/2 (or any equivalence)	½ of his legs (and the back leg counts)
3		Arrange least to greatest: 1 and 3/4 1 and 2/3	Number sense	1and 2/3, 1 and 3/4	His whole head (nose to the first body crease line)
4		Draw an array for 5 x 4	Technically, an array is as the solution depicts; but if they draw a grid, accept it.	●●●● ●●●● ●●●● ●●●● ●●●●	6 of his tail segments
5		What's Missing? □ ÷ 7 = 9	Discuss this is part of a fact family. 7 x 9 - 63	63	5 of his body creases
6		42 balloons arranged in groups of 6. How many groups of balloons?	Draw the balloons	7 balloons	¼ of his legs
7		45 pennies in 9 stacks. How many pennies in each stack?	Divvy out drawings to 9 groups.	5 pennies	9 of his spines
8		3 more of these muffin pans. ○○○○○ ○○○○○ How many muffins?	Draw rest of picture. Write number sentence	30 muffins	4 of his body creases
9		Write decimal for Two-hundredths: 2/100	Write it as you read it	0.02	8 of his tail segments
10		Write the decimal for this fraction: 3/4	Number sense benchmark	0.75	1 of his body creases
11		Create a number line and place the following on the line. 1/3 1/2	Draw number line. Decide between what whole numbers (0,1)	Finished number line	8 of his spines

BLM Unit 5, TV Lesson 2   Iguana Tales TEACHER PAGES (one of two pages)
One sheet per student   TEACHER – These problems should be displayed one at a time on the board or Smart Board.

12	What's closest to 9? 8.09, 8.99	Number sense	8.99	¼ of his legs
13	What fraction represents the model? What decimal equals the fraction?	Count parts of the whole.	1/4 = 0.4	Color in half of what is missing, OR if your iguana is done, create a big rock.
14	Write the equivalent decimal for $\dfrac{7}{100}$	Number sense	0.07	Color in the rest of what is missing, OR if your iguana is done, create grass around the iguana.

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	1 cpf 2/3, 1 cpf 3/4	$0.01	0.12 cm
D	2 cicadas	8 + 7 = 15 7 + 8 = 15 15 − 7 = 8 15 − 8 = 7	(4×4 array of dots)	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	$\frac{3\ ft}{1\ yd} = \frac{x\ ft}{9\ yd}$
F	9 leaves	David read 24 books.	7 balloons	11.92% chemical B	$\frac{16\ oz}{1lb} = \frac{x\ oz}{5\ lb}$
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(x $\frac{1}{4}$)	$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		$2 \frac{7}{15}$	96

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.
  - o **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.
  - o **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.
   - o 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?

	(Difference Unknown)	(Bigger Unknown)	(Smaller Unknown)

Compare	There were ___ pounds of oranges and ___ pounds of vanilla on the truck. How many more pounds of oranges than vanilla?
	
	(123, 77) (438, 99)
	   (821, 687)
		There were ___ pounds of vanilla on the truck. There were ___ more pounds of oranges than vanilla. How many pounds of oranges were there?
		
		(199, 27) (55, 275)
		   (381, 49)
			In the cargo truck there were ___ pounds of coffee. That's ___ more pounds of coffee than vanilla. How many pounds of vanilla are there?
			
			(75, 19) (123, 66)
			   (620, 399)

	(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	There are ___ corn stalks in a row of corn. There are ___ ears of corn on one stalk. How many ears of corn in all? (8, 7) (30, 3) (14, 13)	A truck carrying oranges from Veracruz hauls ___ bags of oranges. If there are ___ bags of oranges in each crate, how many crates are there? (81, 9) (225, 5) (45, 3)	The children made ___ adobe bricks. If they stack them in ___ piles, how many bricks will be in each pile? (27, 3) (32, 4) (55, 5)

	(Diferencia Desconocida)	(Cantidad Desconocida)	(Referente Desconocido)
Compara	Había ___ libras de naranjas y ___ libras de vainilla en el camión. ¿Cuántas libras de naranjas más había en comparación con las de vainilla? (123, 77) (438, 99) (821, 687)	Había ___ libras de vainilla en el camión. Había ___ libras más de naranja que de vainilla. ¿Cuántas libras de naranjas había? (199, 27) (55, 275) (381, 49)	En el camión de carga había ___ libras de café. Eso es ___ libras más de café que de vainilla. ¿Cuántas libras de vainilla hay? (75, 19) (123, 66) (620, 399)

	Multiplicación	**División de medidas**	**División partitiva**
Formación de grupos y Partición	Hay ___ plantas de maíz en una hilera de maíz. Hay ___ mazorcas en una planta. ¿Cuántas son las mazorcas en total? (8, 7) (30, 3) (14, 13)	Un camión que transporta naranjas desde Veracruz transporta ___ bolsas de naranjas. Si hay ___ bolsas de naranja en cada cajón, ¿cuántos cajones hay? (81, 9) (225, 5) (45, 3)	Los niños hicieron ___ ladrillos de adobe. Si los ordenan en ___ pilas, ¿cuántos ladrillos habrá en cada pila? (27, 3) (32, 4) (55, 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
halves
fourths
eighths

Materials:
- **BLM** Cracker and Nutella Fractions - 1 per student

Per Partners:
- 4 graham crackers
- 2 T Nutella
- 2 paper plates
- 2 paper towels
- 2 plastic knives
- Chart paper with question: **Which share was larger, ½ or 1/8? How do you know?** Put a copy of the record sheet at the top of the chart with the question.

ELPS (*English Language Proficiency Standards*)
2G, 3C, 3F, 4H

CCRS *(College and Career* Readiness Standards)
Math
I.A.1; I.C.1; IX.A.1,2,3; IX.B.1,2; IX.C.1

Unit 5, Lesson 2   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.

First, look at the crackers and the Nutella. Talk to your partner about how you will divide the snack fairly between you. (*Give students time to discuss. Listen to their discussions, but do not interfere.*)

Share your plans with the class *(Each group should share. After each sharing, have the class decide if the planned strategy would give each partner a fair share by drawing the four crackers and two T Nutella on the board and dividing them as per the partners' descriptions. Leave each drawing on the board to be compared to others. Decide that the fair shares are half of the snack.)* Let students then divide their snacks between the partners and direct them to the BLM Crackers and Nutella Fractions. Help them understand that the rectangles are going to represent one graham cracker for this lesson.

 (*Circulate the room. Share when all are finished*)

Snack Fraction Journal Writing: Crackers and Nutella Chart Paper
Which share was larger, ½ or 1/8? How do you know?

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