

Summer Math

Educator Packet



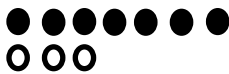
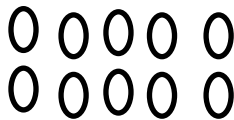
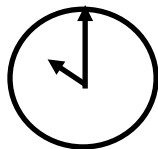
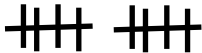
Unit 4



Warm up: Target Number

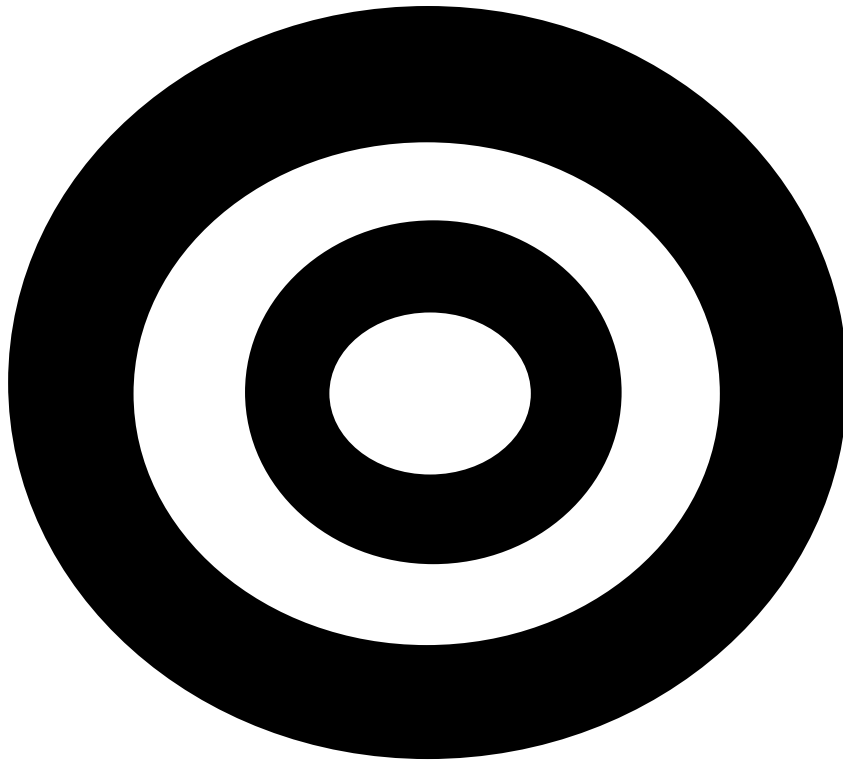
- The task is to represent the target number in different ways in one minute. Do a couple samples with students before starting the timer.
 - Start all groups with the numbers 12 and 15.
 - All target numbers are fair to use with students in grades 1 through 8.
 - Use numbers 20 and under for any “Cat-Icon” 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:

$7 + 3$	$10 + 0$	$17 - 7$	2×5	$100 / 10$	$20 / 2$
$3 + 7$	$0 + 10$	ten	5×2	$10 / 1$	10×1
					
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.

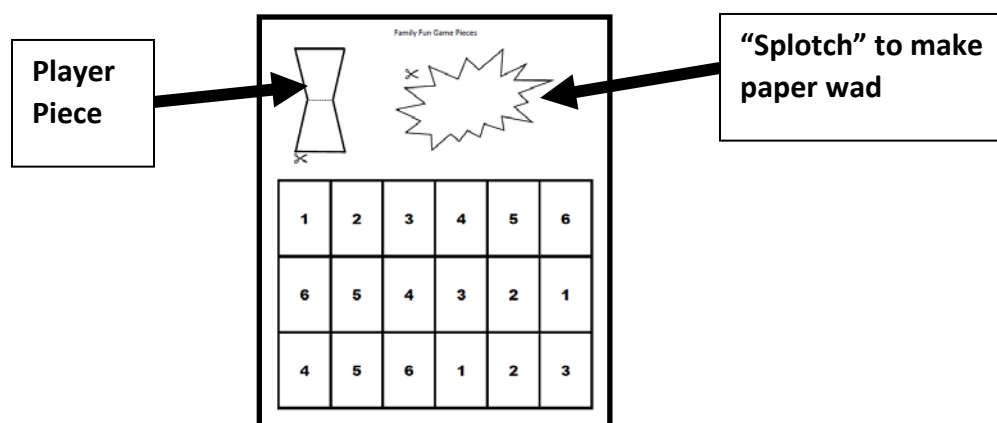
Process:

- Each Student Packet has its own Family Fun Game Cards, allowing each student to participate with students who have different skills to practice.
- Do not cut the cards apart! Starting with Lesson 2, the three cards in each row will practice the same skill.
- 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.
- 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.
- 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.
- 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 4, Follow-Up Lesson 3 Family Fun Game All Level Answer Key

Problem Letter	Kinder (pink)	1-2 (blue)	3-4 (green)	5-6 (yellow)	7-8 (peach)
A	14 ants	8 + 7 = 15 7 + 8 = 15 15 - 7 = 8 15 - 8 = 7	0.8	$6\frac{1}{4}$ or 6.25	3
B	4 eggs	5 + 7 = 12 7 + 5 = 12 12 - 7 = 5 12 - 5 = 7	0.80	$\frac{5}{8}$ or 0.625 cups	6
C	7 brown	8 + 9 = 17 9 + 8 = 17 17 - 9 = 8 17 - 8 = 9	0.08	\$423,294,920.10	4
D	Shows 10 counters Number 10	38	8	2134.448	scale factor 3
E	Shows 15 counters Number 15	23	63	\$7400 down	scale factor 3
F	Shows 12 counters Number 12	38	49	10% water	fifth term 20
G	Penny	17	156 flowers	\$48.50 tax	Length: 3078 mm Width: 1368 mm
H	Penny	4, 6 make ten	5 eggs	\$33 late fee	Height: 0.64 feet
I	Dime	3, 7 make ten	21 pounds	\$375 earned	2.56 inches
J	2 pieces are the same size, fair	Path B is longer.	$4\frac{3}{4}$	\$39.64	20 total candies
K	Cuts card in 2 equal pieces	Path A is shorter	$9\frac{1}{3}$	\$12.20 tip	\$157.50 total bill
L	Halves OR 1 out of 2 equal pieces	A is shorter than B. B is longer than A.	$99\frac{2}{4}$	25% tip	99 total chickens
M	13 drops of water	49 jelly beans	The 4 facts for $8 \times 4 = 32$	no. labels flipped	\$57 sales price
N	3 thorns	35 fewer	The 4 facts for $6 \times 9 = 54$	yes. scale factor of (x6)	\$31.25 sales price
O	10 miles	52 miles	$7 \times 8 = 56$ $8 \times 7 = 56$ $56 / 7 = 8$ $56 / 8 = 7$	60 students: 1 bus	120 cookies
P	Set of 5 counters Set of 8 counters Mouse (8) had more	18 more	Equivalent to $\frac{1}{3}$ can be $\frac{2}{6}$ or $\frac{3}{9}$ or $\frac{4}{12}$	30 notes hit	66 or 67 cents
Q	Set of 12 counters Set of 11 counters Lion (12) saw more	31 bananas	Equivalent to $\frac{1}{2}$ can be $\frac{2}{4}$ or $\frac{3}{6}$ or $\frac{4}{8}$	$\frac{17}{12}$ or $1\frac{5}{12}$	\$37.89 total cost
R	Set of 12 counters Set of 13 counters Mouse (13) saw more more	28 times	Equivalent to $\frac{1}{4}$ can be $\frac{2}{8}$ or $\frac{3}{12}$ or $\frac{4}{16}$	$4\frac{1}{8}$	3 hours

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 4 CGI Problems for *The Classic Treasury of Aesop's Fables* 

Compare	(Difference Unknown) The stag had lots of points on his antlers. There were ___ points on his left antler, and ___ on his right antler. How many fewer points on the left antler than the right?	(Bigger Unknown) Crow dropped ___ small pebbles into the pitcher. He dropped ___ more big pebble(s) than small pebbles. How many big pebbles did he drop into the pitcher?	(Smaller Unknown) Crow has ___ rough pebbles. He has ___ more rough pebbles than smooth pebbles. How many smooth pebbles does Crow have?
	(9, 12) (6, 11) (10, 13)	(118, 29) (47, 57) (197, 35)	(102, 39) (211, 199) (112, 79)

	(Unknown Product) $a \times b = ?$	(Group Size Unknown) $a \times ? = p$ and $p / a = ?$	(Number of Groups Unknown) $? \times b = p$ and $p / b = ?$
Equal Groups	Crow was meticulous. He gathered his pebbles into ___ piles. He put ___ pebbles in each pile. How many pebbles did crow gather in all?	Crow was meticulous. He gathered ___ pebbles. He put ___ pebbles in each pile. How many piles did he have?	Crow was meticulous. He gathered ___ pebbles. He put them into ___ piles so that there was the same amount in each pile. How many pebbles in each pile?
	(6, 7) (5, 6) (15, 16)	(49, 7) (64, 8) (110, 11)	(36, 4) (42, 6) (243, 3)



<p style="writing-mode: vertical-rl; transform: rotate(180deg);">Compara</p>	<p><i>(Diferencia Desconocida)</i></p> <p>El ciervo tiene muchas puntas en sus astas. Había ___ puntas en su asta izquierda, y ___ en su asta derecha. ¿Cuántas puntas menos había en la izquierda respecto de la derecha?</p> <p>(49, 7) (64, 8) (110, 11)</p>	<p><i>(Cantidad Desconocida)</i></p> <p>El cuervo dejó caer ___ piedras pequeñas en la jarra. Dejó caer ___ piedra(s) grande(s) más que piedras pequeñas. ¿Cuántas piedras grandes dejó caer en la jarra?</p> <p>(49, 7) (64, 8) (110, 11)</p>	<p><i>(Referente Desconocido)</i></p> <p>El cuervo tiene ___ piedras de superficie irregular. Tiene ___ piedras de superficie irregular más que piedras de superficie lisa. ¿Cuántas piedras lisas tiene el Cuervo?</p> <p>(102, 39) (211, 199) (112, 79)</p>
	<p>Multiplicación</p>	<p>División de medidas</p>	<p>División partitiva</p>
<p style="writing-mode: vertical-rl; transform: rotate(180deg);">Formación de grupos y Partición</p>	<p>El cuervo era meticuloso. Ordenó sus piedras en ___ pilas. Puso ___ piedras en cada pila. ¿Cuántas piedras juntó el cuervo en total?</p> <p>(6, 7) (5, 6) (15, 16)</p>	<p>El cuervo era meticuloso. Juntó ___ piedras. Puso ___ piedras en cada pila. ¿Cuántas pilas tenía?</p> <p>(49, 7) (64, 8) (110, 11)</p>	<p>El cuervo era meticuloso. Juntó ___ piedras. Las puso en ___ pilas para que hubiera la misma cantidad en cada pila. ¿Cuántas piedras había en cada pila?</p> <p>(36, 4) (42, 6) (243, 3)</p>

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.
- Discuss fraction/decimal relationships.

Vocabulary

halves
fourths
eighths

Materials:**Per Student**

- **BLM** Snack Bag Fractions
- **1 individual servings bag of 100 calorie snack**
- 8 lima beans

Per Partners:

- 2 paper plates
- 2 paper towels
- Chart paper with question:
How do you know that $3/4 = 6/8$?

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

Cross-Disciplinary

I.B.1,2; I.C.1,2,3; I.D.1,2,3,4;
I.E.1,2

Unit 4, 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.

Today’s snack fraction, although we will be practicing the same skills, is very different from others we have enjoyed.

First of all, each of you will have your own snack bag. This bag is sold “by the weight,” and not by the individual number of pieces of snack that are in the bag. My first question to you is:

Did the snack bag give you and your partner fair shares, or halves, if we count **PIECES** of snack?

Please open your bags and compare your number of pieces in order to answer that question. (*Give them time to finish, and report back on their findings. As they are enjoying their snack, have them read through the BLM with you. This is similar to Lesson 1, except the amount shared is 8 rather than 16.*)

Snack Fraction Journal Writing: Snack Fraction Chart Paper

How do you know that $3/4 = 6/8$?

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