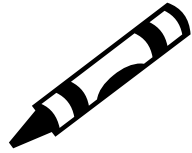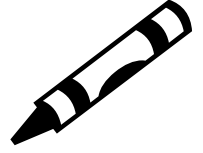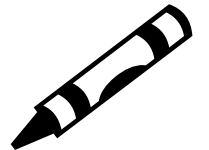# Summer Math

Educator Packet
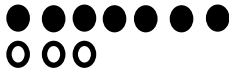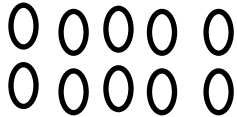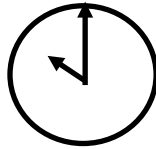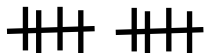
Unit 2

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.
- 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 |

●●●●●●● ●●
○ ○○

0 0000 0
0 0000 0

||||| |||||

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*
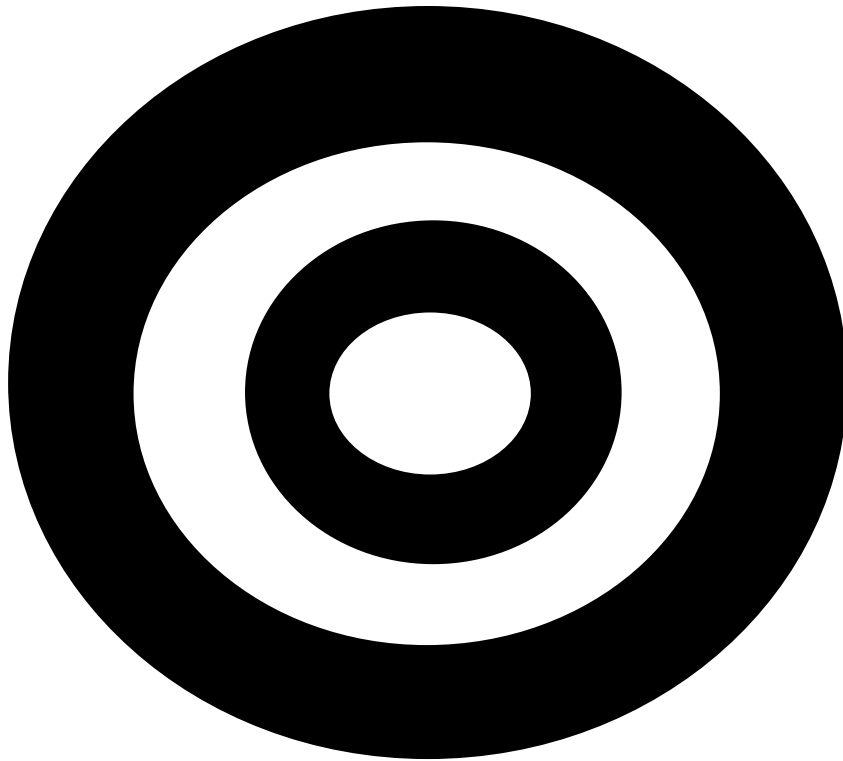
Target Number

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

Family Fun Game Pieces

"Splotch" to make paper wad

1	2	3	4	5	6
6	5	4	3	2	1
4	5	6	1	2	3
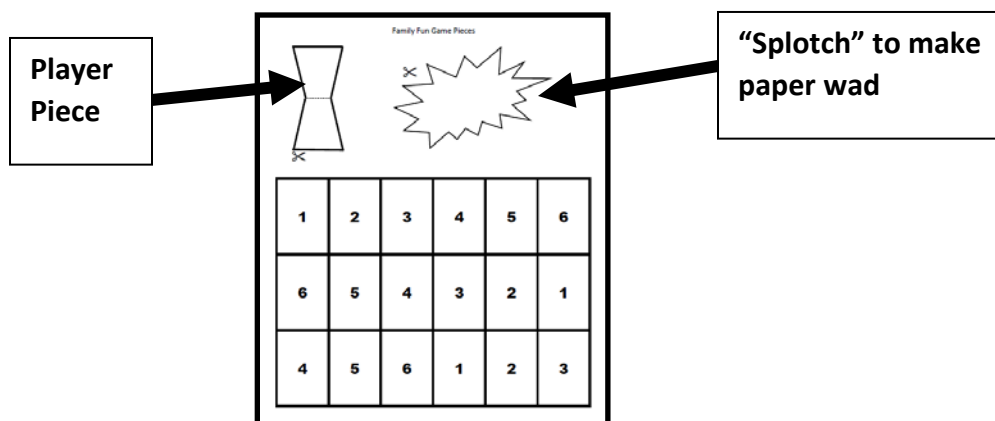
BLM Unit 2 — Family Fun Game Answer Key - All Levels

Problem Letter	Kinder	1-2	3-4	5-6	7-8
A	10 ¢	$46	2 x 5 = 10 5 x 2 = 10 10 ÷ 2 = 5 10 ÷ 5 = 2	1.25	50% increase
B	10 ¢	$59	5 x 4 = 20; 20 ÷ 4 = 5	1.21	75% increase
C	12 ¢	$45	3 x 6 = 18; 18 ÷ 6 = 3	0.22	20% decrease
D	11 cents	$40	42	three-sixths or half	$\dfrac{8\ oz}{1\ c} = \dfrac{x\ oz}{3\ c}$
E	10 cents	$90	8	five-eighths	$\dfrac{16\ oz}{1\ lb} = \dfrac{x\ oz}{4\ lb}$
F	12 cents	$85	45	three-eighths	$\dfrac{36\ in}{1\ yd} = \dfrac{72\ in}{x\ yd}$
G	15 cents	$37	5 blouses	$108.55	$0.60 or 60¢
H	14 cents	$52	$4 each	6.4 miles	$1.75
I	18 cents	$26	4 in each row	50.2 miles	$0.90 or 90¢
J	6 + 4	2 + 7 = 9 7 + 2 = 9 9 − 2 = 7 9 − 7 = 2	0.76	9	$13.14
K	5 + 5	7 + 3 = 10 3 + 7 = 10 10 − 7 = 10 10 − 3 = 7	0.08	7	$18.90
L	1 + 9	6 + 9 = 15 9 + 6 = 15 15 − 9 = 6 15 − 6 = 9	0.19	9	$15.90
M	10, 20, 30, 40, 50, 60, 70, 80, 90, 100	22 perch	$\dfrac{9}{10}$	14	$2.59
N	9 ants	6 fish were left	6/10	42	$7.50
O	5 bugs	10 tadpoles left	4/10	16	$4.58
P	4 coyotes	8, 2 make 10	0.33 , 0.5	one-thrid	$1.64
Q	7 sage leaves	1, 9 make 10	11.99	three-sixths or half	$2.36
R	5 − 1 = 4	3, 7 make ten	Drew	five-eighths	$3.75

CGI CHARTS:

With a few changes, this chart is in New York State's Next Generations Learning Standards for Pre-K to Grade 2, titled, "Common Addition and Subtraction Situations."

Key Points:
- Allows students to solve the problem in a way they understand, instead of the "right" way.
  - **NY-1.OA.1 –** Use addition and subtraction within 20 to solve one-step word problems involving situations of adding to, taking from, putting together, taking apart, and/or comparing, with unknowns in all positions.
    - **…**using objects, drawings and equations with a symbol to represent the unknown.
  - **NY-2.OA.1 –** Use addition and subtraction within 100 to solve one-step word problems involving situations of adding to, taking from, putting together, taking apart, and comparing, with unknowns in all positions.
    - Mastery of all word problems types on the "Common Addition and Subtraction Situations" Chart by end of Grade 2.

Process:
- ***Pick one word problem.***
  - Start easy (top left corner of CGI Chart, then work to the left and down as students show confidence.
  - Or use the STAR (Grade 1) ★ or the TRIANGLE (Grade 2) ▲ for types of word problems on the summer math assessments.
- Read the problem to students, using the choice of differentiated numbers to fill in the blanks.
- Read again and encourage students to take notes on the graphic organizer. (modeling, teaching the first time)
- 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?)
- Have manipulatives and paper for students to choose either medium for solving the problem.
- 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.
- 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 2   CGI Problems for *Water Habitats*

	(*Result Unknown*) ★ ▲	(*Change Unknown*) ▲	(*Start Unknown*)
Add To	There were ___ alligators in the swamp. ___ more alligators crawled into the swamp. How many alligators are in the swamp now? (7, 3) (13, 25) (15, 25)	Alligator in the swamp caught ____ fish. How many more fish will he need to catch in order to have ___ fish, enough for his supper? (2, 8) (11, 21) (10, 12)	There were some hippos in the river. ___ more hippos joined them. Now there are ___ hippos in the river. How many hippos were in the river to start? (4, 6) (5, 10) (10, 16)
Take From	(*Result Unknown*) ★ There were ____ eggs in duck nests in the pond. ___ of them hatched. How many eggs are there now? (10, 5) (22, 2) (13, 9)	(*Change Unknown*) There were ____ duck eggs in nests in the pond. Some of them hatched. Now there are ____ duck eggs. How many eggs hatched? (10,7) (16, 6) (24, 5)	(*Start Unknown*) There were some duck eggs in nests in the pond. ___ of them hatched. Now there are ___ eggs. How many eggs were there to start? (2, 8) (13, 12) (21, 8)

Put Together/ Take Apart	(*Total Unknown*) ★ There were ____ sea stars and ____ sea snails in the tide pool. How many sea creatures were in the tide pool all together? (2, 8) (10, 32) (17, 19)	(*Addend Unknown*) There were ___ sea creatures in the tide pool. ___ were sea stars and the rest were sea snails. How many sea snails were there? (10, 1) (15, 12) (23, 9)

Compare	(*Difference Unknown*) ★ ▲ Colorful coral live in the coral reef. The red coral was ____ inches tall. The yellow coral was ___ inches tall. How much taller was the red coral than the yellow coral? (10, 9) (23, 12) (22, 19)	**(Bigger Unknown)** Colorful coral live in the coral reef. The red coral was ___ inches tall. It was ___ inches shorter than the yellow coral. How tall was the yellow coral? (5, 5) (13, 4) (15, 9)	**(Smaller Unknown)** Colorful coral live in the coral reef. The red coral was ___ inches tall. It was ___ inches **taller** than the yellow coral. How tall was the yellow coral? (10, 3) (10, 7) (25, 9)

Unit 2   CGI Problems for *Water Habitats*

	(*Resultados desconocidos*) ★ ▲	(*Cambio desconocido*)▲	(*Inicio desconocido*)
Unir	Había _____ cocodrilos en el pantano. _____ cocodrilos más se arrastraron al pantano. ¿Cuántos cocodrilos hay ahora en el pantano? (7, 3) (13, 25) (15, 25)	Un cocodrilo en el pantano atrapo ___ peces. ¿Cuántos peces más tiene que atrapar para _____ peces para su comida? (2, 8) (11, 21) (10, 12)	Había unos hipopótamos en el río. ____ hipopótamos más bajaron al río. Ahora hay _____ hipopótamos en el río. ¿Cuántos hipopótamos había en el río para empezar? (4, 6) (5, 10) (10, 16)
Separar	(*Resultados desconocidos*) ★ Había ____ huevos en los nidos de patos en la laguna. ___ de ellos dieron polluelos. ¿Cuántos huevos no dieron polluelos? (10, 5) (22, 2) (13, 9)	(*Cambio desconocido*) Había____ huevos en los nidos de patos de la laguna. Algunos de ellos dieron polluelos. ___ de ellos no dieron polluelos ¿Cuántos huevos dieron polluelos? (10,7) (16, 6) (24, 5)	(*Inicio desconocido*) Había algunos huevos en los nidos de patos de la laguna. ____ de ellos dieron polluelos. Ahora hay _____ huevos. ¿Cuántos huevos había para empezar? (2, 8) (13, 12) (21, 8)

	(*Todo desconocido*) ★		(*Parte desconocida*)	
Parte - Todo	Había ____ estrellas de mar y ____ caracoles de mar en el charco de marea. ¿Cuántas estrellas y caracoles había en el charco de marea? (2, 8) (10, 32) (17, 19)		Había un total de ____ estrellas y caracoles de mar en el charco de marea. Si hubiera _____ estrellas de mar en el charco de marea, ¿cuántos caracoles habría? (10, 1) (15, 12) (23, 9)	

	(*Diferencia desconocida*) ★ ▲	(*Cantidad a comparar desconocida*)	(*Referente desconocido*)
Comparar	Coloridos corales viven en el arrecife. Un coral rojo medía ____ pulgadas de alto. Un coral amarillo medía ___ pulgadas de alto. ¿Cuánto más alto es el coral rojo que el coral amarillo? (10,9) (23, 12) (22, 19)	Coloridos corales viven en el arrecife. El coral rojo medía ___ pulgadas de alto y tenía ___ pulgadas menos que el coral amarillo. ¿Cuánto medía el coral amarillo? (5, 5) (13, 4) (15, 9)	Coloridos corales viven en el arrecife. El coral rojo medía ___ pulgadas. Medía ____ pulgadas menos que el coral amarillo. ¿Cuánto medía el coral amarillo? (10, 3) (10, 7) (25, 9)

Math Objectives

- Use concrete models to represent and name fractional parts of a whole and parts of a set of objects (fourths and halves).
- Use appropriate language to describe parts of a set, such as 3 out of 4 crayons are red.
- Explain that the more fractional parts used to make a whole, the smaller the part and the fewer the fractional parts, the larger the part.

Language Objectives

- Explain why each portion is a fourth/ half.
- Share-write what is a fourth or a half.

Vocabulary

half, halves
fourth, fourths
fair shares
equal pieces

Materials:

Teacher and Student Pairs
NOTE: you can certainly provide the 2 cups/partner Trail Mix already mixed if you prefer – would cut down on the 1/2 c measuring cups you need to provide, and time to mix

- 2 cups **trail mix/pair** mix equal parts of **:**
  - o 1/2 c pecans,
  - o 1/2 c semi-chocolate chips
  - o 1/2 c granola
  - o 1/2 c raisins
- one 2-cup measuring cup
- four 12 oz plastic cups
- 2 napkins
- two ½ cup measuring cups
- 2 scissors
- 2 rulers
- 2 markers
- 2 glue sticks
- **BLM** Trail Mix Fractions

Unit 2, Lesson 2   1ˢᵗ – 2ⁿᵈ

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.

Objective:
Today you and a partner are going to pretend to share a snack with a friend, but the snack will be shared in four portions. *(Show the four plates in your demo set.)* You will be able to tell each other the fractional name of the pieces. You will be able to draw a line on a picture to show the parts that you have. You will be able to write the fraction in numbers, and to explain the fractional parts you've divided into.

TODAY: Teacher demonstration of halves
You have the option today of using pre-mixed trail mix, or having the students mix their own before they divide it up in fractional parts. Either way, once there is a 2-cup portion for each partner, tell them that once again today they must pretend that they are sharing the snack among four people.

QUESTIONING (before division of snack)

- How many parts will there be? *(four)*
- What fractional part would each person get if there were four people? *(one-fourth)*
- Would you rather have one-fourth of this snack or one-half? Why? *(Let this discussion run its course so that you can see if students understand fractional comparisons. They probably cannot verbalize yet about relative size of denominators, but they should begin to see that 1/2 is definitely > 1/4.)*
- Will you be sharing fractional parts of a whole or fractional parts of a set of objects? *(fractional parts of a whole cup)*

If you need to walk through the activity with the students, please feel free to do so; otherwise, let them decide how to divide the snack and what to call the division. Do let them know that the plastic cups are to hold their fractional portions rather than paper plates today – less mess.

	Unit 2, Lesson 2 **1ˢᵗ – 2ⁿᵈ**
	Snack Fractions - continued
	Before you have them take their snacks, walk the students through the **BLM** Trail Mix Fractions. Students are to cut out the rectangle, fold it into fourths, cut and glue one-fourth to the plate on the record sheet; then answer the trail mix question on the BLM. You may write a class answer to the "because," but students should also write their own, or at least copy the class to the BLM, as the Snack Fraction Writing task.
	SNACK Eating: Now tell the partners that they may each have half of the snack. How much will each receive? *(two plastic cups worth)* Ask, "Which is the greater amount of the snack, one-fourth or one-half?" *(response)* How do you know? If you were going to compare these two fractions, what would you say: 1/2 1/4? Can you make two comparison statements?
	Snack Fraction Writing: BLM Trail Mix Fractions Students identify the fractional part and complete the "because" statement on the record sheet.
	Objectives: Review what you learned and how you learned it.