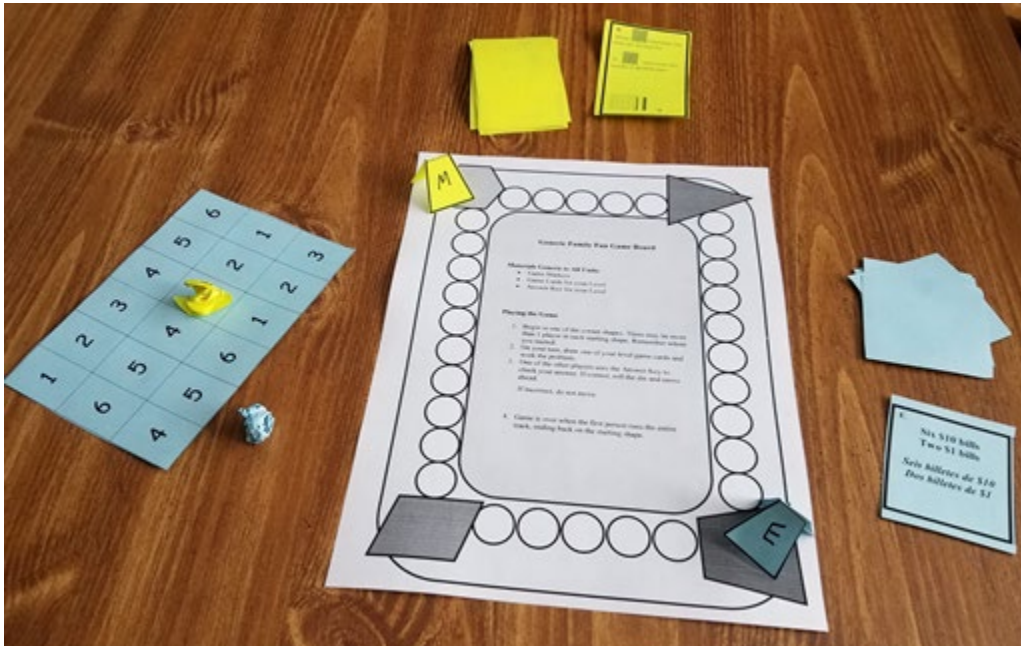


## Family Fun Tips for Printing, Preparing Materials and How to Play



### PRINT AND PREP MATERIALS

#### PRINTING

**Color-coding the Grade Bands.** It is suggested to use a distinct color to print the packets for each grade level. This makes it easier for students in different Grade Bands to work together.

**Use the colors available. The traditional colors suggested are**

- PINK for Kindergarten (Dog PACK)
- BLUE for Grade Band 1-2 (Crayon PACK)
- GREEN for Grade Band 3-4 (Whale PACK)
- YELLOW for Grade Band 5-6 (Owl PACK)

#### STUDENT SUPPLIES

**FYI: Each Grade Band "PACK" includes the Student's supplies for all 5 Units.**

- Each Unit starts with a paper DIY page to make their own game player and alternative to dice
- Gameboards (in Units 1, 3, and 5)
- Game Cards for Units 1-5
- Graphic organizers
- Paper manipulatives

**Additional Student Supplies:**

- Grade Bands K-4 – Envelope to keep and reuse paper manipulatives
- Grade Band 5-6 – Calculator

**Print per Student:**

Print (1) Grade Band Pack per student for the whole summer.

- **Dog Pack** for students who completed Kindergarten
- **Crayon Pack** for students who completed Grades 1-2

- **Whale Pack** for students who completed Grades 3-4
- **Owl Pack** for students who completed Grades 5-6

## EDUCATOR SUPPLIES

### Print per Educator:

1. This document: Print, Prep & Family Fun Overview
2. Answer Keys: Units 1 – 5 for all Grade Bands (White paper)
3. Sample Solutions (**New 2022**)
  - For Gr 1-2 (Blue Paper)
  - For 3-4 (Green Paper)
  - For 5-6 (Yellow Paper)
4. Spare set of Game Boards & DIY part
5. 1 set of each Student PACK

### Other Helpful Supplies:

- Calculator (Grade Band 5-6)
- Dice!

Envelopes for Educators to store a set of the paper manipulatives for their Grade Band

- DOG PACK (Grade Band K)
  - Real Counters
  - Play money: dimes, pennies
- CRAYON PACK (Grade Band 1-2)
  - Base 10 blocks
  - Play money: \$1 bills and \$10 dollar bills
- WHALE PACK (Grade Band 3-4)
  - Graph paper
  - Base 10 Blocks (Hundreds Flat, Tens rods, Ones units)
- OWL PACK (Grade Band 5-6)

## SUMMER MATH DESIGN: Who Should Use Which Grade Band?

The Summer Math Grade Bands are **designed for the students who just completed the grade**, in order to practice and maintain their skills through the summer.

**The “Dog Pack”** is for students **who just completed Kindergarten** in May or June, to review and maintain those skills over the summer.

- Rising “Kinders,” who will enter Kindergarten in the fall, can participate in the activities with extra support.

- If using the assessments, the **“Rising Kinders” should not be assessed.**

**The “Crayon Pack”** is for students who **just completed 1<sup>st</sup> or 2<sup>nd</sup> Grade** in May or June.

- Rising 1<sup>st</sup> Graders just completed Kindergarten, so should be using the “Dog Pack” to make sure they are solid in those skills. They may struggle with the end-of-2<sup>nd</sup> Grade skill practice in the “Crayon Pack” Family Fun Games.

- **The “Whale Pack”** is for students who **just completed 3<sup>rd</sup> or 4<sup>th</sup> Grade.**
    - Rising 3<sup>rd</sup> Graders, who just completed 2<sup>nd</sup> Grade, would not be prepared for the multiplication and division practice in the “Whale Pack” Family Fun Games.
  - **The “Owl Pack”** is for students **who just completed 5<sup>th</sup> or 6<sup>th</sup> Grade.**
    - Rising 5<sup>th</sup> Graders, who just completed 4<sup>th</sup> Grade, would not be prepared for the decimals and percent practice in the “Owl Pack” Family Fun Games.
- NOTE:** Make individual decisions for students with IEPs, based on the level of work used during the school year just completed.

Each student game pack has 5 sets of game cards that can be used throughout the summer. Unit 1 is an introduction, with a few skills, so students can learn how the game works. More skills are added through Units 2 to 5.

## Playing the Game

- Playing directions are written on the gameboards.
- The odd part of the gameboard is the directions tell players pick a different shape/corner to start on. Then need to remember to stop on the right one! (It can get crowded if players start from the same corner.)
- All ages of students play the game together.
  - On their turn, students use the game cards from their own packet to solve math problems at their own level. Once the student solves for the correct answer, they can roll the dice or toss the ball of paper on the number chart and move.
  - **Note:** Preschoolers play without a set of cards. They can practice counting and taking turns to move around the gameboard.
- **If the student is struggling or gives a wrong answer,** ask the student questions about how they started, what they did next, and guide them to the correct answer. **The new graphic organizers, paper manipulatives, and Sample Solutions are there to support these students!**
  - *Once students solve their problem, they still get to move.*
- Educators can have students cut the cards apart or leave them uncut. When the cards are **not** cut apart,
  - Students can use the margins to solve problems, and
  - Students tend to read ahead, working through multiple problems instead of just the cards they select.

## FYI: The Math Skills Targeted in the Summer Math Curriculum

To review and reinforce the following math skills:

### Grade Completed: Kindergarten

**Major Works for Kindergarten:** Addition and Subtraction concepts including **NY-K.OA.1:** Represent addition and subtraction using objects, fingers, pennies, drawings, sounds, acting out situations, verbal explanations, expressions, equations, or other strategies. **Note:** Drawings need not show details but should show the mathematics in the problem.

**Math Fluency for Kindergarten: NY-K.OA.5:** Add and Subtract within 5

**NY-K.CC.5a and 5b:** Count to answer “how many” questions. As many as 20 things arranged in a line, circle or array. Up to 10 objects when scattered.

**NY-K.CC.6:** Compare two objects to see which one has “more of”/“less of” the measurable attribute. For example, longer/shorter; taller/shorter

**NY-K.MD.4:** Explore coins (pennies, nickels, dimes, and quarters) and begin identifying pennies and dimes.

**NYS Note:** Beginning to identify coins is new for Kindergarten under the NYS Next Generation Mathematics Learning Standards.

Finding “fair shares” and “half” continues to be a Grade 1 skill in NY. Many end-of-year Kindergarten students are ready to **explore** these concepts with food.

### Grade Completed: 1<sup>st</sup> Grade

**Major Work for First Grade: 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. **Note:** Problems should be *represented* using objects, drawings, *and* equations with a symbol for the unknown number. Problems should be *solved* using objects *or* drawings, and equations.

**NY Common Addition and Subtraction Situations (slightly modified CGI CHART) Expectations for Grade 1:** To use the whole chart, but not expect mastery of the most difficult until Grade 2.

**Math Fluency for First Grade: NY-1.OA.6b-** Fluently add and subtract within 10. (mixture of just knowing some answers and use of strategies, such as patterns.)

**NY-1.OA.8 –** Determine the unknown whole number in an addition or subtraction equation with the unknown in all positions. e.g., Determine the unknown number that makes the equation true in each of the equations:  $8 + ? = 11$   $\_\_ - 3 = 5$   $6 + 6 = \square$

**NY-1.OA.2-** Solve word problems that call for addition of three whole numbers whose sum is less than or equal to 20.

**NY-1.OA.3 –** Apply properties of operations as strategies to add and subtract. **Note:**

Students need not use formal terms for these properties. e.g., To add  $2 + 6 + 4$ , the second two numbers can be added to make a ten, so  $2 + 6 + 4 = 2 + 10 = 12$ .

**NY-1.G.3** – Partition circles and rectangles into two and four equal shares, describe the shares using the words *halves, fourths, and quarters*, and use the phrases *half of, fourth of, and quarter of*. Describe the whole as *two of, or four of* the shares. Understand for these examples that decomposing into more equal shares creates smaller shares.

**NYS Note:** The First Grade materials were modified, replacing “compatible numbers” with “making 10.”

**NYS Note:** The First Grade materials were modified, replacing the term, “compatible numbers,” from Math Matters with “making 10” from NYS Next Generation Learning Standards.

**Grade Completed: 2<sup>nd</sup> Grade**

**Major Work for Second Grade: 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 problem types on the “Common Addition and Subtraction Situations” Chart by end of Grade 2.

**Math Fluency for Second Grade: NY-2.OA.2a**- Fluently add and subtract within 20 using mental strategies. Strategies could include... using the relationship between

addition and subtraction e.g., knowing that  $8 + 4 = 12$ , one knows  $12 - 8 = 4$

**Math Fluency for Second Grade: NY-2.OA.2b** - Know from memory all sums within 20 of two one-digit numbers. (*By the end of Grade 2*)

**Math Fluency for Second Grade: NY-2.NBT–** Fluently add and subtract within 100 **using strategies** based on place value, properties of operations, and or the relationship between addition and subtraction.

**NY-2.G.3** – Partition circles and rectangles into two, three, or four equal shares. Describe the shares using the words *halves, thirds, half of, a third of*, etc. Describe the whole as *two halves, three thirds, four fourths*. Recognize that equal shares of identical wholes need not have the same shape.

**NYS Note:** The fractions from the Math Matters materials were modified to use circles and rectangles in two, three and four equal shares.

**Grade Completed: 3rd Grade**

**Math Fluency for Third Grade:**

- **NY-3.OA.7a** - Fluently solve single-digit multiplication and related divisions, using strategies such as the relationship between multiplication and division or properties of operations. e.g., Knowing that  $8 \times 5 = 40$ , one knows  $40 \div 5 = 8$ .

- **NY-3.OA.7b** - Know from memory all products of two one-digit number.

**Major Work for Third Grade:** Multiplication and division of whole numbers and fractions – concepts, skills and problem solving.

**NY-3.OA.4** – Determine the unknown whole number in a multiplication or division equation relating three whole numbers. e.g., determine the unknown number that makes the equation true in each of the equations  $8 \times ? = 48$ ,  $5 = \_ \div 3$ ,  $6 \times 6 = ?$

**NY-3.OA.1** – Interpret products of whole numbers. e.g., Interpret  $5 \times 7$  as the total number of objects in 5 groups of 7 objects each. Describe a context in which a total number of objects can be expressed as  $5 \times 7$ .

**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.

**NYS Note:** This Next Generation standard uses a multiplication word problem chart in the CGI format, for “Equal Groups” and for “Arrays & Area.”

**NY-3.NF.3** - Explain equivalence of fractions and compare fractions by reasoning about their size.

**NY-3.NF.3b** – Recognize and generate equivalent fractions. e.g.,  $1/2 = 2/4$ ;  $4/6 = 2/3$

Explain why the fractions are equivalent.

**NY-3.NF.3d** – Compare two fractions with the same numerator or the same denominator by reasoning about their size. Recognize that comparisons rely on the two fractions referring to the same whole. Record the results of comparisons with the symbols  $>$ ,  $=$ ,  $<$ , and justify the conclusions, e.g., by using a visual fraction model.

#### **Grade Completed: 4th Grade**

**NY-4.NF.6-** Use decimal notation for fractions with denominators 10 or 100.

e.g.,

- Rewrite 0.62 as  $62/100$  or  $62/100$  as 0.62.
- Describe a length as 0.62 meters.
- Locate 0.62 on a number line.

**NYS Note:** This is a Power Standard for Grade 4, but scheduled to be taught after the NYS Math Assessment, so is relatively new to students.

**Major Work for Grade 4:** Multiplication and division of whole numbers and fractions – concepts, skills and problem solving.

**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.

**NY-4. NF.7** – Compare two decimals to hundredths by reasoning about their size. Recognize that comparisons are valid only when the two decimals refer to the same whole. Record the results of comparisons with the symbols  $>$ ,  $=$ ,  $<$ , and justify the conclusions, e.g., by using a visual model.

**NYS Note:** This is a Power Standard for Grade 4, but scheduled after the NYS Math Assessment, so is relatively new to students in the summer.

**NY-4. NF.2** – Compare two fractions with different numerators and different denominators, e.g., by creating common denominators or numerators, or by comparing to a benchmark fraction such as  $\frac{1}{2}$ . Recognize that comparisons are valid only when the two fractions refer to the same whole. Record the results of comparisons with symbols  $>$ ,  $=$ , or  $<$ , and justify the conclusions, e.g., by using a visual fraction model.

**NY-4.MD.4** – Make a line plot to display a data set of measurements in fractions of a unit ( $\frac{1}{2}$ ,  $\frac{1}{4}$ ,  $\frac{1}{8}$ ). Solve problems involving addition and subtraction of fractions by using information present in line plots.

**Grade Completed: 5th Grade**

Major Fluency for Fifth Grade: 5.NBT.5- Fluently multiply multi-digit whole numbers using the standard algorithm.

Major Work for Fifth Grade: Multiplication and division of whole numbers and fractions – concepts, skills, and problem solving.

**NY-5.NF.1** – Add and subtract fractions with unlike denominators (including mixed numbers) by replacing given fractions with equivalent fractions in such a way as to produce an equivalent sum or difference of fractions with like denominators. e.g.,

- $\frac{1}{3} + \frac{2}{9} = \frac{3}{9} + \frac{2}{9} = \frac{5}{9}$
- $\frac{2}{3} + \frac{5}{4} = \frac{8}{12} + \frac{15}{12} = \frac{23}{12}$

**NYS Power Standard: NY-5.NBT.7** – Using concrete models or drawings and strategies based on place value, properties of operations, and/or the relationship between operations:

- add and subtract decimals to hundredths; and
- multiply and divide decimals to hundredths.

Relate the strategy to a written method and explain the reasoning used.

Note: Students should be taught to use concrete models and drawings; as well as strategies based on place value, properties of operations, *and* the relationship between operations. When solving any problem, students can choose to use a concrete model *or* a drawing. Their strategy must be based on place value, properties of operations, or the relationship between operations.

Note: Division problems are limited to those that allow for the use of concrete models or drawings, strategies based on properties of operations, and/or the relationship between operations (e.g.,  $0.25 \div 0.05$ ). Problems should not be so complex as to require the use of an algorithm (e.g.,  $0.37 \div 0.05$ ).

**Grade Completed: 6<sup>th</sup> Grade**

**Major Fluency for Sixth Grade: NY-6.NS.3** – Fluently add, subtract, multiply, and divide



multi-digit decimals using the standard algorithm for each operation.

**Major Work for Sixth Grade:** Ratios and proportional relationships, early work with expressions and equations.

**NYS Power Standard: NY-6.RP.3d** – Use ratio reasoning to convert measurement units; manipulate and transform units appropriately when multiplying or dividing quantities.

Note: Conversion of units occur within a given measurement system, not across different measurement systems.

**NYS Power Standard: NY-6.RP.3c** – Find a percent of a quantity as a rate per 100. Solve problems that involve finding the whole given a part and the percent and finding a part of a whole given the percent. e.g., 30% of a quantity means 30/100 times the quantity.

**Procedural Fluency: NY-6.NS.3** – Fluently add, subtract, multiply, and divide multi-digit decimals using the standard algorithm for each operation.

**NY-6.RP.1** – Understand the concept of a ratio and use ratio language to describe a ratio relationship between two quantities. e.g., “The ratio of wings to beaks in the birdhouse at the zoo was 2:1 because for every 2 wings there was 1 beak.” “For every vote candidate A received, candidate C received nearly three votes.”

**NYS Power Standard: NY-6.RP.3b** – Solve unit rate problems. e.g., If it took 7 hours to

mow 4 lawns, then at that rate, how many lawns could be mowed in 35 hours? At what rate were lawns being mowed? What is the unit rate?

Note: Problems may include unit pricing and constant speed.