

# Curriculum Guide

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# mango

math group

enjoy math!





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## What is MANGO Math?

MANGO Math curriculum is manipulative-based, with sustainable and reusable games that are meant to supplement existing core math curriculum. As part of a math or STEM education, MANGO Math activities provide differentiated learning scenarios to deepen mathematical comprehension.

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**M**EASUREMENT

**A**LGEBRA

**N**UMBER SENSE

**G**EOMETRY

**O**DDS & ORDER

Mathematics is made up of **five content math standards** which makes up the MANGO name. The lessons in each kit are broken down into these five content areas for easy categorization. When selecting lessons the educator does not need to follow this format, mastery of any one lesson is not a prerequisite for any other activity. Lessons can be select based on what the students are covering in class, what the students might need reinforcement on, or what the students express interest in.

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### Benefits of MANGO Math:

- Reinforces Common Core Math State Standards (CCSS) and the NCTM Principles & Standards for School Mathematics
  - Equips educators with creative and versatile education ideas
  - Reusable laminated pages, all manipulative material included
  - Encourages critical thinking and problem solving
  - Promotes student cooperation to achieve outcomes
  - Ties abstract math concepts to real-life activities
  - Builds math confidence and self-esteem
  - Repetitive use to encourage learning through trial and error
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# Lesson Overview

**COOKIE MUNCH**  
NUMBER & FRACTIONS

**OBJECTIVE:** Understand a fraction  $\frac{1}{n}$  as the quantity formed by 1 part when a whole is partitioned into  $n$  equal parts, understand a fraction  $\frac{a}{b}$  as the quantity formed by  $a$  parts of  $\frac{1}{b}$ .

**SUPPLIES:**

- Cookie Munch game boards
- 2 dice
- fraction pattern blocks

**APPROXIMATE TIME:** 10 minutes

**TEACHING TIPS:**

Students will "eat up" their "cookies" (remove pattern block pieces) by rolling dice to determine fraction amounts of a whole.

Prior to playing the game have students play around with the pattern blocks. Let them place shapes on top of others to see how many pieces are needed to cover another shape. For example: How many green triangles fit on a blue rhombus?

Introduce the yellow hexagon as being 1 whole. Discuss what fraction amounts the other shapes represent.

Red trapezoid =  $\frac{1}{2}$   
Brown irregular trapezoid =  $\frac{1}{4}$   
Rhombus =  $\frac{1}{3}$   
Triangle =  $\frac{1}{6}$

Because this activity works with halves, thirds, fourths and sixths only, a student who rolls a 5, as the largest number, will be unable to remove that fractional amount and will need to reroll. It is suggested that an adult assist players the first couple of times students play this game.

**Extension:** Have students create an additional cookie that is divided into 12ths. They can remove pieces when they are equivalent to another on the game board. Example: roll  $\frac{1}{6}$  player can remove  $\frac{2}{12}$ .

**Mathematical Terms**

**Numerator**—the number above the line in a fraction, showing number of parts in a whole.  
**Denominator**—bottom number in a fraction, number of parts the whole is divided into.  
**Equivalent Fractions**—having the same value or amount.

**GUIDED QUESTIONS:** TO PROMOTE CRITICAL THINKING AND PROBLEM SOLVING

- Which colored cookie was eaten up the fastest? Why?
- Which rolled fractions ate up the biggest pieces?
- When did you "trade in" pieces?

Each MANGO Math lesson is written the same way including on the front page:

- **Lesson Objective** based upon NCTM, TEKS & CCSS standards
- **All supplies** included in the math pouch
- **Teaching tips** to expand or differentiate the game or activities
- **Vocabulary** to reinforce math terms
- **Guided questions** to develop deeper math understanding

On the back page:

- **Step by step directions** for each game or activity
- **Laminated** boards to encourage repetitive use.
- **Images** to help explain the lesson further

What you will not find on the lessons is a grade level. We believe these lessons can be played across grade levels, to deepen mathematical thinking, and don't want students discouraged from playing based on grade level.

**COOKIE MUNCH**

**A Game for 2 to 4 Players**

- 1 Players will need Cookie Munch game boards, 2 dice, and pattern blocks.
- 2 The objective of the game is to be the first player to "eat up" all their "cookies".
- 3 Each player will place pattern blocks onto the matching colored "cookie" on their game board. Fill all 5 "cookies" completely.
- 4 Player One will roll the dice and make a fraction with the numbers rolled. The smaller number will be the numerator and the larger number will be the denominator.  
*Note: If a 2 and a 6 are rolled this will be the fraction  $\frac{2}{6}$ .*  
*If a 5 is the largest number rolled, player must roll both dice again.*
- 5 Using the fraction rolled, player will remove or "eat up" that fractional amount of one cookie on their game board.  
*If  $\frac{2}{6}$  is the fraction, player may remove 2 green triangles ( $\frac{2}{6}$ ) or 1 blue rhombus ( $\frac{1}{3}$ ), the equivalent amount.*
- 6 Players may "trade in" equal amounts of their cookies at any time.  
*If a player no longer has any green triangles they may trade in a red trapezoid ( $\frac{1}{2}$ ) for 3 green triangles ( $\frac{3}{6}$ ).*

Player Two takes their turn and the play continues until one player has "eaten up" all of their cookies.

Players must roll the exact amount to eat up the last piece of their cookie.

**NUMERATOR**  
**DENOMINATOR**

Yellow hexagon = 1 cookie  
Red trapezoid =  $\frac{1}{2}$  of a cookie  
Brown irregular trapezoid =  $\frac{1}{4}$  of a cookie  
Blue rhombus =  $\frac{1}{3}$  of a cookie  
Green triangle =  $\frac{1}{6}$  of a cookie

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# Teaching Tips

MANGO Math Group is dedicated to creating quality elementary math curriculum that is fun and educational for children grades K - 8th grade. Each lesson is either a game or activity that can be played in small groups of two to four students, with or without adult help. We encourage that students work together on a lesson as that encourages key math practices like perseverance, reasoning, constructing viable arguments, applying repeated reasoning, looking for structure. Students that work together communicate and problem solve using these key practices. The lessons cover the standards set by: Common Core State Standards in Mathematics (CCSS), the National Council of Teachers of Mathematics (NCTM) and the Texas Essential Knowledge and Skills (TEKS).

MANGO math curriculum is manipulative-based, with durable and re-usable materials that can be used again and again. The boards that students can write on have been laminated and a dry erase marker has been provided. **Some of those boards will need to be cut** on the dotted line so each student has their own board.

We **highly recommend that the games be played more than one time** as skill improvement, cognitive understanding, and strategy development will increase with additional play.

Here is a list of some suggested uses for MANGO Math kits:

- **Activity Centers** - select 3 to 5 lessons and place them at different locations. Students work at each center for 15 to 20 minutes and then rotate to the next center.
- **Quiet Time Activity** - lessons are self-directed, students can take out an activity to do on their own.
- **Out of School Time** - used to reinforce or review previous classroom work.
- **Parent/Volunteer Groups** - an adult or older child working with the students creates an atmosphere of advanced learning. They can ask questions of the students that will help deepen understanding.
- **Resource Room/Tutoring Tool** - the games and activities can be taken from any grade level kit depending upon the students abilities to reinforce math concepts
- **Family Math Night/Student Check-out** - getting the parents involved is a great way to promote math comprehension and self-esteem for both the parent and child.
- **Fill "Holes" in Existing Curriculum** - lessons are designed to enhance any existing math curriculum.

We hope that you enjoy MANGO Math. For more information, please visit our website at [www.mangomath.com](http://www.mangomath.com), or feel free to contact me at the email address below.

Enjoy Math,



Mary Curry, President and Founder  
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# MANGO Math Curriculum Overview by Grade Level:

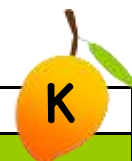
Lessons, Strands, and Standards

The logo for Mango Math Group is printed on a green grid-patterned notepad. It features the word "mango" in a large, green, cursive font. Below it, the words "math group" are written in a smaller, black, cursive font. To the right of the text is a small orange mango with a green stem and leaf.

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# MANGO Math Kindergarten Lessons



Activity	Standard	Description of Game or Activity
<b>Measurement</b>		
<b>Guess My Size</b>	Directly compare two objects with measurable attribute in common see which object has more/less. CCSS K.MD 2 - TEKS K7 A, B	Using differing amounts of connected links to estimate linear measurements, students reinforce understanding of the mathematical terms longer/greater than, shorter/less than, same/equal.
<b>Captain Says</b>	Describe measurable attributes of objects, such as length. Describe several measurable attributes of a single object. CCSS K.MD 1 - TEKS K7 A, B	Using the game similar to <i>Mother May I</i> , students will develop an understanding of non-standard units of measure and that foot steps, hops leaps etc. are all different lengths and not consistent.
<b>Algebraic Thinking &amp; Operations</b>		
<b>Add'em Up</b>	Represent addition and subtraction with objects, mental images, drawings, verbal explanation, expression or equation. CCSS K.OA.1 - TEKS K3A	Rolling dice to create a sum, students will record the total on the game board. They may also determine that certain sums will occur more often than others.
<b>Master 10</b>	For any number from 1 to 9, find the number that makes 10 when added to the given number. CCSS K.OA 4 - TEKS K3B	Using connecting cubes, students will create different combinations that make the sum of 10. They will then play a concentration game that has them turning over two cards to see if those two make the sum of ten.
<b>Clip On</b>	Fluently composing and decomposing numbers to 10; join sets of objects to show addition and subtraction. CCSS K.OA 1 & 3 - TEKS K3A	Taking a number greater than 5 and creating different number expressions, students will represent the equivalence of that number by using clothes pins.
<b>Build a Number</b>	Correlating a number generated with number of cubes; gaining a foundation for place value. CCSS K.OA 2 - TEKS K2I	Students will spin a number to create an amount in the tens place and an amount in the ones place. Students will build that number using connecting cubes and compare their number with their fellow students.
<b>Nurtle the Turtle</b>	Decompose numbers less than or equal to 10 into pairs in more than one way and record each decomposition. CCSS K.OA 3 - TEKS K2I, K3B	Using a ten frame board on a turtle shell, students will be working on the different ways a number can be represented in different groupings or equations. For example $6 = 1 + 5, 2 + 4, 3 + 3, 5 + 1, \text{ or } 4 + 2$ .
<b>Number Counting &amp; Cardinality</b>		
<b>20 Little Monkeys</b>	Compose and decompose number from 11—19 understanding that these number are composed of tens and ones. CCSS K.NBT 1 - TEKS K2EFGH	Students will play a matching game where they will match quantity of monkeys with numeral amount. They will also count backwards from 20.
<b>Domino Match</b>	Understand that the relationship between numbers and quantities. Count objects each object has one number. CCSS K.CC 4b - TEKS K2 ACDE	Students will compare the number of dots on a domino to the number on a playing card.
<b>Domino Train</b>	Identify whether a number of objects in on group is larger than, less than or equal to the number of objects in another group. CCSS K.CC 5 - TEKS K2 GH	Comparing dots on dominos, students will determine which domino has more than, less than or an equal amount of dots.
<b>Follow Suit</b>	Understand that each successive number name refers to a quantity that is one larger. CCSS K.CC 4c - TEKS K2 E	Playing a card game, students will work on number recognition, as well as the correct ordering, "forward" and "backward" of whole numbers.
<b>Number &amp; Operation in Base Ten</b>		
<b>Bear Share</b>	When counting objects, say the number names in the standard order, pairing each object with one and only one number name and each number name with one and only one object. CCSS K.CC 4b - TEKS K2A	Spinning a spinner to get a number, students will collect the number of bears, write that number down and then divide it into groups of two and write those number down.
<b>Clip Strip</b>	Count forward and backward beginning from a given number within the known sequence. CCSS K.CC 2 - TEKS K5	Covering numbers on a number line with clothes pins, students will determine which numbers are covered.
<b>Leap Frog</b>	Compare numbers between 1 & 30. Use terms such as above, below, in front, behind and next to locate numbers on a number line. CCSS K.G 1, CCSS K.CC 7 - TEKS K2E	From the information provide on a card, students will place their game piece on the correct number on a number line.
<b>Dump It</b>	Understand the relationship between umbers and quantities; connect counting to cardinality. Master the sums that make 10. CCSS K.CC 6 - TEKS K2E	Placing 10 counters in a cup, students will dump it and count how many are red, how many are yellow, mastering the two numbers that add up to 10.
<b>Firefly Trap</b>	Count forward beginning from a given number with the known sequence and write numbers. CCSS K.CC 2 - TEKS K5	Using a game board, students will roll dice, add the numbers, and circle that amount on the game board.
<b>Geometry</b>		
<b>Pattern Creator</b>	Correctly name shapes regardless of their orientations or overall size. CCSS K.G 6 - TEKS K6A	Selecting a card with a shape, students will recreate that shape by collecting pattern block pieces. This will help to build spatial relationships as well as rotational and transformational skills.
<b>Shape Search</b>	Describe objects in the environment using names of shapes. CCSS K.G 1—TEKS K6D	Looking for the standards shapes; hexagon, trapezoid, rhombus, triangle, rectangle and circle; students will cover matching shapes on the board to win the game.
<b>Ordering Data</b>		
<b>Button Bonanza</b>	Describe measurable attributes of objects. Describe several measurable attributes of a single object. CCSS K.MD 3 - TEKS K8ABC	Explain how buttons can be categorized by different characteristic; shape, color, size.
<b>Wee Bears</b>	Classify objects into given categories; count the number of objects in each category and sort the categories by count. CCSS K.MD 3 - TEKS K8ABC	Organizing bears by different attributes and then charting those attributes will help the students understand how to organize and read a bar graph.



# MANGO Math 1st Grade Lessons



Activity	Standard	Description of Game or Activity
<b>Measurement</b>		
<b>Door to Door</b>	Understand that the length measurement of an object is the number of same-size length units that span it with no gaps or overlaps. CCSS 1.MD 2 TEKS 1.7A D	Using links as non-standard units of measure, students will measure distances from one house to another. They will compare distances and determine which is further and closer and by how much.
<b>Ms. Fox, What Time Is It?</b>	Tell time in hours and half-hours using analog clocks. CCSS 1.MD 3 TEKS 1.7E	Using an analog clock, one student will create a time on a clock and the other students will tell what time is represented.
<b>Algebraic Thinking &amp; Operation</b>		
<b>Caterpillar Counting</b>	Relative counting to addition and subtraction by counting on by 2 or add 2 and by counting on with 10s. CCSS1.OA.C5, TEKS 1.5AB	Given a starting number students will write numbers in increasing or decreasing order on a caterpillar by 1s, 2s, or 10s.
<b>Crack the Combo</b>	Using addition within 20 to solve word problems involving a situation of adding to, comparing. CCSS 1.OA, TEKS 1.4B	Given a clue to a combination, students will organize different combination of digits to reach a specific sum.
<b>Cue</b>	Apply properties of operations as strategies to add and subtract. CCSS 1.OA 3, TEKS 1.3C D	Placing 9 playing cards on a table, students will select 2 cards whose sum is 10. Once they have mastered 10, move on to 11 and 9.
<b>Jump Off</b>	Use addition and subtraction within 30 to solve situations of adding to, taking from, and comparing using drawings. CCSS 1.OA 1, TEKS 1.3F	Using a number line, students will roll dice that will give them a number and an operation, either addition or subtraction. Students will move up and down the number line as they add and subtract numbers.
<b>MANGO BINGO</b>	Using addition or subtraction to solve problems by using objects to represent a number CCSS1.OAA1, TEKS1.2A	Subitizing is the ability to see a small amount of objects and know how many there are without counting. Students will add number and find a pictorial math
<b>Monster Math</b>	Relate counting to addition by counting on 2 to add to 2 or counting on 3 to add 3. CCSS 1.OA 5, TEKS 1.5B	Creating a funny face using pattern blocks, students will predict how many of each feature there will be on multiple replicas of that same face.
<b>Over the Rainbow</b>	Determine the unknown whole number in an addition or subtraction equation relating three whole numbers. CCSS 1.OA 8, TEKS 1.3B	Rolling dice, students will fill in numbers on an equation board and figure out the unknown amount and move that amount on the game board. First person over the rainbow wins.
<b>Salute</b>	Understand subtraction as an unknown-addend problem. CCSS 1.OA 4, TEKS 1.3F	Playing a game where players can see only one card and a judge gives the product or sum, students will need to figure out the value of the other card.
<b>Tic-Sum-Toe</b>	Adding three numbers together understanding the commutative and associative properties of addition. CCSS 1.OA 3, TEKS 1.5G	Students will find sums on board and figure out the addends to create the sum. They will try and get four numbers in a row.
<b>Winner Dog</b>	Using addition to solve problems involving situations of putting together and comparing unknowns by using objects. CCSS1.0AA.2	Students will place pattern blocks on a board, each block represents a different number value, students will add up quantities of each piece to get a total.
<b>Number &amp; Operations in Base 10</b>		
<b>Number Neighbors</b>	Given a two-digit number, mentally find 10 more or 10 less than the number without having to count. CCSS 1.NBT 5, TEKS 1.5C	Using the chart provided, students will determine what number comes before and after a number they select, as well as 10 more and 10 less. They will record the information on a number chart.
<b>Order Up</b>	Add or subtract multiples of 10 in the range of 10-90. CCSS1.NBT.C.5, TEKS1.3 C.D	Different sandwich items will have different values, students will add on to or take away from a sandwich in multiples of 10 to reach a total.
<b>Out of Order</b>	Compare two-digit numbers based on meanings of the tens and ones digit, recording the results of comparisons with the symbols $>$ , $=$ , $<$ . CCSS1.NBT3, TEKS1.2G	Students will place numbers in order and explain which ones are greater or less than another number.
<b>Roller Coaster Ride</b>	Add within 100, including adding a two-digit number and a one-digit number and adding a two-digit number and a multiple of ten. CCSS 1.NBT 4, TEKS 1.2B	Spinning a spinner, students will create the number of people who will ride on a roller coaster. They will fill up cars of 10 and build a train that can be 10 cars long. Students will state how many riders by looking at the cars.
<b>Geometry</b>		
<b>Blockade</b>	Compose shapes to create a composite shape using; squares, triangles, rhombus and trapezoids. CCSS 1. G2, TEKS 1.6B	Dividing pattern block shapes evenly, each student will try and place one of the shapes on the board. Last shape in wins.
<b>Magic Shapes</b>	Compose two-dimensional shapes to create a composite shape using; rectangles, squares, trapezoids, triangles. CCSS 1.G 2, TEKS 6C	Working with tangram shapes, students create the shapes on the cards and explore making some of their own figures using all the tangrams.
<b>Ordering Data</b>		
<b>Blink®</b>	Organize, represent, and interpret data with up to three characteristics; number, shape, color. CCSS 1.MD 4, TEKS 1.8A	Playing the card game Blink®, students will match cards with similar attributes to see which student will use up all their cards first.
<b>Skyscraper Math</b>	Organize, represent, and interpret data with up to three categories; ask and answer questions about the total number of data points. CCSS 1.MD4, TEKS 1.8A	Rolling dice, students will add numbers to create a total number of floors in a building. They will create buildings for their block and compare sizes within the block and within the cityscape.

# MANGO Math 2nd Grade Lessons



Activity	Standard	Description of Game or Activity
<b>Measurement</b>		
<b>Broken Ruler</b>	Estimate lengths using units of inches and centimeters. CCSS 2.MD 3, TEKS 2.9AD	Using "broken" rulers students will start at a mark other than 0, they will then determine the length and compare outcomes.
<b>Coin Collecting</b>	Solve problems involving quarters, dimes, nickels, and pennies. CCSS. 2.MD 8, TEKS 2.5A	Collecting and exchanging coins students will learn the value of pennies, nickels, dimes, quarters and half dollars.
<b>Rock Around</b>	Practicing telling time up to 5 minutes, comparing times CCSS 2. MD 7, TEKS 2.9G	Using the clocks on the game board, students will recognize digital time and analog time
<b>Algebraic Thinking &amp; Operations</b>		
<b>Even Steven</b>	Determine whether a group of objects has an odd or even number of members by pairing objects or counting them by 2s. CCSS 2.OA 3, TEKS 2.7A	Using connecting cubes, students will connect different amounts together and determine if the shape is even or odd. They will then play a game in determining which numbers are even and which are odd.
<b>Sea Side</b>	Fluently add and subtract within 20 using mental strategies. CCSS 2.OA 2 - TEKS 2.4A	Using the pictures in the equation, students will determine what value each sea creature has and balance one side with the other.
<b>What's Your Number</b>	Solve word problems involving adding to, taking from, comparing with unknowns in all positions. CCSS 2.OA 1, TEKS 2.7C	Students will use clues to determine which place each number is located by drawing cards with clues to the value and location of each number.
<b>Strike Out</b>	Use addition and subtraction within 100 to solve one -and two-step word problems involving adding to, taking from, comparing with unknowns in all positions. CCSS 2.OA 1, TEKS 2.7C	Using a number line, students will strike out numbers that equal the total number rolled. As they play, students will have fewer and fewer numbers to use to create an equation.
<b>Number &amp; Operations with Base 10</b>		
<b>4 Way Shuffle</b>	Add and subtract within 1000 using strategies and algorithms based on place value, properties of operations, and the relationship between addition and subtraction. CCSS 3.NBT 2, TEKS 2.4A	Shuffle playing cards around to create a two two-digit equation that when added or subtracted is close to the target number. Students will determine who has come closest to or equals the target number.
<b>I'm the Greatest</b>	Read and write numbers to 1000 using base-ten numerals, number names and expanded form, comparing numbers. CCSS 3NBT 3 & 4, TEKS	Using a numbers chart, students will count in multiples of a specific number and move their pawn to the correct number.
<b>Skipping Along</b>	Count with in 1000; skip counting by 5s, 10s, 100s. CCSS 2.NBT 5, TEKS 2.4B	Students will learn to round two-digit numbers to estimate total. Determine who is faster; the one who rounds and adds or the one who just adds.
<b>100</b>	Fluently add and subtract within 100 using strategies based on place value. CCSS 2.NBT 5, TEKS 2.4B	Using playing cards, students will look at the target numbers select the cards that when added to that target number will equal 100.
<b>Lose Your Cents</b>	Understand subtraction of numbers based on ones, tens, hundreds, having to compose or decompose tens or hundreds. CCSS 2.NBT 7, TEKS 2.4C	Using pennies for ones and dimes for tens, students will start with 99 cents and continue to subtract cents, using regrouping, until one student reaches the least amount of cents.
<b>Subtraction Action</b>	Add and subtract within 1000 using strategies based on place value, properties of operations, and the relationship between the two. CCS 3.NBT,	Students will be subtracting a specific number from every equation on the game board to become more fluid with their subtraction.
<b>Number Neighbors II</b>	Mentally add 10 or subtract 10 from a given number. CCSS 2.NBT 8, TEKS 2.7B	Filling in number squares, students will determine numbers that come before or after a given number and numbers that are ten more and ten less. They will then put all the squares together to create a 100s chart.
<b>Cash In</b>	Understand that two digits in a two-digit number represents amounts of hundreds, tens and ones. CCSS 1.NBT 2, TEKS 2.2B	Working with money, students will create monetary amounts that equal a specific total. Other students will have to guess the amount of ones and tens that make that total.
<b>Slip 'N Slide</b>	Fluently add and subtract within 100 using strategies based on place value and properties of operations. CCSS 2.NBT 5, TEKS 2.4C	Using a 100s chart, students will add and subtract groups of tens and ones, moving up and down the numbers chart.
<b>Geometry</b>		
<b>4 Squares</b>	Partition a rectangle into rows and columns of same-size squares and count to find total. CCSS 2.G2, TEKS 2.6A	This game helps to create the foundation for multiplication. Students will be rolling a double dice to generate two numbers. The numbers will tell them how many square will be in a row and how many squares in a col-
<b>Cookie Crumbs</b>	Partition rectangles into equal shares, describe the shares using words like halves, thirds, fourths. Recognize equal shares of identical wholes. CCSS 2.G3, TEKS 2.3AB	Using fraction squares, students will identify fractional amounts of a rectangle working with 1/2, 1/3, 1/4, 1/5, 1/8, 1/10, 1/12.
<b>Ordering Data</b>		
<b>Stop or Dare</b>	Collect data to gather information about the likelihood of something happening. Use data to make decisions. CCSS 2.MD 10, TEKS 2.10C	Rolling two dice, students will create two-digit numbers that they will add to the next two-digit number, gaining points towards the target goal, but if a player rolls a 1 they will lose points.
<b>Worm Hole</b>	Generate measurement data by measuring lengths. Show the measurement by making bar graphs. CCSS 2.MD 9, TEKS 2.10B	Using worms that represent line segments, students will create a path to a worm hole. Students will add up the distance in inches to determine length of travel and determine if there are longer or shorter routes.

# MANGO Math 3rd Grade Lessons



Activity	Standard	Description of Game or Activity
<b>Measurement</b>		
<b>Got Room</b>	Recognize area as an attribute of plane figures and understand concepts of area measurement. CCSS 3.MD 5, TEKS 3.6C	Rolling dice and multiplying the numbers together to create a product, students will create an array on the board trying to fill in space so that the other player cannot move on the board.
<b>Pirates Booty</b>	Generate measurement data by measuring lengths using ruler marked with halves and fourths of an inch. CCSS 3.MN 4, TEKS 3.7A	Measuring line segments accurately to the nearest 1/4 or 1/2, students will read map directions to determine which direction the line will be drawn. Students are to see how accurate they are at locating a treasure.
<b>Race for Time</b>	Tell and write time to nearest minute and measure time intervals in minutes. Solve word problems involving time intervals. CCSS 3.MD1, TEKS 3.7C	Using a board game students, will track time as they go from stop to stop. Students will track minutes and hours and need to determine AM and PM times over a 24 hour period.
<b>Algebraic Thinking &amp; Operations</b>		
<b>Array Around</b>	Use multiplication and division within 100 to solve problems involving equal groups, arrays, and measurement quantities by using drawings and equations. CCSS 3.OA 3 3.MD7a, TEKS 3.5C	Using a grid, one student will draw a rectangular array and tell the area. The other students will give points on similar grid to try and determine the length, width, and location of that array.
<b>Crazy Cash</b>	Fluently add and subtract within 100 using on place value, properties of operation and the relationship between addition and subtraction. CCSS 3.NBT 2, TEKS 3.4A	Counting money from a given amount up to a dollar using pennies, nickels, dimes and quarters, students will be reinforcing the strategy of using "easy counting numbers" to reach a total.
<b>Feet on the Farm</b>	Use multiplication within 100 to solve problems in situations involving equal groups CCSS 3.OA 3, TEKS 3.4D	Rolling dice, students will determine how many feet a certain number and type of animal has, they will compare the different amounts and determine who has the most "Feet on the Farm".
<b>Gumball Jumble</b>	Interpret whole-number quotients of whole numbers, interpret the number of objects in each share. CCSS 3.OA 2, TEKS 3.4H	Rolling dice and spinning a spinner, students will generate numbers that will represent the number of jars filled and the number of gumballs in each jar to solve for total gumballs.
<b>In &amp; Out Hero</b>	Determine the unknown whole number in a multiplication or division equation relating three whole numbers. CCSS 3.OA 4, TEKS 3.4H	Playing a board game using sandwich orders, students will figure out functions that follow simple multiplication rules.
<b>Know the Facts</b>	Fluently multiply and divide within 100 using strategies. CCSS3.OA4.C7, TEKS 3.4A	Using strategies, students will master facts up to 10 and keep track of their progress.
<b>Math Buzz</b>	Identify arithmetic patterns and explain them using properties of operations. CCS3OA.D.9, TEKS3.4E	Counting by multiples of a single digit number, students will start to hear patterns in the numbers. Incorrect response results in one fewer students.
<b>Salute</b>	Understand division as an unknown-factor problem. CCSS 3.OA 6, TEKS 3.4F	Playing a game where players can see only one card and a judge gives the product or sum, students will need to figure out the value of the other card.
<b>Number, Fractions &amp; Operations in base 10</b>		
<b>Cookie Munch</b>	Understand a fraction 1/b as the quantity formed by 1 part when a whole is partitioned into b equal parts; understand a fraction a/b as the quantity formed by a parts of 1/b. CCSS 3.NF, TEKS 3.3E	Rolling dice to create fractional amounts that the students can collect in the form of pattern block pieces, students will solve for equivalent fractions while making exchanges of pieces.
<b>Push Up</b>	Fluently add and subtract within 1000 using strategies and algorithms based on place value. CCSS3.NBT.A.1, TEKS3.4A	Learning the fundamentals of rounding a number to the nearest 10, 100 and 1000 to add and subtract numbers quickly.
<b>Spilt Milk</b>	Understand a fraction 1/b as the quantity formed by 1 part when a whole is partitioned into b equal parts; Measure liquids CCSS 3.MD2, TEKS 3.3G, CCSS 3.NF 1	Collecting and exchanging equivalent capacity units of cups, pints, quarts and gallons, students will exchange amounts to collect a gallon. The measuring units relate to fractional amounts.
<b>Spiral Around</b>	Identify arithmetic patterns and explain them using properties of operations. CCSS 3.OA 9 & 3.NBT 3, TEKS 3.2B	Playing a board game, students will roll a number and multiply it to either 10, 100 or 1000. They will keep track of the amounts to determine a score.
<b>You and Me</b>	Understanding of fractions as a number. Understand fractions as the quantity formed by one part of a whole. CCSS3.NF.A.3, TEKS3.3A	Helping to better understand fractions, in particular equivalent fractions, students will determine parts of a whole number.
<b>Geometry</b>		
<b>Polygon P.I.</b>	Recognize rhombus, rectangles, and squares as examples of quadrilaterals. CCSS 3.G 1, TEKS 3.6A	Like the board game "Guess Who," students will eliminate possible characteristics of the polygons to determine which shape the other player holds.
<b>Tile Shuffle</b>	Recognize area as an attribute of plane figures and understand concepts of area measurement. CCSS 3.MD 5, TEKS 3.6D	Collecting tiles, students will create a polygon shape that meets the stated perimeter and area. Students will need to move the tiles around to form a shape that is non-rectangular.
<b>Ordering Data</b>		
<b>Ice Cream, You Scream</b>	Draw a scaled bar graph to represent a data set with several categories. CCSS 3.MD 3, TEKS 3.8A	Gathering information off combinations of different types of ice cream, students will determine how many combinations of ice cream are available.
<b>Math Quiz</b>	Draw a scaled bar graph to represent a data set with several categories. CCSS 3.MD 3, TEKS 3.8B	Using a fun math quiz about mathematicians, students will track answers to questions. They will then organize the data to determine a result.

# MANGO Math 4th Grade Lessons



Activity	Standard	Description of Game or Activity
<b>Measurement</b>		
<b>Check Out Challenge</b>	Use addition and subtraction to solve word problems involving money, including problems involving simple decimals. CCSS 4.MD 2, TEKS 4b 1A	Given a budget, students will create dollar and cents amounts and calculate a total staying within the stated budget.
<b>Measure for Measure</b>	Know relative sizes of measurement units within one system of units. Express measurements in a larger unit in terms of smaller unit. CCSS 4.MD 1, TEKS 4-8A	Converting measurements within a unit of measure, students will move around a game board if they answer the questions correctly.
<b>Tricky Tangrams</b>	Apply the area formulas in real-world mathematical problems using simple fractions. CCSS 4.MD.A.3	Using tangrams, students will be given the area of one shape within the 7 shapes in a tangram. They are then to calculate the other shapes area and create a larger polygon that meets a specific area.
<b>Algebraic Thinking &amp; Operations</b>		
<b>Be Fair</b>	Multiply or divide to solve word problems involving multiplicative comparison, use symbol for the unknown number. CCSS 4.OA 2, TEKS 4-5A	Students will distribute tokens evenly amongst a predetermined amount of friends who will partake in the different carnival rides on the game board. Students will calculate how they use up all the tokens.
<b>Dollar Dilemma</b>	Solve multistep word problems posed with whole numbers and having whole-number answers using the four operations. CCSS 4.OA 3, TEKS 4-1B	Students will calculate how much money a character will collect over a 10 day period. They will then graph the money amount and compare it to other characters' salaries.
<b>Factor Game</b>	Find all factor pairs for a whole number in the range 1–100. Recognize multiple of each of its factors. CCSS 4.OA, TEKS 4-4H	Playing a board game, students will either cover a multiple or its factors and try to gain more points than the other player.
<b>Jumping Around</b>	Generate a number that follows a given rule. Identify apparent features of the pattern that were not explicit in the rule itself. CCSS 4.OA 5 TEKS 4-5B	Given "start" and "jump" numbers, students will record results of their frog jumps and review the results; noticing number patterns and making predictions based on those patterns.
<b>Tic-Fact-Toe</b>	Find all the factor pairs for a whole number in the range 1–100. Recognize that a whole number is a multiple of each of its factors. CCSS 4.OA 4, TEKS 4-4H	Playing a game that reinforces multiples and factors, students will cover factors in order to strategically cover four multiples in a row on a board.
<b>Number &amp; Operations in Base 10 &amp; Fractions</b>		
<b>Combing Thru Fractions</b>	Solve problems involving multiplication of a fraction by a whole number using visual fraction models. CCSS 4.NF 4c, TEKS 4-3A	Students will play a game where they move by determining what fractional equation on the board is equal to the number that was rolled.
<b>Divide &amp; Conquer</b>	Find Whole-number quotients and remainders with up to 4-digit dividends & 1-digit divisors CCSS 4.NBT 6, TEKS 4-4E	This game reinforces the long division algorithm. Students will draw playing cards to generate divisor and dividends. They will solve the problem to move their game pieces.
<b>Frozen Fraction Friends</b>	Understand addition and subtraction of fractions as joining and separating parts referring to the same whole. CCSS 4NF 1, TEKS 4-3B	Students will roll fraction dice and add the two fractions together, some of the fractions will require finding a common denominator and others to change a improper fraction into a mixed number.
<b>Lattice Multiply</b>	Multiply a whole number of up to 4-digits by a 1-digit whole number, using strategies based on place value. CCSS 4.NBT 4, TEKS 4-4F	Rolling place value dice, students will create numbers to multiply. They will first estimate what the total will be and then do the lattice algorithm to determine the total.
<b>More or Less Half</b>	Compare two fractions with different numerators and different denominators by comparing to a benchmark fraction like 1/2. CCSS 4.NF 2, TEKS 4-3F	Organizing fractional cards, students will determine if their fraction is less than 1/2, more than 1/2 or greater than 1.
<b>Number Crunching</b>	Compare two decimals to hundredths by reasoning about their size. CCSS 4.NF 7, TEKS 4-3D	Students will be generating numbers to meet a category requirement and then compare those numbers to see whose number is the largest.
<b>Speed Rounder</b>	Use place value understanding to round multi-digit whole numbers to any place. CCSS 4.NBT 3, TEKS 4-4G	Students use cards to generate numbers they will round to the nearest place: tens, hundreds, thousands, ten thousands, and hundred thousands.
<b>Spin to Win</b>	Recognize that in a multi-digit whole number, a digit in one place represents 10 times what is represents in the place to the right. CCSS 4.NBT 1, TEKS 4-4B	Spinning to generate different numeric values, students will multiply or divide different numbers to reach a total sum.
<b>Whole Way Out</b>	Understand addition and subtraction of fractions as joining and separating parts referring to the same whole. CCSS 4NF 1, TEKS 4-3B	Students will be determining the fraction that creates a whole by simplifying fractions with unlike denominators.
<b>Geometry</b>		
<b>Cross the Line</b>	Classify two-dimensional figures based on the presence or absence of angles, perpendicular and parallel lines.. CCSS 4.G 1 & 2, TEKS 4-6D	Students will recognize angles and lines on a game board and label them correctly.
<b>What's Your Angle</b>	Understand concepts of angle and measurement angle.. CCSS 4.MD 5, TEKS 4-7B	Creating angles, students will determine the type and estimate angle degrees. They will then measure the angle using a protractor and compare their estimate to the actual measurement.
<b>Odds &amp; Order</b>		
<b>Grab Bag</b>	Solve word problems involving addition and subtraction of fractions referring to the same whole and having like denominators. CCSS 4.NF 3d, TEKS 4-3A	Taking random samples, students will predict how many of a certain color tile are in the bag in relationship to two or three other colors.

# MANGO Math 5th Grade Lessons



Activity	Standard	Description of Game or Activity
<b>Measurement</b>		
<b>Liters, Meters, and Grams</b>	Convert different-sized standard measurement units within a given measurement system (convert 5 cm to .05 m). CCSS 5.MD 1, TEKS 5-5	While playing this game, students will become familiar with metric units of measurement and practice their multiplication and division of 10s, 100s & 1000s.
<b>Pump Up the Volume</b>	Apply the formulas $V = l \times w \times h$ and $V = b \times h$ for rectangular prisms to find volume of right rectangular prisms. CCSS 5.MD.C.5, TEKS 5-6B	Using centimeter cubes, students will determine volume of a rectangular prism and make estimates on if the volume of their prism is more than another player.
<b>Algebraic Thinking</b>		
<b>Cash Machine</b>	Generate numerical patterns using two given rules. Identify apparent relationships between terms. CCSS 5.OA 3, TEKS 5-4C	Playing bank tellers, students will give money to the "banker," who will exchange the money for a different amount. Players will need to figure out what exchange is happening in each transaction.
<b>Four Fold</b>	Use simple expressions that record calculations with numbers and interpret numerical expressions without evaluating. CCSS 5.OA 2, TEKS 5-4E	Using playing cards, students will try and create an accurate number sentence with the 4 cards they have turned over.
<b>Free Wheeling</b>	Generate numerical patterns using two given rules. Identify relationships between rules. CCSS 5.OA 3, TEKS 5-4C	Drawing a card with a set pattern, students will use plastic sticks to determine how that pattern changes and what that pattern will look like over a series of increases.
<b>Number &amp; Operation with Fractions</b>		
<b>That's Improper</b>	Compare fractions by creating a mixed number then simplifying to compare. Add and subtract fractions. CCSS 5.NF 1, TEKS 5-3H	Generating fractions from a spinner, students will convert improper fractions to mixed numbers and reduce mixed numbers to their lowest terms.
<b>Close Call</b>	Fluently multiply multi-digit whole numbers using strategies placed on place value understanding. CCSS 5.NBT 5, TEKS 5-1F, 3B	Forming two numbers, students will try to create an equation whose product is closest to the target number. When forming their equations, the player may only use each digit once.
<b>Be Rational</b>	Use place value understanding to round decimals to any place. CCSS 5.NBT 4, TEKS 5-3D	Rolling dice, students will create numbers to the thousandths. Round the number to the nearest tens, ones, tenths and hundredths, compare results.
<b>Ditto</b>	Replace given fractions with equivalent fractions in such a way as to produce an equivalent sum or difference of fractions. CCSS 5.NF 1, TEKS 5-3H	Rolling a fraction dice, students will find its equivalent fraction and cover that number on the game board. First player with four covered fractions in a row wins.
<b>Divisors Matter</b>	Apply and extend previous understanding of division to divide unit fractions by whole numbers and whole numbers by unit fractions. CCSS 5.NF 7, TEKS 5-3J	Rolling dice, students will create a whole number and a fraction. Students will determine which number will be the divisor. Answers that are whole numbers move forward, answers that are fractional amounts move back.
<b>Fraction Blocks</b>	Solve real world problems involving multiplication of fractions & mixed numbers by using fractional models. CCSS 5.NF 4, TEKS 5-3I	Using fraction pattern blocks as examples, students will play a game that will deepen their understanding of the multiplication of fractions.
<b>Great Divide</b>	Apply and extend understanding of multiplication to multiply a fraction or whole number by a fraction. CCSS 5.NBT 6, TEKS 5-3B	Creating two- to three-digit numbers, students will use the test of divisibility to determine if the number is divisible by the numbers on the cards they hold in their hand.
<b>LCM/LCD</b>	Add and subtract fractions with unlike denominators by replacing given fractions with equivalent fractions. CCSS 5.NF 1, TEKS 5-3H	Like in the classic card game War, students will place two cards face up, the first student to say the least common multiple of the two cards wins the cards. They can then evolve the game into finding LCD in a
<b>Remainder Wanted</b>	Find whole-number quotients of whole numbers with up to three-digit dividends and two-digit divisors, using strategies. CCSS 5.NBT 6, TEKS 5-3C	Rolling a dice to create a divisor students will find a dividend on the board that they think will result in having a remainder. Players score points from the amount of the remainder.
<b>Two Point Five</b>	Explain patterns in the number of zeros of the product when multiplying a number by powers of 10, and explain patterns in the placement of decimal point. CCSS 5.NBT 2, TEKS 5-2A	Spinning a spinner, students will determine if they are multiplying or dividing by .1, .01, .001.
<b>Geometry</b>		
<b>Nine Men Morris</b>	Reason abstractly, make sense of problems and persevere. Look for and express regularity in repeated reasoning. CCSS.5, TEKS 5b-1B	Strategically play a board game that traps your opponent so they can no longer move or to capture all their playing pieces except for two.
<b>What Side are You On, Polygon</b>	Classify two-dimensional figures into categories based on properties CCSS.5 G.B.3, TEKS 5 5b-1F	Using a Anglegs students will create polygons that fit the criteria listed on a flow chart.
<b>Coordinate Game</b>	Graph points on the coordinate plane to solve real-world and mathematical problems. CCSS.5.GA 1, TEKS 5 8A	Playing a game to get 4 points on a grid in a row. Students will find it challenging as they can only change one of the numbers in the coordinate on their turn.
<b>Odds &amp; Order</b>		
<b>Fair Game</b>	Make a line plot to display a data set of measurement in fractions of units. Use fractions to solve problems using line plot information. CCSS	Selecting one of four games, student will play a probability game a number of times, record the results and determine if the game is fair or not. Students can work towards changing a game to make it fair.
<b>Mean War</b>	Solve for mean, median, mode and range and understand their differences. CCSS 5.MD, TEKS 5-9A, 6-12C	Using playing cards students will get a random selection of numbers and have to organize to determine the median, mode, range and mean.

# MANGO Math Pre-Algebra Lessons

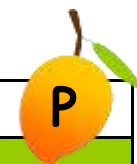


Activity	Standard	Description of Game or Activity
<b>Measurement—Ratio &amp; Proportional Relationships</b>		
<b>Billiards</b>	Recognize and represent proportional relationships between quantities. Decide whether two quantities are in a proportional relationship. CCSS 7.RP 2a, TEKS 6-4C	Using the model of a billiard table, students will construct different size tables and determine the number of times a ball will hit the sides before landing in a corner.
<b>Dots &amp; Boxes</b>	Understand the concept of a ratio and use ratio language to describe a ratio relationship. CCSS 6.RP 1, TEKS 6-4B	Playing the game, students will create boxes on a board and then use the information at the conclusion of the game to determine percent and ratios.
<b>Mini Me</b>	Recognize and represent proportional relationship between quantities. CCSS 7.RP 2, TEKS 8-3A	Students will spin for functions they will use to alter the coordinate points of their Mini-Me. They will then use those coordinates to change their shape.
<b>Task Task</b>	Compute unit rates associated with ratios of fractions. CCSS 6.RP 3b & 7.RP 1, TEKS 7-54B	Using pattern blocks to represent work units or time units, students will solve rate story problems.
<b>Algebra—Expressions &amp; Equations</b>		
<b>Factorland</b>	Apply properties of operations as strategies to add, subtract factors and expand linear expressions with rational coefficients. CCSS 7.EE 1, TEKS 7-10C	Playing a game students will factor out a number or variable as well as use the distributive property to get solutions to gain favor in the game.
<b>Get My Point</b>	Understand the connections between proportional relationships, lines and linear equations. CCSS 8.EE & 7.RP 2b, TEKS 7-7	Using dice, students will create points on a grid, the other student will be challenged to "hit" those points by using the slope-intercept formula.
<b>Great Expressions</b>	Write, read and evaluate expression in which letters stand for numbers. CCSS 6.EE 2, TEKS 6-7B	Reading cards with written expressions, students will translate them into algebraic equations.
<b>Bracket Play</b>	Apply the properties of operations to generate equivalent expressions. CCSS 6.EE.3, TEKS 6-7A	Playing the game, students will apply the correct parenthesis to the series of math numbers and operations to get the correct total.
<b>Indy 500</b>	Use variables to represent two quantities in a real-world problem that change in relationship to one another. Compare two proportional relationships. CCSS 6.EE 9, 8.EE 5, TEKS 7-4A	Using friction cars, students will measure the distance covered by the car and record time to cover distance. They will then solve components of $D = rt$ .
<b>Interest-ed</b>	Use variable to represent numbers and write expressions when solving multiple step real-world problems. CCSS 6.EE.6 & 7.EE 3, TEKS 8-12A	Using a board game, students will move around to different investment institution and then roll a die for certain components of Interest = Prt.
<b>Let's Make a Deal</b>	Find a percent of a quantity as a rate per 100, solve problems involving finding the whole, given a part and the percent. CCSS 6.ERP.A.3C, TEKS 6-4F	Spinning to get an item, players will be given "mark ups" and "mark downs" and will play to see who gets the best percent off of the items they win.
<b>Math Magic</b>	Use variables to represent quantities and construct simple equations and inequalities to solve problems by reasoning. CCSS 7.EE B.3, TEKS 7-11A	Given numerical tricks, a student will read a trick to players who will try and determine why the trick mathematically works.
<b>Pigs and Penguins</b>	Analyze and solve pairs of simultaneous linear equations. CCSS 8.EE 8, TEKS 7-11B	Using pig and penguin dice, players will roll to get the total amount of legs of all animals, players will then need to figure out how many are pigs and how many are penguins.
<b>Prime Time</b>	Use square root and cube root symbols to represent solutions to equations of the form $x^2 = P$ and $x^3 = p$ . CCSS 8.EE 2, TEKS 6-7A	Playing a board game, students will use prime numbers to create a product that they will cover on the board, trying to get 4 of their counters in a row.
<b>Number System</b>		
<b>All Things Equal</b>	Understand the multiplication and division particularly the distributive property. CCSS 7.NS 2, TEKS 7-7C	Using pattern blocks, students will look at pattern equations and solve for a missing piece.
<b>Bottoms Up</b>	Interpret and compute quotients of fractions involving division of fraction by fractions. CCSS 6.NS 1, TEKS 6-3A	Playing a game in which fractions are covered on a board, students will develop a deeper understanding of the division of fractions and reciprocals.
<b>Nim</b>	Reason abstractly, make sense of problems and persevere, Look for and express regularity in repeated reasoning. CCSS6,7,8, TEKS6b1B	Collecting either 1, 2, or 3 counters, students will play a game to see who is left collecting the last counters.
<b>Taxicab Treasure</b>	Understand signs of numbers in ordered pairs as indicating location in quadrants of the coordinate plane. CCSS.6NS.6b, TEKS 6-11	Using a grid, a student will secretly hide a treasure that another student will be asked to find. The student will only be given the distance in "blocks" to the treasure but not in which direction. Students will have to use problem solving skills to narrow down choices.
<b>What's Your Sign</b>	Apply and extend understanding of addition and subtraction, multiplication and division to understanding integers. CCSS 7.NS1 & 2, TEKS 6-3D	Rolling operation dice and positive/negative dice, players will determine if the answer will be positive or negative.
<b>Zilch</b>	Understand that positive and negative numbers are used together to describe quantities having opposite direction or value and comparison of absolute value. CCSS.6NS 5 & 7d, TEKS 6-2B	Using emotion to explain the adding and subtracting of integers, students will create a deeper understanding of positive and negative operations while playing a game that is scored by figuring absolute value.

## MANGO Math Pre-Algebra Lessons cont.

Activity	Standard	Description of Game or Activity
<b>Geometry</b>		
<b>Pythagorean Baseball</b>	Apply the Pythagorean Theorem to determine unknown side lengths in right triangles. CCSS 7.G 7, TEKS 8-6C	Using a baseball diamond, students will roll for different coordinates on their diamonds grid, they will then create a triangle and solve for the hypotenuse.
<b>Taking Up Space</b>	Solve real-life mathematical problems involving angle measure, area, surface area, and volume. CCSS 7.G 6, TEKS 7-8A	Given cards with a 2- or 3-dimensional shape, student will figure out area and volume of the shape based on limited information they have on the length of the sides.
<b>Triangle Techie</b>	Create geometric shapes with given conditions. Focus on constructing triangles from types of angles and types of side measurements. CCSS 7.G 2, TEKS 6-8A	Drawing Anglegs from a pile, students will be challenged to create specific triangular shapes based on angle and side lengths.
<b>Odds &amp; Order—Probability &amp; Statistics</b>		
<b>Scatter Plot Boot Camp</b>	Construct and interpret scatter plots for bivariate measurement data. CCSS 8.SP 1, TEKS 8-11A	Doing exercises, students will record data on number of times they do an activity in a given time and plot results and determine the line of best fit.
<b>Sticks &amp; Stones</b>	Approximate the probability of a chance event by collecting data on the chance process that produces it. CCSS 7.SP 6, TEKS 7-6H	Playing a game based on the Apache game, "Throw Sticks," students will toss sticks in the middle of the place area, move their marker accordingly and keep track of their moves. They will then determine if the

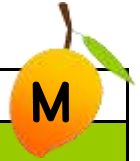
# MANGO Math Problem Solving K—2nd Grade



Activity	Skill	Description of Game or Activity
<b>Monster Math</b>	Students will make a picture to help look for a pattern. Patterns will involve multiples of the same number. CCSS 1.OA 5, TEKS 1.5B	Students will use pattern blocks to create monsters with multiple eyes, ears, mouths, noses and whiskers/antennas. They will then figure out how many eyes etc., there would be on 2 monsters, 4 monsters and so on, looking for patterns.
<b>Tower Total</b>	Students will create a replica of a model and determine how many total blocks are used in creating it. CCSS 1.G, TEKS 1-4C	Students will be showed a picture and will replicate, using blocks, the structure show in the picture. Some of the blocks aren't shown and students will have to use logic to figure out that some blocks might not be shown in picture.
<b>Fruit Salad</b>	Students will solve word problems involving guessing and checking your answers. CCSS 2.OA 1, TEKS 2.7C	Drawing cards with clues to the amount and type of fruit in a salad, students will work together to problem solve and create the salad.
<b>Math Tap</b>	Students will use a guess and check process to determine the value on their cards. CCSS 1.OA 6, TEKS 1.3C D	Students will draw cards but keep them hidden, students will have to make determination on cards drawn if they keep or discard trying to have the lowest hand.
<b>Hidden Objects</b>	Students will use logic and reasoning to determine a number up to 20. CCSS 1.OA 6, TEKS 1.3C D	Students will take turns covering part of a strip of paper and saying which dot is represented. Students will need to use subtraction to figure out how many dots are covered.
<b>Number Chase</b>	Students will use logic and reasoning to determine the hidden number. CCSS K.CC 6 - TEKS K2E	Students will try and guess a predetermined number. Students will draw clues that will help narrow down the possible number choices. First student to guess the correct number wins.
<b>Pattern Block Sudoku</b>	Students will use logic and reasoning to solve the puzzles.	Using pattern blocks students will play the sudoku game. They are to create a box, a column and a row that has only one of each pattern block.
<b>Polygon P.I.</b>	Students will recognize rhombus, rectangles and squares as examples of quadrilaterals. CCSS 3.G 1, TEKS 3.6A	Like the board game "Guess Who," students will eliminate possible characteristics to determine which shape the other player holds.
<b>What Could They Be?</b>	Students will use a number line to determine the value of different points on that line. CCSS 1.NBT 3, TEKS 1.2G	This activity helps with number sense development. Student are to determine what the value is when compared to other number on a number line. This has not right or wrong numbers, encourages dialog among students.
<b>Follow Suit</b>	Understand that each successive number name refers to a quantity that is one larger. CCSS K.CC 4c - TEKS K2 E	Playing a card game, students will work on number recognition, as well as the correct ordering, "forward" and "backward" of whole numbers.
<b>Picture It</b>	Students will solve problems by determining the value of pictures by finding patterns and checking to solve equations. CCSS 1.OA 5, TEKS 1.B	This is a game where pictures represent a number value. Students will need to solve a problem. Students will use logic to determine that the same picture represents the same number. This will help students develop those strong algebraic thinking skills.
<b>Crack the Combo</b>	Using addition within 20 to solve word problems involving a situation of adding to, comparing. CCSS 1.OA, TEKS 1. 4B	Given a clue to a combination, students will organize different combination of digits to reach a specific sum.
<b>I ♥ Math</b>	Students will use a table to determine a pattern to find solutions. CCSS 1.OA 5, TEKS 1.B	Students will use a table to determine where certain letters will fall. Students will look for patterns to determine where further letters will land in which column. Great for Algebraic thinking.
<b>Number Search</b>	Students will use the tactic of making problems simpler by finding "friendly" numbers. CCSS K.OA 4 - TEKS K3B	Students will look through a grouping of numbers to find numbers that make the sum of 10. Working on the strategy of finding "friendly" numbers to help reach a total.
<b>Round Up</b>	Students will round numbers to the nearest 10s to make estimating answers simpler. CCSS 2.NBT 6, TEKS 2.4D	Students will turn over two cards to create a 2-digit number. They will use the number line to determine which number the target number rounds to so that adding the numbers because simpler.
<b>Cube It</b>	Students will use problem solving strategies of modeling to solve a problem.	Students will combine cubes to make a square cube that as a difference colored cube on each side. Think Rubik's Cube.
<b>Money Matters</b>	Students will model a problem and preform addition and subtraction within 100. Understand value of money. CCSS. 2.MD 8, TEKS 2.5A	This activity has students using coins to figure out the answer to the question. They will be given an amount in a purse and solve what coins can make up that amount.
<b>House Hunt</b>	Students will work backwards and attend to precision to solve a problem. CCSS 1.OA 1, TEKS 1.E G	Students will start with a total and work their way through a house with different number values they can subtract from the total. They can only escape the house when they have used up all the points.
<b>The Answer Is?</b>	Students will write math problem using the strategy of working backward. CCSS 1.OA 6, TEKS1.3CD	Students will be given an answer, "9 penguins" students must create a math problem. Students can work up to have a specific number and operation that has to be in the problem.
<b>Variable Veggies</b>	Use addition and subtraction within 100 to solve one-and two-step word problems involving adding to, taking from, comparing with unknowns in all positions. CCSS 2.OA 1, TEKS 2.7C	Given a total weight and using counters to balance the scale, students will be restricted in having the same vegetables worth the same amount regardless of what side of the scale they are on and will need to have each side "weigh" the same.

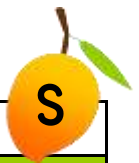


# MANGO Math Money Matters 3rd—5th Grade



Activity	Skill	Description of Game or Activity
<b>Better Deal</b>	Students will divide single divisor into a single or multiple-digit dividends. CCSS 3.OA.B.5	Students will practice the every day life skill of determining what is a better deal 3 for \$6 or 3 for \$5.
<b>Cash Machine</b>	Students will generate numerical patterns using two given rules. Identify apparent relationship between terms. CCSS 5.OA.B.3	Students will learn about functions, a rule to determine how each input will be changed to produce each output, and identify the rule.
<b>Check Mate</b>	Students will write numbers in written and numerical form. Understand the process of writing checks. CCSS 4.NBT.A.2	Students will be given a business in which they owe money and will write a check correctly for that amount.
<b>Check Out Challenge</b>	Students will use addition and subtraction to solve word problems involving money including simple decimals. CCSS 4.MD 2, TEKS 4b 1A	Students will draw cards that will represent a dollar amount and determine if they have stayed within their budget.
<b>Coin a Phrase</b>	Students will skip count by 100s, 25s, 10s, 5s, and 1s like that used in counting change. CCSS.3.OA.D.9	Students will take turns skip counting to practice counting by certain momentary amounts.
<b>Cha, Cha, Cha Changing</b>	Students will solve problems involving quarters, dimes, nickels and pennies. CCSS. 2.MD 8, TEKS 2.5A	Students will collect coins and exchange them for equivalent currency.
<b>Deals and Steals</b>	Students will divide amounts, multiply simple fractions and percent to create a single item's dollar amount. CCSS 5.NF.B.4	Using a maze style game board students will determine best prices to make their way to checkout.
<b>Dollar Dilemma</b>	Solve multistep word problems posed with whole numbers and having whole-number answers using the four operations. CCSS 4.OA 3, TEKS 4-1B	Students will select different salary options to determine who will make the most money.
<b>Food-cation</b>	Multiply or divide to solve word problems involving multiplicative comparison, using symbol for the unknown number. CCSS 4.OA.A3	This activity has students gathering so many tokens and then using the tokens to purchase certain foods that use up the most tokens.
<b>Living within your Means</b>	Multiply or divide to solve word problems involving multiplicative comparison, using symbol for the unknown number. CCSS 4.OA.A3	Students will select cards with salaries and simple life expenses. They will determine taxes and monthly expenses that need to be deleted from salary.
<b>Lose Your Cents</b>	Understand subtraction of numbers based on ones, tens, hundreds, having to compose or decompose tens or hundreds. CCSS 2.NBT 7, TEKS 2.4C	Students will use dollars (hundreds) dimes (10s) pennies (1s) to learn subtraction with regrouping. If student does not have enough pennies, they will have to exchange a dime for ten pennies.
<b>Money Bags</b>	Students will model algebraic thinking to solve the problem. Understand value of money. CCSS 4.OA.A.5	Students will select a card that tells them how much is in the bag, they need to determine what coins represents that amount of money.
<b>Nearest Dollar</b>	Students will use place value understanding to round to the nearest dollar amount. CCSS 4.NBT 3, TEKS 4-4G	Students will generate money amounts with whole and decimal amounts they will then round the number to the nearest whole number.
<b>Profit/Loss</b>	Students will collect money and play the odds of saving it or losing it. Adding and subtracting money. CCSS 5.NBT.B.7	Students will roll dice to create dollar amounts they will collect. They can chose to stop rolling at any point but if they roll a certain number they will lose all their money.
<b>Push the Envelope</b>	Students will understand that two or three digits in a number represents amount of hundreds, tens and ones. CCSS 1.NBT 2, TEKS 2.2B	Students will determine which denomination of bills is in an envelope to realize that 145 can be represented by 14 tens and 5 ones.
<b>Save, Spend, Send</b>	Students will develop place value, addition and subtraction skills in addition some understanding negative numbers. CCSS 5.NBTA.3.A	Students will create numbers, one number is amount they make, one is the amount they spend and the final is the amount they donate This then gets them an amount saved or amount owed.
<b>Spending Habits</b>	Students will develop an understanding of positive and negative numbers as it pertains to debit and credit. CCSS 6.NS.C6	This game has students earning and spending money, they can use a credit card to make payments. Students will then determine if they can pay off the card or not based on the money they earned.
<b>Split the Bill</b>	Students will multiply fractions in order to figure out their portion of a bill. CCSS 5.NF.B.4	Students will play a game that has them multiplying fractions to determine what portion of the bill they are responsible for paying.
<b>Tip Jar</b>	Students will divide decimal numbers. CCSS5.NBT.B.7	Students will create tips in dollars and cents and then divide the tips by the number of players.
<b>Trade War</b>	Students will develop an understanding of availability or scarcity of resources and how that impacts cost.	Student will play a game of collecting a certain card suit, there are fewer of one suit over another those that are scarcer are worth more than the others.

# MANGO Math Sports Crate 5th-8th Grade



Activity	Standard	Description of Game or Activity
<b>Equestrian</b>	Students will apply mathematical practices of reasoning, argument, and perseverance to solve problems. CCSS MP1 - 3, TEKS 7-1B	Students will select cards with a specific course that they need to follow with their horse without tracing over a line segment twice.
<b>Billiards</b>	Use ratio language to describe a ratio relationship between two quantities. CCSS 6.RP.A.1, TEKS 6-4C	Students will roll a dice to get the length of one side of a pool table, they will then establish the length of the other side so that the ball will land in a specific corner.
<b>Dance</b>	Write expressions that record operations with numbers and with letters standing for numbers. CCSS 6.EE.A.2.A Describe the effects of translations, rotations, and reflections on figures. CCSS 8.G.A.3, TEKS 8-8B	Student will perform dance routines with selected dance moves and the audience needs to figure out the algebraic equations that they are performing.
<b>Iditarod Race</b>	Using the Iditarod race as a means to solve real world math problems dealing with elapsed time. CCSS 6.M3 TEKS 6-1C	Students will roll dice to create times that they then use to get to different resting points on the board. They will learn about the Iditarod race and some of its history.
<b>Basketball</b>	Using basketball scores to solve real-world and mathematical problems leading to two linear equations in two variables. CCSS 8.EE.8.C, TEKS 7-11B	Students will roll dice to generate types of baskets made; 1, 2, 3 pointers. They will share data with other team who needs to determine how many points from each point position.
<b>Indy 500</b>	Use variables to represent two quantities in a real-world problem that changes in relationship to one another. Compare two proportional relationships. CCSS 6.EE 9 & 8.EE 5, TEKS 7-4A	Students will use friction cars and record the time the car travels over a measure distance then use the distance formula to determine the rate.
<b>Football Salary Caps</b>	Solve real world problems using proportional relationships to solve multistep ratio and percent problems. CCSS 7.RP.A 3, TEKS 7-13	Students will select players on a football team and calculate their salary and their bonus and stay under the salary cap.
<b>Football Scores</b>	Understanding that rewriting an expression in different forms in a problem context can shed light on the problem and how the quantities in it are related. CCSS 6.OA.1, TEKS 6-1F	Students will use a final score in a football game to figure out the different combinations that a score can be obtained.
<b>Bowling</b>	Using bowling to think flexibly about numbers and operations. Record multiple operations using proper notation. Write and interpret numerical expression. CCSS 5.OA.A.1, TEKS 7-7	Students will roll 4 dice and create expressions to "knock" down the pins 1 - 10.
<b>Baseball</b>	Use proportional relationships to solve multi-step ratio and percent problems CCSS 7.RP.A. 3, TEKS 6-4G	Students will play a game of baseball and keep score of the events on the field and then use the data to determine different averages.
<b>Darts</b>	Using a dart game to practice writing, reading and evaluating expressions in which letters stand for numbers. CCSS 6.EE.A.2, TEKS 7-10A	Students will play the game of darts and use expressions to determine what they will multiply to the result of the dart "throw".
<b>Football</b>	Using a football field understand $p + q$ as the number located a distance $q$ from $p$ , in the positive or negative direction depending on whether $q$ is positive or negative. CCSS 7.NS.A.1B, TEKS 6-3C	Students will roll a dice and spin a spinner to create football scenarios. They will use those scenarios to determine if they gain or lose yardage on the field.
<b>Track</b>	Add fractions with unlike denominators by replacing given fractions with equivalent fractions in such a way as to produce an equivalent sum with like denominators. CCSS 5.NF.A 1, TEKS 5- 3K	Students will roll dice to get a fractional amount and then move their pawn that distance on the track. They can move their pawn over two different lanes to equal the rolled fractional amount.
<b>Golf</b>	Using a golf course students will understand that positive and negative numbers are used together to describe quantities having opposite direction. CCSS 6.NS.C.5, TEKS 6-3D	Students will roll dice to create distances to golf holes. Students will then determine how far they can hit a ball using different types of clubs. Those distances need to add up to each golf hole.
<b>Shuffle Board</b>	Solve real world problems involving multiplication of fractions by using visual fraction models. CCSS 5.NF.B.7 Understand the concept of a ratio and use ratio language to describe a ratio relationship between two quantities. CCSS 6.RP.A 1, TEKS 6-3E	Student will play shuffle board and determine how much of their disk landed in a section and then multiplying the value of that section to that fractional amount.
<b>Hockey</b>	Use facts about angles to solve simple equations for an unknown angle in a figure. CCSS 7.G.B.6, TEKS 7-11C	Students will roll dice to get a coordinate on the air hockey table they will then create an angle that will replicate a puck banking off a wall and head for the goal.
<b>Marching Band</b>	Describe the effect of dilations, translations, rotations, and reflections on two-dimensional figures using coordinates. CCSS 8.G.A 3, TEKS 8-10D	Students will select band formations and then transform them in some fashion to get a new image on the field.
<b>Pythagorean Baseball</b>	Using a baseball field students will apply the Pythagorean Theorem to determine unknown side lengths in right triangles in real-world problems. CCSS 8.G.B.7, TEKS 8-6C	Students will roll dice to get a coordinate on the baseball field they will use the information to figure out the distance to the home plate.
<b>Soccer</b>	Using a soccer game to understand how to reason abstractly and construct viable arguments while maintaining precision. CCSS MP2, 3, 6 Using geometrical terms. TEKS 6-1A	Students will play a game where lines simulate kicks from one player to the next. Players are only allowed a certain number of kicks to each player. Player who kicks the ball last scores.
<b>Fitness Camp</b>	Using a physical workout, students will construct and interpret scatter plots for bivariate measurement data to investigate patterns of association between two quantities. CCSS 8.SP.A.1, TEKS 8-11A	Students will perform different exercises and record data to plot on a scatter plot so that they can interpret the data.

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