

FIREFLY TRAP - KINDERGARTEN

NUMBER COUNTING & CARDINALITY



OBJECTIVE: Solve addition problems using objects.

SUPPLIES:

- ♦ Fly trap game boards
- ♦ 2 large numbered dice
- ♦ dry erase markers

APPROXIMATE TIME: 10 to 15 minutes

TEACHING TIPS:

Students will roll dice and circle that many fireflies that are on the board. The one rule is that they can not cross another line and trap a firefly that has already been trapped. Players will continue to roll the dice and circle fireflies until there is not enough fireflies in one area to circle them.

Play the game a couple of times with students only rolling one dice. As they get better at recognizing the number and quantity advance on to rolling two dice and adding the numbers together and circling that total amount.



GUIDED QUESTIONS: TO PROMOTE CRITICAL THINKING AND PROBLEM SOLVING

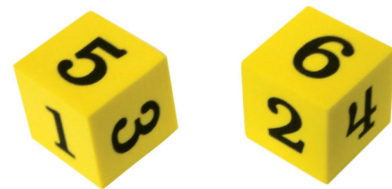
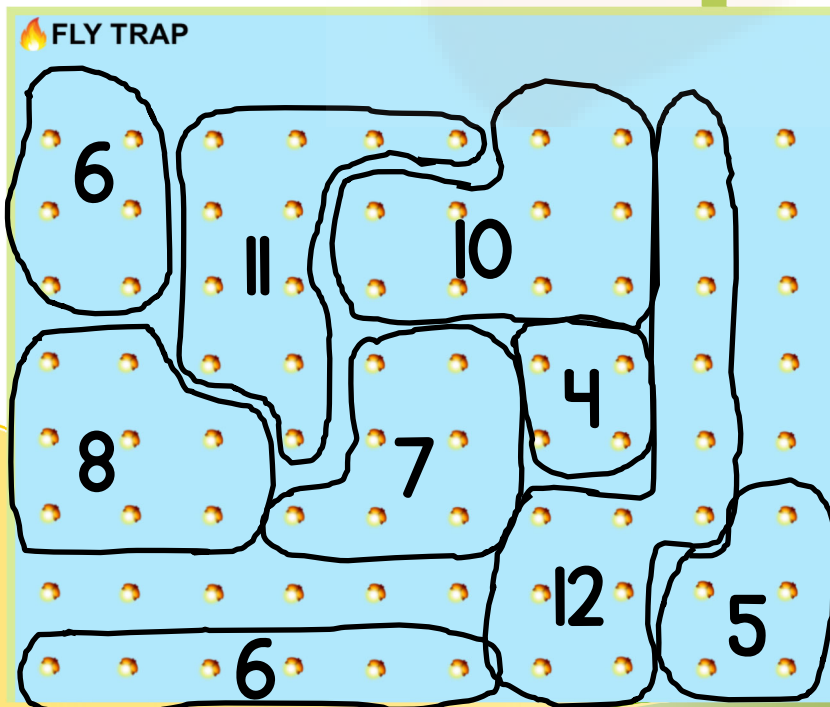
- ♦ Did you have any strategy when playing the game?
- ♦ Did you circle numbers in groups or in lines? What was easier? Why?



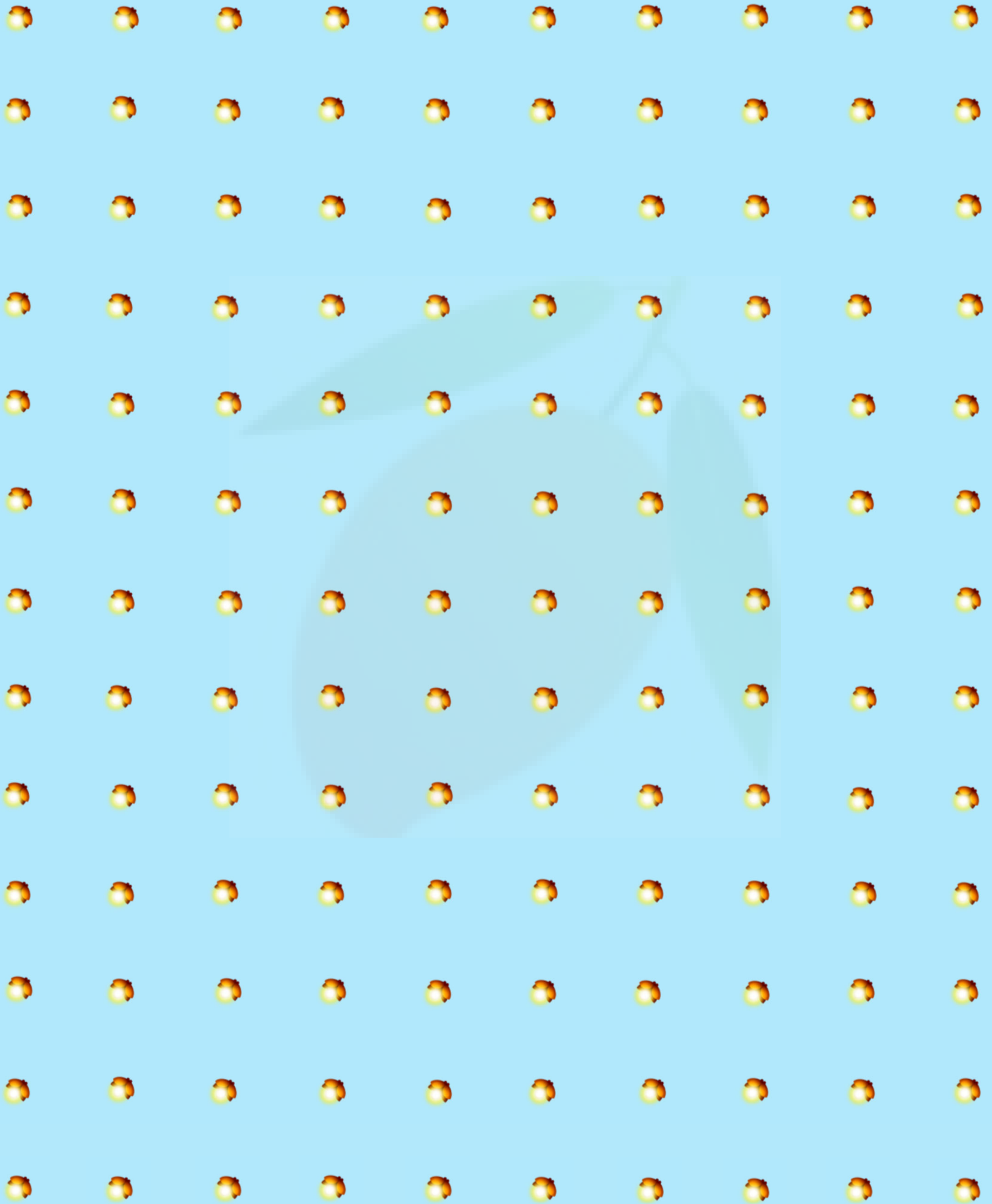
Fly trap

A Game for 1 to 4 Players

- 1 Players will need a Fly Trap game board, dice & a dry erase marker.
- 2 Object of the game is to be the last person to circle a group of fireflies.
- 3 Determine who goes first.
- 4 First player rolls one dice and then draw a circle around to trap that many fireflies on the board. Player writes number inside the circle.
- 5 Next player rolls the dice and circles/traps that many fireflies. The player can not cross a line and circle a firefly that someone else has trapped.
- 6 Play continues until someone rolls the dice and there is not enough fireflies close together to trap.
- 7 Play the game again and have the players roll two dice and add those dice together and then trap total amount of fireflies and writes that number in the circle.
- 8 Game continues until a player can not trap the total of the two dice.



FLY TRAP



mango math kindergarten math kit

MANGO Math Deluxe Kindergarten Math Kit contains 20 separate skill building math lessons. Each individual lesson offers visual and kinetic representation of math concepts that develop strong math knowledge like;

- representing and comparing numbers
- counting in consecutive increasing and decreasing order
- skip counting
- understanding addition as putting together and adding on and subtraction as taking apart or taking from
- understanding place value to 19
- describing measurable attributes
- classifying objects
- describing shapes and space

Every lesson is a game or activity that foster curiosity, discussion and growth through cooperation, collaboration and creative thinking.

Learn more about our kindergarten math kits at <https://mangomath.com/product/kindergarten-deluxe-math-kit/>



ORDER UP - FIRST GRADE

NUMBER & OPERATIONS IN BASE 10



OBJECTIVE: Add or Subtract multiples of 10 in the range of 10—90.

SUPPLIES:

- ♦ Order Up burger pieces
- ♦ 00-90 dice

APPROXIMATE TIME: 10 minutes

TEACHING TIPS:

Students will create a hamburger with all the toppings that will equal a total rolled on a tens dice. Each part of the hamburger has a different value so students can select which pieces they would like to include.

After working on adding topping to the burger have the students start with a burger that equals 100 and have students subtract the amount rolled.

Mathematical Terms

Place Value – the value of a digit according to its position in a number.

Numeral – A symbol or name that represents a number or quantity.

Digit – One of the number symbols
0, 1, 2, 3, 4, 5, 6, 7, 8, 9.

Operation - There are four basic operations in arithmetic used to solve problems: addition, subtraction, multiplication, division.



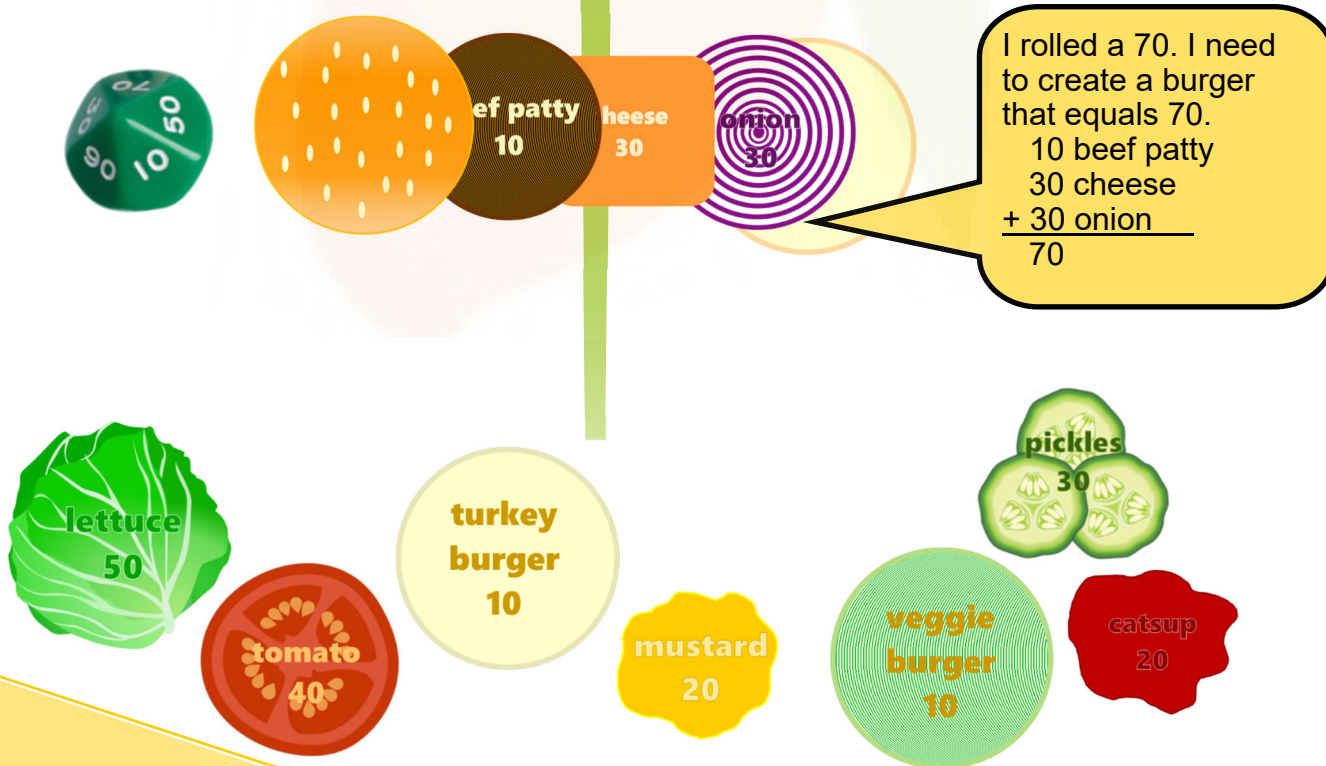
GUIDED QUESTIONS: TO PROMOTE CRITICAL THINKING AND PROBLEM SOLVING

- ♦ If you rolled a 50, could you have a different burger than a friend? What are those other types of burgers?
- ♦ What is the total if you put all the parts of the burger together?

ORDER UP

An Activity for 1 to 4 Students

- 1 Students will need a hamburger parts and a 00 - 90 dice.
- 2 Object of the activity is to create a burger that is equal to the amount rolled.
- 3 Taking turns students will roll the dice and then gather up the buns and add items to create a burger that equals the amount on the dice.
- 4 Other students check to make sure that the burger equals the amount rolled.
- 5 Activity Adjustment: Create a burger that totals 100.
- 6 Activity Adjustment: start with a completed burger that totals 100 then roll the dice and subtract that amount from the burger.





top bun

©MANGO Math Group 2018



**bottom
bun**

©MANGO Math Group 2018



**beef patty
10**

©MANGO Math Group 2018



**tomato
40**

©MANGO Math Group 2018



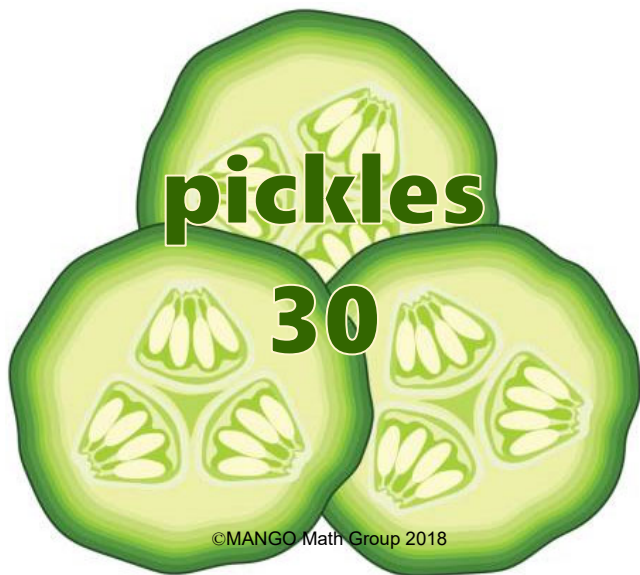
**turkey
burger
10**

©MANGO Math Group 2018



**veggie
burger
10**

©MANGO Math Group 2018



mango math first grade math kit

MANGO Math Deluxe First Grade Math Kit contains 20 separate skill building math lessons. Each individual lesson offers visual and kinetic representation of math concepts that develop strong math knowledge like;

- developing understanding of addition and subtraction
- extending the counting sequence
- expanding understanding of place value with groups in tens and ones
- using place value to understand addition and subtraction
- measuring lengths
- telling time
- organizing data
- reason using shapes and their attributes

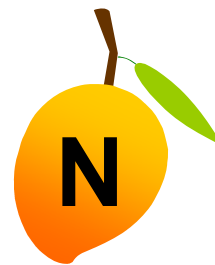
Every lesson is a game or activity that foster curiosity, discussion and growth through cooperation, collaboration and creative thinking.

Learn more about our first grade math kits at <https://mangomath.com/product/first-grade-deluxe-math-kit/>



BIG, BIGGER, BIGGEST - SECOND GRADE

NUMBER & OPERATION WITH BASE 10



OBJECTIVE: Read and write numbers to 1000 using base – ten numerals, number names and expanded form, comparing numbers

SUPPLIES:

- ◆ Place value strip sets
- ◆ greater than, less than & equal cards
- ◆ 0 - 9 spinner
- ◆ dry erase marker

APPROXIMATE TIME: 10 minutes

TEACHING TIPS:

Students will be working on place value to create a four-digit number and then compare that number to the other players' numbers. Players will generate numbers by using a spinner. Since all players will be using the same four randomly spun numbers, it is possible for more than one player to make the same four digit number.

A slight variation to this game would be to include a fifth spin of the wheel. At any spin a player could choose to use the number or not, but they only have one chance to “toss” a number. Once a number is written down on a Place Value strip, it cannot be erased during that round.

Adapting game for entire class: This game can be played by the entire class by just having students write four lines horizontally across their paper and placing the number rolled into one of the four lines.

thousands	hundreds	tens	ones
_____	_____	_____	_____

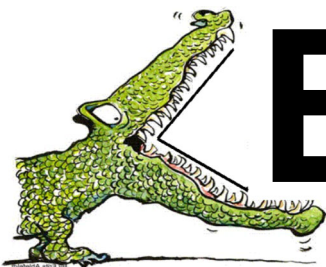
Expanding Game Ideas: Use the Place Value strips to discuss how 16 ones could also be written as one ten and six ones, or 23 tens could be written two hundreds and three tens.

These place strips provide a great opportunity to work on subtraction with regrouping. Have students subtract their final number from each other to figure out the difference.

? GUIDED QUESTIONS: TO PROMOTE CRITICAL THINKING AND PROBLEM SOLVING

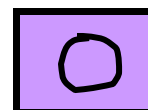
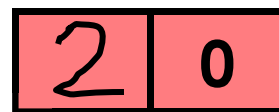
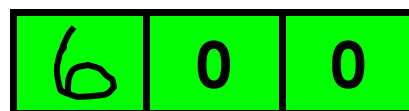
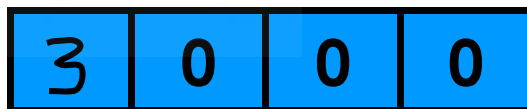
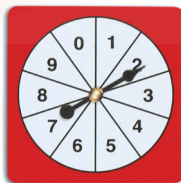
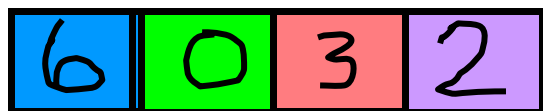
- ◆ How did you decide which digit to place in each Place Value strip?
- ◆ What would happen if you rolled a zero and it had to be placed in the thousandth place? How would you read that number?

BIG, BIGGER, BIGGEST



A Game for 3 Players

- 1 Each player will need a purple “ones”, pink “tens”, green “hundreds”, and blue “thousands” place strip. They will share the marker.
- 2 The object of the game is to create the largest number.
- 3 Taking turns, players will spin the spinner.
- 4 Each player writes the number shown on the spinner in a blank space on one of the place strips.
- 5 Once all the strips are filled in, players will stack the place strips together to create a 4-digit number.
- 6 Players will read the number aloud.
- 7 Compare numbers and place the numbers with the “greater than”, “less than” & “equal to” in the correct order from big to biggest.
- 8 Player or players with the largest number wins that round.
- 9 Play for six rounds.
 - * *Change from creating largest number to creating smallest number, or number closest to 5000.*



BIG, BIGGER, BIGGEST

0

0

0

©MANGO Math Group 2009

BIG, BIGGER, BIGGEST

©MANGO Math Group 2009

BIG, BIGGER, BIGGEST

0

0

0

©MANGO Math Group 2009

BIG, BIGGER, BIGGEST

©MANGO Math Group 2009

BIG, BIGGER, BIGGEST

0

0

0

©MANGO Math Group 2009

BIG, BIGGER, BIGGEST

©MANGO Math Group 2009

BIG, BIGGER, BIGGEST

0

0

©MANGO Math Group 2009

BIG, BIGGER, BIGGEST

©MANGO Math Group 2009

BIG, BIGGER, BIGGEST

0

0

©MANGO Math Group 2009

BIG, BIGGER, BIGGEST

©MANGO Math Group 2009

BIG, BIGGER, BIGGEST

0

0

©MANGO Math Group 2009

BIG, BIGGER, BIGGEST

©MANGO Math Group 2009

mango math second grade math kit

MANGO Math Deluxe Second Grade Math Kit contains 20 separate skill building math lessons. Each individual lesson offers visual and kinetic representation of math concepts that develop strong math knowledge like;

- adding and subtracting fluently within 20
- working with equal groups of objects to gain foundation of multiplication
- expanding understanding of place value with groups in tens and ones
- using place value to understand addition and subtraction
- measuring lengths
- telling time
- understanding currency values
- organizing data
- reason using shapes and their attributes

Every lesson is a game or activity that foster curiosity, discussion and growth through cooperation, collaboration and creative thinking.

Learn more about our second grade math kits at <https://mangomath.com/product/second-grade-deluxe-math-kit/>



SPILT MILK - THIRD GRADE

NUMBER & FRACTIONS



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

SUPPLIES:

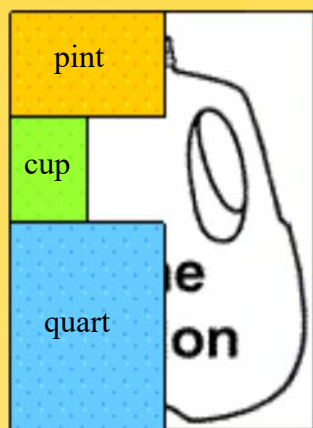
- ♦ 2 Spilt Milk game boards
- ♦ quart, pint and cup cards
- ♦ regular dice

APPROXIMATE TIME: 20-30 minutes

TEACHING TIPS:

Students will be collecting and exchanging cups for equivalent measurements with the “milkman” to fill up a “gallon”. While playing the game students will not only reinforce their knowledge of standard capacity units but will also see the relationship between the different units of measure.

The die adds an element of probability to the game. The likeliness of rolling a six while having cup cards on the board can impact the number of turns it takes for a student to fill up their gallon. They will learn the value in trading their cups for quarts and pints.



Expanding the lesson: This activity offers an opportunity to discuss fractions; **quart** is $\frac{1}{4}$ of a gallon, **pint** is $\frac{1}{8}$ of a gallon or $\frac{1}{2}$ of a quart, **cup** is $\frac{1}{16}$ of a gallon, $\frac{1}{4}$ of a quart, or $\frac{1}{2}$ of a pint.

Allow the students to play around with the cards and discuss the Guided Questions below.

Conversion Chart

1 pint (pt) = 2 cups (c)
1 quart (qt) = 2 pints = 4 cups
1 gallon (gal) = 4 quarts = 8 pints = 16 cups



? GUIDED QUESTIONS: TO PROMOTE CRITICAL THINKING AND PROBLEM SOLVING

- ♦ How many quarts are in 1 gallon? How many pints are in 1 quart? How many cups are in 1 pint?
- ♦ How many cups are in 3 pints? How many pints are in 3 quarts?
- ♦ What is equivalent to $\frac{1}{2}$ a pint?
- ♦ What is equivalent to $\frac{1}{2}$ a gallon?

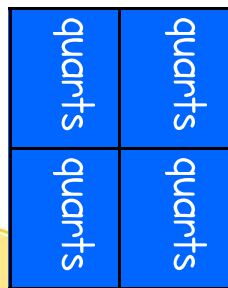
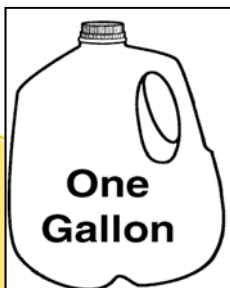


SPILT MILK

A Game for 3 to 4 Players

- 1 Players will need game boards, regular dice and paper that is cut into $\frac{1}{4}$, $\frac{1}{8}$ and $\frac{1}{16}$ sizes.
- 2 The object of the game is to be the first player to collect exactly one gallon of milk.
- 3 One player will be the milkman. The milkman holds all quart and pint cards to make trades with the players.
- 4 The other two students will be players and will each need a game board and will share the dice.
- 5 Place all cup cards in the middle. The milkman will keep all of the pint and quart cards.
- 6 Players take turns rolling dice and collecting "cups" of milk. If a player rolls a 1, 2, 3, 4, or 5 he/she will collect that number of cup cards and place them on his/her game board.
- 7 After each turn, players can trade in the cups for pints and quarts by asking the milkman for the correct equivalent measurements.

For example: If a player has 4 cups, they may say, "I'll take 1 quart for my 4 cups of milk." The milkman will then make the trade.
- 8 If a player rolls a 6 she has "spilt the milk" and must remove all cup cards on her game board. Pint cards and quart cards are safe.
- 9 If player goes over a gallon the player has "spilt the milk" and lose all cup cards **and** pint cards on her game board. Only quart cards are safe.
- 10 To win a player must collect exactly one gallon of milk.



1 gallon = 4 quarts = 8 pints = 16 cups

SPILT MILK



mango math third grade math kit

MANGO Math Deluxe Third Grade Math Kit contains 20 separate skill building math lessons. Each individual lesson offers visual and kinetic representation of math concepts that develop strong math knowledge like;

- understanding properties of multiplication and division
- solving problems involving multiplication and division
- mastering multiplication and division facts
- using place value to perform multi-digit arithmetic
- developing an understanding of fractions
- measuring in intervals of time, money, liquids
- representing and interpreting data
- developing an understanding of area as it relates to multiplication and division
- reasoning using shapes and their attributes

Every lesson is a game or activity that foster curiosity, discussion and growth through cooperation, collaboration and creative thinking.

Learn more about our third grade math kits at <https://mangomath.com/product/third-grade-deluxe-math-kit/>



GRAB BAG - FOURTH GRADE

NUMBER & FRACTIONS



OBJECTIVE: Solve word problems involving addition and subtraction of fractions referring to the same whole and having like denominators.

SUPPLIES:

- ♦ Grab Bag activity board
- ♦ tiles
- ♦ paper bags
- ♦ dry erase marker

APPROXIMATE TIME: 15 to 20 minutes

TEACHING TIPS:

To begin this activity make sure the bag is filled with 12 tiles in three different colors. Combination of colors is up to the person filling the bag, try and make sure it is not all the same amount.

Students will run trials by drawing tiles out of a bag and keeping a record of the tile color drawn. They will use the results to predict how many of each colored tile is in the bag. Students will be asked to make a prediction after 12 trials, 24 trials and 36 trials. The predictions may change as more trials are run. Discuss how the number of trials affects the predictions. As more trials are run, the closer the experimental results (the fractions they get) will match the theoretical probabilities (the actual fractions/probabilities). Encourage the students to compare their fractions i.e. number of red tiles drawn/total number of trials to “nice” fractions ($\frac{1}{4}$, $\frac{1}{3}$, $\frac{1}{2}$, $\frac{3}{4}$ etc...). This will help them make their predictions.

Adapting game for entire class: Allow students to come up and pull out a tile. Stop after 12 trials and discuss results. Allow class to vote on their predictions. Do 12 more trials and discuss results. Do again. Discuss if student's predictions changed after more trials were run. Remove tiles from bag and see if students' predictions were correct.

Change the amount of tiles in bag and do the activity again.

Math Terms

Probability - # of ways an event can happen/ total # of events possible

Experimental probability – a ratio of the # of times an event happened/ total # of trials

Sampling with replacement—a procedure in which a sample is taken out, recorded and replaced

Trial - the act of testing something, taking a sample

? GUIDED QUESTIONS: TO PROMOTE CRITICAL THINKING AND PROBLEM SOLVING

- ♦ Was your prediction correct? If not, was it close?
- ♦ How could you make a better prediction next time?
- ♦ Did your prediction change when more trials were run? Why, why not?



GRAB BAG

A Game for 2 to 4 Players

- 1 Prior to starting the game, students need to have someone else fill paper bag with 12 tiles in 3 different colors.
- 2 Students will need a marker and an activity sheet
- 3 Taking turns, students will grab 1 tile from the bag, record a tally mark by the correct color on the activity sheet, and replace the tile in the bag.
- 3 Students will continue taking turns grabbing, recording and replacing tiles for a total of 12 times/trials.
- 4 When 12 trials are complete, make a fraction of each color on the results chart: Number of each color over 12 trials.
- 5 Use the results to predict how many of each colored tile are in the bag. Record each student's predictions.
- 6 Run 12 more trials, continuing to add tally marks, and make new fractions for each color, now out of a total of 24 trials.
- 7 Students may change predictions if desired.
- 8 Run 12 more trials, continuing to mark tally marks, for a total of 36 trials, and make new fractions.
- 9 Use these fractions to change your prediction or keep it the same.
- 10 Empty the bag. Student with correct prediction wins this round.

Note: The amount of tiles in the bag can change to 15, 20, 24 etc.

HINT: *simplify fractions to help make predictions. If 6/24 tiles pulled are red that means that possibly 1/4 of the tiles are red.*

GRAB BAG ACTIVITY SHEET		ERASE BOARD WHEN DONE		
	tallies	12 trials	24 trials	36 trials
red		$\frac{6}{12}$	$\frac{\quad}{24}$	$\frac{\quad}{36}$
blue		$\frac{4}{12}$	$\frac{\quad}{24}$	$\frac{\quad}{36}$
green		$\frac{2}{12}$	$\frac{\quad}{24}$	$\frac{\quad}{36}$

PREDICTION:

6 ■ 3 ■ 3 ■

GRAB BAG ACTIVITY SHEET

ERASE BOARD WHEN DONE

	tallies	12 trials	24 trials	36 trials
red		<u>12</u>	<u>24</u>	<u>36</u>
blue		<u>12</u>	<u>24</u>	<u>36</u>
green		<u>12</u>	<u>24</u>	<u>36</u>

PREDICTION:

_____  _____  _____ 

mango math fourth grade math kit

MANGO Math Deluxe Fourth Grade Math Kit contains 20 separate skill building math lessons. Each individual lesson offers visual and kinetic representation of math concepts that develop strong math knowledge like;

- gaining familiarity with factors and multiples
- solving problems using the four operations with whole numbers
- generating and analyzing patterns
- using place value to perform multi-digit arithmetic
- extending understanding of fractions, equivalency and ordering
- develop understanding of decimal notation of common fractions
- representing and interpreting data
- developing an understanding of angles and angle measurements

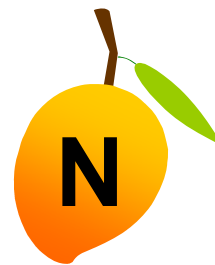
Every lesson is a game or activity that foster curiosity, discussion and growth through cooperation, collaboration and creative thinking.

Learn more about our fourth grade math kits at <https://mangomath.com/product/fourth-grade-deluxe-math-kit/>



DITTO - FIFTH GRADE

NUMBER & OPERATIONS FRACTIONS



OBJECTIVE: Replace given fractions with equivalent fractions in such a way as to produce an equivalent sum or difference of fractions.

SUPPLIES:

- ♦ Ditto game board
- ♦ fraction dice ($\frac{1}{2}$, $\frac{1}{3}$, $\frac{1}{4}$, $\frac{1}{6}$, $\frac{1}{8}$, $\frac{1}{12}$)
- ♦ bi-colored counters

APPROXIMATE TIME: 15 minutes

TEACHING TIPS:

Students will play a game in which they will roll a fraction die and find an equivalent fraction on the game board. They will cover that fraction with a bi-colored counter in the color that they selected. Students will be working towards getting 4 counters in a row either vertically, horizontally or diagonally.

This game can be played in pairs, in which two students are working together to cover fractions of the board. The fraction die has fractions, $\frac{1}{2}$, $\frac{1}{3}$, $\frac{1}{4}$, $\frac{1}{6}$, $\frac{1}{8}$, and $\frac{1}{12}$. For students who are struggling with determining which fractions are equivalent, give them a multiplication chart 1 to 12, example below. Students can take two transparent strips and lie one of them over the number that starts the numerator (1) and then another strip that starts the denominator (4).

Expanding the game: Students can remove a counter if a certain fraction is rolled or students can covers each corner number on the board to win.

MULTIPLICATION TABLE											
1	2	3	4	5	6	7	8	9	10	11	12
2	4	6	8	10	12	14	16	18	20	22	24
3	6	9	12	15	18	21	24	27	30	33	36
4	8	12	16	20	24	28	32	36	40	44	48
6	12	18	24	30	36	42	48	54	60	66	72
8	16	24	32	40	48	56	64	72	80	88	96
12	24	36	48	60	72	84	96	108	120	132	144

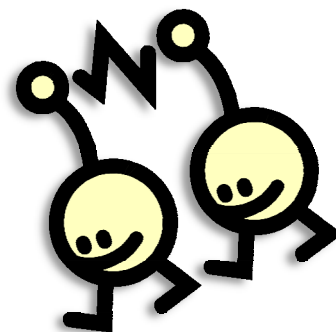
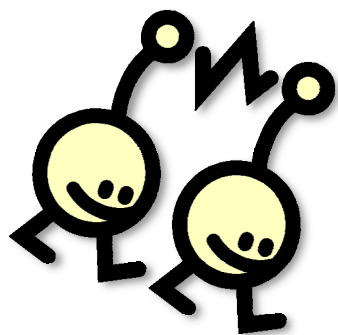
Math Terms

Equivalent Fractions - having the same value or amount.

Simplify a Fraction - to reduce the numerator and denominator in a fraction to the smallest number possible. You can do this by dividing the numerator and denominator by the highest common factor.

? GUIDED QUESTIONS: TO PROMOTE CRITICAL THINKING AND PROBLEM SOLVING

- ♦ What fractions were easiest to simplify and why?
- ♦ How were you able to determine the highest common factor?
- ♦ Why would you simplify a fraction?
- ♦ When would you use an equivalent fraction?



A Game for 2 to 4 Players

- 1 Players will need a fraction die, bi-colored counters and a Ditto game board.
- 2 The object of the game is to locate equivalent fractions and cover it until a player has 4 counters in a row.
- 3 If there are four players, students can play in pairs taking turns finding the equivalent fraction.
- 4 Youngest player goes first by rolling the fraction die.

- 5 Player will locate an equivalent fraction on the game board and cover it with their select color counter.
- 6 Next player rolls the die and covers an equivalent fraction.

Note: Each fraction on the dice has many equivalent fractions on the board.

- 7 Players must cover 4 fractions in a row; horizontally, vertically or diagonally.

Note: Remember that players can cover fractions that will get them closer to 4-in-a-row or they can cover a fraction that blocks the other players from getting 4-in-a-row.

- 8 First player with four fractions covered in a row wins.

DITTO GAME BOARD

$\frac{2}{8}$	$\frac{4}{48}$	$\frac{7}{42}$	$\frac{10}{60}$	$\frac{2}{6}$	$\frac{10}{2}$	$\frac{14}{56}$	$\frac{2}{12}$	$\frac{9}{27}$
$\frac{25}{100}$	$\frac{8}{16}$	$\frac{7}{65}$	$\frac{13}{78}$	$\frac{15}{120}$	$\frac{8}{24}$	$\frac{3}{12}$	$\frac{7}{14}$	$\frac{18}{216}$
$\frac{12}{96}$	$\frac{12}{144}$	$\frac{10}{30}$	$\frac{8}{48}$	$\frac{9}{18}$	$\frac{2}{16}$	$\frac{6}{36}$	$\frac{15}{45}$	$\frac{22}{32}$
$\frac{25}{75}$	$\frac{8}{64}$	$\frac{7}{28}$	$\frac{5}{15}$	$\frac{16}{196}$	$\frac{18}{144}$	$\frac{9}{36}$	$\frac{9}{108}$	$\frac{14}{42}$
$\frac{13}{26}$	$\frac{9}{72}$	$\frac{22}{264}$	$\frac{14}{28}$	$\frac{3}{9}$	$\frac{5}{60}$	$\frac{9}{54}$	$\frac{3}{6}$	$\frac{25}{200}$
$\frac{13}{52}$	$\frac{7}{84}$	$\frac{5}{20}$	$\frac{3}{24}$	$\frac{3}{36}$	$\frac{2}{12}$	$\frac{7}{21}$	$\frac{6}{18}$	$\frac{22}{88}$
$\frac{10}{40}$	$\frac{4}{8}$	$\frac{8}{96}$	$\frac{12}{36}$	$\frac{25}{150}$	$\frac{15}{180}$	$\frac{14}{112}$	$\frac{12}{48}$	$\frac{22}{176}$
$\frac{4}{12}$	$\frac{10}{120}$	$\frac{3}{18}$	$\frac{15}{60}$	$\frac{2}{4}$	$\frac{5}{40}$	$\frac{4}{16}$	$\frac{25}{300}$	$\frac{6}{48}$
$\frac{8}{32}$	$\frac{16}{128}$	$\frac{12}{24}$	$\frac{12}{72}$	$\frac{5}{10}$	$\frac{4}{24}$	$\frac{5}{30}$	$\frac{6}{12}$	$\frac{22}{66}$

©MANGO Math Group 2010



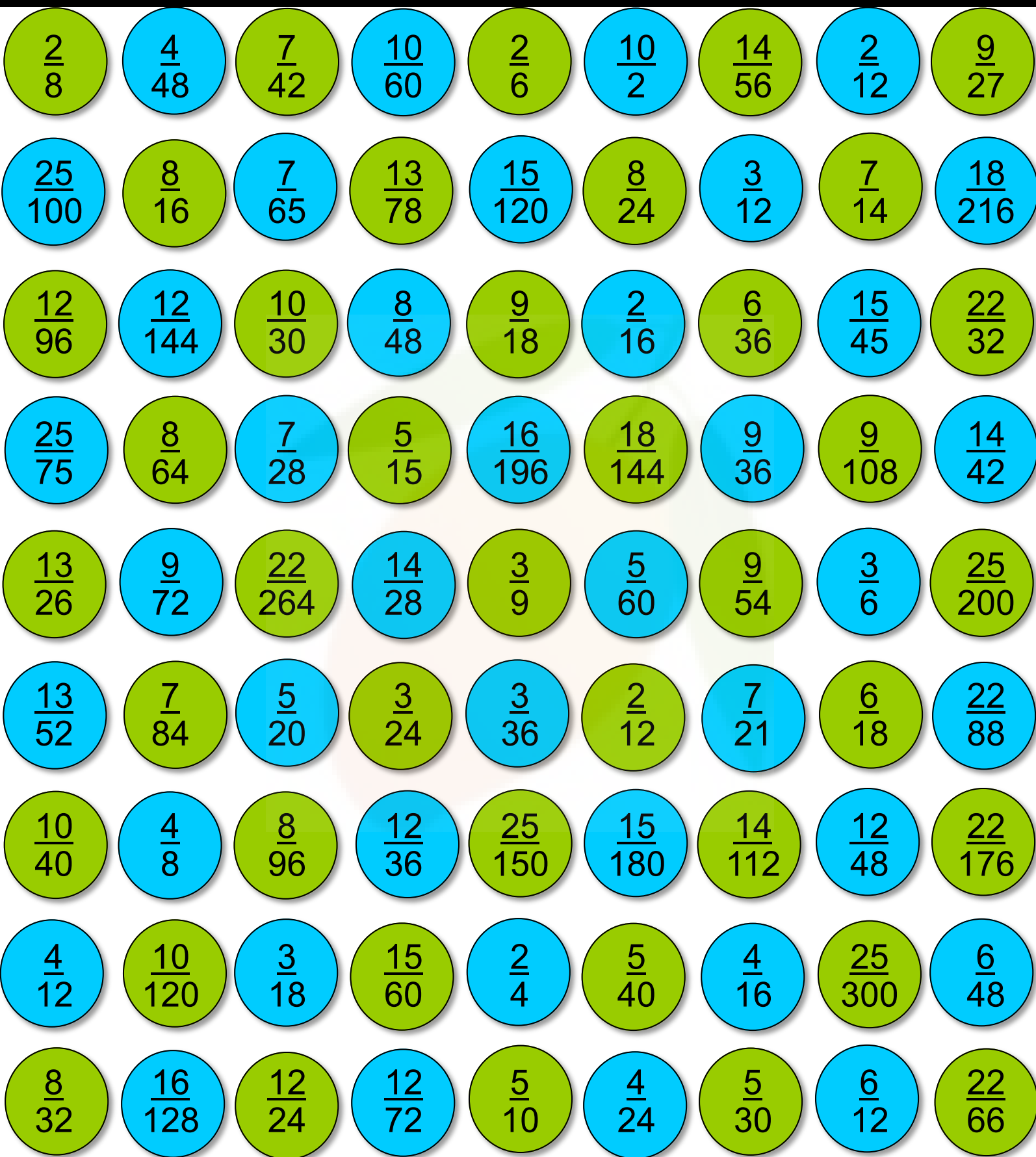
I rolled a $\frac{1}{12}$, equivalent fractions are $\frac{2}{24}$, $\frac{3}{36}$, $\frac{4}{48}$, $\frac{5}{60}$... I am going to cover up $\frac{4}{48}$ as that gets me closer to 4 counters in a row.



I rolled a $\frac{1}{4}$, equivalent fractions are $\frac{2}{8}$, $\frac{3}{12}$, $\frac{4}{16}$, $\frac{5}{20}$... I can cover up either $\frac{5}{20}$ or $\frac{2}{8}$. $\frac{5}{20}$ gets me closer to 3-in-a-row but $\frac{2}{8}$ stops them from possibly getting 4-in-a-row.

DITTO

GAME BOARD



mango math fifth grade math kit

MANGO Math Deluxe Fifth Grade Math Kit contains 20 separate skill building math lessons. Each individual lesson offers visual and kinetic representation of math concepts that develop strong math knowledge like;

- analyzing patterns and relationships
- understanding place value system into hundredths place
- performing operations with multi-digit whole numbers and with decimals.
- using equivalent fractions as a strategy to add and subtract fractions
- extending understanding of fractions to multiplication and division of fractions
- converting like measurements units within a given measurement system
- representing and interpreting data
- developing an understanding of volume
- graphing points on a coordinate plane
- classifying two dimensional figures into categories based on properties

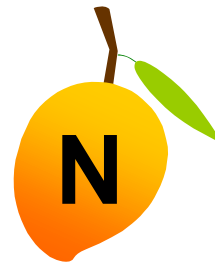
Every lesson is a game or activity that foster curiosity, discussion and growth through cooperation, collaboration and creative thinking.

Learn more about our fifth math kits at <https://mangomath.com/product/fifth-grade-deluxe-math-kit/>



ZILCH - SIXTH - EIGHTH GRADE

NUMBER SYSTEM



OBJECTIVE: Students will practice adding positive and negative integers. They will also develop an understanding of absolute values.

SUPPLIES:

- ♦ Zilch score sheets
- ♦ Playing cards
- ♦ Dry erase marker

APPROXIMATE TIME: 10 minutes

TEACHING TIPS:

Students will take turns drawing cards to try to create a value of zero. Using black cards as positive numbers and red cards as negative numbers students will draw and collect cards until they can create the value of 0. The scores are determined by the absolute value of the cards they have played minus the cards still in their hand.

Investigate ways to combine integers to get zero. For example, a red 6 combined with a black 1 and black 5 will create zero. The directions state that if you pick up more than one card from the discard pile you must play the last card picked up, if you pick up a black 3, black 2 and red 5, the player must lay down the red 5 on his/her turn.

To “go out” students need to lay down a final card in the discard pile. If students have two cards in their hand and the total of those two cards is zero they are unable to play because they have no card to discard. They will have to draw again on their turn and hope to make a zero with the new card.

CHALLENGE: Have players exchange a red and black card, from the cards in the deck, for a card that is the difference on the discard pile. Example: exchanging a red 7 and a black 4 for a red 3. ($-7 + 4 = -3$)

Math Terms

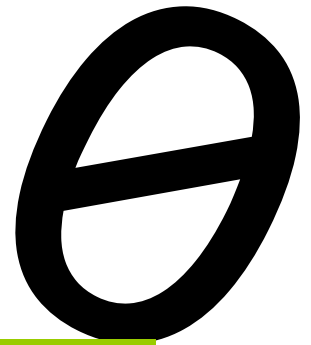
Absolute value – the absolute value of a number (x or $-x$) is just the value of the numeral, ignoring the sign. It is the distance away from zero. The symbol is $|$ $|$



GUIDED QUESTIONS:

- ♦ How can you make the most points when you lay down a zip?
- ♦ When is it a good idea to pick up more than one card from the discard pile?
- ♦ Why might you want to hold cards in your hand even if you could lay them down?

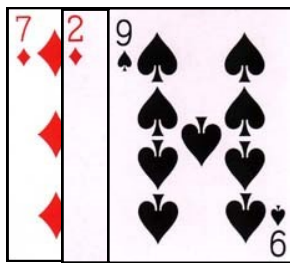
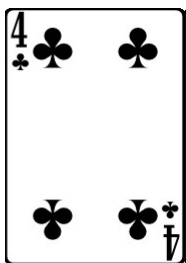
ZILCH



A Game for 3 to 4 Players

- 1 Players will need a deck of cards, Zilch score sheet and marker.
- 2 Dealer shuffles the deck and deals 7 cards to each player. The remaining cards form a draw pile in the middle of playing area. Place top card face up next to draw pile to form discard pile.
- 3 On a turn, players must follow this sequence.
 1. Draw a card, either from the top of the draw pile or the top of the discard pile. (A player may choose to draw more than the top card from the discard pile but must take all the cards on top of it and must play the bottom card in a "zip" during that turn.)
 2. Play any "zips" see ZIPS
 3. Discard one card, adding it face up to the top of the discard pile. The card should be placed so that the cards below can still be seen. (The previous discards are still available for play.)
- 4 If a player chooses to draw the top card on the discard pile in step 1, that card may not be discarded during that turn.
- 5 **ZIPS:** a zip consists of at least two cards from a player's hand whose sum is 0. Black cards count as positive numbers and red/orange cards count as negative numbers.
- 6 A player goes out when the last card in his/her hand is played as a discard.
- 7 When a player goes out, the hands are scored. Each card has a number value. Players subtract the absolute value of any cards remaining in their hand from the absolute value of card they played in "zips".
- 8 High score wins.

For a challenge have players exchange red and black card for the card in the deck that is the difference. Example: Exchanging a red seven and a black 4 for a red 3. ($-7 + 4 = -3$)



ROUND	VALUE OF ZIPPED CARDS	VALUE OF REMAINING CARDS	SCORE	RUNNING SCORE
1	22	12	10	
2	18	0	18	28
3				

ZILCH SCORE SHEET



ROUND	VALUE OF ZIPPED CARDS	VALUE OF REMAINING CARDS	SCORE	RUNNING SCORE
1				
2				
3				
4				
5				TOTAL SCORE

©MANGO Math Group 2011

ZILCH SCORE SHEET



ROUND	VALUE OF ZIPPED CARDS	VALUE OF REMAINING CARDS	SCORE	RUNNING SCORE
1				
2				
3				
4				
5				TOTAL SCORE

©MANGO Math Group 2011

ZILCH SCORE SHEET



ROUND	VALUE OF ZIPPED CARDS	VALUE OF REMAINING CARDS	SCORE	RUNNING SCORE
1				
2				
3				
4				
5				TOTAL SCORE

©MANGO Math Group 2011

ZILCH SCORE SHEET



ROUND	VALUE OF ZIPPED CARDS	VALUE OF REMAINING CARDS	SCORE	RUNNING SCORE
1				
2				
3				
4				
5				TOTAL SCORE

©MANGO Math Group 2011

mango math pre-algebra math kit

MANGO Math Deluxe Pre-Algebra Math Kit contains 20 separate skill building math lessons for grades 6, 7 and 8. Each individual lesson offers visual and kinetic representation of math concepts that develop strong math knowledge like;

- ratio
- fractions
- percents
- integers
- expressions
- factors
- exponents

Every lesson is a game or activity that foster curiosity, discussion and growth through cooperation, collaboration and creative thinking.

Learn more about our pre-algebra math kits at <https://mangomath.com/product/pre-algebra-math-kit/>

