

Dear Families:

Lots of us remember studying “math facts” in school. You likely recall that getting them all right—fast—was the goal, so you spent weeks/months/years trying to memorize them. But educators know more now about how the brain works, and how mathematicians work, so we want to expand your thinking beyond what you might remember from your own school days.

One great way for students to become familiar with number relationships is by playing games. Games provide repeated experiences with number combinations that, over time, support *not only* the development of accuracy and speed *but also* understanding of important concepts needed for more complex problems.

We encourage you to start a family game night tradition this summer. Set aside time each week to play games and talk about math in a natural way. At school we ask questions like, “How did you think about that?” because we want our young mathematicians to know that we are interested in what they’re thinking and how they approach problems.

We’ve included some game ideas and instructions. Have a great summer!

FUN FAMILY MATH GAMES

Dice Games

You may have seen the game TENZI by Carma Games, LLC, in the toy aisle or online. The US Math Recovery Council suggests adapting the game’s instructions to help students recognize patterns that support their thinking about numbers 1-6 and the combinations that can be made among them. You don’t need to buy TENZI to play these variations, but you will need 10 dice. Pouring the dice from a can or cup is easiest for little hands. A blank scorecard with instructions for three variations is being sent with this letter.

Card Games

While it’s possible to play the enclosed card games by adapting a traditional deck of playing cards, we’ve found that the smaller size and clear visual representations of quantity (and addition of the numeral zero) are worth the required effort and cutting.



Variations of TENZI Dice Game

For the three variations of TENZI described below, play may be simultaneous or players may alternate turns rolling their dice. Play also may be competitive (first one to fill the board wins) or cooperative (working together to fill a given board). Each player needs 10 dice and a game board.

Make 5: Participants roll their 10 TENZI dice in an attempt to make combinations of five (1, 4 and 3, 2). Each combination must consist of two dice. All dice that are not used to make a combination of 5 must be rerolled on each turn. The first player to roll five combinations that equal 5 wins the game.

| MAKE 5 | | | | |
|--------|---|---|---|---|
| 5 | 5 | 5 | 5 | 5 |
| | | | | |

Doubles: Participants roll 10 TENZI dice and attempt to build the numbers 2, 4, 6, 8, and 10 using only doubles. The winner is the first to create all assigned numbers using only doubles combinations (e.g., 3 + 3 to build 6). Any die can be saved and placed on the board in the appropriate space. The first player to make every listed double combination wins.

| Use Only Doubles to Make Totals of: | | | | |
|-------------------------------------|---|---|---|----|
| 2 | 4 | 6 | 8 | 10 |
| | | | | |

5+ Facts: Participants roll 10 TENZI dice. The object is to roll the numbers that combine with 5 to make 6, 7, 8, 9, and 10. When a 5 is rolled, it is placed in a "5" box on game board. Once a 5 box is filled, participants can place the rolled number that goes with 5 to equal the target number (e.g., 5 + 1 to "Make 6"). The first player to make 6, 7, 8, 9, and 10 using 5+ facts wins.

| Make "5+" Facts to 10 | | | | |
|-----------------------|--------|--------|--------|---------|
| 5 | 5 | 5 | 5 | 5 |
| Make 6 | Make 7 | Make 8 | Make 9 | Make 10 |

Fact Fluency Card Games to Play at Home

Compare is a card game you may have grown up calling “War.” Play with a 0-10 deck.

- Players sit side-by-side so that neither partner is reading numerals upside down.
- Shuffle the deck and place the draw pile face down on the table between the two players.
- Take turns drawing a card and placing it face up on the table. The person with the larger number wins the hand and gathers cards from that hand into their “winnings” pile.
- If cards show the same number, each player turns over a second card and the player with the larger number wins all cards from that hand.
- The game ends when there are no more cards in the draw pile. Players count their cards to determine the game winner, shake hands, say “good game” – and play again!

Double Compare is a variation of Compare. Play with a 0-5 deck, gradually increasing the range to 0-10.

- Players sit side-by-side so that neither partner is reading the numerals upside down.
- Shuffle the deck and place the draw pile face down on the table between the two players.
- Take turns drawing two cards, placing them face up on the table, and finding the sum.
- The player with the largest sum wins the hand and gathers cards from that hand into their “winnings” pile.
- If sums are equal, each player turns over two more cards and finds the sum. The player with the larger sum wins all cards from the hand.
- The game ends when there are no more cards in the draw pile. Players count their cards to determine the game winner, shake hands, say “good game” – and play again!

[Target Number] Go Fish (e.g., 4 Go Fish, 8 Go Fish, etc): The object of the game is to get two cards that total the target number. Adjust the card deck to work with various numbers (i.e., 0-5 deck for complements of 5, 0-6 deck for complements of 6, 0-10 deck for complements of 10).

- Each player is dealt 5 cards. The rest of the cards are placed face down in the center of the table.
- If you have any pairs of cards that total the target number, put them down in front of you and replace those cards with cards from the deck.
- Take turns. On a turn, ask one other player for a card that will go with a card in your hand to make the target number. For example, when playing Tens Go Fish, 6 and 4 would be a match; when playing Sixes Go Fish, 4 and 2 would be a match.
- If another player has the card you’ve requested, combine that card with the one from your hand and lay down the pair. Draw one card from the deck. Your turn is over.
- If no one has the requested card, “Go Fish” by drawing one card from the deck. If the drawn card combines with any card in your hand to create the target number, put the pair down. Your turn is over.
- If a player is out of cards but cards remain in the deck, the player draws two cards and continues to play.
- The game is over when all players are out of cards.
- The winner is the player with the most matches.

Turn Over [Target Number] (e.g., Turn Over 5, Turn Over 8, etc): The object of the game is to turn over and collect combinations of cards that equal the target number. Adjust the card deck to the target number range (i.e., 0-5 deck for sums to 5, 0-6 deck for sums to 6, 0-10 deck for sums to 10) and include wild cards.

- Arrange the cards face down in an array, such as four rows of five cards. Place the rest of the deck face down in a pile.
- Take turns. On a turn, turn over one card in the array and then another. A wild card can be made into any number.
 - If the sum of the upturned cards is less than the target number, the player turns over another card.
 - If the sum of upturned cards is more than the target number, the turn is over. Cards are turned face down in their original position and play passes to the next person.
 - If the sum of upturned cards is equal to the target number, the player collects the cards and the turn is over. Use cards from the deck to replace cards that were removed from the array.
- Place collected cards (equal the target number) in separate piles so they don’t get mixed up.
- The game ends when no more groups of the target number can be made. The player with the most combinations wins.



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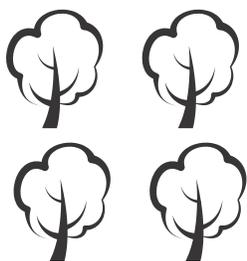
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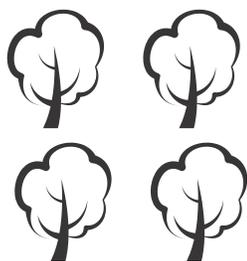
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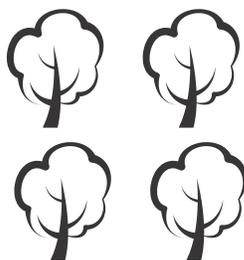
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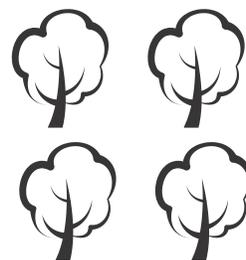
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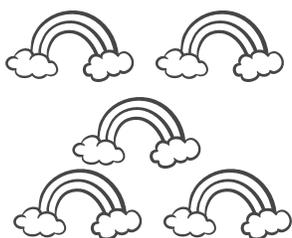
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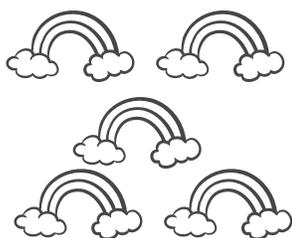
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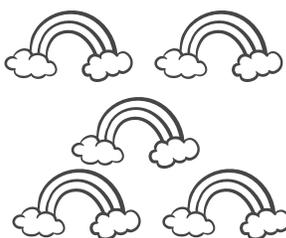
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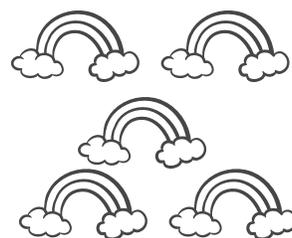
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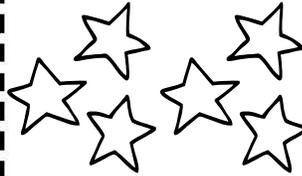
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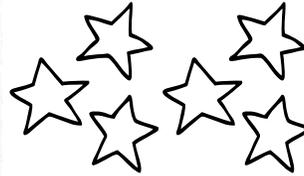
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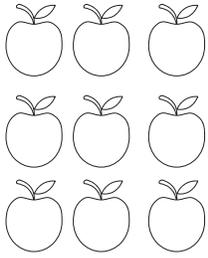
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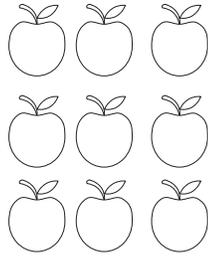
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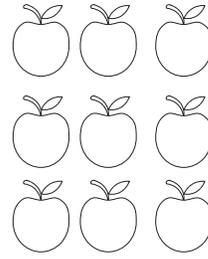
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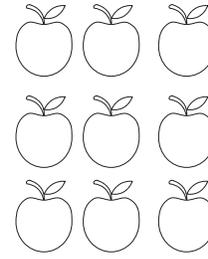
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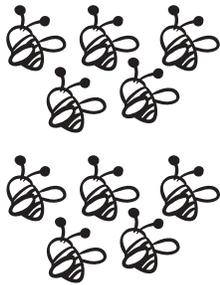
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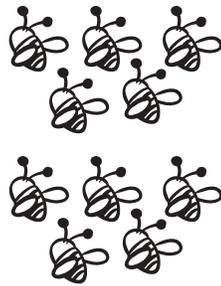
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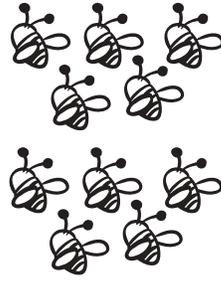
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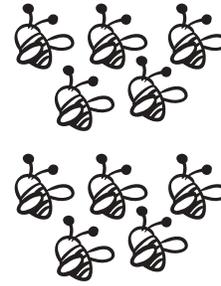
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