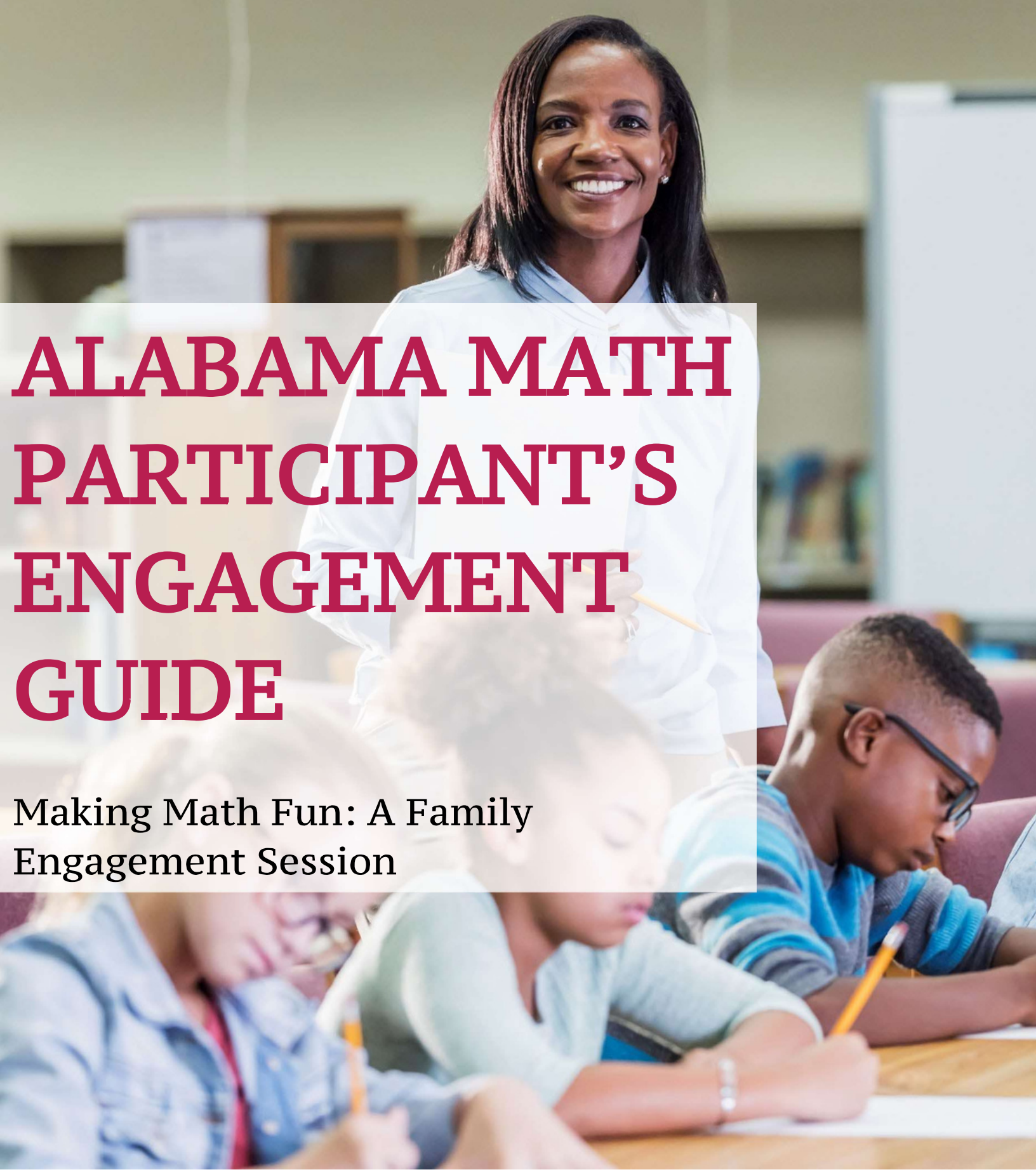

ALABAMA MATH PARTICIPANT'S ENGAGEMENT GUIDE

Making Math Fun: A Family Engagement Session

PUBLIC CONSULTING GROUP

EMERALD EDUCATION

ALABAMA Achieves
ALABAMA STATE DEPARTMENT OF EDUCATION

Math Practice Topics

When playing games or doing math at home, consider practicing the math skills below. The student goals and examples are listed for each grade.

Grade	Student Goal(s)
Grade K	I can add and subtract within 5. *2+3=5*
Grade 1	I can add and subtract within 10. *7-2=5*
Grade 2	I can add & subtract within 20. *14+3=17* I can add & subtract within 100. *33-21=12*
Grade 3	I can add & subtract within 1000. *357+168=525* I can multiply & divide within 100. *6x7=42*
Grade 4	I can add & subtract larger whole numbers. *1,390-1,198=192*
Grade 5	I can multiply larger whole numbers. *321x47=15,087*
Grade 6	I can divide larger whole numbers. *5,824÷25=232.96 or 232r24* I can add, subtract, multiply, and divide decimals. *42.95x1.2=51.54*
Grade 7	I can add, subtract, multiply and divide rational numbers including integers, signed fractions, and decimals. *-3+(-4)=-7*
Grade 8	I can solve multi-step linear equations in one variable. *8-2(x+5)=5-2(2x-1)* I can solve systems of two linear equations in two variables. *2x-5y=-25 and -4x+5y=35*

Math Games: Using A Deck of Cards

- **Number Recognition (K-2)**
  - Remove the A, K, Q, and J from the deck, leaving 36 cards. Reduce the number of cards used for an easier game of play. This game is similar to a memory game.
  - Shuffle the cards and lay face down in a 6x6 array.
  - Players take turns turning two cards face up, trying to make a matching numerical pair. In order to collect the matching pair, the player must state the correct numeral.
  - Players take turns until all pairs have been made. The player with the most cards is the winner.
- **Counting On (K-2)**
  - Remove the K, Q, and J (A=1). Shuffle the cards and place them in the center of the playing area.
  - Players flip a card and roll a die.
  - Starting with the number on the card, the player should "count on" using the number on the die.
  - If they get the answer correct, they keep the card.
  - Each time you play, the player should try to increase the number of cards they have at the end of each game.
- **Compare Numbers (K-2)**
  - Remove the K, Q and J (A=1). Shuffle and each player gets half of the remaining cards.
  - For each round, the player turns one card face up. The number of cards turned face up can be adjusted based on the student's grade level.
  - The players compare the numbers, and the player with the highest value takes the cards.
  - The player with the most cards at the end of the game is the winner.
- **Partners of 10 (or 20) (K-2)**
  - This is an independent game.
  - Remove the K and J (Q=0, and A=1).
  - Layout 20 cards face up in a 5x4 array.
  - Find numbers that total 10 and move them to the side. You can use 2 (or more) cards.
  - The goal is to have as few cards leftover as possible.
  - For a more challenging game, find totals of 20.
- **Place Value (K-2)**
  - Remove the K, Q, J and 10 (A=1).
  - Practice place value by drawing cards (the number is determined by the grade level of the child) and trying to build the largest number possible (tens, hundreds, thousands).
  - A point is earned for the largest number each round. The player with the most points at the end of the game is the winner.
  - In the event of tie, the winner of the next round takes the cards from both rounds.

- **Add & Subtract Numbers (K-3)**
  - Remove the K, Q and J (A=1). Shuffle and each player gets half of the remaining cards.
  - For each round, the player turns two cards face up. You can adjust the number of cards to make the game easier or harder.
  - The players add (or subtract) the numbers, and the player with the highest value takes the cards.
  - The player with the most cards at the end of the game is the winner.
- **Race to 100 (2-3)**
  - Remove the K, Q, and J or assign them a value like 11, 12, and 13 (A=0).
  - Shuffle the cards and place them in the center of the playing area.
  - Each player takes turns flipping a card face up and adds the value of the card to their running total.
  - The person closest to 100, without going over, is the winner.
- **Multiplication Facts Practice (3-5)**
  - Remove the K, Q and J (A=1). Have the adult decide the number the student will be multiplying by, depending on the multiplication facts he/she needs to practice.
  - The child turns a card face up from the deck and multiplies the identified number by the number on the card. For example, the child is practicing math facts with 6. If they turn over a 7, they should say 7x6 = 42. Repeat until the deck is empty.
  - The adult tallies points as the student is working, giving them one point for each correct answer.
  - The child should work to improve the number of points each time until a perfect score of 40 is reached.
  - Try with different numbers!
- **Guessing Products (3-5)**
  - Remove the K, Q, and J from the deck (A=1).
  - Without looking, one player draws 2 cards and holds them facing out for the other player to see.
  - The other player says the product of the two numbers.
  - The player with the cards has 3 guesses to determine the value of the two cards. If they do it, they earn 1 point. If not, it's the other person's turn to draw cards.
  - The player with the most points at the end of 5 rounds is the winner.
- **Add Decimals (3-5)**
  - In this game: A=$0.01, 2=$0.02, 3=$0.03…10=$0.10, J=$0.11, Q=$0.12, K=$0.13.
  - Shuffle the deck of cards and deal 10 cards to each player.
  - Players take turns drawing and discarding one card at a time.
  - The game is over when the deck of cards is depleted or a player gets exactly $1.00.
  - If no player gets exactly $1.00, the player who is closest without going over is the winner.

- **Compare Fractions (3-5)**
  - Remove the K, Q, and J or assign them values like 11, 12, and 13 for a challenge (A=1).
  - Deal each player 2 cards face up. Each player creates a fraction using one card as the numerator and one card as the denominator.
  - Compare fractions, and the player with the largest fraction keeps all 4 cards.
  - If there is a tie, set the cards aside. The winner of the next round collects the cards set aside as well as the cards from the current round.
  - The winner of the game is the player with the most cards at the end of the allotted time.
- **Order of Operations (4-8)**
  - Remove the K, Q, and J (A=1). For a more challenging game, assign values to the K, Q and J and leave them in the deck. Each player is dealt four cards.
  - Each player uses the order of operation rules to try to make a number as close to 24 as possible. Parentheses, brackets, and exponents can be incorporated.
  - The player closest to 24, without going over, earns 1 point. The player with the most points at the end of the game is the winner.
- **Integers (6-8)**
  - Remove the K, Q, and J or assign them values like 11, 12, and 13 (A=1).
  - Each player starts with 20 points.
  - Player one flips a card. If the card is black, the number is positive. If the card is red, the number is negative. Find the value of the new total for each round.
  - The player with the highest (or lowest) point total, when all the cards are gone, wins.
- **Exponents (6-8)**
  - K, Q, J all equal 10 (A=1). Assign different values to K, Q, and J for a challenge.
  - Deal out the cards evenly between all players.
  - Each player simultaneously flips over two cards. The first card is the base number, and the second card is the exponent. The player with the highest value wins all four cards.
  - If the cards have the same value, the cards are placed in a center pile or set aside. The next hand is played normally and the will determine who wins the current hand plus the cards set aside from the previous hand.
  - Play continues until one person holds all the cards or has the most cards at the end of the designated time.
- **Expressions & Equations (6-8)**
  - For this game: J=11, Q=12, K=0, and A=1.
  - Deal each player 7 cards.
  - Turn one card face up in the center of the playing area. This is the target number for the round.
  - Each player works to create an expression that is equivalent to the target number, using any of the four operations. The goal is to use as many cards as possible.
  - Players earn points if their expression is correct, one point for each card used.
  - The player with the most points at the end of a designated number of rounds is the winner.

Math Games: Using Decks of Cards

Game Title	Link	QR Code
Add & Subtract Numbers (K-3) ■ Remove the K, Q and J (A=1). Shuffle and each player gets half of the remaining cards. ■ For each round, the player turns two cards face up. You can adjust the number of cards to make the game easier or harder. ■ The players add (or subtract) the numbers, and the player with the highest value takes the cards. ■ The player with the most cards at the end of the game is the winner.	https://vimeo.com/edu2000/addsubtractk3	
Add Decimals (3-5) ■ In this game: A=$0.01, 2=$0.02, 3=$0.03…10=$0.10, J=$0.11, Q=$0.12, K=$0.13. ■ Shuffle the deck of cards and deal 10 cards to each player. ■ Players take turns drawing and discarding one card at a time. ■ The game is over when the deck of cards is depleted or a player gets exactly $1.00. ■ If no player gets exactly $1.00, the player who is closest without going over is the winner.	https://vimeo.com/edu2000/addingdecimals35	

Compare Fractions (3-5) ■ Remove the K, Q, and J or assign them values like 11, 12, and 13 for a challenge (A=1). ■ Deal each player 2 cards face up. Each player creates a fraction using one card as the numerator and one card as the denominator. ■ Compare fractions, and the player with the largest fraction keeps all 4 cards. ■ If there is a tie, set the cards aside. The winner of the next round collects the cards set aside as well as the cards from the current round. ■ The winner of the game is the player with the most cards at the end of the allotted time.	https://vimeo.com/edu2000/comparefractions35	
Compare Numbers (K-2) ■ Remove the K, Q and J (A=1). Shuffle and each player gets half of the remaining cards. ■ For each round, the player turns one card face up. The number of cards turned face up can be adjusted based on the student's grade level. ■ The players compare the numbers, and the player with the highest value takes the cards. ■ The player with the most cards at the end of the game is the winner.	https://vimeo.com/edu2000/comparenumbersk2	
Counting On (K-2) ■ Remove the K, Q, and J (A=1). Shuffle the cards and place them in the center of the playing area. ■ Players flip a card and roll a die. ■ Starting with the number on the card, the player should "count on" using the number on the die.	https://vimeo.com/edu2000/countingonk2	

■ If they get the answer correct, they keep the card. ■ Each time you play, the player should try to increase the number of cards they have at the end of each game.		
Exponents (6-8) ■ K, Q, J all equal 10 (A=1). Assign different values to K, Q, and J for a challenge. ■ Deal out the cards evenly between all players. ■ Each player simultaneously flips over two cards. The first card is the base number, and the second card is the exponent. The player with the highest value wins all four cards. ■ If the cards have the same value, the cards are placed in a center pile or set aside. The next hand is played normally and the will determine who wins the current hand plus the cards set aside from the previous hand. ■ Play continues until one person holds all the cards or has the most cards at the end of the designated time.	https://vimeo.com/edu2000/exponents68	
Expressions & Equations (6-8) ■ For this game: J=11, Q=12, K=0, and A=1. ■ Deal each player 7 cards. ■ Turn one card face up in the center of the playing area. This is the target number for the round. ■ Each player works to create an expression that is equivalent to the target number, using any of the four operations. The goal is to use as many cards as possible. ■ Players earn points if their expression is correct, one point for each card used.	https://vimeo.com/edu2000/expressionsandequations68	

■ The player with the most points at the end of a designated number of rounds is the winner.		
Guessing Products (3-5) ■ Remove the K, Q, and J from the deck (A=1). ■ Without looking, one player draws 2 cards and holds them facing out for the other player to see. ■ The other player says the product of the two numbers. ■ The player with the cards has 3 guesses to determine the value of the two cards. If they do it, they earn 1 point. If not, it's the other person's turn to draw cards. ■ The player with the most points at the end of 5 rounds is the winner.	https://vimeo.com/edu2000/guessingproducts35	
Integers (6-8) ■ Remove the K, Q, and J or assign them values like 11, 12, and 13 (A=1). ■ Each player starts with 20 points. ■ Player one flips a card. If the card is black, the number is positive. If the card is red, the number is negative. Find the value of the new total for each round. ■ The player with the highest (or lowest) point total, when all the cards are gone, wins.	https://vimeo.com/edu2000/integers68	
Multiplication Facts Practice (3-5) ■ Remove the K, Q and J (A=1). Have the adult decide the number the student will be multiplying by, depending on the multiplication facts he/she needs to practice.	https://vimeo.com/edu2000/multfactspractice35	

■ The child turns a card face up from the deck and multiplies the identified number by the number on the card. For example, the child is practicing math facts with 6. If they turn over a 7, they should say 7x6 = 42. Repeat until the deck is empty. ■ The adult tallies points as the student is working, giving them one point for each correct answer. ■ The child should work to improve the number of points each time until a perfect score of 40 is reached. ■ Try with different numbers!		
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Order of Operations (4-8) ■ Remove the K, Q, and J (A=1). For a more challenging game, assign values to the K, Q and J and leave them in the deck. Each player is dealt four cards.	https://vimeo.com/edu2000/operations48	

■ Each player uses the order of operation rules to try to make a number as close to 24 as possible. Parentheses, brackets, and exponents can be incorporated. ■ The player closest to 24, without going over, earns 1 point. The player with the most points at the end of the game is the winner.		
Partners of 10 (or 20) (K-2) ■ This is an independent game. ■ Remove the K and J (Q=0, and A=1). ■ Layout 20 cards face up in a 5x4 array. ■ Find numbers that total 10 and move them to the side. You can use 2 (or more) cards. ■ The goal is to have as few cards leftover as possible. ■ For a more challenging game, find totals of 20.	https://vimeo.com/edu2000/partners10k2	
Place Value (K-2) ■ Remove the K, Q, J and 10 (A=1). ■ Practice place value by drawing cards (the number is determined by the grade level of the child) and trying to build the largest number possible (tens, hundreds, thousands). ■ A point is earned for the largest number each round. The player with the most points at the end of the game is the winner. ■ In the event of tie, the winner of the next round takes the cards from both rounds.	https://vimeo.com/edu2000/placevaluek2	

Race to 100 (2-3) ■ Remove the K, Q, and J or assign them a value like 11, 12, and 13 (A=0). ■ Shuffle the cards and place them in the center of the playing area. ■ Each player takes turns flipping a card face up and adds the value of the card to their running total. ■ The person closest to 100, without going over, is the winner.	https://vimeo.com/edu2000/raceto10023	