Math Cards (Level 0)

Description	Learners will make cards to play multiple games gaining a deeper sense of numbers, greater – lesser, addition – subtraction, sequences and patterns
Leading Question	Can you make your own card games?
Total Time Required	~4 hours over 3 days
Supplies Required	Paper, Pens, Scissors and Colors
Learning Outcomes	- Deeper understanding of the relation between number and quantity - Performing and applying the basic arithmetical functions (addition, and subtraction) - Practice of game behavior including taking turns, rules, and goals - Enhance algebraic thinking through the generation of number patterns - Reason abstractly and quantitatively - Identify whether the number of objects in one group is greater than or less than to the number of objects in another group. - Develop their recognition of patterns in the number system (for example, sequences)
Previous Learning	- Writing numbers (1-20) - Understanding addition as putting together and adding to

Day 1

Learners will begin designing their own games, including playing cards, and designing rules sheets for those games.

Suggested Duration	Activity and Description
30 minutes	Ask the learner: - Have you ever played a card game before? - If yes, what are some of the things you have observed before that you will need to think through as you design your own card

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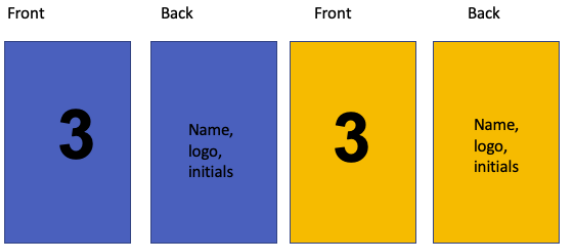
	game? (Possible answers: Counting, Cards, color, rules of the game, etc.) Invite learners to make their own playing cards; - they will draw rectangular cards that are approximately the size of their palm (or any other shape of their own choice). - If they do not have a ruler to draw the lines, they can use any box cover or book to draw the lines. - The shorter side can be the length of their thumb, and the longer side the length of their palm . Learners will cut out 40 such cards (if learners can't count to 40, let them do two groups of 20). Learners will color each of the cards in one of 4 colors – they can choose any colors of their choice or do them in red, yellow, green, and blue. Ask the learners: If we have 10 cards in yellow and want to have an equal number of cards in each color – how many cards will we have in blue? Green? Red? Or other colors? Tip - "Math Talk": discuss with the learners possible ways of getting to this answer. The key here is to engage in discussion, not a rapid fire answer. Give learners enough time to work out the problem on their own. You can use prompts such as "How could you sort this?", "How could you sort this differently?" or "I wonder what would happen if you put ____ and _____ together" They will write the numbers 1 – 20 on each of the cards in bold letters in the middle of each of the cards. Learners will make 2 cards with each of the numbers and make sure that no two numbers are on the same color card e.g., if there is a 3 in the yellow card, the other 3 should be on a blue card etc. Learners will design the other side of the card with a logo, name or initial. 

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<table>
<tr>
<td>15 minutes</td>
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Game 1: Snap

Goal: Winning all the cards by quickly identifying matching cards

Rules:

Step 1: Shuffle the cards and divide the cards equally between all the players
Step 2: Each player opens a card from the deck each turn, and this is laid open on the table
Step 3: If the two cards have matching numbers, then the players will say “snap”, the first person to say snap will take all the open cards underneath
If two cards of the same color are opened the players can say snap, and take the two matching color cards
Learners get a point for each card they receive.
If there are no matching cards through the entire play, the game will be discarded and restarted
The player with the most cards at the end will win the game

Learners will play the game and write the score on a points sheet like the one below:
<table>
<tr><td>Player Name/Initials</td><td>Number of points</td></tr>
<tr><td>Ali</td><td>3</td></tr>
<tr><td>Faith</td><td>5</td></tr>
<tr><td></td><td></td></tr>
<tr><td></td><td></td></tr>
</table>
</td>
</tr>
<tr>
<td>15 minutes</td>
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Game 2: Memory Match

Learners will first play a memory game – in this game they will mix up all the cards and face the number side down.

Goal: Get as many points as possible by remembering and opening the correct matching card numbers.
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Rules:

Step 1: Ask the learner to arrange the shuffled cards in 5 rows of 8 cards each or arrange the shuffled cards in 8 rows of 5 cards each.
Step 2: Player 1 opens one card,
Step 3: Player 1 opens another card.
Step 4: Ask learners to think about how they reward points to players for remembering and opening the correct matching card numbers. For example,
- If the 2 cards are the same matching number, they can take the cards out of the rows and they get 2 points in their column
- If the 2 cards have a matching color but not a matching number, they get 1 point in their column and can close the cards putting them back in the same place in the arrangement
- If the 2 cards are not the matching number or color, they get no points and just close the cards in the arrangement

Step 5: Player 2 opens one card,
Step 6: Player 2 opens another card

Learners will add the number of points in both columns and whoever has more points is the winner of the game. Learners can use a score sheet like the one below:

<table>
<tr><td>Player’s name/Initials</td><td>Number of points</td><td>Opponent’s name/initials</td><td>Number of points</td></tr>
<tr><td>Ali</td><td>2</td><td>Dad</td><td>3</td></tr>
<tr><td>Faith</td><td>5</td><td>Mum</td><td>3</td></tr>
<tr><td></td><td></td><td></td><td></td></tr>
</table>
</td>
</tr>
<tr>
<td>15 minutes</td>
<td>
Reflection: Parents/family members will work with the learners to reflect on the day’s activities. Thinking about the activities from the card games played today, can you tell us:

- Three things you have learned from all the today’s games
- Two things you found interesting
- One thing that you still have a question about
</td>
</tr>
</table>

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Day 2

Learners will design two new games to understand the concept of greater and smaller than numbers.

<table>
<tr><th>Suggested Duration</th><th>Activity and Description</th></tr>
<tr><td>20 minutes</td><td>
Game 3: Greater Alligator

Goal: Getting the most points after 5 rounds by having the highest card (a card with the highest number) - (a variation of the same game can be played for the winner being the one with the smallest card)

Rules:
- Step 1: Shuffle the cards and deal 2 cards per player
- Step 2: Ask learners to think about how they reward points to players for having the highest number card. For example, each player will play their highest card and the person with the highest card has won e.g., Player 1 has 3, 12 and Player 2 has 4, 8, and Player 3 has 9, 20 then player 3 is the winner for having the card 20. The winner of each round gets 2 points, and the final winner is the one that has the most points at the end of 5 rounds

- Ask learners to think about how they reward points to two players for having the same highest number card for example, if two players have the same high card, they both get to play their next highest card and whoever’s second card is the highest will win

Learners will play the game and write the score on a points sheet. Learners can use a score sheet like the one below:

<table>
<tr><td>Player Name/Initials</td><td>Number of points</td></tr>
<tr><td>Ali</td><td>3</td></tr>
<tr><td>Faith</td><td>5</td></tr>
<tr><td></td><td></td></tr>
</table>
</td></tr>
</table>

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<table>
<tr><td></td><td>Learners will also write the numbers using the greater than sign for each of the rounds for the 3 cards played e.g., 20 greater than 12 greater than 8</td></tr>
<tr><td>20 minutes</td><td>Game 4: Larger Numbers

Goal: Getting the most points after 5 rounds by having the largest sum in their cards

Rules:
- Step 1: Shuffle the cards and deal 3 cards per player
- Step 2: Each player will add the numbers dealt with their cards
- Step 3: Ask learners to think about how they reward points to players for having the largest sum in their cards. For example, Players will each say the total number and the highest number will win. Example: Player 1 has 4, 11, 16 and Player 2 has 16, 9, 2 – so Player 1’s total is 31 and Player 2’s total is 27 so Player 1 wins the game. The winner of each round gets 2 points, and the final winner is the one that has the most points at the end of 5 rounds
- Ask learners to think about how they reward points to two players for having the same largest sum of cards for example, if two players have the same largest sum for their cards, they will each pick up one more card from the deck and add that to the sum and whoever has the highest total will win

Learners will play the game and write the score on a points sheet which has a column for each of the players with their initials / full name on it. Learners can use a score sheet like the one below:
<table><tr><td>Player Name/Initials</td><td>Number of points</td></tr><tr><td>Ali</td><td>3</td></tr><tr><td>Faith</td><td>5</td></tr><tr><td></td><td></td></tr></table>Learners will also write the 3 sums for each of the rounds for the 3 cards played on a sheet of paper e.g.
- Player 1: 4 + 11 + 16 = 31
- Player 2: 16 + 9 + 2 = 27
- Final: 31 is greater than 27 so player 1 is the winner.</td></tr>
</table>

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15 minutes	**Reflection:** Parents/family members will work with the learners to reflect on the day's activities. Thinking about the activities from the card games played today, can you tell us: - Three things you have learned from all the today's activities - Two things you found interesting - One thing that you still have a question about

Day 3

Learners will continue to explore subtraction and sequences.

Suggested Duration	Activity and Description
20 minutes	Learners will continue to explore subtraction and sequences Game 5: Closest Number Goal: Getting the most points after 3 to 5 rounds by having the total number closest to the open card (a variation of the same game can be played for the winner being the one with the further number) Rules: - Step 1: Shuffle the cards and deal 3 cards per player - Step 2: Each player will add the numbers on the cards that were dealt to them e.g., if Player 1 gets 4, 11, 16 (4+11+16=31) with their cards - Step 3: Pick a random card from the deck and lay deck lay this card open on the table, whichever player has a number that is closest to the opened number wins the game. Ask learners to think about how they reward points to players for having the total number closest to the open card. For example, Player 1's total is 31 and Player 2's total is 27 – if the card opened if 17 then Player 2 wins. The winner of each round gets 2 points, and the final winner is the one that has the most points at the end of 5 rounds

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<table>
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Also ask learners to think about how they reward points to two players for having the same total number closest to the open card. For example, if two players have the same high number, they will each pick up one more card from the deck and add that to the sum and whoever has the highest total will win

Learners will play the game and write the score on a points sheet which has a column for each of the players with their initials / full name on it. Learners can use a score sheet like the one below:

<table>
<tr><td>Player name/Initials</td><td>Number of points</td></tr>
<tr><td>Ali</td><td>3</td></tr>
<tr><td>Faith</td><td>5</td></tr>
<tr><td></td><td></td></tr>
<tr><td></td><td></td></tr>
</table>

Learners will also write the 4 sums for each of the rounds for the 3 cards played e.g.
- Player 1: 4 + 11 + 16 = 31
- Player 2: 16 + 9 + 2 = 27
- Comparison: 27 – 17 = 10 and 31 – 17 = 14
- Final: 14 is greater than 10 so 10 is the winner since it is closer
</td>
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<tr>
<td>20 minutes</td>
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Game 6: Sequence - Numbers

Goal: Getting the most points after 5 rounds by making sequences of numbers

Rules:
- Step 1: Shuffle the cards and deal 3 cards to each player and keep the others as a closed deck
- Step 2: Players will each have a turn where they get to either pick up a card either from the deck or the discarded pile and they also discard a card
- The player who is the first to get a sequence of 3 numbers that follow each other will win the game e.g., 1, 2, 3 or 11, 12, 13
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</tr>
</table>

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<table>
<tr><td></td><td>Learners will play the game and write the score on a points sheet which has a column for each of the players with their initials / full name on it. Learners can use a score sheet like the one below:

<table><tr><td>Player name/Initials</td><td>Number of points</td></tr><tr><td>Ali</td><td>3</td></tr><tr><td>Faith</td><td>5</td></tr><tr><td></td><td></td></tr></table>
Learners will also write the entire numerical sequence of the different sequences formed as they play the game.</td></tr>
<tr><td>15 minutes</td><td>Reflection: Parents/family members will work with the learners to reflect on the day’s activities. Thinking about the activities from the card games played today, can you tell us:

- Three things you have learned from all the today’s activities
- Two things you found interesting
- One thing you would like to hear more or learn more about</td></tr>
</table>

ASSESSMENT CRITERIA

- Clarity of the numbers and alphabet cards made
- Grasp of the rules of the game
- Ability to play the games and apply the functions of memory, greater / smaller than, proximity, addition-subtraction, and sequences

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