RANKED CHOICE VOTING BALLOT DESIGN AND COUNTING

Under the Model Rules, the convention may, by a majority vote, choose to elect by ranked choice in any election for party office with more than three candidates. Ranked choice voting in the DFL is governed by the "Ranked Choice Voting Procedures" section of the Official Call. This ballot design and counting procedure accommodate both documents. The tellers are collectively responsible for both the design and counting of all ballots.

Ballot Design

Electronic ranked choice voting ballots can be fairly easily designed using Google Forms or similar programs. This guidance is based on the layout and options in Google Forms. A separate form should be made for each office. An example Google Form is viewable at this link: https://forms.gle/jx1KvxgpdK4tGDbM6

This form also works for elections using non-ranked voting by omitting the instructions on ranking votes and voting questions after the first one.

Title and Description
The title should clearly communicate the purpose of the ballot, e.g. "Ranked Choice Ballot for [Office]." The form description should provide instructions to delegates for casting their ballot. The following is an example of a sufficient description:

> Please use this form to rank candidates for [office]. The order of candidates was determined by lot. You may rank as many candidates as you wish. It is in your interest to rank all options and to not rank an option more than once. Ranking "abstain" exhausts your ballot and lower-ranked votes for candidates will not be counted. Voting will close in five minutes. If no clear result is available before today's convention adjourns, it will be announced to all delegates and alternates within 48 hours after adjournment.

Tellers may wish to include a synopsis of the counting procedure for ranked choice ballots within the form description. The following summary is adapted from the Official Call:

> Once balloting is closed, the tellers will begin counting ballots. If on the first ballot one of the candidates receives a simple majority of the votes, then that candidate shall be declared the winner. If no candidate crosses that threshold, then the candidate with the lowest total number of votes shall be dropped from subsequent counts. During subsequent counts, those ballots cast for the candidate that was dropped shall be redistributed based on their next highest ranked choice candidate that has not been dropped from the race. If there are any ballots that do not list a remaining candidate, those ballots shall be considered exhausted, set aside and not included in subsequent counts. If after all the ballots are counted, a candidate has received a simple majority of the votes cast, that candidate shall be declared the winner. If there are only two candidates left, the candidate with the greater number of votes shall be considered the winner.

First and Last Name
In Google Forms, the first question on the default form is multiple choice. The format for the first question should be changed to "Short answer," the question should be titled "First and Last Name," and it should be marked as "Required." This question satisfies the DFL requirement that all ballots are not valid unless signed. It also helps prevent duplicate votes.

PIN Assignment

If a unit wishes to further tighten security of their ballots, the tellers can issue unique personal identification numbers (PINs) to each delegate and alternate eligible to participate in the convention. PINs can be assigned, for example, using a random number generator like random.org, generating a simple list of integers (non-decimal numbers), and assigning each number to a delegate or alternate in alphabetical order. A new section should be added (click "Add section," the icon that appears as two horizontal rectangles) to place the form title, description, and identification questions on a separate page from the voting questions. The PIN submitted with each response can be used during counting and verification to remove duplicate and ineligible votes.

Candidate Rankings

The next question can be added by clicking on the plus sign at the right of the first question. Multiple choice and dropdowns are both suitable formats for choice questions on an electronic ranked choice ballot form. Each choice question should list all available options and be of the same format as all other questions on the same ballot, and preferably on all ballots. The text of the first choice question should be "First Choice (Choose one)" or something similar. The options should list the full names of all candidates as well as "Abstain." The order of candidate names should be determined impartially (e.g. alphabetical order, the order in which candidates we nominated, or by lot), with abstain listed last, and the order should be the same for all voting questions. The first voting question should also be required.
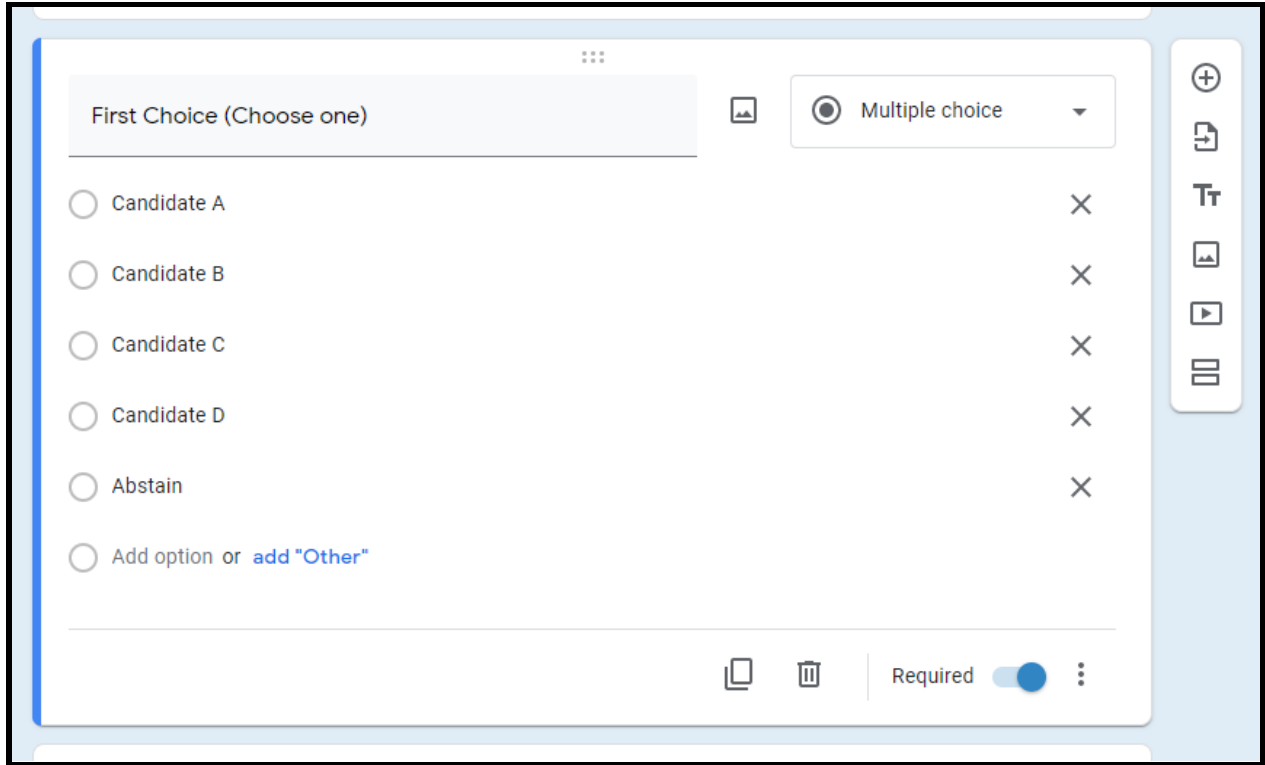
The first voting question should then be copied by clicking on the "Duplicate" or "Copy" icon, which appears in Google Forms as shown below. The new second question should be titled "Second Choice (Choose one)" and contain the same options as the first question. However, the setting to require a response should be de-selected. This process of creating new questions should be repeated until there are as many questions as candidates running, with the title of each question updated to indicate its numeric order in the list: "Third Choice (Choose one)," "Fourth Choice (Choose one)," etc.
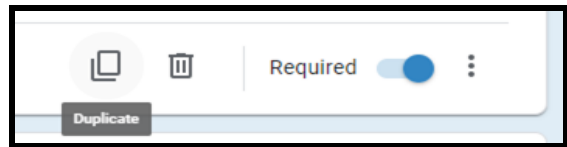
The settings on the form should be adjusted to deactivate the option that provides the link to submit another response after completing the form. This option is found in Google Forms by clicking the gear icon in the upper-right corner, navigating to the "Presentation" tab, and unchecking the "Show link to submit another response" option. Participants should be prevented from viewing other responses. The unit may choose to limit their ability to edit a previous response. Settings should not require participants to sign into a separate account with an online platform or service in the interest of limiting responses. Settings should not allow participants to view raw results.

Convention organizers can customize their ballots in appearance by clicking the "Customize Theme" button, which appears as a paint pallet in the upper-right corner of Google Forms. The Google Forms Settings window allows the unit to collect email addresses with submissions, which may be useful for verification and volunteer contact purposes. The designers of the ballot may wish to alter the confirmation message that appears when participants finish entering and

submitting their responses. The default message reads, "Your response has been recorded," which can be changed under the "Presentation" tab in the Settings window.
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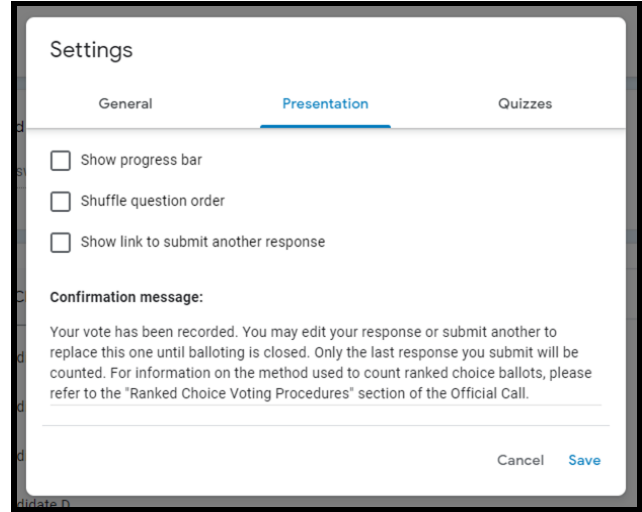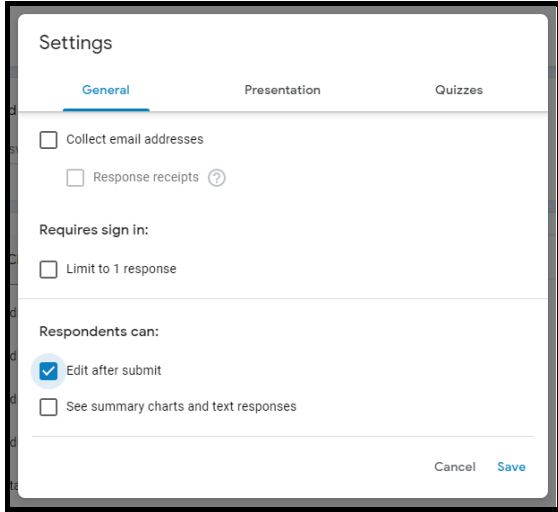
During the convention, tellers should fill in the names of candidates as nominations take place. Once nominations are closed, spelling of names has been verified, and all other formatting and settings have been finalized, the tellers should attempt to test the form using the "Preview" feature, which appears in the shape of an eye. Once the chair opens balloting, tellers may begin distributing these ballots using the "Send" button in the upper-right corner. From there, they may send eligible delegates and upgraded alternates an email with the ballot link and an editable message inviting them to complete the ballot. They may also obtain a link they can copy and paste into the chat for all participants to click on. The method used for distribution of ballots will depend on the security preferences of unit leaders.

Verification of Votes

Once balloting is closed, a teller with collaborator/editor control of the Google Form should close the form to responses. In an in-person convention, two tellers count paper ballots in view of the candidates or their representatives, who do not participate or comment while this occurs. A virtual convention can provide a similar setting by placing the tellers and the candidates or their representatives into a breakout room. Once in the breakout room, a technology assistant should share their screen to display the Google Form.

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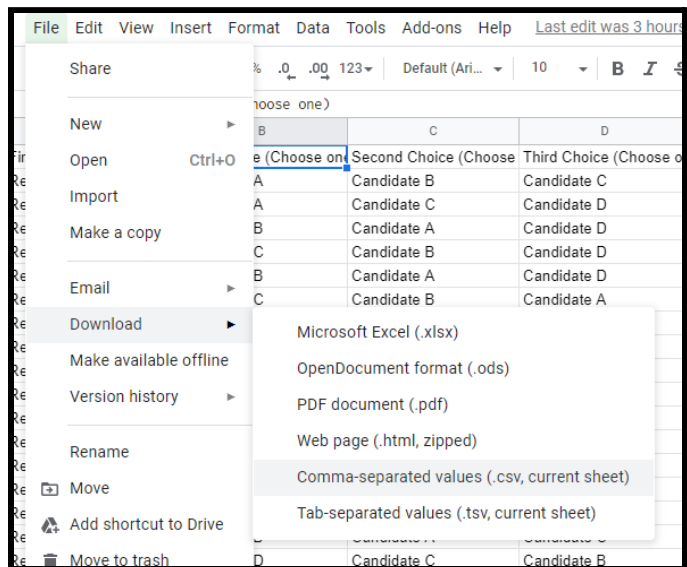
Results can be obtained by selecting the "Responses" tab and clicking on the Google Sheets icon, which generates a spreadsheet of results in a new tab. The teller should first download a copy of the raw results as a Microsoft Excel or comma-separated values sheet as a backup: File → Download → Microsoft Excel (.xlsx) or Comma-separated values (.csv, current sheet). The first column of the sheet contains the timestamp for each response; the second and subsequent columns contain the answers to each question in their order of appearance on the Google Form.

Counting Process

Once at least two tellers and all candidates/representatives who wish to be present are in the breakout room, the teller should begin the count by reviewing the list of names or PINs in response to the first question. This review should eliminate any duplicate responses by keeping only the latest response given by each participant. If possible, the teller should compare the names of voters against the list of registered delegates and upgraded alternates provided by the Credentials Committee. The teller may wish to retain the responses eliminated through this verification process in a separate sheet in the same Google Sheets file. The teller can click the "Add Sheet" button that appears as a plus sign in the lower-left corner. They can then copy/cut all ineligible and duplicate responses, paste them into this new sheet, and title this new sheet "Spoiled Ballots." Spoiled ballots have no effect on quorum or the majority vote threshold for election.

The teller can then begin counting the valid votes. Results are tabulated by first counting all first-choice votes for candidates. If on the first round one of the candidates receives a simple majority of the votes, then that candidate shall be declared the winner. If no candidate crosses that threshold, then the candidate with the lowest total number of votes shall be dropped from subsequent counts. If two or more candidates are tied for the lowest number of total votes, then a runoff of the next highest ranked choices for each candidate from among those whose highest ranked choices were for the other tied candidates, and the candidate with the lowest number of those second-choice votes is eliminated from further counts. During subsequent rounds of counting, those ballots cast for the candidate that was dropped shall be redistributed based on their next highest ranked choice candidate that has not been dropped from the race. If there are any ballots that do not list a remaining candidate, those ballots shall be considered exhausted, set aside and not included in subsequent counts. Ballots which contain no rankings or which have been exhausted through redistribution will both be counted as abstentions. Abstentions are counted towards quorum but are not included in the total number of votes used to determine a majority. If after all the ballots are counted, a candidate has received a simple majority of the votes cast, that candidate shall be declared the winner. If there are only two candidates left, the candidate with the greater number of votes shall be considered the winner.

Counting ranked choice ballots can be accomplished either by manually counting results sorted using built-in data filters or by using formulas that count instances of a particular value in a range based on one or more conditions. An example spreadsheet of results is available with both methods used to count ranked votes at the following link:
https://docs.google.com/spreadsheets/d/1qE2-__ybVg5mcY_V0o6-cJtozWXeL4BL6Ki36F03rBM/edit?usp=sharing

The explanations of counting methods uses rankings from that spreadsheet to illustrate the principles of ranked choice voting and how they are applied in each method. For both methods, create a small table multiple rows below the results, labelled "Round 1," listing each candidate's name, followed by the total number of votes counted that round, the number of abstentions, the number of blanks, and the total number of ballots cast. Another column can be added to calculate the percentage vote share each candidate earns; this column makes it easy to see whether any candidates have earned a majority of votes.

Counting by Hand

Round one counts all first-choice votes. To hand-count totals for each candidate, highlight all results columns and rows, including the top row, and select the option called "Create a filter," which appears as an icon shaped like a funnel. This function, as with most others discussed in this guidance, is available in Google Sheets, Microsoft Excel, and most other spreadsheet software. Enabling the filter option should allow the teller to click on a drop-down menu in each cell of the top row. This menu allows the teller to sort and order all results in the filter range according to the data in that column.
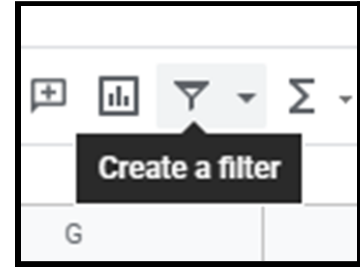
First Round

Once the filter is created, click the drop-down at the top of the "First Choice" column. The "Filter by values" option allows the teller to show or hide rows based on the data in the column, using check marks next to each value that appears in that column. A value that is checked will be visible; one that is unchecked will be hidden. Click the "Clear" option to uncheck all values and check the name of the first candidate on the ballot.

Scroll back to the top and count the number of visible rows. This count can also be obtained by selecting the visible cells in the "First Choice" column and noting the "Count" number that appears in the lower-left corner of the window. That count is the number of first-choice votes for the first candidate and should be entered next to that candidate's name in the Round 1 count table. The process is repeated for each candidate by unchecking the previous candidate's name, checking the next name, and counting those rows/cells, and entering those counts into the table. The total of all votes for candidates should be entered in the "Total Voting" row.
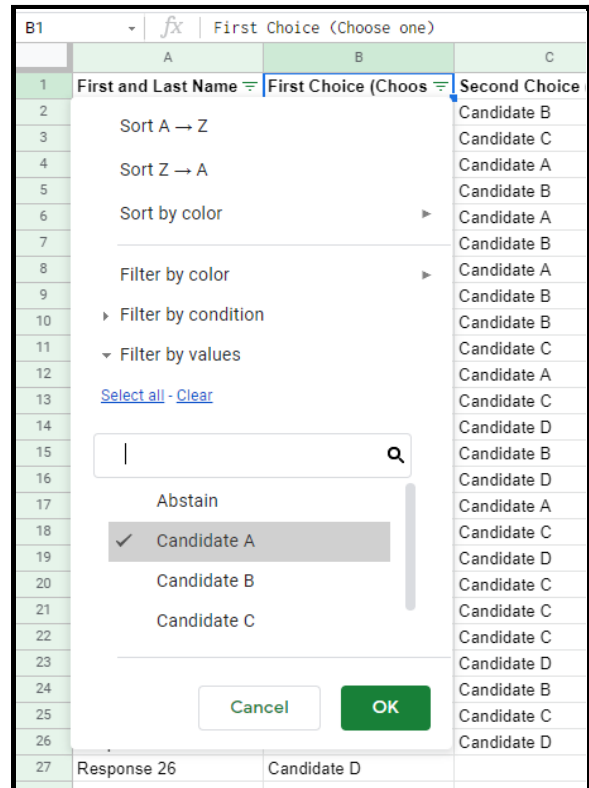
54			Vote Share
55	Round 1	Candidate A	0	%
56		Candidate B	0	%
57		Candidate C	0	%
58		Candidate D	0	%
59		Total Voting	0	100.00%
60		Abstentions	0	
61		Blanks	0	
62		Total Ballots	0	

The vote share for each candidate can be calculated by dividing the number of votes the candidate earned by the total number of participants voting. A formula for this calculation can be written as, "=[candidate votes cell]/[total voting cell]," with the total voting cell reference fixed on that row (e.g. "=C55/$C$59"). These vote shares can be displayed as percentages down to the hundredth of a percent by selecting all cells in the Vote Share column, and clicking the "Format as percent" and "Increase decimal places" buttons, both located in the toolbar and shown below. This calculation can easily show whether any candidate has earned the required threshold of greater than 50% of votes.
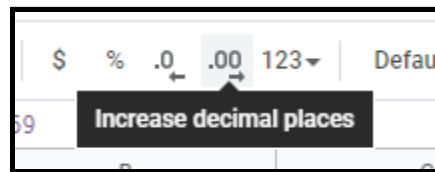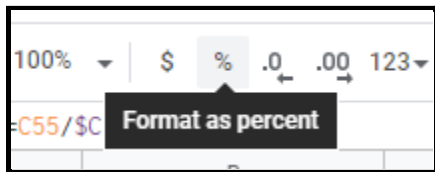
The Google Sheets filter will also list entries in the column for "Abstain" and any blanks. These should be counted and noted separately from candidate votes. Abstentions and blank ballots are not votes and are not counted when determining whether a candidate has earned a majority of votes. The total number of ballots cast should be the sum of the total votes, abstentions, and blank ballots. This number should not change throughout the counting process. If it does, then an error in counting has occurred. This number also determines whether a quorum is present. If this number is less than a majority of registered delegates and upgraded alternates, then a quorum is lost, and an election cannot result from the ballot.

If any candidate receives a majority of first-choice votes, that candidate is elected. If not, then the candidate receiving the lowest number of first-choice votes is eliminated, and their votes are reallocated to other candidates based on their next highest ranked choices. Using the example sheet provided above, the count for the first round of votes should appear as below. After the first round of counting first-choice votes, no candidate has earned a majority of the votes cast. Therefore, the candidate with the lowest vote share (Candidate C) is eliminated from contention (highlighted in red), their votes are reallocated based on the second-choice votes of those voters, and another round of counting takes place with the remaining candidates.

			Vote Share	
Round 1	Candidate A	15	31.25%	
	Candidate B	13	27.08%	
	Candidate C	9	18.75%	
	Candidate D	11	22.92%	
	Total Voting	48	100.00%	
	Abstentions	2		
	Blanks	0		
	Total Ballots	50		

Tie for Lowest Candidate

In the unlikely event that there is a tie for the candidate with the lowest vote share, the tie is broken by a runoff of second-choice votes among those tied candidates. The second-choice runoff is determined by comparing second choice votes cast for those candidates who tied by voters whose first choice was for those candidates. For example, if Candidates A, B, and C are tied for the lowest vote share in the first round. the runoff votes for Candidate A would be the total number voting for Candidates B or C as their first choice and Candidate A as their second choice; the runoff votes for Candidate B would be the total number voting for Candidates A or C as their first choice and Candidate B as their second choice; and the runoff votes for Candidate B would be the total number voting for Candidates A or B as their first choice and Candidate C as their second choice. These counts can be obtained for each candidate using the filter function by checking the other candidates' names in the first-choice column and checking the name of the candidate whose second-choice runoff count is being sought in the second-choice column.

Taking only the first 30 responses in the example sheet produces this result, and the runoff is conducted as shown below. In this example, Candidate C received the fewest second-choice votes in the runoff and is thus eliminated.

			Vote Share	Second Choice Runoff
Round 1	Candidate A	7	23.33%	5
	Candidate B	7	23.33%	7
	Candidate C	7	23.33%	3
	Candidate D	9	30.00%	
	Total Voting	30	100.00%	
	Abstentions	0		
	Blanks	0		
	Total Ballots	30		

Second Round

The second round of counting is performed by copying the table from the first round, deleting the row for the eliminated candidate, and labeling it "Round 2." The counts for each remaining candidate can be obtained by taking the first round votes and adding the reallocated votes from the eliminated candidate. Using the filter on the table of results, deselect all names in the first-choice column except for the eliminated candidate. Then. in the second-choice column, deselect all candidates' names and check the name of each remaining candidate, one at a time, as

well as abstentions and blanks. Add the resulting count for each remaining candidate to their round one counts. The total ballots should remain the same as in the first round, and the total voting should equal the total ballots minus abstentions and blanks. Once again, if any candidate has earned the votes of a majority of those voting, that candidate is declared the winner. If not, the candidate with the lowest vote share is eliminated, and their votes are reallocated. The example sheet produces the following results for the second round:

				Vote Share
Round 2	Candidate A		15	31.91%
	Candidate B		16	34.04%
	Candidate D		16	34.04%
	Total Voting		47	100.00%
	Abstentions		3	
	Blanks		0	
	Total Ballots		50	

Third Round
The third round of counting takes the results from the second round and adds in the reallocated votes for the candidate eliminated in the second round. Using the filter on the table of results, deselect all names in the first-choice column except for the candidate eliminated in the second round. Then, in the second-choice column, deselect all candidates' names and check the name of each remaining candidate, one at a time, as well as abstentions and blanks. Add the resulting count for each remaining candidate to their round one counts. In order to account for third-choice votes, continue the process by, in the first-choice column, checking the name of the candidate eliminated in the first round; in the second-choice column, checking the name of the candidate eliminated in the second round; in the third-choice column, checking the name of each remaining candidate, plus abstentions and blanks; and adding these counts to the totals. Then, reverse the selection. Check the name of the candidate eliminated in the second round for the first-choice column; check the name of the candidate eliminated in the first round for the second-choice column; select the name of each remaining candidate, plus abstentions and blanks, in the third-choice column; and add these counts to the totals. Once again, if any candidate has earned the votes of a majority of those voting, that candidate is declared the winner. If not, the candidate with the lowest vote share is eliminated, and their votes are reallocated. Applying this method to the example sheet produces the following results, as well as a winner (highlighted in green):

				Vote Share
Round 3	Candidate B		22	48.89%
	Candidate D		23	51.11%
	Total Voting		45	100.00%
	Abstentions		5	
	Blanks		0	
	Total Ballots		50	

Further Rounds

If needed, further counts can be conducted using the above method. Reallocated votes are counted by selecting filters that account for all possible reallocations of votes from candidates who have been eliminated. For example, in a race with seven candidates—Candidates A through G, say that no candidate has earned a majority of votes, Candidates E through G are eliminated, and a fourth round of counting takes place. The total votes for Candidate A are calculated by summing the following counts:

- 1st-choice votes for Candidate A
- 1st-choice votes for Candidate E with Candidate A as their 2nd choice
- 1st-choice votes for Candidate F with Candidate A as their 2nd choice
- 1st-choice votes for Candidate G with Candidate A as their 2nd choice
- 1st-choice votes for Candidate E with Candidate F as their 2nd choice and Candidate A as their 3rd choice
- 1st-choice votes for Candidate E with Candidate G as their 2nd choice and Candidate A as their 3rd choice
- 1st-choice votes for Candidate F with Candidate E as their 2nd choice and Candidate A as their 3rd choice
- 1st-choice votes for Candidate F with Candidate G as their 2nd choice and Candidate A as their 3rd choice
- 1st-choice votes for Candidate G with Candidate E as their 2nd choice and Candidate A as their 3rd choice
- 1st-choice votes for Candidate G with Candidate F as their 2nd choice and Candidate A as their 3rd choice
- 1st-choice votes for Candidate E with Candidate F as their 2nd choice, Candidate G as their 3rd choice, and Candidate A as their 4th choice
- 1st-choice votes for Candidate E with Candidate G as their 2nd choice, Candidate F as their 3rd choice, and Candidate A as their 4th choice
- 1st-choice votes for Candidate F with Candidate E as their 2nd choice, Candidate G as their 3rd choice, and Candidate A as their 4th choice
- 1st-choice votes for Candidate F with Candidate G as their 2nd choice, Candidate E as their 3rd choice, and Candidate A as their 4th choice
- 1st-choice votes for Candidate G with Candidate E as their 2nd choice, Candidate F as their 3rd choice, and Candidate A as their 4th choice
- 1st-choice votes for Candidate G with Candidate F as their 2nd choice, Candidate E as their 3rd choice, and Candidate A as their 4th choice

The totals for each other remaining candidate, as well as for abstentions and blanks, can be obtained using the same calculation and substituting each candidate's name for "Candidate A." Recall that the Google Sheets filter can select entries of "Abstain" and blank entries as well. Any choices ranked after a blank or an abstention on the ballot are not considered, and any ballot that does not rank any remaining candidates after successive counts is deemed to have been exhausted.

Counting by Formulas

Counting with formulas can be more efficient for those more experienced and proficient with spreadsheet technology, such as Google Sheets or Microsoft Excel. These formulas can also be prepared in advance of the convention; tellers may wish to type them out in full and then copy and paste them into a separate document, as the Google Sheet generated from a Google Form will change based on the responses received. The main formulas used to perform the task of counting results from ranked choice ballots will be COUNTIF, COUNTIFS, and SUM.

First Round

Round one counts all first-choice votes. To count the totals for each candidate, click into the cell next to the name of the first candidate in the Round 1 table. The contents of that cell will appear in the formula bar at the top of the window (shown below).
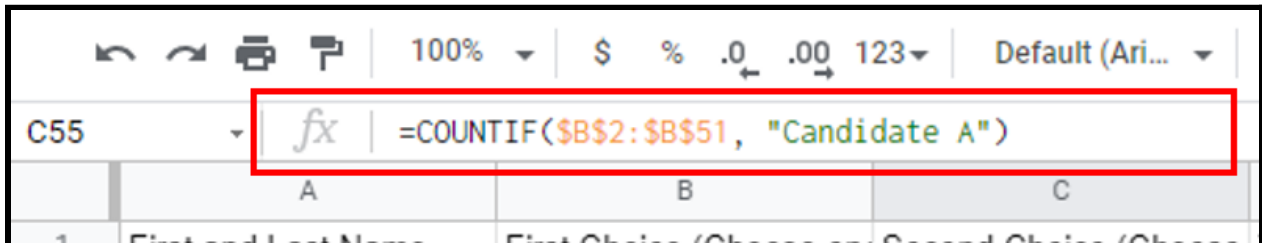
In the formula bar, type an "equals sign" (=); this causes Google Sheets to recognize that what follows is a formula. Next, without a space in between, type "COUNTIF(." This formula counts all values in a range of cells that meet a specified criterion. What follows the open parenthesis are the elements of the formula; the COUNTIF formula must be arranged as "=COUNTIF([the range of cells for reference], [the specified condition])." This formula, as with most others discussed in this guidance, is available in Google Sheets, Microsoft Excel, and most other spreadsheet software.

For the purposes of counting the number of votes a candidate received on a ballot, the formula used should be "=COUNTIF($[the column of the top cell of first-choice votes]$[the row of the top cell of first-choice votes]:$[the column of the bottom cell of first-choice votes]$[the row of the bottom cell of first-choice votes], [the name of the first candidate in the Round 1 table]). The dollar signs ($), which precede each column and row reference for each cell named in the formula, fix the position of that reference; if the formula is copied and pasted into a different cell in the sheet, the reference cells in formula do not change. In Google Sheets and Microsoft Excel, F4 is a shortcut key that cycles between different types of fixed references when creating formulas. Using the data set and candidates from the example sheet linked above, the formula in the cell next to Candidate A in the Round 1 table should read "=COUNTIF($B$2:$B$51, "Candidate A")."

Because the dollar signs fix the referenced cell range in the formula, the formula can be copied and pasted into the other cells for each other candidate's vote count; simply change the condition stated in the second element to be the name of each other candidate. Continuing with the example dataset, these formulas are:

- For Candidate B, "=COUNTIF($B$2:$B$51, "Candidate B")"
- For Candidate C, "=COUNTIF($B$2:$B$51, "Candidate C")"

- For Candidate D, "=COUNTIF($B$2:$B$51, "Candidate D")"

The sum of all counted votes for candidates can be calculated by entering the following formula into the cell adjacent to the "Total Voting" cell in the Round 1 table: "=SUM([the cell containing the vote total for the candidate listed first in the Round 1 table]:[the cell containing the vote total for the candidate listed last in the Round 1 table]) (e.g. "=SUM(C55:C58)"). This is the figure used to determine whether any candidate has earned a majority of votes.

The vote share percentages each candidate earns (in the "Vote Share" column of the Round 1 table) can be calculated using the formula "=[candidate vote total cell]/$[the column of the total voting count cell]$[the row of the total voting count cell]" (e.g. "=C55/$C$59"). This formula should first be entered into the cell next to the cell containing the vote count for the candidate listed first in the Round 1 table and can then be copied and pasted into the cells next to each other candidate's vote totals. The cell next to the total voting count cell should have a SUM formula adding all vote share cells (e.g. "=SUM(D55:D58)"). Once the calculation for each candidate is complete, this total should equal 1 (or 100.00%). These vote shares can be displayed as percentages down to the hundredth of a percent by selecting all cells in the Vote Share column, and clicking the "Format as percent" and "Increase decimal places" buttons, both located in the toolbar and shown to the right. This calculation can easily show whether any candidate has earned the required threshold of greater than 50% of votes.
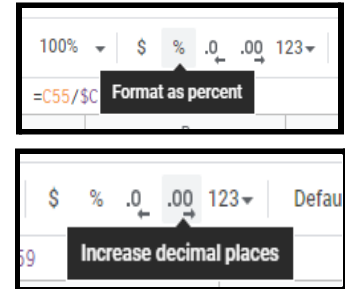
Abstentions and blank ballots should be counted and noted separately from candidate votes. These are not votes and are not counted when determining whether a candidate has earned a majority of votes. The same COUNTIF formula used above should also be used in the abstentions count cell by substituting the candidate name for "Abstain" (e.g. "=COUNTIF($B$2:$B$51, "Abstain")"). Blanks can be counted using a the same formula by substituting two quotation marks ("") for the criterion (e.g. "=COUNTIF($B$2:$B$51, "")"). There should be no blanks in the first-choice column, as the Google Form that produced these results required a response to the first choice question.

The total number of ballots cast should be the sum of the total votes, abstentions, and blank ballots (e.g. "=SUM(C59:C61)"). This number should not change throughout the counting process. If it does, then an error in counting has occurred. This number also determines whether a quorum is present. If this number is less than a majority of registered delegates and upgraded alternates, then a quorum is lost, and an election cannot result from the ballot.

If any candidate receives a majority of first-choice votes, that candidate is declared the winner. If not, then the candidate receiving the lowest number of first-choice votes is eliminated, and their votes are reallocated to other candidates based on their next highest ranked choices. Using the example sheet provided above, the count for the first round of votes should appear as below. After the first round of counting first-choice votes, no candidate has earned a majority of the votes cast. Therefore, the candidate with the lowest vote share (Candidate C) is eliminated from contention (highlighted in red), their votes are reallocated based on the second-choice votes of those voters, and another round of counting takes place with the remaining candidates.

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Tie for Lowest Candidate

In the unlikely event that there is a tie for the candidate with the lowest vote share, the tie is broken by a runoff of second-choice votes among those tied candidates. The second-choice runoff is determined by comparing second choice votes cast for those candidates who tied by voters whose first choice was for those candidates. For example, if Candidates A, B, and C are tied for the lowest vote share in the first round. the runoff votes for Candidate A would be the total number voting for Candidates B or C as their first choice and Candidate A as their second choice; the runoff votes for Candidate B would be the total number voting for Candidates A or C as their first choice and Candidate B as their second choice; and the runoff votes for Candidate B would be the total number voting for Candidates A or B as their first choice and Candidate C as their second choice.

First, create a new column titled, "Second Choice Runoff" in the Round 1 table. The counts for this column can be obtained for each candidate using a COUNTIFS formula that counts all second-choice votes cast for the candidate from among those first-choice votes for the other tied candidates. The COUNTIFS formula counts each cell that meets a number of different criteria. The formula used to obtain the count for a candidate will be "=COUNTIFS([first choice cell range], "[name of another tied candidate]", [second choice cell range], "[name of the candidate whose count is being sought]")," with each cell reference fixed using the dollar signs as before.

When there are more than two candidates tied for the fewest votes, the formula needs to be extended to include first-choice votes for each additional tied candidate: "+COUNTIFS([first choice cell range], "[name of third tied candidate]", [second choice cell range], "[name of the candidate whose count is being sought]")+COUNTIFS([first choice cell range], "[name of fourth tied candidate]", [second choice cell range], "[name of the candidate whose count is being sought]")" and so on for each additional tied candidate.

Taking only the first 30 responses in the example sheet produces this result. Candidates A, B, and C are tied for the least number of votes, and a runoff of second-choice votes is needed. After creating the necessary additional column, the formula entered for each candidate should represent the following:

- For Candidate A, 1st-choice votes for Candidate B with Candidate A as their 2nd choice PLUS 1st-choice votes for Candidate C with Candidate A as their 2nd choice

- For Candidate B, 1st-choice votes for Candidate A with Candidate B as their 2nd choice PLUS 1st-choice votes for Candidate C with Candidate B as their 2nd choice
- For Candidate C, 1st-choice votes for Candidate A with Candidate C as their 2nd choice PLUS 1st-choice votes for Candidate B with Candidate C as their 2nd choice

The formulas used for each will be as follows:

- For Candidate A, "`=COUNTIFS($B$2:$B$31, "Candidate B", $C$2:$C$31, "Candidate A")+COUNTIFS($B$2:$B$31, "Candidate C", $C$2:$C$31, "Candidate A")`"
- For Candidate B, "`=COUNTIFS($B$2:$B$31, "Candidate A", $C$2:$C$31, "Candidate B")+COUNTIFS($B$2:$B$31, "Candidate C", $C$2:$C$31, "Candidate B")`"
- For Candidate B, "`=COUNTIFS($B$2:$B$31, "Candidate B", $C$2:$C$31, "Candidate C")+COUNTIFS($B$2:$B$31, "Candidate A", $C$2:$C$31, "Candidate C")`"

As shown above, once the formula for Candidate A's second-choice runoff vote count is complete, it can be copied to each other candidate's respective cell and modified by changing the second criterion in each formula to the name of the candidate whose second-choice runoff count is being sought. In this example, Candidate C received the fewest second-choice votes in the runoff and is thus eliminated. The results for this example are shown in the table below.

				Vote Share	Second Choice Runoff
Round 1	Candidate A		7	23.33%	5
	Candidate B		7	23.33%	7
	Candidate C		7	23.33%	3
	Candidate D		9	30.00%	
	Total Voting		30	100.00%	
	Abstentions		0		
	Blanks		0		
	Total Ballots		30		

Second Round
The second round of counting is performed by copying the Round 1 table, deleting the row for the eliminated candidate, and labeling it "Round 2." Be sure to modify the formula in the vote share total cell so that the cell reference in the divisor position of the formula (the number after the slash in a division equation) is the total voting cell in the Round 2 table, rather than the Round 1 table; the reference for the original formula was fixed and will not move with the copy and paste of the rest of the table. The counts for each remaining candidate can be obtained by taking the first round votes and adding the reallocated votes from the eliminated candidate.

In each remaining candidate's vote count cell, keep the original formula representing first-choice votes for that candidate; these votes are still valid. Next, in the formula bar, add a plus sign (+) and a COUNTIFS formula representing the total number of first-choice votes for the eliminated candidate with second-choice votes for the remaining candidate. This formula should be written

as "+COUNTIFS([first choice cell range], "[name of the eliminated candidate]", [second choice cell range], "[name of the remaining candidate]")," with each cell reference fixed using the dollar signs as before. This extension to the formula can be copied to each other remaining candidate's cell, as well as those recording abstentions and blanks, substituting the name of each candidate, "Abstain," or "" for the second criterion as applicable. The total ballots should remain the same as in the first round, and the total voting should be the total ballots minus abstentions and blanks.

Using the example data set, the formulas for each remaining candidate should representing the following totals:

- For Candidate A, 1st-choice votes for Candidate A PLUS 1st-choice votes for Candidate C with Candidate A as their 2nd choice
- For Candidate B, 1st-choice votes for Candidate B PLUS 1st-choice votes for Candidate C with Candidate B as their 2nd choice
- For Candidate D, 1st-choice votes for Candidate D PLUS 1st-choice votes for Candidate C with Candidate D as their 2nd choice
- For abstentions, 1st-choice votes for Abstain PLUS 1st-choice votes for Candidate C with Abstain as their 2nd choice
- For blanks, blank 1st-choice votes PLUS 1st-choice votes for Candidate C with blank 2nd choice votes

The formulas used for each count will be as follows:

- For Candidate A, "=COUNTIF($B$2:$B$51, "Candidate A")+COUNTIFS($B$2:$B$51, "Candidate C", $C$2:$C$51, "Candidate A")"
- For Candidate B, "=COUNTIF($B$2:$B$51, "Candidate B")+COUNTIFS($B$2:$B$51, "Candidate C", $C$2:$C$51, "Candidate B")"
- For Candidate D, "=COUNTIF($B$2:$B$51, "Candidate D")+COUNTIFS($B$2:$B$51, "Candidate C", $C$2:$C$51, "Candidate D")"
- For abstentions, "=COUNTIF($B$2:$B$51, "Abstain")+COUNTIFS($B$2:$B$51, "Candidate C", $C$2:$C$51, "Abstain")"
- For blanks, "=COUNTIF($B$2:$B$51, "")+COUNTIFS($B$2:$B$51, "Candidate C", $C$2:$C$51, "")"

Once again, if any candidate has earned the votes of a majority of those voting, that candidate is declared the winner. If not, the candidate with the lowest vote share is eliminated, and their votes are reallocated. The example sheet produces the following results for the second round:

			Vote Share
Round 2	Candidate A	15	31.91%
	Candidate B	16	34.04%
	Candidate D	16	34.04%
	Total Voting	47	100.00%
	Abstentions	3	
	Blanks	0	
	Total Ballots	50	

Having received the lowest number of votes among the remaining candidates, Candidate A is eliminated from consideration, and their votes are reallocated to the remaining candidates.

Third Round
The third round of counting takes the results from the second round and adds in the reallocated votes for the candidate eliminated in the second round. Copy the Round 2 table, paste it below, rename it "Round 3," and delete the row of cells counting the eliminated candidate's votes. Once again, update the total vote share cell to reference the "Total Voting" count cell in the divisor position of its formula.

Once again, the formula for each remaining candidate's vote count must be updated to include reallocated votes from the second round. However, the formulas must be extended twice to include third-choice votes. In each remaining candidate's vote count cell, keep the formula from the preceding round; these votes are still valid. Next, in the formula bar, add another plus sign (+) and a COUNTIFS formula representing the total number of first-choice votes for the eliminated candidate with second-choice votes for the remaining candidate. This formula should be written as "+COUNTIFS([first choice cell range], "[name of the second eliminated candidate]", [second choice cell range], "[name of the remaining candidate]")," with each cell reference fixed using the dollar signs as before.

Now, the formula must be extended again to include all third-choice votes for the remaining candidate that were reallocated from first- and second- choice votes for the eliminated candidates: "+COUNTIFS([first choice cell range], "[name of the first eliminated candidate]", [second choice cell range], "[name of the second eliminated candidate]", [third choice cell range], "[name of the remaining candidate]")+COUNTIFS([first choice cell range], "[name of the second eliminated candidate]", [second choice cell range], "[name of the first eliminated candidate]", [third choice cell range], "[name of the remaining candidate]")."

This extension to the formula can be copied to each other remaining candidate's cell, as well as those recording abstentions and blanks, substituting the name of each candidate, "Abstain," or """ for the final criterion in each formula, as applicable. The total ballots should remain the same as in the first round, and the total voting should be the total ballots minus abstentions and blanks. Using the example data set, the formulas for each remaining candidate should representing the following totals:

- For Candidate B:
  - 1st-choice votes for Candidate B
  - 1st-choice votes for Candidate C with Candidate B as their 2nd choice
  - 1st-choice votes for Candidate A with Candidate B as their 2nd choice
  - 1st-choice votes for Candidate C with Candidate A as their 2nd choice and Candidate B as their 3rd choice
  - 1st-choice votes for Candidate A with Candidate C as their 2nd choice and Candidate B as their 3rd choice

- For Candidate D
  - 1st-choice votes for Candidate D
  - 1st-choice votes for Candidate C with Candidate D as their 2nd choice
  - 1st-choice votes for Candidate A with Candidate D as their 2nd choice
  - 1st-choice votes for Candidate C with Candidate A as their 2nd choice and Candidate D as their 3rd choice
  - 1st-choice votes for Candidate A with Candidate C as their 2nd choice and Candidate D as their 3rd choice
- For abstentions
  - 1st-choice votes for Abstain
  - 1st-choice votes for Candidate C with Abstain as their 2nd choice
  - 1st-choice votes for Candidate A with Abstain as their 2nd choice
  - 1st-choice votes for Candidate C with Candidate A as their 2nd choice and Abstain as their 3rd choice
  - 1st-choice votes for Candidate A with Candidate C as their 2nd choice and Abstain as their 3rd choice
- For blanks
  - Blank 1st-choice votes
  - 1st-choice votes for Candidate C with their 2nd choice blank
  - 1st-choice votes for Candidate A with their 2nd choice blank
  - 1st-choice votes for Candidate C with Candidate A as their 2nd choice and their 3rd choice blank
  - 1st-choice votes for Candidate A with Candidate C as their 2nd choice and their 3rd choice blank

The formulas used for each count will be as follows:

- For Candidate B, "`=COUNTIF($B$2:$B$51, "Candidate B")+COUNTIFS($B$2:$B$51, "Candidate C", $C$2:$C$51, "Candidate B")+COUNTIFS($B$2:$B$51, "Candidate A", $C$2:$C$51, "Candidate B")+COUNTIFS($B$2:$B$51, "Candidate C", $C$2:$C$51, "Candidate A", $D$2:$D$51, "Candidate B")+COUNTIFS($B$2:$B$51, "Candidate A", $C$2:$C$51, "Candidate C", $D$2:$D$51, "Candidate B")`"
- For Candidate D, "`=COUNTIF($B$2:$B$51, "Candidate D")+COUNTIFS($B$2:$B$51, "Candidate C", $C$2:$C$51, "Candidate D")+COUNTIFS($B$2:$B$51, "Candidate A", $C$2:$C$51, "Candidate D")+COUNTIFS($B$2:$B$51, "Candidate C", $C$2:$C$51, "Candidate A", $D$2:$D$51, "Candidate D")+COUNTIFS($B$2:$B$51, "Candidate A", $C$2:$C$51, "Candidate C", $D$2:$D$51, "Candidate D")`"
- For abstentions, "`=COUNTIF($B$2:$B$51, "Abstain")+COUNTIFS($B$2:$B$51, "Candidate C", $C$2:$C$51, "Abstain")+COUNTIFS($B$2:$B$51, "Candidate A", $C$2:$C$51, "Abstain")+COUNTIFS($B$2:$B$51, "Candidate C", $C$2:$C$51, "Candidate A", $D$2:$D$51, "Abstain")+COUNTIFS($B$2:$B$51, "Candidate A", $C$2:$C$51, "Candidate C", $D$2:$D$51, "Abstain")`"
- For blanks, "`=COUNTIF($B$2:$B$51, "")+COUNTIFS($B$2:$B$51, "Candidate C", $C$2:$C$51, "")+COUNTIFS($B$2:$B$51, "Candidate A", $C$2:$C$51, "")+COUNTIFS($B$2:$B$51, "Candidate C", $C$2:$C$51, "Candidate A",`

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$D$2:$D$51, "")+COUNTIFS($B$2:$B$51, "Candidate A", $C$2:$C$51,
"Candidate C", $D$2:$D$51, "")"
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Once again, if any candidate has earned the votes of a majority of those voting, that candidate is declared the winner. If not, the candidate with the lowest vote share is eliminated, and their votes are reallocated. Applying this method to the example sheet produces the following results, as well as a winner (highlighted in green):

			Vote Share
Round 3	Candidate B	22	48.89%
	Candidate D	23	51.11%
	Total Voting	45	100.00%
	Abstentions	5	
	Blanks	0	
	Total Ballots	50	

Further Rounds

If needed, further counts can be conducted using the above method. Reallocated votes are counted by extending each count formula to account for all possible reallocations of votes from candidates who have been eliminated. For example, in a race with seven candidates—Candidates A through G, say that no candidate has earned a majority of votes, Candidates E through G are eliminated, and a fourth round of counting takes place. The total votes for Candidate A are calculated by summing the following counts:

- 1st-choice votes for Candidate A
- 1st-choice votes for Candidate E with Candidate A as their 2nd choice
- 1st-choice votes for Candidate F with Candidate A as their 2nd choice
- 1st-choice votes for Candidate G with Candidate A as their 2nd choice
- 1st-choice votes for Candidate E with Candidate F as their 2nd choice and Candidate A as their 3rd choice
- 1st-choice votes for Candidate E with Candidate G as their 2nd choice and Candidate A as their 3rd choice
- 1st-choice votes for Candidate F with Candidate E as their 2nd choice and Candidate A as their 3rd choice
- 1st-choice votes for Candidate F with Candidate G as their 2nd choice and Candidate A as their 3rd choice
- 1st-choice votes for Candidate G with Candidate E as their 2nd choice and Candidate A as their 3rd choice
- 1st-choice votes for Candidate G with Candidate F as their 2nd choice and Candidate A as their 3rd choice
- 1st-choice votes for Candidate E with Candidate F as their 2nd choice, Candidate G as their 3rd choice, and Candidate A as their 4th choice
- 1st-choice votes for Candidate E with Candidate G as their 2nd choice, Candidate F as their 3rd choice, and Candidate A as their 4th choice

- 1st-choice votes for Candidate F with Candidate E as their 2nd choice, Candidate G as their 3rd choice, and Candidate A as their 4th choice
- 1st-choice votes for Candidate F with Candidate G as their 2nd choice, Candidate E as their 3rd choice, and Candidate A as their 4th choice
- 1st-choice votes for Candidate G with Candidate E as their 2nd choice, Candidate F as their 3rd choice, and Candidate A as their 4th choice
- 1st-choice votes for Candidate G with Candidate F as their 2nd choice, Candidate E as their 3rd choice, and Candidate A as their 4th choice

Each of these counts will require an additional COUNTIFS formula to be entered into each candidate's vote count cell, separated by a plus sign (+), making the entire formula for Candidate A read as follows:

- =COUNTIF([first choice cell range], "Candidate A")
- +COUNTIFS([first choice cell range], "Candidate E", [second choice cell range], "Candidate A")
- +COUNTIFS([first choice cell range], "Candidate F", [second choice cell range], "Candidate A")
- +COUNTIFS([first choice cell range], "Candidate G", [second choice cell range], "Candidate A")
- +COUNTIFS([first choice cell range], "Candidate E", [second choice cell range], "Candidate F", [third choice cell range], "Candidate A")
- +COUNTIFS([first choice cell range], "Candidate E", [second choice cell range], "Candidate G", [third choice cell range], "Candidate A")
- +COUNTIFS([first choice cell range], "Candidate F", [second choice cell range], "Candidate E", [third choice cell range], "Candidate A")
- +COUNTIFS([first choice cell range], "Candidate F", [second choice cell range], "Candidate G", [third choice cell range], "Candidate A")
- +COUNTIFS([first choice cell range], "Candidate G", [second choice cell range], "Candidate E", [third choice cell range], "Candidate A")
- +COUNTIFS([first choice cell range], "Candidate G", [second choice cell range], "Candidate F", [third choice cell range], "Candidate A")
- +COUNTIFS([first choice cell range], "Candidate E", [second choice cell range], "Candidate F", [third choice cell range], "Candidate G", [fourth choice cell range], "Candidate A")
- +COUNTIFS([first choice cell range], "Candidate E", [second choice cell range], "Candidate G", [third choice cell range], "Candidate F", [fourth choice cell range], "Candidate A")
- +COUNTIFS([first choice cell range], "Candidate F", [second choice cell range], "Candidate E", [third choice cell range], "Candidate G", [fourth choice cell range], "Candidate A")
- +COUNTIFS([first choice cell range], "Candidate F", [second choice cell range], "Candidate G", [third choice cell range], "Candidate E", [fourth choice cell range], "Candidate A")
- +COUNTIFS([first choice cell range], "Candidate G", [second choice cell range], "Candidate E", [third choice cell range], "Candidate F", [fourth choice cell range],

"Candidate A")
- +COUNTIFS([first choice cell range], "Candidate G", [second choice cell range], "Candidate F", [third choice cell range], "Candidate E", [fourth choice cell range], "Candidate A")

As before, the totals for each other remaining candidate, as well as for abstentions and blanks, can be obtained using the same series of formulas and substituting the remaining candidate's name, "Abstain," or "" for the final criterion, as applicable. Any choices ranked after a blank or an abstention on the ballot are not considered, and any ballot that does not rank any remaining candidates after successive counts is deemed to have been exhausted.

This guidance covers many of the scenarios that will be encountered while counting ranked-choice votes. Please contact the State DFL Party office for further guidance if an issue or question arises that is not foreseen by this guidance to ensure accurate and procedurally sound elections.