LESSON MAKER PRO

# Ballot Battles

*Count first choices, then see what happens when votes transfer.*

**HIGH SCHOOL · FM.FD.A.23**

**FM.FD.A.23** "Apply a variety of methods for determining a winner using a preferential ballot voting system, including plurality, majority, run-off with majority, sequential run-off with majority, Borda count, pairwise comparison, Condorcet..."

**NAME** _____ **DATE** _____

## COUNT AND TRANSFER

The plurality winner has the most first-choice votes. In sequential runoff, eliminate the candidate with the fewest first-choice votes and transfer those ballots to each voter's next remaining choice. Repeat until someone has a majority, which is more than half the votes.

## WORKED EXAMPLE

Who wins by sequential runoff?

**BALLOTS**

| Voters | Ranking |
|---|---|
| 4 | A > B > C |
| 3 | B > A > C |
| 2 | C > B > A |

1. First choices: A 4, B 3, C 2.
2. Eliminate C. Its 2 votes transfer to B.
3. B has 5 of 9 votes, a majority.

**Answer: B**

## PRACTICE 4 problems

**1** First choices: A 6, B 5, C 1. Who wins by plurality?

**ANSWER** _____

**2** First choices: A 7, B 5, C 1. Does A have a majority?

**ANSWER** _____

**3** Rankings: 8 A > B > C; 6 B > A > C; 5 C > B > A. Who wins by sequential runoff?

**ANSWER** _____

**4** Rankings: 10 A > B > C; 6 B > C > A; 5 C > B > A. Who wins by plurality and by sequential runoff?

**ANSWER** _____

## APPLY IT Show your work

**1** Students vote on a prom playlist opener. Which genre wins by plurality? Which wins by sequential runoff?

**PLAYLIST BALLOTS**

| Voters | Ranking |
|---|---|
| 12 | Pop > Indie > Jazz |
| 10 | Indie > Jazz > Pop |
| 7 | Jazz > Indie > Pop |

**ANSWER** _____

**2** A club chooses a service project. Give 2 points for first place, 1 for second, and 0 for third. Rankings: 6 Park > Pantry > Garden; 5 Pantry > Garden > Park; 1 Garden > Pantry > Park. Which project wins by Borda count?

WORK SPACE

**ANSWER** _____

## CHALLENGE One step up

Find the sequential-runoff winner. Show the elimination order and each remaining candidate's count after every transfer.

**EVENT BALLOTS**

| Voters | Ranking |
|---|---|
| 10 | A > B > C > D |
| 8 | B > C > D > A |
| 6 | C > B > D > A |
| 5 | D > C > B > A |

WORK SPACE AND ANSWER

# Ballot Battles



## PART 1 · PRACTICE

| # | PROBLEM | ANSWER |
|---|---|---|
| 1 | First choices: A 6, B 5, C 1. Who wins by plurality? | **A** |
| 2 | First choices: A 7, B 5, C 1. Does A have a majority? | **Yes, 7 of 13 votes.** |
| 3 | Rankings: 8 A > B > C; 6 B > A > C; 5 C > B > A. Who wins by sequential runoff? | **B, with 11 of 19 votes.** |
| 4 | Rankings: 10 A > B > C; 6 B > C > A; 5 C > B > A. Who wins by plurality and by sequential runoff? | **Plurality: A. Sequential runoff: B, with 11 of 21 votes.** |

## PART 2 · APPLY IT

1. **Plurality: Pop. Sequential runoff: Indie, with 17 of 29 votes.** Pop leads the first-choice count with 12. Eliminate Jazz and transfer its 7 votes to Indie, giving Indie 17 of 29 votes.
2. **Pantry, with 17 points.** Park earns 12 points, Pantry earns 17, and Garden earns 7. Pantry has the highest total.

## CHALLENGE

**Eliminate D: A 10, B 8, C 11. Eliminate B: A 10, C 19. C wins with 19 of 29 votes.**

A majority requires more than half the votes. Accept answers that name the correct winner without a count unless the prompt asks for counts.