

After the Count instructor manual

Electoral systems and their trade offs

Students investigate real election records, test transparent rule comparisons, and defend an institutional recommendation. The learning task is to explain how a rule turns votes into seats or an office, then identify what a different rule would improve and what it might cost.

Learning goals

Explain Trace a result through local plurality, list eligibility, a majority runoff, or a compensatory mixed system.

Interpret Use the correct counting unit, denominator and numerical comparison.

Evaluate Separate an observed result, a fixed-vote calculation and an unsupported prediction.

Transfer Use a supplied rule to explain an unfamiliar real case and compare it with earlier cases.

Judge Defend a representation priority with evidence, an accepted cost and a condition for reconsideration.

The route

Investigation	Historical case	Central discovery
1 Local victories	United Kingdom 2024	National vote shares and local seat wins count different things.
2 The entry boundary	Israel 2022	Valid ballots, eligibility and exact seat allocation are distinct.
3 A second decision	Liberia 2023	A fresh majority runoff can reverse the first-round ranking.
4 Transfer	New Zealand 2020	MMP combines local wins, an eligibility pathway and list top-ups.

Prepare and organize

Open the simulation on student devices. A calculator is useful. Required records are supplied; original sources support follow-up. Students may work alone or discuss in pairs, alternating explaining and checking. For separate autosaved notebooks, partners use separate devices or browser profiles. Pairs sharing one screen keep individual plain-paper notes and prepare separate final submissions.

Four steps per core case Prediction; evidence and a short rule lesson with structured checks; Rule Lab; a policy choice with a number-based reason and a cost. New Zealand supplies the rule but asks for more independent application.

The model boundary Each lab states its fixed inputs. UK, Israel and New Zealand hold recorded votes fixed while changing counting or eligibility rules. Liberia replays plurality on the October ballots and contrasts it with the fresh historical November runoff. That contrast is not a controlled causal estimate using the same votes under both rules. Comparisons are not election forecasts.

Skills and observable work

The activity gives students repeated practice with these ten skills. The retained choices, calculations and written findings provide evidence an instructor can inspect. Completion alone does not establish durable mastery.

Skill	Student action	Observable evidence
Political data literacy	Names what each quantity counts.	Correct vote, seat, valid-ballot or electorate label.
Institutional reasoning	Links a rule to an observed result.	A mechanism explanation tied to a case figure.
Quantitative reasoning	Calculates and interprets a benchmark, cutoff or change.	Inputs, numerical result and its meaning.
Geographic reasoning	Distinguishes national support from local victories.	Use of named constituency or electorate records.
Evidence evaluation	Identifies what a record establishes and what is missing.	A justified claim and a useful next record.
Counterfactual reasoning	Specifies fixed inputs and assumptions under a rule change.	A labeled comparison plus a behavioral limitation.
Comparative reasoning	Explains a shared principle and a meaningful difference.	A comparison using two country cases.
Normative judgment	Prioritizes a democratic value and accepts a cost.	A defensible policy recommendation and counterargument.
Metacognitive revision	Revisits an initial explanation after evidence.	A corrected or strengthened finding with a reason.
Concise argument and collaboration	Explains, checks and records a personal conclusion.	An individual brief; optional partner discussion.

What good work looks like

A strong brief makes a claim, cites an accurate number, identifies the rule, and explains the connection. It then names a cost or uncertainty. Students can defend different electoral systems and still meet the same standard. Assess their reasoning rather than the party helped or the value prioritized.

Individual accountability A shared conversation is compatible with separate findings. Each student should be able to explain at least one calculation and one evidence limit. Invite partners to challenge one claim in each other's brief before exporting.

Class sequence and facilitation

Plan around 75 minutes, or use two class meetings. The sequence below reserves time for the comparative argument and export. These are planning estimates for a classroom pilot; the student experience has no countdown. The browser notebook resumes between meetings.

Part	Minutes	Facilitation cue
Launch	5	Explain the task and individual record. Ask for an initial representation priority.
United Kingdom	12	Check local plurality and the difference between rank and margin.
Israel	12	Keep the valid-vote denominator visible. Separate entry from allocation.
Liberia	12	Keep the two dates visible. Ask what a net change can identify.
Comparison	6	Ask for one principle shared across cases and one difference.
New Zealand transfer	13	Supply the rule; let students identify the relevant pathway independently.
Briefing and reflection	15	Use two cases, name a cost, and explain a revision. Export individual work.

Opening words

“You are going to explain real election results and test a rule change. Start with a prediction. Then follow the evidence, learn the rule, and decide which consequence you would accept. Your final recommendation needs a number, a reason and a cost.”

Support without taking over

First ask what the number counts and which rule applies. A first unsuccessful check receives a targeted hint. After a second unsuccessful attempt, the app changes representation and offers a worked visual. Supported practice can continue; the later transfer task provides a more independent check. Ask students to explain the worked step before moving on.

Useful questions “Which record supports that?” “What stayed fixed in this comparison?” “What would you need before saying the reform would definitely cause that?”

Saving and submission

Work is saved in the current browser. Have each student download their TXT brief and, if useful, the JSON process record. Print is also available. Browser-local saving is not an instructor collection system; students submit their exported file through your normal course process. Open one export early so students know what they will retain.

Reflection “Which initial interpretation changed or became more precise? Which record did the work?” A sound initial explanation can be confirmed rather than rewritten.

United Kingdom 2024 answer key

The 4 July election chose 650 constituency MPs. A candidate won by receiving the most votes locally, even below 50%. A party's national share summarized those local contests; it did not allocate seats directly.

Party	National vote share	Observed seats	650 seat benchmark
Labour	33.7%	411	219.05
Reform UK	14.3%	5	92.90
Liberal Democrats	12.2%	72	79.40

Evidence checks

Constituency	Winner and votes	Reform votes	Lib Dem votes
Clacton	Reform 21,225	21,225	2,016
Woking	Lib Dem 24,019	4,888	24,019
Barnsley North	Labour 18,610	10,799	1,336

Reform's Woking and Barnsley North votes totaled 15,687 without a Reform victory in either place. Clacton supplies a contrasting local win. Reform finished first in 5 constituencies and second in 98; the Liberal Democrats finished first in 72 and second in 27.

Claim check “Reform narrowly missed 98 more seats” needs margins. A runner-up position establishes order, not closeness. Barnsley North's winner led Reform by $18,610 - 10,799 = 7,811$ votes. The next useful record is the margins across all 98 races.

Rule Lab and policy decision

The benchmark divides each party's exact recorded votes by 28,809,340 valid votes, then multiplies by 650 and retains decimals. Displayed national percentages are rounded; the benchmark uses exact counts. It does not allocate whole seats. Do not sum only the selected rows as though they cover all parties or treat a decimal entitlement as a forecast.

Students may retain local plurality, explore a compensatory list tier, or favor national proportional allocation. A compensatory list tier tops up parties underrepresented after local victories. A reason can prioritize a territorial representative or closer national vote-seat matching. Ask what happens to the other priority. Local election establishes a territorial link; it does not prove better accountability.

Model finding “Reform's 14.3% produced five local wins, while the Liberal Democrats' 12.2% produced 72. A proportional benchmark highlights the gap, but predicting a different election also requires assumptions about voters and parties.”

Background to add Farage won Clacton at 46.2%, an actual plurality below half. Labour's 411 seats were about 63.2% of Parliament, against 33.7% of the national vote.

Sources: Commons Library national results and finishing positions; Parliament constituency records; Barnsley Council. Links are on page 9.

Israel 2022 answer key

The 1 November election used national party lists for 120 Knesset seats. A list needed at least 3.25% of all valid votes to enter seat allocation. Qualifying lists' exact seats depended on the further allocation rules, including Bader-Ofer.

List	Valid votes	Share	Observed seats
Likud	1,115,336	23.41%	32
Labor	175,992	3.69%	4
Meretz	150,793	3.16%	0
Balad	138,617	2.91%	0
Hadash-Ta'al	178,735	3.75%	5

Evidence checks

All cast: 4,794,593. Invalid: 29,851. Valid: 4,764,742. Use the valid total. A valid ballot is accepted in the count; a list can receive valid ballots and fail to qualify for seats.

Cutoff $4,764,742 \times .0325 = 154,854.115$; round up to 154,855 whole votes. Meretz was 4,062 below that cutoff at the fixed historical denominator. Entirely new voters would also change the denominator; that different scenario requires 4,198, with other votes unchanged.

Exact seats Hadash-Ta'al and Labor both qualified. The threshold alone cannot explain five seats versus four. Request all qualifying-list totals, the allocation method and relevant surplus agreements.

Rule Lab entry results

Threshold	Qualifying lists	Valid votes with qualifying lists	Outside allocation
2%	12	4,636,752 or 97.31%	127,990 or 2.69%
3.25%	10	4,347,342 or 91.24%	417,400 or 8.76%
5%	6	3,584,881 or 75.24%	1,179,861 or 24.76%

Whole-vote cutoffs: 95,295 at 2%; 154,855 at 3.25%; 238,238 at 5%.

At 2%, Meretz and Balad enter alongside the ten historical qualifying lists. At 5%, Labor, Hadash-Ta'al, Ra'am and Yisrael Beiteinu fall below the boundary. These are entry comparisons using all recorded list votes, not new exact seat totals.

Policy judgment Lowering the barrier gives more lists access; raising it excludes more votes from allocation. Fragmentation means representation across more separate lists. A fragmentation or bargaining concern is a reason to investigate further, not a demonstrated prediction of instability.

Model finding "Meretz's ballots were valid but its 3.16% fell below 3.25%. Changing the boundary changes eligibility; exact seats and government behavior need additional rules and evidence."

Sources: Central Elections Committee final results and rules guide; Knesset threshold history and allocation explanation.

Liberia 2023 answer key

This case concerns incumbent George Weah and Joseph Boakai in 2023. The first round was on 10 October and the runoff on 14 November. Twenty candidates competed, so the first-round remainder combines 18 others. These are different records from the earlier 2005 Sirleaf case.

Candidate or total	First round	Runoff
George Weah	804,087 or 43.83%	793,914 or 49.36%
Joseph Boakai	796,961 or 43.44%	814,481 or 50.64%
Other 18 combined	233,468	Not on runoff ballot
All valid votes	1,834,516	1,608,395
All ballots cast	1,949,155	1,634,183
Invalid ballots	114,639	25,788

Evidence checks and calculations

A first-round winner required more than half of valid votes. Weah led by 7,126 but had only 43.83%, so neither finalist won outright. Voters returned for a fresh choice between the top two. Boakai won the runoff with a majority of that round's valid votes and a margin of 20,567.

Change	Calculation	Result
Boakai votes	814,481 - 796,961	+17,520
Weah votes	793,914 - 804,087	-10,173
Valid votes	1,608,395 - 1,834,516	-226,121

Claim check “Exactly 17,520 supporters of eliminated candidates switched to Boakai” is unsupported. This is a net gain, combining possible arrivals and departures. A panel survey following individuals would help; the aggregate table cannot identify who switched, abstained, entered or cast a newly valid ballot.

Rule Lab and policy decision

Applying plurality to the recorded first-round votes selects Weah. Applying the majority requirement calls for another ballot; the historical runoff selected Boakai. The first is a fixed-vote comparison. An actual plurality election could change candidate entry, campaign strategy and voter choices.

Students weigh a single decisive ballot against a second opportunity to choose between finalists and assemble a majority. Another round requires administration and participation. The records provide actual ballot counts, not a monetary cost estimate or a measure of enthusiasm, consensus or legitimacy.

Model finding “Weah led the first round without a majority. Boakai won the new ballot with 50.64%; his 17,520 net gain does not identify the voters who supplied it.”

Sources: NEC candidate tables, cross-checked with the African Union observer report; Liberia election law. Compute changes from the verified counts.

New Zealand 2020 transfer key

Supply the rule, then let learners decide which part explains the puzzle. In MMP, each voter has an electorate vote and a party vote. A party qualifies for proportional allocation at 5% of party votes OR an electorate victory. Local winners fill seats first; list seats top up the remaining entitlement.

Party	Party vote share	Electorate seats	List seats	Total
Labour	50.01%	46	19	65
National	25.58%	23	10	33
Green	7.86%	1	9	10
ACT	7.59%	1	9	10
Māori Party	1.17%	1	1	2
New Zealand First	2.60%	0	0	0

Expected explanations

The below-threshold puzzle The Māori Party's electorate victory opened entry into proportional allocation despite 1.17%. New Zealand First's 2.60% was higher, but it met neither qualification: no 5% share and no electorate win.

The compensatory tier The Greens' one electorate seat plus nine list seats produced ten total. Local seats count within the entitlement. The new model check holds the total at 10 but changes local wins to 3, leaving 7 list seats. This tests compensation rather than copying 1 + 9 from the table.

Government formation Labour's 65 of 120 seats supplied a majority by itself. MMP does not make coalition government inevitable, and a numeric majority alone does not establish government quality or stability.

Pathway decision and retained local winner

Students decide whether to retain the electorate pathway into proportional list allocation or require the national threshold for list allocation while preserving direct winners. They should weigh territorial representation against a common national entry standard.

If the list-entry exception is removed, the Māori electorate winner keeps the directly won seat. The observed one list seat is part of the historical record; do not invent a complete alternative allocation for every party. The safe comparison concerns eligibility for list allocation and the retained local seat.

Model finding “The Māori Party qualified through an electorate win, while New Zealand First qualified through neither route. MMP list seats top up a party's total, so one Green electorate seat became part of a ten-seat entitlement.”

Context Rawiri Waititi won Waiariki, one of seven Māori electorates in 2020. The local-win pathway applies to any party. The Māori Party vote share does not measure Māori representation as a whole.

Transfer follow-up

Ask which earlier distinction helped: national votes versus local victories, ballot validity versus eligibility, or observation versus a model. Require a difference as well. The task tests transfer within electoral politics; it is not evidence of general reasoning transfer to unrelated domains.

Sources: New Zealand Electoral Commission final archived 2020 results and MMP explanations. Use the final archive rather than an earlier election-night or November release.

Assessment and optional exit case

In the final comparative brief, students identify the institution they are designing: an assembly, a presidency, or a separate rule for each. They use figures from two cases to defend a representation priority, recommend a rule, name a cost, state a model assumption and identify evidence that could change their view. The instructor assesses the open explanation.

Criterion	0	1	2
Evidence and units	Absent or incorrect evidence.	Relevant figure; unit or source unclear.	Accurate figure, correct unit and identified record.
Mechanism	Wrong rule or outcome restated.	Correct rule named; link incomplete.	Explains how the rule produces the result.
Counterfactual reasoning	Comparison treated as certainty.	One assumption or limitation stated.	Fixed inputs plus a meaningful behavioral or allocation assumption.
Trade-off judgment	Preference without a reason.	One value linked to a choice.	Value defended, cost named and revision condition supplied.
Comparison and transfer	Memorized slogan or no application.	Partly applies the strategy.	Uses the strategy in a new case and identifies a substantive difference.

Total: 10 points. Do not score the party helped, the reform selected, time spent or use of accessibility supports. Supported practice and independent transfer can be reported separately. A keyword or response-length check cannot establish the quality of critical thinking.

Optional South Africa 2024 exit

After the 29 May election, the ANC held 159 of 400 National Assembly seats. On 14 June, MPs elected Ramaphosa president with 283 votes; Malema received 44. In a contested presidential election each member present has one secret ballot and a candidate needs a majority.

Answer At least $283 - 159 = 124$ votes came from outside the ANC. This uses the maximum possible ANC contribution. If fewer ANC MPs supported him, the outside contribution was larger. The secret totals do not identify particular members.

Useful repair $400 - 159 = 241$ counts all non-ANC seats. Ask how many outside votes are necessary to reach the actual 283. Party agreements identify announced support, not individual secret ballots.

Reflection “Which quantity changed meaning between the party-seat result and the presidential ballot?” Follow with one individually written sentence supported by a number.

Sources: National Assembly minutes and announcement, 14 June 2024; SAnews, 5 June 2024; Constitution, Schedule 3.

Learning rationale and references

The design combines a prediction, a bounded evidence task, a short explanation, a rule comparison and a revision. Repeating that structure across different records supports practice while keeping navigation familiar. The transfer case removes some scaffolding and asks learners to choose the relevant distinction themselves.

Knowledge integration How People Learn II describes how prior knowledge and organizing frameworks affect learning. Orienting students to the unit, rule and record helps build a usable structure. The activity does not assume that imagery alone produces understanding.

Varied application Butler and colleagues found that retrieving and applying concepts across varied examples improved later application to new examples. This supports the comparative sequence and an unseen final case.

Explanatory feedback Butler, Godbole and Marsh found benefits of explanation feedback on new inference questions compared with answer-only feedback. The app therefore names the rule-to-number connection, then asks for another application.

Worked support A small worked example and self-explanation support novice practice. Switching representation after two unsuccessful repairs is a practical design rule to test, rather than a specific finding established by the cited studies.

Review status and classroom evidence

The development process uses academic review and simulated student, learning-design and usability walkthroughs. These are model-based reviews, not observations of enrolled students. The new simulation has not established learning gains through a classroom pilot. Record actual completion times, first unassisted responses, repair use, export success and an independent transfer response before making outcome claims.

Learning references

[National Academies 2018 How People Learn II chapter 5](#)

[Butler et al 2017 Varied retrieval and application DOI 10.1037/xap0000142](#)

[Butler Godbole and Marsh 2013 Explanation feedback DOI 10.1037/a0031026](#)

[MIT Teaching and Learning Lab Worked examples](#)

Historical records and rules

[UK Parliament national results](#)

[UK Parliament finishing positions and margins](#)

[Israel CEC final national results](#)

[Israel CEC 2022 English rules guide](#)

[Liberia NEC results portal](#)

[African Union 2023 Liberia observer report](#)

[New Zealand Electoral Commission final 2020 archive](#)

[New Zealand Electoral Commission MMP rule](#)

[South Africa Parliament presidential election record](#)