

Referendum! Teacher notes – Percentages, representing data and bias

A whole class activity demonstrating the mechanics behind the proposed 'Alternative vote' electoral system.

This activity provides opportunities for simple percentages work, and for representing and analysing data. Students can also use the referendum question to identify possible sources of bias.

Starter – Percentages

Ask simple questions involving calculating a percentage of an amount or writing one quantity as a percentage of another.

What is 50% of 170 people? (85 people)

In an election 4000 people voted and 800 chose candidate A. Write this as a percentage. (20%)

Main activity

Display the activity poster. Explain that the six candidates are all standing for election in an imaginary constituency.

Ask students to look at the candidate's policies and choose a single candidate they would like to vote for. Ask students to raise their hands to indicate their choices and record the number of votes each candidate receives on the board. Explain that the students have just elected a candidate using the 'first past the post' system.

Did one candidate get more than half the votes in the class (a majority)?

Read through the explanation of the 'Alternative vote' system.

Distribute ballot papers (or ask students to write the candidate names on scrap paper). Ask students to use numbers to rank the candidates in order of preference. Assign students to collect ballot papers and place them in five piles according to the first choice candidate. Record the first choice results on the board. Students can record the results at each stage using the worksheet.

How many students are there in the class? How many votes does one candidate need to have a majority?

Eliminate the candidate or candidates with the fewest votes and reassign votes according to second choices. Record the second choice result. Continue until you have elected a candidate using the 'Alternative vote' system.

What would be a suitable graph or chart to represent the election results?

Ask students to draw pie charts showing the results at each round.

Plenary – Fair or biased?

Display the "Fair or biased?" activity at the bottom of the activity poster. Read through each possible wording of the referendum question. Discuss whether each proposed question is fair or biased.

How could you improve question B? (Add response boxes)

Question C is the wording which will be used in the referendum on 5 May.

Extension activity – Probability

What is the probability that a student chosen at random from the class put Master Yoga as their first choice?

Ask students to use their two-way tables and/or pie charts to investigate the effect first choice response has on second choice response.

Is a voter who put Raven Earthtree as first choice more or less likely to have Kit Kat O'Twirl as a second choice than a student who put Honest Ron as first choice? Give reasons for your answer.

Resources needed

"Referendum!" activity poster

Copies of the ballot paper for each student, or scrap paper.

Copy of the "Referendum!" worksheet for each student or pair of students (optional)

Links to AQA GCSE Specification

N2.5 Understand that 'percentage' means 'number of parts per 100'

S2.2 Identify possible sources of bias

S3.2 Produce charts and diagrams for various data types

S4.1 Interpret a wide range of graphs and diagrams and draw conclusions

S5.2 Understand and use estimates of probability from relative frequency

Links to Longman AQA GCSE Mathematics for Middle Sets

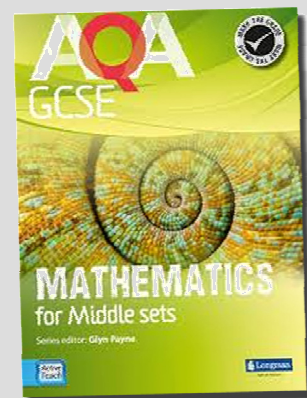
pp 13–15 Questionnaires

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pp 36–38 Pie charts

pp 78–80 Probability from two-way tables



Weblinks

www.yestofairervotes.org

www.no2av.org

www.electoralcommission.org.uk

www.aqagcsemaths.wordpress.com