Transcript

Out for the Count: The Mathematics of Voting Systems

Introduction

Andrew Potter: Hi everyone, and welcome to "Out for the Count – The Mathematics of Voting Systems".

In this interactive activity we're going to explore some of the mathematical ideas behind different types of electoral system. We're going to actually get our hands on some ballots and count them in different ways.

Throughout the activities we're going to think a lot about "fairness" – what makes a particular voting system fair or unfair? What are its advantages and drawbacks? And what features would we want from the ideal voting system?

First, a little bit about me: my name is Dr Andrew Potter, and I'm one of the academics from the School of Mathematics & Statistics at the Open University in Scotland. My background is in pure mathematics, so I'll say from the outset that I'm not a statistician.

There's a lot of really interesting statistics around polling and predicting the results of elections, but that's not my area, so I won't be saying much about that. I should also say that I'm not an expert in this particular field – I'm just an enthusiastic maths nerd who likes to share fun and interesting ideas.

Let me say a little more about the focus of this activity. We're going to restrict ourselves to talking about elections where there are *single-member electoral divisions*. This is where the country or area is split into electoral regions – usually called districts or constituencies – and each constituency elects a *single representative only*. This is how things work for UK General Elections – in each constituency there can be only one winner

There are, of course, other types of electoral systems which use multi-member electoral divisions – for example, the Netherlands uses a party list system, the Scottish Parliament uses the Additional Member System, and the Northern Ireland Assembly uses Single Transferable Vote. There's a huge amount I could say about multi-member electoral systems, but for this activity we're going to stick with **single**-member electoral divisions. We'll see that this raises enough interesting questions in itself!