Elections to the Northern Ireland Assembly
The Single Transferable Vote System

The Assembly consists of 108 MLAs (Members of the Legislative Assembly) representing 18 constituencies. Elections are held every four years. Voting at an Assembly election is by secret ballot using a system of Proportional Representation (PR), known as Single Transferable Vote (STV). STV is also used in Northern Ireland Local Government and European Parliament elections and in elections in the Republic of Ireland.

What is Proportional Representation?

The term describes types of electoral systems where seats in a parliament are won more or less in proportion to votes cast. It aims to ensure that candidates are elected according to the preferences of the electorate, where the voter can indicate an order of preference for 1 or more candidates and more than one candidate is elected to represent a constituency. This differs from the First Past the Post system, used for electing MPs to Westminster, in which voters choose only 1 candidate and the candidate with the most votes wins the single seat.

What is STV?

STV is a type of PR system. In an election using STV, constituencies elect a set number of candidates. In Northern Ireland this is 6. A party standing in an election can put forward as many candidates as it likes per constituency.

Voters have as many preferences as there are candidates. They mark the candidates 1, 2, 3, etc in order of preference, with 1 for their first choice candidate, 2 for their second, and so on. Voters do not have to rank-order all candidates - they can choose as many or as few as they like.

With STV, seats are awarded in proportion to votes cast, with later preferences expressed taken into account.

STV has advantages over the 'first past the post' system used in Westminster elections:

- it increases voter choice (voters can vote for more than one candidate and can choose between candidates as well as between parties); and

- ensures that more voters have an effect on the outcome (over 80% of all valid votes are used to determine the 6 successful candidates) and therefore a result that is more representative of the views of the electorate.

How does STV work?

Each voting paper is checked to see if it has been correctly filled in. Those that are not (spoilt papers) are removed from the count to give the number of **valid votes,** which will be used to calculate the **quota**.

The Quota

A **quota** is calculated for each constituency. This is the number of votes needed by a candidate to get elected. The quota is calculated using the formula below:

$$\text{Quota} = \left[\frac{\text{Total number of valid votes cast in constituency (V)}}{\text{Number of seats (S)} + 1} \right] + 1$$

In Northern Ireland all our constituencies are 6-member, i.e. the number of seats (S) is 6, this means the quota is **1/7th of the votes cast plus 1 vote**.

Example: In the 2007 Assembly Election, 41,822 valid votes were cast in the constituency of Lagan Valley. The quota of votes required therefore for a member to be elected was 5,975.

$$\left[\frac{41,822}{6 + 1} \right] + 1 \quad = \quad 5974 + 1 \quad = \quad \mathbf{5975}$$

NB: The whole number is always used in calculating the quota. Should there be a fraction, the numbers after the decimal point are ignored, e.g in calculation above, 5974.5714 becomes 5974.

Activity 1: Calculating the Quota (number of votes a candidate needs to get elected)

1. Using the Total Valid Vote figures given below, calculate the quotas for the following constituencies in the 2007 Northern Ireland Assembly Election.

	Valid Vote	Quota		Valid Vote	Quota
a) Belfast North	29,715		c) Foyle	41,036	
b) East Antrim	30,039		d) Upper Bann	42,882	

How are votes counted and preferences transferred?

Voting papers are sorted into bundles according to **first preferences** and **counted**. Any candidate reaching or exceeding the quota is elected. If they are elected with more 1st preference votes than the quota, their extra votes are called a **surplus**.

The Surplus

Surplus votes from candidates who exceed the quota are transferred to the remaining candidates who were chosen as number 2 (second preference) on the elected candidate/s' ballot papers (which show a second preference). All votes are transferred at a fractional value.

The surplus is calculated as follows:

> **Surplus = Number of valid votes received – Quota**

Example: The quota in constituency X is 4500 votes and candidate A received 5000 votes.

Surplus = 5000 – 4500. Therefore, candidate A has a surplus of 500.

Activity 2: Calculating the Surplus (number of votes a candidate has received over the quota)

2. Calculate the surplus for each of the following candidates at the first stage of the count.

	Candidate's Vote	Quota	*Surplus*		Candidate's Vote	Quota	*Surplus*
a)	11210	5655		c)	6100	5650	
b)	12580	6970		d)	8195	5330	

Which papers are transferred?

Candidate A was selected at the first count, having exceeded the quota. It would not be a fair system to transfer just candidate A's 500 surplus papers to other candidates. If only the 'extra' papers were transferred there would be no way of ensuring that the 2nd preferences on these 500 papers were representative of all the 5000 ballot papers that candidate A had received: 4,500 people would not have their second preferences considered. For fairness, **all** the candidate's ballot papers with a 2nd choice are redistributed. These are called **transferable ballot papers** as the voter has indicated a 2nd preference.

The transferable ballot papers are reallocated to the next choice candidates at a transfer value (a fractional percentage of one vote). This reduces the value of each vote transferred, so that the total

redistributed vote is not worth more than the value of the candidate's surplus. So when we talk about transferring the surplus we really mean **transferring the value of the surplus** (across all the transferable papers) rather than transferring the actual surplus papers.

That sounds complicated.

If we take the example of candidate A again, if all their papers have a 2nd preference then there are 5000 transferable papers to be reallocated. This will be at a total transfer value of their surplus – 500. So 5000 papers transferred to equal a total value of 500 means that each ballot paper has an individual transfer value of 0.10. 500/5000 = 1/10 = 0.10

How is this transfer value calculated?

$$\text{Transfer value} = \frac{\text{Surplus}}{\text{Total number of transferable ballot papers for candidate}}$$

Example 2: Candidate B receives 1000 votes.

The quota in their constituency is 900; this means they have a surplus of 100 (1000 - 900). The transfer value is calculated by dividing the surplus (100) by the total number of transferable ballot papers. If all 1000 ballot papers Candidate B received were transferable that would be 100/1000 = 1/10th or 0.10 of a vote (2 decimal places). So in this example the 1000 ballot papers would be re-distributed to the next available preferences at the value of 1/10th of a vote.

Activity 3: Calculating the Transfer Value

3. Using the figures from Activity 2 and assuming all papers are transferable, calculate the transfer value for each of the candidates at the first stage of the count.

	Candidate's Vote	Quota	Surplus	Transfer Value
a)	11210	5655		
b)	12580	6970		
c)	6100	5650		
d)	8195	5330		

What happens if no one reaches the quota?

If no candidate reaches the quota when the 1st preferences votes have been counted, the candidate with the lowest number of 1st preferences is eliminated.

Their next available preferences are redistributed to the candidates left. The transfer value of each transferable paper is still 1 vote, as the 1st preference was not used.

What happens after the first count?

The **second count** adds the number of 1st preference votes for the candidates not selected in the first count with the value of the second preferences transferred to them.

Again, if a candidate reaches the quota at this stage they are elected and any surplus over the quota is redistributed at transfer (fractional) value according to the next available preference.
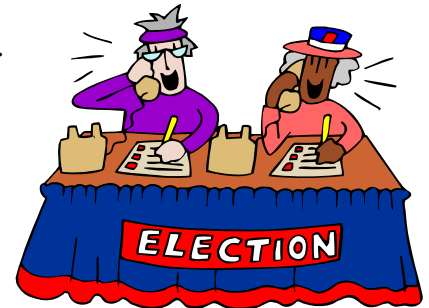
This process is repeated until all 6 seats have been filled. If no one reaches the quota in a particular stage of the count, the candidate with the lowest vote is eliminated and their votes redistributed to the next preference candidate.

How many counts are there?

There will be as many counts as are needed to fill all 6 seats. The first 6 candidates to reach or come closest to reaching the quota will be successful.

Activity 4: Revision

4. Using the information given, identify which of the following candidates were deemed elected in the following constituencies in the first count in the 2003 Assembly Election.

Constituency	Total Valid Vote	Candidate A	Candidate B	Candidate C	Candidate D	Candidate E
Belfast East	29629	4139	5635	3185	5583	3045
Fermanagh & South Tyrone	46442	7138	5103	6603	7026	4700
Mid Ulster	44277	6432	8065	6597	4976	7608
North Antrim	44331	5047	7716	6106	7065	5171
Newry & Armagh	49619	6337	7437	6517	7105	6418

Contd.

5. Calculate the surplus for each of the following candidates and the transfer value of each of their ballot papers at the first stage of the count, assuming all papers are transferable.

	Candidate's Vote	Quota	Surplus	Transfer Value
a)	6755	4292		
b)	7138	6636		
c)	7105	7089		
d)	5917	5417		

For analysis of the 2007 election, go to http://www.niassembly.gov.uk/io/research/2007/0107.pdf

Results for individual constituencies can be accessed via the Membership (Constituency Map) section of the main website at www.niassembly.gov.uk

Further information on elections is available from the websites of the Electoral Commission and the Electoral Office:

www.electoralcommission.org/northernireland

www.eoni.org.uk

The Northern Ireland Assembly Education Service Website
http://education.niassembly.gov.uk