The acoustic quality of the vowels depend on the shape and size of the vocal tract.

ARTICULATORY DIMENSIONS

1. **HEIGHT: VERTICAL DIMENSION**
   
   The movement of the lower jaw; the movement of the tongue.

2. **FRONTNESS: HORIZONTAL DIMENSION**
   
   The arching of the tongue toward the front, centre and back of the oral cavity.

3. **LIP-ROUNDING:**
   
   rounded  neutral  spread

4. **TONGUE ROOT POSITION:**
   
   The root position (forward or back) changes the size of the pharynx.

5. **VELIC MOVEMENT:**
   
   If the velum is lowered, a nasal quality is present.

**SIMPLE VOWELS** (=monophthongs) in Canadian English:

- [i]  *beat*  
- [u]  *boot*  
- [i]  *bit*  
- [ʊ]  *book*  
- [ɛ]  *bet*  
- [ʌ]  *cut*  
- [æ]  *bæt*  
- [ɑ]  *pot*
DIPHTHONGS:

Vowels that exhibit a change in quality within a single syllable.

In the transcription the starting and finishing points are indicated.

The second member of the diphthong (= finishing point) is at most times (but not always!) a glide.

Canadian diphthongs:

[a]  buy, my
[ow]  no, bone
[e]  make, take
[aw]  cow, renown
[e]  boy, joy

Note with regard to terminology:

\[
\begin{align*}
\text{HEIGHT} & : \\
\text{close} & : \text{High} \\
\text{close-mid} & : \text{OR} \quad \text{Mid} \\
\text{open-mid} & : \text{upper-mid} \\
\text{open} & : \text{lower-mid} \\

\text{FRONTNESS} & : \\
\text{Front} & : \text{Central} \\
\text{Central} & : \text{Back}
\end{align*}
\]
THE SCHWA

[ə] mid-central unrounded vowel (schwa)

Articulation: At the mid-point both in terms of height and frontness; the tongue is at the rest position.

\[\text{about} \quad [ə] \]
\[\text{nation} \quad [ə]\]

SUMMARY OF CANADIAN ENGLISH VOWELS:

<table>
<thead>
<tr>
<th>HIGH</th>
<th>FRONT</th>
<th>BACK</th>
<th>HIGH</th>
</tr>
</thead>
<tbody>
<tr>
<td>i</td>
<td></td>
<td>u</td>
<td></td>
</tr>
<tr>
<td>é</td>
<td></td>
<td>ø</td>
<td></td>
</tr>
</tbody>
</table>

| LOW       |       |       | LOW       |
| æ         | a     | α     |           |

[ʌ] back, open-mid (lower-mid), unrounded vowel
[ɔ] back, open-mid (lower-mid), rounded vowel

NOTE: Many speakers have [ʌ] with advanced articulation, that is almost central [ʌ⁺]

Check your articulation!
RHOTIC VOWELS

Vowels having an r-like quality: r-coloured vowels

bird  Sir  fur  \[ \varepsilon \]  \rightarrow  SCHWAR  ↓  central rhotic vowel

RHOTIC VOWEL ARTICULATION:

Retraction of the front of the tongue \{ may be present

Bunching up the back of the tongue \}

Retraction of the tongue root: ALWAYS PRESENT!

lard  \[ \alpha \]  
normal  \[ \alpha \] or \[ \varepsilon \]

RHOTIC DIPHTHONGS: The second member of the diphthong is a schwar.

fear  \[ i\varepsilon : \]  
poor  \[ u\varepsilon : \]

VOWEL + RHOTIC APPROXIMANT = RHOTIC VOWEL

TENSENESS

TENSE VOWELS are produced with a general tension of the speech muscles.

LAX VOWELS are produced with a more relaxed speech muscle movement.

The terms TENSE/LAX do not capture significant phonetic differences.
**TENSENESS/LAXNESS** have to be interpreted as a complex of articulatory characteristics.

1. **TONGUE ROOT POSITION**: In the articulation of tense vowels the root moves more forward -- advanced tongue root (ATR).

2. **LIP POSITION**: Tense vowels are more rounded, or the lips are more spread.

3. **TONGUE BODY POSITION**: Tense vowels are articulated with the tongue in a higher position.

Examples:

- **TENSE VOWELS**
  - food  [u]
  - beat   [i]

- **LAX VOWELS**
  - book  [u]
  - bit    [ɪ]