Describing Vowels & Diphthongs
What differ vowels from consonants?
## VOWELS VS CONSONANTS

<table>
<thead>
<tr>
<th>VOWELS</th>
<th>CONSONANTS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Produced with no oral obstruction</td>
<td>produced with a narrow or complete closure in the vocal tract</td>
</tr>
<tr>
<td>More sonorous</td>
<td>Less sonorous</td>
</tr>
<tr>
<td>syllabic</td>
<td>Non-syllabic</td>
</tr>
</tbody>
</table>
VOWELS
Vowels

are made by shaping the column of air rather than by obstructing it

Organs involved:
1. Tongue (forward, backward, up, and down)
2. Jaw (raised, lowered)
3. Lips (spread, rounded)
WAYS TO DESCRIBE VOWELS

- Quality > determined by the particular configuration of the vocal tract (lips and tongue)
  - the height of the tongue → high/mid/low
  - the part of the tongue → front/central/back
  - the position of the lips → rounded/spread
    - lips rounding
- Oral or nasal production
- Length: long vs short; tense vs lax
These are x-rays of a person producing different vowels
In the close front position (unrounded) we produce /i/
In the open front position (unrounded) we produce /ʌ/
Back open (unrounded) : /ɑː/
Back close (rounded): /u/
This is the full set:
These are the places of articulation of English short and long pure vowels
English vowels differ in length as well as in quality. These differences are as important to perception as quality. English long vowels are far longer than Italian equivalents (e.g. /iː/, /uː/).

<table>
<thead>
<tr>
<th>Pure Vowels</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Short</strong></td>
</tr>
<tr>
<td>ɪ</td>
</tr>
<tr>
<td>ə</td>
</tr>
<tr>
<td>u</td>
</tr>
<tr>
<td>ʌ</td>
</tr>
<tr>
<td>a</td>
</tr>
<tr>
<td>o / ɔ</td>
</tr>
<tr>
<td>e</td>
</tr>
<tr>
<td>æ</td>
</tr>
</tbody>
</table>
Vowel length in centiseconds:

<table>
<thead>
<tr>
<th>Word</th>
<th>Vowel</th>
<th>Length</th>
</tr>
</thead>
<tbody>
<tr>
<td>leave</td>
<td>li:v</td>
<td>30.0</td>
</tr>
<tr>
<td>lead</td>
<td>li:d</td>
<td>28.5</td>
</tr>
<tr>
<td>lea</td>
<td>li:</td>
<td>28.0</td>
</tr>
<tr>
<td>lean</td>
<td>li:n</td>
<td>19.5</td>
</tr>
<tr>
<td>leaf</td>
<td>li:f</td>
<td>13.0</td>
</tr>
<tr>
<td>leap</td>
<td>li:p</td>
<td>12.3</td>
</tr>
<tr>
<td>live</td>
<td>li:v</td>
<td>18.6</td>
</tr>
<tr>
<td>lid</td>
<td>li:d</td>
<td>14.7</td>
</tr>
<tr>
<td>limb</td>
<td>li:m</td>
<td>11.0</td>
</tr>
<tr>
<td>tiff</td>
<td>ti:f</td>
<td>8.3</td>
</tr>
<tr>
<td>lip</td>
<td>li:p</td>
<td>7.5</td>
</tr>
</tbody>
</table>

(Data from Gimson 1980:98)
DIPHTHONGS
* While the position of the tongue is more or less stable for a pure vowel, a diphthong is characterised by a graceful movement from one point to another.

* For this reason they are also sometimes known as glides.
Technically, English diphthongs are divided into two groups:

- There two types of diphthongs:
  1. centring diphthongs → the tongue moves quickly toward the center of the mouth (the final phase of the articulation)
     e.g. iə, eə, uə
  
  2. closing diphthongs → the tongue starts in a relatively low position and ends up in a high position either in palatal area at the mouth or in the velar – the back part of the mouth
     e.g. ending in i : ei, ai, ɪə
     ending in u : əu, au
CENTRING GROUP

To start with the centring group, we have the most common, that of ‘clear’, ‘deer’, ‘here’, ‘wierd’:

\[
\begin{array}{c}
e \varepsilon
\end{array}
\]
Finally, there is a diphthong which is quite rare and is often realised as /uə/ - ‘tour’, ‘poor’: 

\[
\text{\begin{tikzpicture}
\node (a) at (0,0) {a};
\node (b) at (1,1) {b};
\node (c) at (2,2) {c};
\node (d) at (3,3) {d};
\node (e) at (4,4) {e};
\node (f) at (5,5) {f};
\node (g) at (6,6) {g};
\node (h) at (7,7) {h};
\node (i) at (8,8) {i};
\node (j) at (9,9) {j};
\node (k) at (10,10) {k};
\node (l) at (11,11) {l};
\node (m) at (12,12) {m};
\node (n) at (13,13) {n};
\node (o) at (14,14) {o};
\node (p) at (15,15) {p};
\node (q) at (16,16) {q};
\node (r) at (17,17) {r};
\node (s) at (18,18) {s};
\node (t) at (19,19) {t};
\node (u) at (20,20) {u};
\node (v) at (21,21) {v};
\node (w) at (22,22) {w};
\node (x) at (23,23) {x};
\node (y) at (24,24) {y};
\node (z) at (25,25) {z};
\node (A) at (26,26) {A};
\node (B) at (27,27) {B};
\node (C) at (28,28) {C};
\node (D) at (29,29) {D};
\node (E) at (30,30) {E};
\node (F) at (31,31) {F};
\node (G) at (32,32) {G};
\node (H) at (33,33) {H};
\node (I) at (34,34) {I};
\node (J) at (35,35) {J};
\node (K) at (36,36) {K};
\node (L) at (37,37) {L};
\node (M) at (38,38) {M};
\node (N) at (39,39) {N};
\node (O) at (40,40) {O};
\node (P) at (41,41) {P};
\node (Q) at (42,42) {Q};
\node (R) at (43,43) {R};
\node (S) at (44,44) {S};
\node (T) at (45,45) {T};
\node (U) at (46,46) {U};
\node (V) at (47,47) {V};
\node (W) at (48,48) {W};
\node (X) at (49,49) {X};
\node (Y) at (50,50) {Y};
\node (Z) at (51,51) {Z};
\end{tikzpicture}}
\]
CENTRING DIPHTHONGS
Closing Group

... the ‘pay’, ‘made’, ‘maid’, ‘reign’, ‘obey’, sound:
Then we have the ‘I’, ‘my’, ‘tie’, ‘sigh’, ‘either’, ‘eye’, ‘Thai’, sound:
Then there is ‘boy’, ‘joy’, ‘choice’:
Then ‘down’, ‘loud’: 
To end the closing group, the most common diphthong in English, that of ‘no’, ‘know’, ‘bone’, ‘foam’, ‘though’, ‘don’t’, ‘foe’:
CLOSING DIPHTHONGS ENDING WITH /i/
CLOSING DIPHTHONGS ENDING WITH /u/
<table>
<thead>
<tr>
<th>VOWEL</th>
<th>NAME</th>
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</tr>
</thead>
<tbody>
<tr>
<td>/i:/</td>
<td>High front vowel</td>
<td>/ʌ/</td>
<td>Low mid vowel</td>
</tr>
<tr>
<td>/ɪ/</td>
<td>High-mid front vowel</td>
<td>/u:/</td>
<td>High back vowel</td>
</tr>
<tr>
<td>/e/</td>
<td>Mid front vowel</td>
<td>/ʊ/</td>
<td>High-mid back vowel</td>
</tr>
<tr>
<td>/æ/</td>
<td>Low front vowel</td>
<td>/o:/</td>
<td>Mid back vowel</td>
</tr>
<tr>
<td>/ə/</td>
<td>Mid mid vowel</td>
<td>/ɔ:/</td>
<td>Mid-low back vowel</td>
</tr>
<tr>
<td>/ɜː/</td>
<td>Mid-low mid vowel</td>
<td>/ɑː:/</td>
<td>Low back vowel</td>
</tr>
</tbody>
</table>